



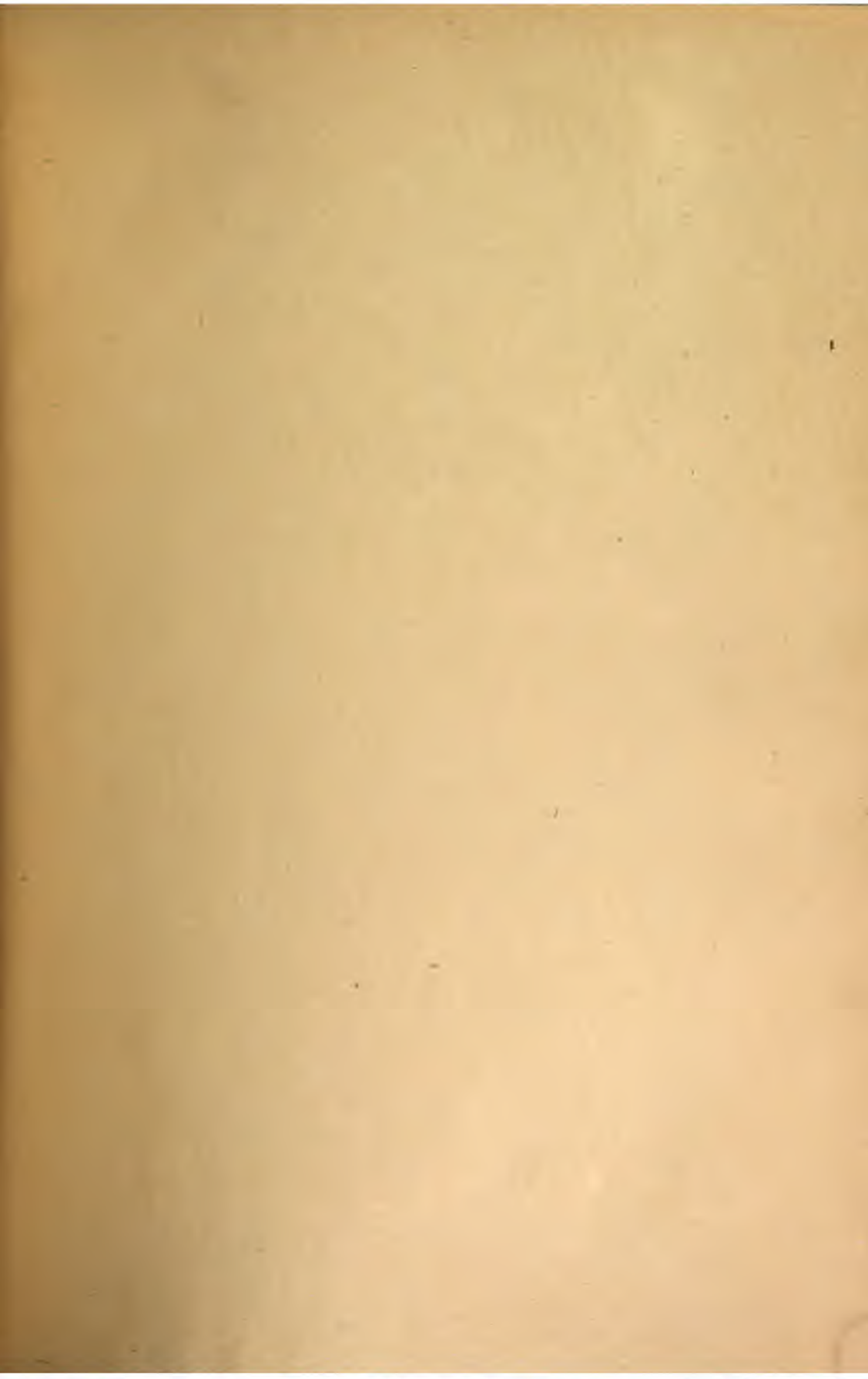
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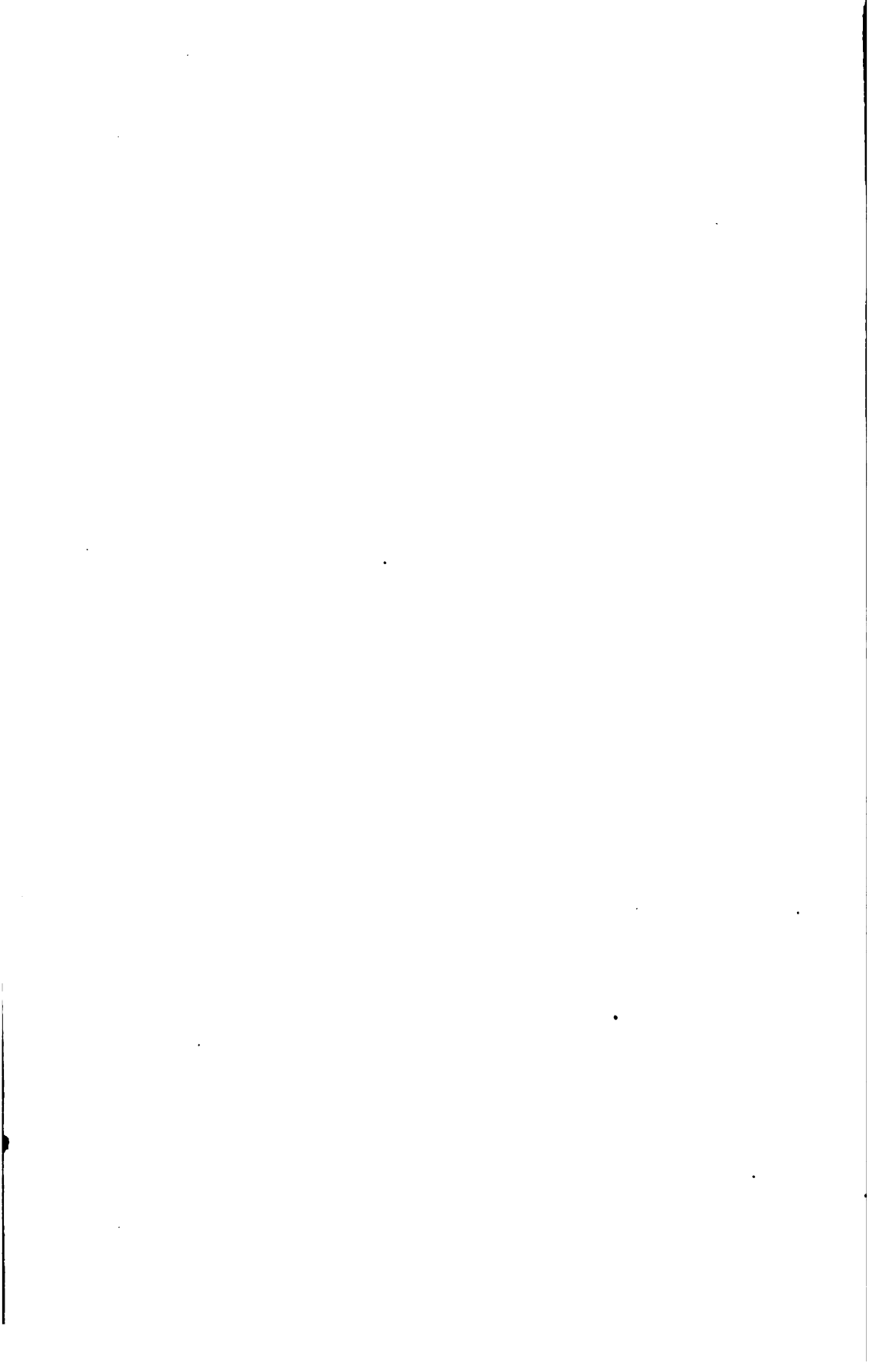
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GENERAL REPORT

OF THE

Commissioner of

FOR THE

YEAR ENDING 31st D

DECEMBER, 1900

PUBLIC

Chapter 24  
of the

In compliance with the provisions of the Act  
of Canada, 1900

Printed by order of the Registrar



QUEBEC





# GENERAL REPORT

OF THE

## Commissioner of Public Works,

FOR THE

YEAR ENDING 31st DECEMBER, 1862 :

FURNISHED

In compliance with the provisions of the 28th chapter of the Consolidated Statutes of Canada, section 24.

Printed by order of the Legislative Assembly.



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# R E P O R T

OF THE

## Commissioner of Public Works,

FOR THE YEAR 1862.

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To His Excellency the Right Honorable CHARLES STANLEY,  
Viscount MONCK, Governor General of British North  
America, &c., &c., &c.

MAY IT PLEASE YOUR EXCELLENCY :—

In conformity with the 24th section of the 28th chapter of the Consolidated Statutes of Canada, which requires that “ the Commissioner shall make and submit to the Governor in Council, an Annual Report on all the works under his control, to be laid before both Houses of the Legislature, within twenty-one days from the commencement of each session, showing the state of each work and the amount of the receipt and expenditure thereon, with such further information as may be requisite,” the undersigned has the honor to make this Report to Your Excellency.

In rendering an account of the transactions of this Department for the whole of the past year, it is proper to observe that the undersigned did not enter upon the duties of his office as Commissioner of Public Works until the 24th May, 1862, and that his responsibilities commenced only at that date.

In view of the financial position of the Province this year, the undersigned has thought it expedient to restrict the works to be constructed within the narrowest limit compatible with the wants of the country.

A reduction in the general expenditure of this Department may, no doubt, be effected ; but this result is only to be attained gradually, by careful and unceasing attention to the increased business connected with this branch of the public service.

The aim of the Government, in the construction of the canals, was not only to promote our own internal trade, but also to attract the commerce of the vast countries of the West. It cannot be said that this end has thus far been attained in a manner commensurate with the large sums expended by Canada for that purpose.

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The undersigned has directed special attention to the means of rendering the Public Works more productive. With this view he submits the following observations:

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## INLAND NAVIGATION.

In the possession of the River St. Lawrence, flowing for more than six hundred miles entirely within their own border, the people of Canada have an invaluable inheritance, well worthy of their provident care and attention, and of the large public expenditure heretofore so liberally bestowed upon its improvement.

The clear waters of this great river drain an extent of country larger than France,—a country which, for the salubrity of its climate and the fertility of its soil, has been classed amongst some of the most favored portions of the world. The great Inland Lakes, of which this River forms the natural outlet to the ocean, alone exceed in extent the area of Great Britain, and comprehend more than half the fresh water of the globe.

The coast line of these great lakes and of the River St. Lawrence, which, by the enterprise of the people of this Province, has been opened to the navigation of vessels of four hundred tons burden, at a cost of upwards of fourteen millions of dollars, measures 5,600 miles in extent; about one half of which is American, fronting upon eight of the Northern States of the Union, and the other half Canadian territory.

It was naturally expected that upon the opening of this channel to the ocean for so vast an extent of inland navigation, by means of the Welland and St. Lawrence Canals, the geographical position and commercial advantages of the route would be so great as to draw through it the Western trade, and that the tolls to be collected on this trade would not only pay the interest upon the cost of the improvements, but also afford a permanent and legitimate source of revenue to the Province; and that, as trade increased, the large amount of these tolls would admit of a gradual and corresponding reduction in the customs duties: thereby promoting the general interests of commerce and the material welfare and prosperity of the country.

In the early settlement of the Province, and, indeed, until the opening of the Erie Canal in 1825, the trade of the country bordering upon the river and the upper lakes found its way to the sea by Montreal and Quebec. But upon the opening of that canal, the products of the West were at once diverted to the other side of the boundary line, and taken to New York; and notwithstanding the noble efforts which have since been made by Canada to regain a fair share of this trade, by the construction of canals of more than double the tonnage capacity of the Erie Canal, and by the formation of a more direct and cheaper channel of inland navigation, still, such has been the commanding influence of that great commercial metropolis in drawing trade to itself and in keeping down the price of ocean transport, that these efforts, though not fruitless, have not been so successful as at first anticipated.

A vast stream of traffic has been diverted from the St. Lawrence, and continues to flow through the Erie Canal with augmented volume, notwithstanding the railway competition it had to encounter in later years. In 1861, the bulk of property transported both

ways upon it amounted to upwards of four and a half millions of tons, of the value of one hundred and thirty millions of dollars, and yielding to the State, in tolls, a revenue of nearly four millions of dollars.

The St. Lawrence route, on the other hand, was not fully opened until 1847, and the returns during a series of years show that, with considerable fluctuations and reactions, the traffic has gradually increased, though not in so marked a degree as might reasonably have been expected. The bulk of property transported both ways through these canals amounted, in 1861, to 1,020,483 tons through the Welland, and 886,908 tons through the St. Lawrence; and the revenue which would have been derived that year from this traffic, had the usual tolls of former years been imposed, would have amounted to \$392,289: scarcely more than a tithe of that collected the same year upon the Erie Canal.

Such, by way of comparison, have been the results, so far, of the two rival routes for the Western trade.

The vast importance of this trade is shewn, not only by its present volume, but by the fact of its rapid increase from year to year, as fully made known by the investigations instituted under the authority of the Commissioners of this department in 1849. Taking a period of ten years on the Erie Canal, and of three years on the Welland Canal, previous to 1849—before railways came into competition,—it was found that the actual tonnage of property which passed through these routes from the west increased at the average rate of twenty per cent per annum. (See the Commissioners' report for 1849.)

Upon this ratio certain estimates for the future were ventured upon; but the introduction of railways at first and the taking off of the tolls more recently, and, still later, the closing of the Mississippi, have proved the impossibility of making any reliable calculations in reference to this trade, when extended over so long a period.

With a view of regaining the western trade, the Provincial Government, by an order in Council dated 28th May, 1860, but taking effect the 19th of the same month, abolished the tolls on the Provincial Canals, under certain regulations, "in furtherance of the views and policy expressed upon that subject during the recent session of the Provincial Parliament." The conditions of these regulations were that vessels passing through the Welland Canal should continue to pay tolls according to existing tariffs, but that ninety per cent of the tolls so paid should be refunded whenever such vessel entered the St. Lawrence Canals, or reported inwards at any Canadian port on Lake Ontario or on the River St. Lawrence; and *vice versa*—vessels and their cargoes coming up through the St. Lawrence Canals, or hailing from any Canadian port and passing upwards through the Welland Canal, paid only ten per cent of the toll established on that Canal. The St. Lawrence Canals, however, were made unconditionally free from tolls.

This measure was looked upon at the time as conferring a great boon upon the trade, and it was considered that this generous policy would have the effect of diverting through Canada a much larger share of the products of the west; while the incidental advantages to be derived from the securing of this trade, and the increase of revenue from Customs duties would more than compensate for the loss of revenue from tolls, which was then estimated at from \$110,000 to \$115,000 at the outside. (See *Mirror of Parliament*, 11th May, 1860.)

This expedient has now been tried for three years; a period of sufficient length, it

might be supposed, to warrant an examination into its effect. Has it in reality increased the trade of the St. Lawrence in any material degree?

In proceeding to the consideration of this great and vitally important question, it is necessary, in the first place, to advert to the tariff of tolls heretofore established on the Provincial Canals; and, in doing so, it may be well to shew from official returns what is the actual cost to the Province of passing a vessel through these Canals. Assuming the trade of 1861 for a basis of calculation, it is found, by allowing interest at six per cent on the amount expended in their construction, and adding the outlay for repairs and management for that year, that it has cost \$72.80 to pass a vessel through the Welland, and \$45.06 through the St. Lawrence Canals, and if she passed through both, the cost was \$117.86. If no tolls are collected, this expense is borne by the people of this Province.

Otherwise, if the cost is calculated on the *tonnage* of property which passed through the Canals that year, it will amount to forty-eight cents per ton on the Welland, and fifty-six cents per ton on the St. Lawrence Canals, and \$1.04 per ton for both.

In order to meet this expense, the tolls established for purposes of revenue in 1850 upon the principal articles of commerce were at the rate of sixty cents per ton on the Welland, and thirty-seven and a half cents on the St. Lawrence Canals; but these rates were afterwards reduced, as shown by the table at page 9, until in 1859 they stood at twenty cents per ton on the Welland and twenty-two cents per ton on the St. Lawrence Canals.

The tariff was regulated by the Government, from time to time, upon the reports of the Commissioners of this Department.

Before submitting these reports, it was usual to consult the parties directly concerned in the trade, who were considered best qualified to advise concerning its interests.

In this way, the tariffs have been several times reduced, until they were ultimately fixed at so low a rate as to afford no real ground for complaint. They certainly could not be, nor were they, complained of as a burden upon the trade.

Taking the great staple articles of export—wheat and flour, it may be remarked that the toll in 1859 upon a bushel of wheat was only six-tenths of a cent, and upon a barrel of flour only 2.16 cents through the Welland Canal, and 0.66 cents per bushel and 2.376 cents per barrel on the St. Lawrence Canals. These rates collectively are about one quarter of the present established rates on the Erie Canal: in point of fact they were too light to influence the current of trade one way or the other.

In proof of this, it is only necessary to look at the evidence of the three years' experience during which these tolls have been abolished on the Provincial Canals, while at the same time the former rates on the Erie Canal have been continued or raised.

Leaving out of view the business done by the railways, and confining the attention to the great rival water communications between Lake Erie and tide water, but bearing in mind what has already been stated, that the ratio of increase of the Western trade—as measured by the traffic on both routes up to the year 1850, before railway competition began to affect it,—was twenty per cent per annum: it may now be seen what the actual progress has been since that period upon each of these rival routes. The following comparative statement, made up from official returns, gives the total amount of all kinds of property which has passed through the Erie, the Welland, and the St. Lawrence Canals every year for a period of thirteen years—from 1850 to 1862 inclusive, the gross revenue collected, and the average tariff of tolls established on each Canal each year during this period



**AVERAGE TARIFF OF TOLLS IN EACH YEAR.**

YEARS.	THE ST. LAWRENCE ROUTE.				Total Tolls by St. Lawrence Route.	Erie Canal.		Welland Canal.	St. Lawrence Canals.		
	Welland Canal.		St. Lawrence Canals.			Up.	Down.				
	Tons.	Tolls.	Tons.	Tolls.							
1850	3,076,617	\$ 3,273,899	399,600	\$ 151,704	288,103	\$ 81,872	233,576	\$ 4 80	2 92	\$ 0 60	0 37½
1851	3,592,733	3,929,727	601,628	201,841	450,401	91,252	293,093	4 40	2 19	0 45	0 37½
1852	3,868,441	3,118,244	743,060	233,094	492,575	86,977	321,171	2 92	2 19	0 45	0 37½
1853	4,247,852	3,204,718	905,516	269,916	561,601	102,411	372,327	2 92	2 19	0 45	0 30
1854	4,165,862	2,773,566	767,210	209,304	639,000	110,110	318,414	2 92	2 19	0 45	0 30
1855	4,022,617	2,806,077	849,333	223,747	541,254	74,493	298,240	2 92	2 19	0 45	0 30
1856	4,116,082	2,748,203	976,556	272,050	634,536	85,535	357,585	2 92	2 19	0 45	0 30
1857	3,344,061	2,046,641	901,072	239,603	593,652	71,468	311,071	2 92	2 19	0 45	0 30
1858	3,665,192	2,110,754	855,112	222,377	605,558	104,273	326,650	1 46	1 46	0 30	0 30
1859	3,791,684	1,723,945	709,611	139,443	911,768	73,906	212,348	0 70	1 41	0 20	0 22
1860	4,650,214	3,009,597	944,084	194,673	733,596	96,708	285,438	1 40	1 41	0 02	.....
1861	4,507,635	3,908,785	1,020,483	241,768	886,908	151,061	352,829	1 40	1 76	0 02	.....
1862	5,598,785	5,188,943	1,152,082	292,694	756,870	146,954	439,648	1 40	1 70	0 02	.....

\* These are the Amounts, including Water Rents, Fines, &c., that would have been realized, if Tolls had been collected, as in 1859, The amount refunded or free by Order in Council, 28th May, 1860, on all the Provincial Canals, was..... For 1860..... \$127,240.63.  
 1861..... 233,863.27.  
 1862..... 284,841.68.

Total..... \$946,644.98.

It is evident from a mere inspection of this table that none of these canals have, since 1850, preserved their former rates of increase up to that time. It is considered that the fluctuations in these returns must, in a great measure, be attributed to the effect of railway competition.

Taking first the decade from 1850 to 1859 inclusive, during which tolls were imposed on both lines, though the same policy of making periodical reductions in the tariff characterized both, it may be observed in regard to

### 1. THE ERIE CANAL.

The maximum of tonnage was reached on this canal in 1853, *i. e.* 4,247,852 tons, while the maximum of tolls received was reached in 1851: \$3,329,727. The tariff of tolls was lowest in 1859, and yet the trade that year had fallen off to 3,784,684 tons, and \$1,723,945 tolls,—showing conclusively that the reduction of the tariff did not augment the traffic on the canal.

### 2. THE WELLAND CANAL.

The maximum of both tonnage and tolls was reached in 1856: 976,556 tons, and \$272,050 tolls. The tariff on this canal was also lowest in 1859, and still the trade that year had fallen off to 709,811 tons, and \$139,443 tolls.

### 3. THE ST. LAWRENCE CANALS.

The maximum of tonnage was reached when the tariff was lowest—in 1859, *i. e.*, 911,768 tons, but the maximum of tolls was, in 1854: \$110,110.

From other official returns showing the course of trade through the Provincial canals, it will be seen that in this period of ten years the purely American portion of it (*i. e.* “*from American to American ports*”) which passed through the Welland Canal averaged fifty-one per cent of the whole, and the purely Canadian, through the St. Lawrence Canals, (“*from Canadian to Canadian ports*”) was ninety-six per cent of the gross tonnage.

Taking next the three years since 1859 in which tolls have been abolished on the Provincial canals, while they have been doubled on the up freight of the Erie Canal in 1860, and increased twenty-five per cent on the down freight in 1861,—the most remarkable increase is found in the business of that canal which persists in collecting tolls. In 1862, it had reached the enormous amount of 5,598,785 tons, and \$5,188,943 tolls: shewing an increase of thirty-two per cent on tonnage, and fifty-six per cent on tolls, over the maximum of the former period.

On the other hand, the business on the Provincial canals in 1862 amounted only to 1,152,082 tons on the Welland Canal, and 756,870 tons on the St. Lawrence Canals,—shewing an increase of only eighteen per cent of tonnage on the Welland, and a falling off of seventeen per cent on the St. Lawrence Canals, from the maximum of the former period. In these three years the official returns shew that the American portion of the trade through the Welland, to and from Oswego and Ogdensburg, had increased to fifty-eight per cent of the gross tonnage, while the Canadian, through the St. Lawrence, remained at ninety-one per cent of the gross tonnage on the Canal,—the same as the average of the previous ten years.

In view of these statements, it cannot be assumed that the abolition of the tolls on the Provincial Canals has diverted any business from the Erie Canal. On the contrary, it has

continued to increase on that canal in a very remarkable manner, notwithstanding the very opposite policy pursued in its management; while, on the other hand, the business on the Provincial Canals in the third year of trial has not only failed to reach the same proportional increase, but has actually fallen off on the St. Lawrence, where, from the trade being more especially Canadian, a different result should have been produced, if exemption from tolls could have any influence in diverting the American trade into the same channel.

In the attempt to divert trade by reducing tolls, we have the experience on the Erie Canal, preceding that of our own by about ten years. The result of this attempt is made known in the annual report of the auditor of the Canal department of the State of New York to the Legislature of that State, for the year 1861. In this report he says: "The reduction which took effect upon the business of 1846, was the result of an arrangement between the authorities of this State, Pennsylvania, and Ohio, after the completion of the canals in those States. The bonus paid in 1851, for the competition in the canal trade; which has since been actively and successfully carried on, not for the benefit of trade within our own State, not to promote or develop a single interest within our borders, or to alleviate the burthens of our people,—and the consequent effort in 1852, to retain trade by a further reduction of tolls, are remarkable exhibitions of a mistaken policy, and of unwise and inconsiderate legislation." \* \* \* "In another portion of the report, the auditor will shew by facts and figures, that although the State has lost revenue by the reduction in rates, it has not retained or secured a ton of traffic to the canal, in consequence of that reduction."

It is respectfully submitted whether these facts and statements do not show that the course of the internal trade is wholly uninfluenced by the imposition of tolls, so long as they are confined within the limits which have been charged on either of these routes for the last ten years; and—if this be admitted—whether it is not governed by other general laws,—the same laws, in fact, as regulate both the internal and external trade: those of production and consumption, or of supply and demand.

If, then, it has been found impossible by this means to force the western trade into a channel leading only to a second rate-market on this continent, where it is met by ocean freights which at once neutralize the superior advantages of our inland transport, it would appear to be a matter for consideration whether, in the present state of the public finances, it is expedient any longer to tax the Province for the benefit of this trade; or whether that which naturally seeks this channel and must continue to increase with the growth and population of the country, should not be rendered immediately productive by the re-imposition of tolls.

The revenue which would be derived from the re-imposition of tolls would suffice in the course of a few years to make some of the important improvements in the navigation which have been in contemplation for many years past, and have only been postponed from financial considerations. Amongst the most essential of these contemplated improvements is the enlargement of the locks and the deepening of the channel of the St. Lawrence Canals.

In the general report of the Commissioner of this Department for 1861, much pains was taken to furnish a correct and detailed description of the several Provincial canals, shewing their condition, dimensions, capacity, and present requirements; and with respect to the main channel of communication between the great lakes and the Atlantic, attention

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was drawn pointedly to the fact that while the locks of the Welland Canal were smaller than those of the St. Lawrence, and could not therefore pass vessels of half the tonnage capacity of the latter, still the draught of water through the Welland was one foot greater than through the St. Lawrence, and, consequently, vessels which could pass through the former, drawing ten feet of water and laden with four hundred tons of freight, actually could not, without being lightened one foot—equivalent to one hundred tons of cargo, descend the St. Lawrence.

This anomalous condition of the navigation has for years proved a serious drawback to the trade of the St. Lawrence; so much so as frequently to induce transshipment at Kingston; and several river barges of large tonnage are being built this year, expressly with the view of carrying on this branch of the trade.

This transshipment can only be obviated by establishing a uniform scale of navigation throughout, the immediate adoption of which is urgently demanded by the rapid increase of the western trade, and becomes the more pressing from the periodical fluctuation of the waters of Lake Ontario and the river, which are now approaching their lowest levels.

The entrances to the Williamsburg and Cornwall Canals, especially, do not afford a sufficient volume of water for the satisfactory working of them during these low periods, unless the guard-gates are left entirely open, which greatly endangers the safety of the works.

Besides which, the continuance of strong easterly winds at such times, by retaining the water in Lake Ontario, lowers the river surface so much as to prevent the proper depth being maintained in these canals.

From the great natural advantages presented by the St. Lawrence as an outlet to sea for the products of the Western States, it is believed that the trade from these States through Canada must continue to increase.

It is, however, of paramount importance to foster its growth by affording every accommodation to vessels engaged in it, so that the route may be rendered thoroughly efficient and may ultimately become as firmly established and well known as other leading commercial lines on this continent, which have hitherto proved formidable rivals for the carrying trade of North Western produce, and have thus prevented the full realization of the object for which the canals were mainly constructed.

These competing routes, from their connection with the great commercial centres of New York and other Northern States (whose interests are closely allied to their success), must always attract a large portion of the trade. Nevertheless, it is believed that the present time is favorable for taking steps to fix a permanent line of traffic by way of the St. Lawrence; and, were this effected, means would, no doubt, ultimately accrue from the tolls by which the expenditure necessary for its full development would be defrayed.

With this important object in view, it is deemed necessary to again bring this subject prominently before Your Excellency.

The Chief Engineer, in 1859, estimated the cost of deepening the St. Lawrence Canals to 10½ feet depth of water on the mitre-sills of the Locks, at \$1,028,000. This does not, however, contemplate a lengthening of the Locks, which it would be desirable to undertake at the same time.

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## WELLAND CANAL

The navigation of this canal, which was opened on the 15th April, was successfully maintained throughout the season with only slight interruptions, caused by the shifting of lock gates, and repairs to bridges damaged by vessels, until its close on the 15th December.

The length of time during which the canal was kept open was materially prolonged by the judicious use of an ice-breaker in spring and fall. On the 6th December, the canal was temporarily closed by ice, which had formed in many places five inches in thickness; but the weather moderating, it was broken up by the ice-breaker, and several vessels which had been stopped were thus enabled to proceed upon their voyage.

### REPAIRS AND MANAGEMENT.

The staunching of the Dunnville dam, referred to in the Report of last year as being then in progress, and which is necessary for preserving the supply of water at the summit, was completed this last year; too late, however, in the season to be of any use, or to afford an opportunity of testing its efficiency. Still, the best results are anticipated from it.

The other repairs during the past year have exceeded those of the previous year, as well as the estimate of the superintendent in charge, in consequence of its being necessary to perform several works which could not possibly have been foreseen:—such as scouring the mitre-sill of the Port Robinson lock which had sprung up; repairing damages by fire to the Port Dalhousie light-house; and repairing lock-gates and bridges injured by vessels. The ordinary and extraordinary repairs, having been duly authorized, were promptly executed by the superintendent, and the canal has thereby been placed and maintained in a very efficient state.

The cost of management remains about the same as in former years. The cost of repairs and management for the last five years is as follows:—

	1858.	1859.	1860.	1861.	1862.
Repairs.....	\$61,960.40	\$37,584.27	\$23,801 28	\$16,932.11	\$22,120.78
Management.....	42,559.23	40,988.89	43,011.32	39,807.98	39,129.49
<b>Total .....</b>	<b>\$104,519.63</b>	<b>\$78,573.16</b>	<b>\$66,812.60</b>	<b>\$56,739.99</b>	<b>\$61,250.22</b>

### NEW WORKS.

The general state of the new works, which have been in progress for several years past for the purpose of ensuring an unfailing supply of water for the canal—by feeding it directly from Lake Erie, in the event of the possible failure of the present supply from Grand River,—having been fully described in the report of last year, it is only necessary here to state that the works now under contract for widening and deepening the Erie summit level have been steadily prosecuted; but, in consequence of the difficulty of disposing of the excavated material, the operations have been materially retarded. As this difficulty must continue, the appropriation required to carry on the works this year may be limited to \$30,000.

The banks of the canal generally, at all weak places, have been raised and strengthened, so as to maintain them in a condition of safety for the passage of deeply laden vessels; but in consequence of the continual wearing away of these banks from rains and the heavy

traffic on them, as well as from their settlement, a certain amount of expenditure will be requisite every year, to preserve them in a safe condition.

The Superintendent again urges the necessity of forming a second towing-path on the Thorold level, between Hurst's and Marlett's bridges, in order to prevent the frequent delays experienced by vessels in this part of the canal. The cost is estimated by him at \$18,100, and it is considered that the advantages to be derived from its construction would fully justify the outlay.

THE COST OF THE NEW WORKS IN 1862.

Widening and deepening canal, and raising banks.....	\$47,504.82
Salaries of Directing Engineer, Superintendent, and assistants.....	4,950.00
<b>Total.....</b>	<b>\$52,454.82</b>

THE REVENUE COLLECTED IN 1862.

Canal Tolls on vessels and property .....	\$284,737.10
Water Rents and Leases, (See Appendix B.) .....	7,363.90
Land Sales. ( do ).....	00.00
Fines and damages. ( do ).....	573.00
<b>Total Revenue.....</b>	<b>\$292,674.00</b>

A portion of the tolls collected amounting to \$85,235.30 has been refunded under the authority of the Order in Council of the 28th May, 1860.

The parties purchasing lands having failed to make payments according to agreement, it has been necessary to place their accounts in the hands of a solicitor for collection.

Some steps were taken by this Department in 1861, as stated in the report for that year, for the purpose of organizing a more efficient traction service for this canal, by the establishment of which it was confidently expected that greater despatch would be given to the vessels passing through it. But as they were met by the most strenuous opposition of the parties directly concerned in towing vessels, and by a memorial of the principal masters and owners of the vessels engaged in the trade, expressing their preference for the present system of towage, it did not seem expedient, under these circumstances, to persist in carrying out the plan.

It is still considered that this plan, if properly carried into effect, or some modification of it that would render it acceptable to the captains of vessels, would, without any additional expense either to the trade or to the Government, be productive of a very important change for the better, and very much increase the capacity and efficiency of this canal. But until its adoption is desired by the masters and owners of vessels, it does not seem advisable to take any further action in the matter, as, without their co-operation it could not be expected to obtain a fair trial.

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**WILLIAMSBURG CANALS.**

These canals are constructed chiefly by cutting off points of the River St. Lawrence along its North shore, and enclosing large bays at the mouths of creeks and streams, and the embankments, by which this was effected, are exposed to the action of the rapid current outside; and from the great width of included water-surface at many places, they have suffered from the surf raised by high winds

The inner face of the embankments having been left unprotected, it has been found necessary, in order to prevent serious damage to them from the causes described, as well as from the surge of steamers passing through the canals, to line their inner face with stone, and also to raise them and protect the most exposed portions on the side next the river. There are now about nine miles of the banks well secured, and it is desirable that this work should be continued, until the whole are similarly protected.

The works throughout were kept in an efficient state of repair during the season of navigation, which commenced on the 29th of April and closed on the 4th of December.

Two pairs of new Lock-gates were built and delivered last year, and one pair is under contract to be furnished next spring.

The water of the St. Lawrence having fallen affords a favorable opportunity of rebuilding the outer part of the pier at the upper entrance of the "Gallop's" Canal, so as to prevent accident to the works when the ice breaks up next spring.

The north pier at the upper entrance of Rapide du Plat Canal, being in an unsafe condition, must also be rebuilt now that the water is low.

It will also be necessary to repair the Guard-Booms which are in the Rock Cut on the Iroquois Canal.

These booms were built in 1852, to prevent vessels from being injured by striking against the points of rock which project from the sides of the cut. At the time of their construction, this canal had its upper outlet into the river; but its junction with the "Gallops" having been completed for several years, it is believed that the banks are sufficiently consolidated to permit of the water being drawn off with safety, when these sharp, angular points of rock might be removed. Were this done, the booms might either be entirely dispensed with, or made of much less width than they are at present.

The bridge at Lock No. 23, in the Village of Morrisburg, has been unserviceable for several years past.

The inconvenience arising from this cause has been more severely felt than usual during the latter part of last season, as a great number of vessels passing the canals were towed by horses which had to be taken across the canal on floats.

This mode of towage being less injurious to the banks than that by steam-tugs, it is proposed to give facilities for it, in future, by the reconstruction of the bridge.

The action of the water on the banks, previous to their having been lined with stone, cut deeply into them at many places, and the material thus removed has been deposited in the prism of the canal, and this, together with slides, prevents vessels of the ordinary draught from passing at low water. This is especially the case in the "Gallops" and Rapide du Plat sections. To remove bars thus formed, a dredging-machine will be employed next summer.

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## CORNWALL CANAL.

The water was drawn off this canal in April, for the purpose of clearing out bars, and effecting other light but necessary repairs.

It was again raised to navigable height by the 1st of May, and continued in good condition until the 8th December, when it was closed for the season.

The embankments having settled, and the slope walls being disturbed at many places along the line, the necessary repairs to these, together with clearing out the side-ditches, culverts, &c., formed the principal works of maintenance done during the past year, with the exception of the rebuilding of a culvert-bridge over a creek connected with the Canal, on the line of the road in front of the Township of Cornwall, which had been carried away by the freshets of last spring.

Two pairs of new lock-gates were built and delivered during the season, and three pairs are under contract to be furnished next spring, which, together with the spare gates on hand are believed to be sufficient to meet ordinary casualties for several years.

The work of raising some of the embankments and their protection with stone must be continued next season. For this purpose 200 cords of field-stone will be required, which, together with 40 snubbing-posts, should be provided this winter. Cost \$480.

At several prominent points, and in some of the sudden bends in the upper reach of this Canal, large banks of silt and deposit have accumulated to such an extent as, in case of low water, to retard considerably the passage of deeply laden vessels.

These bars it is proposed to remove by a dredge during the season of navigation, as a more economical mode of effecting the object than by hand-labor in the spring, when there is so much ice and water to contend with.

The wharf at the upper entrance, referred to in the last report of this department as being in a ruinous condition, has not yet been repaired. But its importance as a mooring pier, affording the means of safety to vessels at the head of the rapids, renders it desirable that the work should be proceeded with next season. It is estimated to cost \$5,238.—The superstructure of the wharf at the lower entrance, and of that adjoining the town of Cornwall, should also be rebuilt; the cost of which would be about \$1,500.

In the first leases granted for water-power on this canal, it was provided that the leasees should construct and maintain the head-gates to their mills. They built them at first in a temporary manner, and have since failed to keep them in proper repair.

The navigation having been interrupted for six hours, in June last, from this cause, it will be necessary to compel these parties immediately to comply with the conditions above referred to.

The water-power leased on the north side of this canal, for which the Department constructed head-gates, still continues to be used only in part.

The fines and damages collected by order of the Superintendent during the past year, amount to \$119.25.

For details see appendix C.

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## BEAUHARNOIS CANAL.

The ice takes sooner, and remains longer in the stillwater Bay, at the head of this canal, than at the upper entrance of any other on the St. Lawrence.

The water was, however, drawn off on the 16th of April last, for the purpose of effecting repairs; and the canal was again filled by the 30th of the same month. The season lasted from the latter date until 30th November, during which period no interruption occurred to the passage of vessels.

In April last, when the ground was covered to a considerable depth with snow, a sudden thaw took place, which raised the waters of the St. Francis higher than they have been previously recorded by this department.

This had the effect of flooding large tracts of land in its vicinity, and caused several slight breaches in the dyke through Hungry Bay; but as the extreme high water lasted only for a few days, little actual damage resulted from it.

The lowest and most exposed parts of the dyke have been raised and protected, but it will require some further repairs next spring.

The dams at the head of the canal and the banks above the guard-lock, together with that west of the main dam, have been raised and protected, to prevent accident from a recurrence of high water in the lake.

The works, generally, have been maintained with less outlay than in previous years; but the ditches, from the unusual depth of snow last winter, required much greater attention and expense than usual.

The embankments at several places, and especially at some of the regulating-weirs, have been raised, strengthened, and protected.

The swing-bridges, where necessary, have been repaired; and a pair of lock-gates damaged in October, 1861, have been rebuilt.

Two pairs of new lock gates were delivered last fall: making three full sets of spare gates on hand and ready for use, besides three pairs under contract, which are to be delivered next spring.

The insufficient accommodation at the outlet of this canal has been severely felt for the past few years, as a large number of vessels frequently collect there, waiting for tug boats or favorable winds. At such times, one or more steamers with vessels in tow have occasionally arrived when there is really no place for them to make fast to.

This causes much inconvenience and not unfrequently leads to serious delay; a remedy for which can readily be provided by extending the south pier about 300 feet outwards. This would cost about \$7,000.

During the past year, fines and damages were collected, by order of the Superintendent, to the amount of \$254.42. For details see appendix C.

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## LACHINE CANAL.

The enlargement of the "Rock Cut" on the upper reach of this canal, frequently referred to in previous reports of this Department, was fully completed by the opening of navigation last spring.

It is now one hundred feet in width, and generally of the full depth.

The sides of the cut above the rock are well protected by walls, and the obstructions to safe navigation, heretofore existing at this point, are now effectually removed.

The prosecution of the work was attended with much difficulty, owing to the great quantity of water and heavy falls of snow which had to be contended with. Nevertheless, the whole was conducted in a manner alike creditable to the local officer and to the contractors. A regulating-weir and raceway at Lock No. 4 were also constructed last spring under similar circumstances. These had to be brought into use immediately after the walls were built, and the mortar having had no time to harden, has, to some extent, been washed out of the south wall of the race by the cross currents below the weir. This will have to be re-pointed next spring, and the walls sheeted with plank, as has been already done on the north side.

These works have been highly beneficial to navigation:—the first by diminishing the current, and the second by affording the means of regulating the water.

The cause of the delays at Lock No. 4, so severely felt during the season of 1861, have thus been lessened.

These improvements have been undertaken solely for the benefit of the navigation, which has been, and still is, so much interfered with by the excessive quantity of water drawn off for mills, that it is absolutely necessary they should be confined to that object; and, as stated in the last Annual Report, their construction should “form no pretext for the present inordinate consumption of water for milling purposes, still less for increasing it.”

A dredging-machine was employed during the season in removing silt and deposit from the canal and basins, and can with advantage be similarly engaged for part of the next season. The dredge is in good repair, but the scows require new decks.

The Lachine and Wellington Street bridges were thoroughly repaired last winter; and the bridge above lock No. 2 must be overhauled as soon as the ice affords a safe means of crossing the canal.

The walls of lock No. 2 have been pointed, and part of the north wing of lock No. 4 was rebuilt last spring. The dock-wall in front of the mills on the south side of basin No. 2, was well grouted and pointed, which checked a portion of the leakage through it.

The banks, slope-walls, wharves, flour-sheds, and booms at Lachine were repaired, and such other matters attended to as were necessary to keep the works in a serviceable condition throughout the season.

The water was let into the canal on the 4th May, but the removal of the coffer-dams at Lachine and the adjusting of the sluice-gates of the new weir at Lock No. 4 prevented the water from being raised to full head until the 7th May. From this date to the close of the season on the 6th December, the navigation suffered no interruption, except for about two and a half days in May, at Lock No. 2, whilst removing a gate which had failed, and supplying its place with another.

The principal repairs required this year, other than those above referred to, are, replanking and repairing bridges, wharves, and flour-sheds; repairs to lock-walls, mitre-sills, gates, and regulating-weirs; general repairs to banks and slope-walls; furnishing mooring-posts, and building gates for one of the old locks used as a graving-dock. All of which are estimated to cost \$10,540.

There are at present 5½ pairs of spare lock-gates ready for use on this canal ; and one pair of lower gates for locks Nos. 1 or 2, under contract, to be delivered next spring.

It is, however, desirable that another pair of spare gates should be provided for the guard lock, as those on hand for that purpose are merely old gates repaired.

The great and frequently irregular quantity of water drawn off for the mills at the St. Gabriel Lock has rendered it very difficult to maintain the levels at a uniform height. To obviate this, the construction of a regulating weir is deemed indispensable. Plans and specifications for this work were prepared, and tenders received for it in the fall of 1861 ; but the sum applicable to that purpose being insufficient, it was not then proceeded with.

A due regard to the interests of the navigation, however, renders it imperative that this work should be undertaken ; and it is submitted whether a sum should not be embraced in the estimates to meet the necessary outlay.

It is daily becoming more apparent that the Wellington street bridge is quite inadequate to meet the wants of the traffic between Point St. Charles and the city of Montreal, and that another bridge must be constructed.

It is believed that this can be done most cheaply, and with the least inconvenience to the navigation by placing the new bridge immediately above Lock No. 3 ; where, in addition to its relieving the lower bridge, it would prove a great accommodation to the manufacturing establishments at St. Gabriel and to the inhabitants of the west end of the city.

The wharfage accommodation of the lower outlet of this canal has been found for a number of years past insufficient to meet the wants of the trade. During busy seasons, vessels have frequently been detained several days at a time before they could get alongside of a wharf. This has been often referred to in the reports of this Department, but it has never been felt to such an extent as during the last two seasons.

The officer in charge of the canal reports that "in some instances" (believed to be not unfrequent) "vessels loaded with grain from the West are kept beating about the canal and harbor, waiting for arrangements to be made for discharging them, longer than it requires the Montreal Ocean Steamship Company to discharge and load one of their large vessels."

If it is an object of the importance which it has always been considered, not only to retain the existing trade, but to attract as much more as possible, it is evidently as necessary to provide facilities for expeditious transhipment, as the means of cheap and speedy transport.

By the enlargement of the St. Gabriel Basin on the scale for which plans have been prepared, and towards which an appropriation was made in 1860, a large and important portion of the trade would be accommodated.

This would afford fully 3,000 lineal feet additional wharfage, where 20 inland vessels of the ordinary class could lie at one time ; and there would be ample space on Government property for the erection of grain and flour stores, or such other buildings as might be required.

It would also admit of a larger class of vessels being brought into the canal, by supplying berths for those of lighter draught, which generally occupy the basin between locks Nos. 1 and 2, where there is a depth of fully 16 feet. The cost of this work is estimated at \$108,168.

There yet, however, remains to provide the necessary accommodation for the larger class of vessels, to pass which, locks Nos. 1 and 2 were designed.

With this object in view, the Government purchased, in 1853, a large tract of land, which still remains unoccupied and unproductive.

It has been long contemplated by this department to bring a large portion of this land into use by the construction of two new deep-water basins, in lines parallel to the south dock-wall of Basin No. 2, and extending westwards to St. Etienne Street from the upper part of the basin referred to.

It is proposed to make these basins of considerable width, with a sufficient space between and alongside of them for the erection of warehouses, elevators, &c., and for railway tracks to connect with Point St. Charles.

The present main basin to be enlarged by cutting off the angular piece of land which projects in front of the mills.

Both this and the new basins to have 17 feet water throughout.

The cost of one of these basins (basin A) docked with solid crib work, and adapted for the reception of sea-going vessels, with seventeen feet of water, and with a channel of the same depth for access to it through Basin No., 2., is estimated at \$140,360; and it will afford eighteen berths for vessels.

The cost of the second basin (Basin B), constructed in the same manner and for the same depth of water, is estimated at \$124,419; and it will furnish sixteen additional berths for vessels.

These improvements are urgently called for, to admit of large vessels being brought alongside of warehouses, where they can be speedily loaded, and for the purpose of effecting a rapid transfer of grain and produce from the smaller craft to them.

Besides affording relief to the business now over-crowding Basin No. 2, the opening of these new basins will render the Government land adjacent to them very valuable; so much so as to create an immediate demand for building lots for the erection of elevators and warehouses; and it is believed that the sale of it will not only defray their cost, but leave a large surplus available for other purposes.

It is obvious that the existing impediments to this trade (for which there is so much competition) must be greatly augmented by its increase, and that unless they are speedily and effectually removed they will have the tendency of driving the grain export into other channels.

It is therefore submitted whether provision should not be made for the construction of one at least of these basins, and that Basin A, being the most necessary, should be first proceeded with.

The following amounts have been collected on this canal during the past year, viz:—

For fines and damages, by order of Superintendent.....	\$ 392.50	
Sale of old barge.....	18.50	
		\$ 411.00
Dues on fire-wood at Montreal.....	1374.84	
Do do at Lachine.....	321.78	
		1696.62
Forward .....		\$2107.62

Brought forward.....	2107.62
Dues on Timber in Lachine Basin.....	1345.53
Do lock at Montreal, used as a graving Dock.....	630.25
Do vessels wintering in Canal.....	488.00
Do for use of Flour Sheds.....	3434.32
Do on vessels entering canals from Lower Ports.....	1408.18
Water rents and leases.....	9810.25
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Total.....	\$ 19,224.15
Tolls for 1862, if collected, would have amounted to.....	\$137,520.88
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Total.....	\$156,745.03

### CHAMBLY CANAL.

The heavy snows and sudden thaws of last winter, together with the great height of the Richelieu river in March and April last, greatly endangered the banks of this canal. Several breaches were made in the same, and a large quantity of clay and sand was brought down by creeks and ditches, and deposited in the channel. To remove this and the slides that had occurred, it was necessary to construct cofferdams at the ends of the bars, for the purpose of getting the work unwatered.

Four miles of the channel-way had to be thus cleared out before navigation was opened. This, being both tedious and expensive, has considerably increased the outlay for the past year.

The work of protecting the banks with stone was also proceeded with last season.

Two pairs of lock-gates were built last winter, and it will be necessary to construct two other pairs this winter.

The landing-pier at Chambly and several of the road and towing-path bridges have been repaired.

These latter works were performed principally by the Lock and Bridge keepers, under the direction of the Superintendent.

The canal was opened on the 6th of May, and continued in a navigable state until the 1st of November, when a breach occurred in one of the banks, which it took six days to repair. After the 16th November, vessels experienced much difficulty in passing through the ice, but the canal was kept open until the 4th day of December.

The locks are generally in a much better condition than they were a few years ago; but the upper wing and recess walls of Locks Nos. 1 and 7 will soon have to be rebuilt.

The chief matters to be attended to this year are: cleaning out prism of canal; protecting banks with stone; renewal and repairs of lock gates; repairs to bridges and wharves;—all of which are estimated to cost \$7,440. There has been collected, last season, for fines and damages by order of the Superintendent..... \$69.70  
And for dues on wood, &c.,..... 32.64

Total.....\$102.34

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### ST. OURS LOCK AND DAM.

The great height of the River Richelieu, when partly sheeted with ice in April last, led to some apprehension that these works might be considerably damaged; but the well-directed efforts of the Superintendent happily prevented such a result.

The damages, which were comparatively light, were all made good, and the works strengthened and protected during the past season; but a thorough examination of the dam having been made at low water, it appears that about 200 toises of stone are still required to secure the centre portion of it.

The lock-gates, above the water surface, must be painted, and some of the piers repaired. These works are estimated to cost \$2,800.

Navigation at this place was open on the 25th of April, and continued without interruption until the 2nd December, except for a few hours, while adjusting the lock gates.

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### ST. ANNE'S LOCK AND DAM.

During the freshet of last spring these works suffered considerably, about 30 feet of the upper guide-pier above the lock, and 150 feet of the upper part of the long dam having been carried away. The superstructure of the guide-piers, situated about a mile below the lock, was also displaced. These have been thoroughly repaired, and the wing-dam below the lock raised. An opening has been made by which barges and small steamers can pass in rear of the long pier, and thereby avoid the strong currents at periods of high water.

There still remain about 200 feet of the pier above the lock to be repaired, and the face of it to be sheeted with elm or tamarack plank. These and other slight but necessary repairs are estimated to cost \$900.

Navigation at this point was opened on the 29th of April, and closed for the season on the 2nd of December.

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### CARILLON AND GRENVILLE CANALS.

These Canals were opened for the passage of vessels on the third day of May, and closed on the 30th day of November.

As heretofore, the repairs during the season were confined to such works as were indispensable to the maintenance of the navigation.

They consisted chiefly of repairs to the lock and sluice gates; removing the deposit from the bottom of cuts; making a passing-place above Lock No. 10; deepening the entrance at Grenville, and raising the towing-path on that section of canal; and rebuilding the dam across the North River.

The maintenance of this dam costs annually about \$200, a large portion of which might be saved, and the Carillon section of canal better supplied with water, by building a more permanent structure.

The pier at the upper entrance of the Grenville Canal is in a very decayed state. The superstructure must be rebuilt during next summer.

These works, together with general repairs for the season, are estimated to cost \$4,100.

The lock gates, to which reference was made in the last report of this Department, must be provided as early as possible, viz :—" One set for the Carillon Canal; one set for the large, and one for the small locks on the Grenville Canal."

The works generally are in an unsatisfactory condition, and nothing short of a thorough overhauling of them could be of permanent benefit. From the irregular dimensions of the locks, it would, however, be unadvisable to incur any great outlay in renewing or repairing them, until a uniform scale is fixed for the Ottawa navigation.

The sum of \$107.06 was collected for dues on firewood piled on canal property during the past year.

### RIDEAU CANAL.

With the exception of about four miles at the lower outlet, the line of this canal follows the old bed of the Rideau for nearly the whole distance between Ottawa and the summit level.

The drainage area of this river is very large, and the system of improvement adopted being that of securing the required draught by the construction of dams which generally back up the water over a great surface, the works are peculiarly liable to accident from floods.

A sudden thaw, which took place in April last, when the ground was covered to a considerable depth with snow, threatened the most serious consequences; and the probability of damage was increased by the simultaneous failure of several private dams which were erected for mills on the the higher levels of the tributary streams, thus precipitating large bodies of water into the main valley, which was already overflowed by the discharge in its immediate vicinity.

The summit level, or Rideau Lake, had, however, been fortunately drawn down lower than usual, previous to the flood in question; and although it rose three feet in one week over an area of about 60 square miles, means were available to prevent this immense body of water from entering the river,—thus cutting off at the head what would have doubtless proved an uncontrollable source of damage to the lower works. Notwithstanding every precaution that could then be adopted, several of the works met with serious damage, the extent of which increased as the river descended, the greatest being at Hog's Back, where the line of canal leaves the channel of the Rideau. At this point a dam nearly 50 feet high was originally constructed, consisting of a narrow line of crib-work, backed up by embankments of earth and stone, connected with which no suitable provision had been made to control such a large volume of water as this freshet produced.

This resulted in the destruction of a large portion of the dam; and from the direction taken by the water which escaped through the breach into a sudden bend of the old river bed, a large portion of the embankment below the locks was also carried away. In reconstructing these works, advantage was taken of a shelving bed of rock, on which a bulk-head was constructed, capable of controlling the river at its greatest height. Along the north edge of its apron a flat dam was built, to give a new direction to the current below, and to prevent a recurrence of the injury to the canal embankment.

The new works at this place being of considerable extent prevented the lower portion of the canal route being opened until the 1st September. They cost \$29,482.48.

The dam at Black Rapids failed several years ago; but it was subsequently repaired by connecting wooden frame-work with the original stone structure. This was always found difficult and expensive to maintain, and during the freshet above referred to, the wood-work was entirely destroyed.

The dam being low, and the bed of the river at that place a flat ledge of rock, it was decided as the best and most economical plan to construct a new wooden "flat pressure" dam immediately below the old structure. This cost \$5,081.09. The temporary guard-dam, constructed in the east channel of the river near the head of Long Island being insufficient to stand the pressure of the ice brought down by the current, the central pier was upset at the time of the freshet, and allowed the main body of water to pass through that channel, which greatly endangered the safety of the works at the foot of the Island.

It is proposed to rebuild this dam in a more substantial manner, so as to throw the water chiefly into the west channel. At other places the works suffered slight damages from the cause above stated; all of which have been repaired.

The rebuilding of several important structures and the thorough repair of others within the past few years, have placed the works generally in a better condition than when they were transferred to the Province.

In view of the large annual expenditure in maintaining this line of navigation, it would seem but reasonable that the trade which this canal has created and fosters should be made to bear at least some portion of the expense of keeping up its works. It is believed that the tariff of 1859 could be reimposed without the slightest injury to this trade, and that the revenue to be derived from this source would, in a few years, render the canal self-sustaining.

During the last season, three pairs of new lock-gates were built and brought into use, and this winter two pairs will be provided.

On the 1st day of May, the Canal was open from Smith's Falls to Kingston, and from the 1st September it was navigable throughout until the 26th day of November.

The repairs required this year, although extending to all the stations, are principally confined to the gates and working machinery, and the renewal of those portions of the wood-work which are now in a decayed state. All of which are estimated to cost \$5,541.00.

Total cost of repairs for 1862.....	\$43,836.15
Maintenance.....	17,290.75
<b>Total.....</b>	<b>\$61,126.90</b>

### BURLINGTON BAY CANAL.

The very extensive repairs and improvements which have been effected in this canal within the last few years have served to place it in such good order generally, that no expenditure whatever upon the works has been necessary during the past year. The sum of



\$100 was expended in making repairs to and furnishing the ferry scow, which had received damage from a vessel passing through the canal.

The repairs required at the ferry recess and landings, for which an estimate amounting to \$1,700, to include casualties, was submitted in the previous report, have not been proceeded with, on account of the water being too high to admit of it being satisfactorily accomplished.

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### INLAND NAVIGATION—NEWCASTLE DISTRICT.

The works under this head which continue to be maintained by the Government are, with the following exceptions, in as good condition as the limited extent of the navigation seems to warrant.

Buckhorn Dam requires to be further staunched with gravel, and a wall at the South end of it should be partly rebuilt.

During last season, several of the works at Bobcaygeon were overhauled and repaired; the sides of the upper cuts were made good, and guard-piers built above and below the lock. The dam still requires to be gravelled to prevent leakage.

The lock-gates are so extremely difficult to work as to lead to the supposition that the walls have either settled unequally, or that the segment upon which the toe of the gates revolves has been disturbed from some other cause, which will necessitate the water being pumped out of the lock, in order to remove the difficulty.

However this may be, the gates are likely to sustain serious injury, unless placed in better working order.

This, together with other matters at this place which require attention, will be looked to early next season.

The dam at Lindsay also requires staunching and repairs, and the old lock there, now converted into a slide, should be overhauled, as at present it is unsafe, and presents a most ruinous appearance.

When these works are repaired, it will be a matter for consideration whether they should not be then handed over to the parties most interested in their preservation.

The permanent bridge in the line of Lindsay Street will be placed under contract early next spring, so that the abutments and piers can be built during the season of low water; but the formation of its approaches will be left to the Municipality, after a fair value is fixed for the actual work to be done.

Repairs for 1862,.....	\$742.83
Management .....	736.06
<b>Total.....</b>	<b>\$1478.89</b>

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### PICTON HARBOUR.

After the dredging-machine and dumping-scows had been put in good working order last spring, the formation of the channel leading up to the wharves in town was resumed, and the work steadily prosecuted to completion.

It was at first intended to make this channel, uniformly, one hundred feet in width throughout; but on the representation of the Municipal Corporation of the town, and of other parties interested in the prosperity of the county, it was considered advisable to deepen the coves on either side of the channel, so that vessels could turn about in the harbor, and not be under the necessity of backing out.

The dredging operations were therefore continued until the 17th of October, when the channel had been widened to one hundred and forty feet, and a basin excavated on the west side of the harbour, affording all the accommodation at present required.

The dredge and scows have been laid up in safety at this place, and are available for like service elsewhere, whenever they are required.

The expenditure for 1862 has been \$5,193.84.

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#### NORTH RIVER.

The clearing out of a channel through the shoal below the village of St. Andrews, so as to admit of vessels of light draught ascending at all seasons to the village, was undertaken and completed by this Department in 1861.

Upon a representation from certain ship-owners and others interested in the navigation of this river, stating that vessels had grounded in the improved channel, and praying that the obstructions might be removed, an engineer of this Department was directed to examine the channel, and report upon the sufficiency of the previous operations, and the necessity for further expenditure.

From his report, it appears that some vessels, by not keeping the *improved channel*, had grounded in the *old one*, while the steamer St. Andrew, under better pilotage, made her regular trips throughout the season.

He also reported that, owing to the rocky formation of the shoals, any more extended improvement would be of a very expensive nature, requiring blasting under water and the services of a diver. The present channel is considered sufficient for the ordinary wants of the trade on this river, and, properly buoyed out, can be safely used. It is considered that this trifling service properly devolves upon the parties directly concerned in this trade.

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#### LAKE ST. PETER.

The formation of a ship channel through this lake was first undertaken by the Government as a *public work*. After an expenditure of £73,558 15s. 5d. in providing an outfit, and prosecuting the works for four seasons—1844, '45, '46, '47, the steamers, dredging-vessels, machinery, tools, and implements, constructed or acquired for effecting the improvement, were made over to the Montreal Harbor Commissioners by the Act of 1850, for the purpose of enabling them to deepen the channel through the lake to sixteen feet draught at low water, "in such manner, direction, and place as the Commissioners should deem best."

By the same Act, the Commissioners were authorized to raise a sum of £30,000 on the credit of the improvement; the interest on which was to be paid out of a tonnage duty to

be levied on all vessels navigating the improved channel, drawing more than ten feet of water.

In 1852, the Harbor Commissioners received authority, under the Act 16 Vic., Cap. 24, to raise a further sum of £40,000, and in 1855, by the Act 18 Vic., Cap. 143, a still further sum of £100,000, and they were authorized to open the channel twenty feet in depth between Montreal and Quebec.

Under these several Acts, the Harbor Commissioners issued their debentures to the full amount authorized, namely..... £170,000

This debt has since been assumed by the Government, under the Order in Council of the 18th April, 1861; and the Harbor Commissioners have also received the whole amount of the appropriation of 1860: 23 Vic., Cap. 64..... £ 16,000

Making in all..... £186,000

In 1861, a further appropriation of £15,000 was granted for carrying on the works in Lake St. Peter, but no part of this has, as yet, been paid over to the Harbor Commissioners.

With the money raised under these several Acts of the Legislature, the Harbor Commissioners succeeded in clearing a channel of three hundred feet in width, and twenty feet in depth at low water, between Montreal and the lake, through the natural obstructions presented at Point aux Trembles, Verchères, and Lavaltrie.

In the lake, they have dredged a channel eleven and a half miles in length, and from two hundred and fifty to three hundred and fifty feet in width, with a clear draught through it of seventeen feet three inches at the period of ordinary low water of eleven feet upon the "flats," according to their Engineer's survey of last year, but of eighteen feet according to that of Commander Orlebar, R. N. One of the Commissioners states that it has been satisfactorily tested by the passage of hundreds of vessels through it, drawing eighteen feet of water, when there was only eleven feet upon the "flats."

In bringing about this important result, the Harbor Commissioners, at the close of the year 1861, had excavated, according to their Engineer's measurement, 3,144,037 cubic yards of clay out of this channel in the lake, at a cost of \$455,707, exclusive of outfit—being at the rate of about fourteen and a half cents per cubic yard; and, by the estimate of that officer, there still remained 1,021,022 cubic yards to be removed, before an uniform channel of three hundred feet in width and twenty feet in depth at low water, could be obtained. This would cost, at the rate of the work already performed, about \$147,946; but the Engineer states that fifteen per cent must be added for dressing up and straightening the channel, and that the cost will amount to \$170,138.

Some other important improvements have been effected below the lake, as far down the river as Cap à la Roche, beyond which the operations have not extended. It would appear, however, that some obstructions have yet to be removed from this portion of the St. Lawrence, in order to obtain the full draught of twenty feet at low water.

The operations were not resumed in the lake, last year, until the 2nd August, for two reasons: *first*, by an Order in Council of the 17th April, 1862, the works were ordered to be suspended, until a survey should be made under this Department; and, *secondly*, by the sudden and premature breaking up of the River Richelieu, the dredges, steamers, and scows,

which had been laid up at Sorel for the winter, were caught in an ice jam, many of them sunk in deep water, and others seriously damaged. (See the report of the Superintendent, appendix J.) The best part of the season was spent in searching for and recovering this property, and in making the necessary repairs, which were attended with a great deal of delay and expense.

Authority of Council was obtained on the 21st of July last, for resuming the work under the direction of the Montreal Harbor Commissioners, as heretofore, but subject to such visits and examinations by an Engineer of this Department as might appear necessary.

It will be seen by the report of the Superintendent in charge of the dredging operations in the lake for the past year, that dredge No. 3 was set to work on the 2nd August, and dredge No. 2 on the 8th September, and that both continued working until the 26th November; in which time they had, together, removed 3,137 scow loads, which, at seventy cubic yards per load, according to his estimate, would give 219,590 cubic yards removed from the channel last year. This was all done in bringing up the twenty foot draught.— It has been ascertained, however, by measurements made in excavation by Mr. T. C. Keefer, in 1854, that there is an excess of measurement "in spoil" of forty per cent, or that fifty cubic yards "in excavation" will measure seventy cubic yards on the scows; and, by this well established ratio, it would appear that the actual quantity removed in 1862 did not exceed  $3,137 \times 50 = 156,850$  cubic yards.

The expenditure appertaining to this work during the time the dredges were employed on the lake, exclusive of the ordinary and extraordinary repairs of last spring, are reported to be \$17,948.89, which would make the net cost of dredging about eleven and a half cents per cubic yard measured in excavation.

The total quantity of excavation which remained to be removed from the channel at the end of 1861, according to the Engineer's survey, before referred to, was.....	1,021,022 cub. yds.
Deduct quantity removed in 1862.....	156,850 "

Leaving.....	864,172 cub. yds.
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yet to be taken out, in order to complete the channel through the lake to an uniform width of three hundred feet, and twenty feet in depth at the period of low water.

## RIVER WORKS.

### OTTAWA WORKS.

The great value and importance of the public works on the Ottawa, and its tributaries, now under the charge of this Department, will be seen by the large quantity of the products of the forest, which has passed through them during the last year.

From the Upper Ottawa 326,781 pieces of square timber passed the Chaudière Slides in 1862, and about 90,000 saw logs arrived at that station the same year. From the Ga-

tineau River, 9251 pieces of square timber and 154,918 saw logs have been brought down. The tolls on all this property have amounted to \$49,000.

All the works under the management of this Department were thoroughly repaired during the last winter, and after the passing of all this lumber, the Superintendent reports that they are still in comparatively good condition, and that a moderate outlay during this winter will suffice to place them in good working order for the business of the coming spring.

A detailed statement and estimate of these repairs, as called for at the several stations will be found in the report of the Superintendent, (See Appendix E.) They are estimated to cost \$4234.75 and, under Your Excellency's authority, the Superintendent has received instructions to proceed with them during the period of low water this winter.

The cost of repairs and management for the last two years is as follows :

Charged to revenue in	1861.	1862.
Repairs.....	\$ 8,331.48	\$ 4,856.46
Management .....	10,677.19	10,895.89
	\$19,008.67	\$15,752.35

**RIVER DU MOINE.**—The improvement of this tributary as a public work to facilitate the descent of the timber made upon it, was prayed for in September, 1861, by certain parties engaged in the lumber trade of the Ottawa. Their memorial was strongly supported by several members representing the interest of the Ottawa Districts in both branches of the Legislature.

Upon its receipt, the Superintendent of Ottawa Works was instructed to make an examination of this river. He reported, in October of the same year, that he had ascended as far as the head of the Long Rapids, forty-five miles above its confluence with the Ottawa. He described the various kinds of improvements necessary in this distance, at seventeen different places, which he estimated to cost \$8,850; and stated that their effect would be to open eighty miles of that river, which he was credibly informed was well stocked with valuable timber; and he therefore recommended that the improvements should be made by the Department, and that ten per cen of the outlay should be charged annually as tolls.

While it is necessary to guard against the waste of the public funds by embarking in improvements on the remote and smaller tributaries, on which the limited supply of timber must soon be exhausted, and render the works useless,—it has nevertheless proved of advantage to the lumber trade, as well as to the public revenue, to make the necessary improvements on the larger ones, such as the Gatineau, Madawaska, and Petewawa. In proportion as the older limits have been long lumbered upon, and the nearer supplies diminished, the lumbermen push their operations up more remote rivers, and it is only in this way that they have ascertained, beyond question, the permanence and excellence of the supply and that the expediency of improving such rivers, as public works, is made manifest.

Such appears to be the case with the Du Moine. Taking its rise amongst the great northern lakes, it flows in a southerly direction, and enters the Ottawa about one hundred and forty miles above Ottawa City. As well from its large drainage area as from the abundance of good timber reported upon it, it may properly be classed amongst the

larger tributaries before referred to, and be considered worthy of a corresponding extent of public improvement.

Authority of Council having been obtained for proceeding with these improvements on the condition before mentioned—of ten per cent of their cost being annually imposed as a toll on the timber coming out of this river—the parties interested in the trade, in order to save time and reap the benefit of the improvement this year, have undertaken to perform the work at the Superintendent's estimate and under his direction, trusting to their being reimbursed if the estimate is voted by Parliament. According to last reports, the works are now well advanced, and will be available to the trade on the breaking up of the river in spring.

**NEW WORKS.**—The improvements required for extending the lumbering operations on the upper part of the Petewawa River, between Lake Traverse and Trout Lake, for which an appropriation was made last year, and which had been undertaken by the parties engaged in lumbering on that river in 1861, consist of a dam and a long slide, with a guide-boom and supporting-pier, at the Cascades or High Falls, and of side dams, glance-piers, and retaining-boom, at the upper end of Lake Traverse.

These have been completed under the direction of the Superintendent, and have been received and paid for as public works, on the understanding that a toll should be levied on the lumber produced on that river to repay the outlay, which amounted to \$13,646.57.

This expenditure was fully warranted by the large quantity of valuable timber found upon the "limits" granted on this tributary, which affords a fair prospect for the lumbering business upon it for many years to come.

A toll of one dollar for every crib of timber passing these works has been established under the authority of an Order in Council of the 30th August, 1862, for the repayment of the expenditure on their construction.

The Hull slide and the bridge over it have also been rebuilt, and of the several works embraced in the estimate of \$21,334.75, referred to in the general report of last year, the principal part being such as were essential to the proper maintenance of the navigation, were proceeded with and completed during the past year, in a satisfactory manner.

On the Madawaska River, at Chain rapids Station, two new supporting-piers for the retaining-boom were built, and at the foot of the long slide at the High Falls Station, a supporting-pier and glance-boom were constructed.

The dam at the first Chute of the Petewawa River has been re-constructed; also the lower slide at Calumet Station on the Ottawa. The slide at Mountain Station has been lengthened, the works at Joachim Station strengthened, and portions of the side piers of the South and Chaudière slide rebuilt, as also the bridge over the Gatineau Canal.

These being all either works of re-construction or new works, have been classed under the head of *new works*.

The expenditure upon new works during the year 1862, including that already referred to on the Petewawa River, is as follows:

On the main Ottawa River .....	\$16,753.19
Petewawa.....	18,369.40
Madawaska.....	5,391.58
Gatineau.....	1,083.48
Road at Portage du Fort.....	1,635.00
	Total.....
	\$43,232.65

### SAGUENAY WORKS.

These works, being new, required only very light repairs during the past year. Such as were necessary have been made, and the works are now reported all in good order for the "running season" in spring.

The repairs for 1862 cost.....	\$ 50.00
Maintenance .....	675.25
	Total.....
	\$725.25

The property which passed through the slides in 1862, and the receipts thereon, are as follows:—

43,289 white pine logs, at 3 cents.....	\$1,298.67
7,000 spruce logs, at 3 cents.....	210.00
715 pieces ship timber, at 3 cents.....	21.45
	Total.....
	\$1,530.12

### ST. MAURICE WORKS.

There are at present six stations on the St. Maurice where public works are maintained under the charge of this Department, viz., at the mouth of the river, Grès Falls, Shawenegan Falls, Grande Mère, Little Piles, and La Tuque. The works at these several stations consist of booms, piers, slides, and dams.

There are, in all, upwards of eight miles of booms, half a mile of side-piers and dams, a thousand feet of slides, sixty-seven mooring-piers, and sixty-four anchor-piers. (See Superintendent's report, appendix F.)

The works at the several stations were placed in good order, and the booms extended in good time, last spring, for the running of timber, and the first *drives* passed through without accident or delay; but the continued low water, during the summer, prevented several of the parties completing their *drives* until late in the fall, thereby obliging the Superintendent to keep the booms stretched and in full operation during the whole season, and adding materially to the expense of maintenance, which has amounted to \$7,321.06, for the past year.

The repairs effected during the last year were considerably more extensive than in former years, in consequence of it having become necessary to reconstruct some of the old works which were very much decayed. The principal part of this expenditure took place at La Tuque and at the mouth of the river. The cost of repairs for 1862 was \$5,641.36.

There has also been expended the sum of \$2,911.69 in new works, consisting of a side dam at the Little Piles, side-piers and booms at the Grande Mère, and side and wing dams and booms at the Shawenegan. The works are now in good working order.

The cost of repairs and management for the last three years is as follows:—

	1860	1861	1862
Repairs.....	\$ 837.91	\$1,198.25	\$ 5,641.36
Management.....	7,322.53	6,687.38	7,321.06
	<hr/>	<hr/>	<hr/>
Total.....	\$8,160.44	\$7,885.63	\$12,962.42
	<hr/> <hr/>	<hr/> <hr/>	<hr/> <hr/>

The inconvenience experienced in the proper working of the booms at the mouth of the river, for want of the land necessary as a means of access to them, and a place where they might be secured, which was referred to in the last annual report, still continues; and the Superintendent again urges the importance of acquiring sufficient land to work these booms, without trespassing upon private property. It is recommended that a sum be entered on the estimates for this purpose.

## TUG SERVICE, UPPER ST. LAWRENCE.

The arrangements under which the tug service between Montreal and Kingston was performed during the last two years, at a reduced bonus of \$20,000 a year, upon the same general conditions as were embraced in the contract which expired at the end of 1860; terminated with the close of navigation last year.

The service has been satisfactorily performed throughout the season. No complaints have reached the office from the parties engaged in the trade of the St. Lawrence; but, on the other hand, the ship-owners, forwarders, and others interested in this navigation, at all the principal towns and cities between Quebec and Hamilton, have, in a memorial to the Government, expressed themselves "well satisfied with the diligent and energetic manner in which the duties of the tug-line have been conducted."

The managers and agents of the Marine Insurance Companies doing business in Canada have likewise concurred in a memorial to this department, in which they state that no loss or detention of any moment has happened on this route for the last eight years, during which time Messrs. Calvin & Breck have had the contract. It is, however, reported by the superintending engineer "that the forwarders have been obliged to place their own tugs on the line, to prevent ruinous delays on each section of the line, more particularly on the tow between Cornwall and Lachine."



The following statement exhibits the number of towages on each section, up and down, and the amounts collected under the contract tariff, during the last two years :

	1861		1862	
	Towages	Amount	Towages	Amount
UPWARD.				
Lachine to Beauharnois Canal.....	1,187	9,610.57	918	6,936.83
Beauharnois Canal to Cornwall.....	975	15,963.56	825	12,830.18
Dickinson's Landing to Kingston.....	1,287	35,881.53	701	24,870.48
DOWNWARD.				
Kingston to Dickinson's Landing.....	1,028	20,550.86	579	13,529.63
Cornwall to Beauharnois Canal.....	797	7,972.57	584	5,716.33
Beauharnois Canal to Lacoline.....	961	4,572.65	751	3,929.77
<b>Total.....</b>	<b>6,235</b>	<b>\$94,551.74</b>	<b>4,358</b>	<b>\$67,813.22</b>

There is a decrease this year of thirty per cent from the number of towages in 1861, and of 27 per cent in the amount collected.

In the performance of this service, the contractors were bound by their contract to employ at least six steamers ; but during the past year, they have frequently had nine in use. The name of these steamers and their horse-power is given by the contractors' engineer as follows :—

The Gildersleeve.....	97 horse-power.
“ Traveller.....	134 “
“ America.....	112 “
“ William.....	167 “
“ Sir C. Napier.....	92 “
“ Highlander.....	153 “
“ City of Hamilton.....	168 “
“ Chieftain.....	82½ “
“ Hercules.....	311 “

These were formerly passenger steamers, and have been converted into tugs for the occasion. It is extremely doubtful whether they are as well adapted for the service, and can be as economically worked, as tugs of more modern build constructed expressly for the purpose.

The peculiar nature of this navigation renders a tug-service indispensable.

The canals being isolated by broad lakes and strong currents in the intervening portion of the river, there cannot possibly be any connecting tow-path, other than the floating one which the tug-steamer supplies and for which it becomes a substitute. By these vessels, the canals are thoroughly linked together as one chain of navigation. It is obvious, then, that if sailing vessels are deprived of the reliable means of towage between stations, confidence in the route will be shaken, its efficiency seriously impaired, and the trade will suffer so great loss and detention as must tend to divert it into other channels.

The maintenance of the tug-line being essential to the proper use and working of the canals, it only remains to be considered how it can be rendered most efficient. So long as the contracts are made from year to year, or only for short periods, the contractors cannot

be expected to go to the expense of building vessels expressly for towing, but must purchase or charter such as are available, even if not so well adapted for the service. To render the line thoroughly efficient, the contract should be given for a term of not less than five nor more than ten years. In this case, it will be worth while to procure the best class of tugs, and both the tariff and the annual bonus might possibly be reduced.

It is therefore recommended that tenders be invited for the performance of this service, for a term of five or seven years, as may be considered most advisable.

## LAKE AND RIVER LIGHT-HOUSES, BUOYS, &c.

### ABOVE LACHINE.

The various works connected with the Lake and River lights above Montreal which are under the immediate control of this Department have been efficiently maintained during the past season.

The repairs have been of a general nature, such as are incidental to this class of works, and were principally performed at the following places, viz :—

Raising and replanking pier at Pointe Claire light ; repairs to light-ship, Lake St. Francis ; repairs at Cole's Shoal ; erection of a dwelling for the light-keeper at Wolfe Island, which is now being proceeded with ; repairs to Snake Island light-house ; building house for light-keeper at Scotch Bonnet ; protection of leading light at Presqu'Isle ; securing caisson at Pointe Peleé Reef ; erecting new store-houses at Isle of Coves ; repairs at Christian and Nottawasaga Island lights ; and making and replacing buoys at various points.

In addition to those mentioned in the last report, seven light-houses were fitted up during the past season for the purpose of using coal oil as a means of illuminating them. This oil has now been introduced in all the river lights, together with those on the lakes—thirty-seven in number—which are easily accessible, and to which the system can be successfully applied. It is proposed to introduce it into some other light-houses this year.

The maintenance of the light-houses between Lake St. Louis and Lake Huron cost, in 1862 :—

#### MAINTENANCE OF LIGHT-HOUSES AND BUOYS FOR 1862.

Repairs .....	\$ 3,376.99
Supplies.....	4,190.94
Coal oil.....	1,719.09
Sperm oil.....	7,580.00
Charter of steamer.....	1,350.00
Salary and travelling expenses of Superintendent.....	2,295.00
Light-house keepers' salaries .....	17,036.37
Steamer "Rescue" going to Isle of Coves.....	1,000.00
Placing buoys and light-ships.....	728.13
Purchase of land for light-house keepers' dwellings.....	168 10

Salaries of Harbor-Masters at Gaspé and Amherst.....	100.00
Advertising and printing.....	491.41
Total .....	<u>\$ 40,036.08</u>

Several of the repairs and improvements described and recommended in the last report still remain to be attended to ; action, in regard to some of them, can be no longer postponed. The cases thus referred to are :

The protection works at Gull Island light-house, Lake Ontario ; Mohawk Island, Lake Erie ; and Nottawasaga Island, Georgian Bay. Estimated cost \$3,460.

A new range light is required at Grosse Point, Lake St. Francis. At McKie's Point, the lake has made serious inroads upon the land on which the lighthouse stands. To stop this a rip-rap wall must be put around the point. A new lantern is also required.

At Cherry Island some repairs and a new lantern are necessary, and the Light Ship, Lake St. Francis, requires two new anchors. The pier on which the lighthouse at Lancaster stands requires protection, and the old pier should be raised. A house for the light-keeper on Grenadier's Island should be built, and a small store-house erected at Port Colborne.

The breakwater at Long Point, Lake Erie, should be extended, to prevent further inroads of the Lake upon the Point.

The lighthouse on Point Pelée reef is leaky, and must be thoroughly repainted. This structure being of wood and remote from shore, a water-tank should be fitted up, and proper hose provided to prevent accident by fire. The stone-work of the foundation should also be completed.

Measures will be taken during this winter to effect the change in the character of the lights exhibited at Point Pelee Reef and Pelee Island, referred to in the last annual report, by the opening of the navigation in spring. As the one upon the Reef will first be seen on going up the lake, it is intended to change it from a red to a white light, that it may be more readily seen, and to change the other from white to red. Due notice will be given to the trade when this change will be made.

To prevent further encroachment of the lake at Pelee Island lighthouse, additional protection works are indispensable.

At Bois Blanc, similar precautions will also have to be adopted. These, together with other minor repairs, are estimated to cost \$9,500.

#### LIGHT-HOUSES BELOW QUEBEC

Within the past few years, ten new light-houses have been constructed on the coasts and islands of the lower St. Lawrence. Four of these are leading sea-lights of a superior class, two of which are situated at the upper entrance of the Gulf, the third on the Strait of Bellisle, and the fourth on the south-west point of the Island of Bellisle, at the southern entrance of the strait.

The other six are river lights of less illuminating power and range, erected at different salient points and shoals, within what is known as the " Pilot Ground," between Father Point

and Quebec. These have been placed under the charge of the Trinity House, Quebec. After this transfer, it was reported that the pier on which the light at Crane Island was erected had received some injury from the ice last winter. It has since been repaired and protected by the Trinity House, at a cost of \$600.

Although the marking out of the headlands, points, and shoals has, no doubt, contributed greatly to the safe navigation of the ocean route of the St. Lawrence, there yet remains much to be done to enable mariners to avoid the dangers by which it still continues to be beset.

Were the contemplated improvements effected, ship-owners could not fail to have greater confidence in this route. The rates of insurance on both vessels and cargoes would be diminished, and freights might thereby be lowered so as to enable vessels navigating it to compete successfully with those trading to older-established Atlantic ports.

Some years ago, the Chief Engineer of this department made a thorough examination of all the sites where the erection of light-houses had been recommended by ship-owners, masters of vessels, and others interested in the safe navigation of the St. Lawrence; and, in 1859, he submitted a report descriptive of these places, in which he strongly recommended the immediate construction of several light-houses, and stated the order in which they should be proceeded with.

The most important of these are: the Bird Rocks in the Gulf, and the south-west point of Newfoundland, in the vicinity of Cape Ray, where lights are required to point out two dangerous points on the channel south-west of Newfoundland; and for the safe navigation of that North of Anticosti through the Strait of Belleisle, a light at Cape Whittle is considered the most urgent.

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### BIRD ROCKS.

These dangerous rocks lie in the Gulf of St. Lawrence, in the direct track of vessels engaged in the Atlantic trade which pass by the route south-west of Newfoundland.

They are inaccessible, except during calm weather, which, in that vicinity, is generally of short duration and always uncertain.

It is universally admitted that the dread of "making too free" with these rocks has led to many shipwrecks on the neighboring coasts and islands, and that the erection of a light there would be of the greatest benefit to the navigation.

A full description of these islets, and of the difficulties which must be encountered in the building of a light-house at this place, together with an outline of the proposed mode of constructing it, will be found in the last annual report of this Department, and in the appendix to that of 1859. A due regard to the interests of navigation demands that this work be undertaken as soon as possible; but it is believed, from the circumstances above referred to, that the ordinary method of letting by contract would, in this case, be wholly inapplicable.

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### CAPE RAY.

Various places in this vicinity having been recommended as favorable positions for the

erection of a light-house, the coast was examined from Cape Aiguille, which forms the south-west side of St. Georges Bay (about eighteen miles north of Cape Ray), to Port aux Basques, which lies about nine miles to the eastward of it.

In this distance, three points attracted special attention, namely, Cape Ray, Pointe Enragée, and Duck Island; and after a careful consideration of the advantages of each, the Chief Engineer is of opinion that the light should be erected either on Cape Ray or Duck Island.

This island stands more to the seaward than Pointe Enragée, and lies about one mile and a half to the southward of it. It is from 10 to 12 acres in area, and generally about 25 feet over the level of the sea. From its vicinity to the anchorage of Grand Bay, materials and supplies can be easily landed.

A light on this place could not be obscured in any direction serviceable to inward bound vessels, nor shut out from view except by Cape Ray (5½ miles distant) to those outward bound; whereas a light placed on Pointe Enragée would be eclipsed in an easterly direction by the high islands south of Grand Bay.

But although a light on Duck Island would be more serviceable in an easterly direction, it would be in a less advantageous position than one on Cape Ray to vessels outward bound, especially if to the north of their course.

It is therefore believed that a light on Cape Ray would be of the greatest general utility.

This cape is about two-thirds of a mile wide from east to west. It is flat and bare, with the exception of the south-west side and part of the middle, which are covered with dwarf spruce.

Owing to the conical-shaped hills in the interior, it is remarkable from any point of view, and can be seen, in clear weather, at a great distance.

The proposed site of the light-house is about the centre of the flat described, 85 feet over the level of the sea, and one-fifth of a mile north of water-mark.

### CAPE WHITTLE.

This cape is on the Labrador side of the Gulf of St. Lawrence, about 134½ miles in a south-westerly direction from Greenly Island at the Western entrance of the Strait of Belle Isle. It is the most salient point of the coast; but on the south-west and south round to east, it is, for several miles outward, shut in by numerous islets and rocks, chiefly low, and barely perceptible until close up with them. About 6½ miles to the south-east is a reef known as the "South Maker's Ledge;" these, together with the bend of the shore, render it one of the most dangerous places on that part of the coast.

The "South Maker's Ledge," although the most seaward point on which a light could be placed, is small, low, and much exposed; so that any structure placed upon it would require to be of the most substantial character, and capable of resisting the shock of the waves and the impact of heavy bodies thrown against it by the sea.

Thus a most difficult and expensive class of work would be indispensable, with many

drawbacks to contend against in the way of its execution. Its future maintenance would also be attended with great annual outlay.

Taking these matters into consideration, the Chief Engineer recommends that a Light house be erected on one of the "Cormorant Rocks," which lie about three-quarters of a mile to the Northward, and midway between Cape Whittle and the "South Maker's Ledge."

In this opinion Admiral Bayfield concurs.

The building at the latter place will be much less exposed, and, being between the two reefs, will serve generally to point out the dangers of this vicinity.

The houses for extra keepers and buildings for stores can be placed on an Island  $1\frac{1}{2}$  miles distant, inside of which there is a good harbor, with an entrance at its eastern and western ends.

Although the construction of a light at this place will cost less than the erection of one at "South Maker's Ledge," yet it will unavoidably be attended with considerable outlay.

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## HARBOURS OF REFUGE.

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### WELLER'S BAY

The survey of this fine natural harbor was undertaken by the Department in 1861, to ascertain its condition and suitability for a harbour of refuge. The survey was committed to the Honorable H. H. Killaly and was completed by Mr. F. A. Wise, under his directions, in October, 1861. The result is given by the former in his report of the 14th February, 1862, published in the annual report of the Commissioner of Public Works for 1861. He first states in general terms that "The results of the survey are very satisfactory, as they show that the state of the entrance, in all essential particulars, is in no way less favourable than at the period of the former survey," and then, after giving a brief description of the sheet of water called Weller's Bay, enclosed by the range of sand banks, and the capacity and condition of the entrance, concludes by recommending an outlay of £750 for lighting and buoying out the entrance.

Upon comparing this survey with the Admiralty Chart, the Chief Engineer noticed a shoal on the latter, off the entrance to the Bay and lying outside the field of Mr. Wise's survey, on which was marked only three feet of water, and suggested that it should be ascertained by further examination whether there was any shoal there, or not.

The shoal represented on the Admiralty Chart lies directly in the track of vessels entering the Bay, and would, without any doubt, if really there, prove a serious obstacle to the navigation.

With these facts in view, no chart could be accepted as correct until further soundings were undertaken to determine this question.

An Engineer from this office was, accordingly, sent there for this purpose, but, owing to the lateness of the season and the roughness of the weather, he found it impossible to make a proper survey. Still, after having sailed over the site of this shoal several times in every direction, in a vessel whose "centre board" was down, drawing 14 feet water, without touching bottom, he reports that "there is at least 12 feet of water on it, even at

the present level of the Lake, which is some three feet lower than it has been for some time."

It may further be added that the published survey and sailing directions of Mr. J. N. Dumble for making this harbour, which is of recent date, show no trace of the shoal represented on the Admiralty Chart, and there is no record of any of the vessels trading at this port or seeking refuge in the adjacent harbor of Presqu'isle having touched upon it.

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## PROVINCIAL ROADS FROM THE ST. LAWRENCE TO NEW BRUNSWICK.

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### METAPEDIA ROAD.

This road forms an important means of communication between Canada and New Brunswick, not only as regards the military defence of the country, but also on account of the advantage it affords of a highway for the vast district of Gaspé and the Bay des Chaleurs.

In the terms of the annual report of my predecessor, page 46, "This road, when completed, will connect Canada with New Brunswick; and as it leads wholly through the interior of the country, it may be considered of even more importance than the Temiscouata Road, which passes within a short distance from the boundary line between Canada and the State of Maine."

It will be remembered that the Imperial Government, in a dispatch communicated to the Legislature of Canada on the 2nd of June last, recommended the immediate opening of the Metapedia Road. In accordance with this desire, the works have been vigorously pushed forward. The following is an extract from a report made by the undersigned, in October last:—

"This road having its terminus at the important and extensive Bay des Chaleurs, where there is a sufficient depth of water for ships of the largest size, it will afford a connection, at that point, for vessels coming from sea and from the colonies of New Brunswick, Prince Edward's Island, Cape Breton, Nova Scotia, and even Newfoundland.

"This new route, which is comparatively level or undulating, as stated by Mr. Bail-largé, Civil Engineer, in his report, and in which the steepest grades scarcely exceed one in ten, will, when completed, afford to the numerous population along the Bay des Chaleurs access, in winter as well as in summer, to the markets of the upper St. Lawrence, from which it has hitherto been debarred, and altogether cut off in winter. The lands along the line, being generally of excellent quality, will be settled rapidly.

"The general depth of Bay des Chaleurs, according to the chart of Lieutenant Bayfield, R. N., varies from 20 to 40 fathoms. There is a clear depth of ten fathoms in it up to Dalhousie and to Henrent Point, on the Canadian side of the Bay, and six fathoms in Dalhousie harbor.

"In order to convey a better idea of the utility of this road, it is well to recollect that this Metapedia or New Metis Road follows nearly the line surveyed by Major Robinson

in 1847, on behalf of the Imperial Government, for the projected intercolonial railway from Quebec to Halifax.

“Distances as mentioned in Major Robinson’s report:—

“The distance from Quebec to Halifax, by this line, is 635 miles; leaving for Canada a distance of 277 miles from Quebec to the frontier of New Brunswick, at Bay des Chaleurs.

“The following table of distances is taken from Major Robinson’s report, and may be useful for reference:—

HALIFAX TO QUEBEC BY THE METAPEDIA LINE.

Halifax to Truro.....	55 miles	(built.)
“ to Amherst.....	69 “	124
“ to Shediac.....	26 “	150
“ to R. Miramichi.....	74 “	224
“ to Bathurst.....	56 “	280
“ to Dalhousie.....	48 “	328
“ to Metapedia R.....	30 “	358
“ to Neigette R.....	86 “	444
“ to Rimouski R.....	25 “	469
“ to R. du Loup.....	56 “	525
“ to Quebec.....	110 “	635

“From the railway station at River du Loup to the intersection of the new Metapedia Road, a distance of 75 miles, there is a very good land road, running along the south shore of the River St. Lawrence. This section of the country is thickly peopled, and well-settled everywhere. It may be added that the lands all along and in rear of the settlements, for a breadth of sixty miles, are of a superior quality.

“The Metapedia Road, which leaves the St. Lawrence at Ste. Flavie and runs across the Peninsular, reaching to Bay des Chaleurs and the frontier of New Brunswick, is divided into three sections, as follows:—

“The north section, leading from the St. Lawrence to the head of Lake Metapedia, at Brochu’s.....	33 miles
The central section, running along the Lake Metapedia as far as Noble’s residence.....	27 “
The southern section, from Noble’s residence, along the Metapedia River, to the Ristigouche, which empties into the Bay des Chaleurs.....	38 “

98 miles.

“The northern section presents a gradual incline from the St. Lawrence to the watershed at the head of Lake Metapedia, which divides the waters falling in a north-easterly direction into the St. Lawrence from those falling in a south-easterly direction into the Bay des Chaleurs; this being the summit between the St. Lawrence and the Bay des Chaleurs. There is very good land on this section, and the first twelve miles are thickly settled; the remaining twenty-one miles of road being entirely new, and passing through uncleared lands, are but sparsely settled, and only a few of the inhabitants reside along the road.



"The central section passes on the old Metis or Kempt Road. Improvement is all it requires; but it offers in no part of it any considerable elevation, or any obstacle sufficient to prevent the crossing of it, whether in winter or summer, although, in point of fact, it is still, to a certain extent, rough. It has been partly improved and will be entirely widened and levelled during next summer. There are at present only three resident settlers on this section.

"The southern section is the most difficult. It passes along the Metapedia River, in some places through a beautiful level country; but in other places the hills range near the river, leaving only a narrow strip of ground for the road. However, by digging on the one side, and throwing the earth and gravel on the other, a good road has been made and will be completed next summer; and it will be opened in all its length, as a good winter road, for the beginning of the cold season.

"In the fall of 1861, sixteen miles of this section had been completed as a good summer road; eight miles will be delivered completed at the end of the working season this year (1862), and the remaining part will be completed in the summer of 1863. It will be opened throughout, to be used as a good winter road, on the 1st January, 1863.

"Along this section there are some places very fit for settlement; but in other places the country is of so hilly a nature that it is not likely to attract settlers,—more especially in a colony where land of the best quality is sold as cheap as two shillings sterling per acre.

"It may be observed that there is no great difference of level from the starting point at River du Loup to Bay des Chaleurs by this road, and no great engineering difficulty would be encountered in the construction of a good road, or even of a railroad.

"By Major Robinson's survey it appears that the summit on this route is 763 feet above the sea, while by an official survey of the Temiscouata Road, leading from River du Loup to the western boundary of New Brunswick, on which a report was made to this office, the summit is 1,439 feet above the sea, and the distance between the terminus of this route and the frontier of the United States is only 12 miles.

"The number of men employed this season on the Metapedia Road has been about 550, at wages varying from eighty cents to a dollar a day. The width of the new road is from 16 to 22 feet.

"Besides the bridge over the River Metis, there are only three other bridges of any length, namely, over the rivers Causapsca, Assemetquagan, and Trois Iles. One of these will be ready for next winter, there is an old bridge on the other river, and all three may be easily crossed during the winter on the ice, being but small streams.

"This route may be considered a safe military road, having its connection with the navigation of the river and the Gulf of St. Lawrence, and running at a distance of nearly a hundred miles from the frontier of the United States,—except at the River du Loup railway-station, where the distance to the Maine frontier is only 27 miles.

"The connection also of this road with a harbour of refuge like the natural harbour of Bic is a paramount consideration: because, since the courageous and intelligent lead of the "Persia" into the waters of the River St. Lawrence, at such a late date as the 26th December, it is well established that steamships may come up the St. Lawrence as far as Bic nearly a month later in the fall, and, according to other reliable information, more than a month earlier in the spring, than sailing vessels now do. Bic harbour is distant 50 miles from the railway station at River du Loup, and 24 miles from the Metapedia Road.

“ Arrangements have also been made to connect the telegraph line, by this road, from Father Point to the northern boundary of New Brunswick, where it already connects with Halifax : so that it will be possible to communicate with Halifax or Quebec, or any part of the British North American Colonies, while crossing this road.”

Amount required to complete the road, and to pay balance due on existing contracts :

NORTHERN DIVISION.	
Balance due on existing contracts.....	\$ 6,144.92
To complete 3½ miles of road, by day-labour.....	500.00
For the bridge over White River.....	2,200.00
	\$ 8,844.92

CENTRAL DIVISION	
Balance due on existing contracts.....	\$ 140.07
To repair the old road 27½ miles at \$100 per mile.....	2,725.00
Bridges on this division.....	2,000.00
	\$ 4,865.07

SOUTHERN DIVISION.	
Balance required for works under contract .....	\$21,921.61
For the bridge over the River Causapsca.....	3,000.00
Balance due on contracts for 1861 .....	181.71
	\$25,103.32
Superintendence.....	2,000.00
	\$40,813.31
Balance of the appropriation of 1862 remaining unpaid on the 31st December, 1862.....	16,309.12
Amount required for 1863.....	\$24,504.19

The insufficiency of the estimate made for this road in 1861, may be attributed chiefly to the fact that at that time there was no question of constructing the road with more than ordinary care. But the Honorable the Secretary of State for the colonies having called the attention of the Canadian Government to the importance of opening this road for the transport of troops, and of rendering it available for the defence of the country, in the event of war with the neighboring States, it became necessary to make it in a more suitable manner; and, above all, to give greater strength and solidity to the bridges. These conditions swelled the expenditure and changed the base of the preceding estimates. Added to this, the works were hurried on, in order to render the opening of the road passable this winter, in case of need : and this also tended to increase the cost.

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**TEMISCOUATA ROAD.**

This road leads from the railway station at River du Loup to Lake Temiscouata, and, winding round that lake to the west, extends to the frontier of New Brunswick. It is 66.93 miles long.

This road was used for the passage of Her Majesty's troops in the winter of 1862. It became necessary, in consequence, to open and maintain the means of communication during the months of January, February, and March, 1862, the cost of which amounted to \$6,321.95

One mile and three quarters of this road remain unfinished, and some repairs are indispensably necessary.

A bridge at the River Pollok was burnt in June last, causing a delay in the service of the mails, and rendering the passage dangerous for travellers; the bridge has been reconstructed, and some urgent repairs were made last October, under the superintendence of Mr. Oliver Ouellet. The whole cost \$751.48.

To put this road in good order, it is necessary to build a mile and three quarters—estimated at.....	1,750 00
Indispensable repairs and superintendence.....	4,250 00
	<hr/>
	\$6,000.00
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According to the section of this road, carefully prepared by Mr. Joseph Rosa and his assistant Mr. J. C. Simpson, during the winter of 1862, its greatest altitude is 1,467 feet above the level of the sea.

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**STATEMENT OF EXPENDITURE THIS YEAR.**
**TEMISCOUATA ROAD.**

Paid for keeping up the road during the months of January, February, and March, 1862, for the passage of Her Majesty's troops.....	\$6,321.95
Paid Rosa and Simpson for plan and section of the road.....	1,109.65
Paid the Hon. Mr. Baby, on the 21st May, '62, in compliance with an order in Council of 20th May:—balance due on old claim.....	7,908.83
Paid Oliver Ouellet, for re-building Pollock's Bridge and repairing the road, in October, 1862—by order in Council of 13th September, 1862....	751.48
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Total amount expended in 1862.....	\$16,091.91
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(Signed)

J. BAINE,

Book-keeper,

15th January, 1863.

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**DISTANCE OF ROADS BETWEEN QUEBEC AND HALIFAX, COMPARED.**
**METAPEDIA ROAD.—(MAJOR ROBINSON'S SURVEY.)**

	miles	
Halifax to Truro.....	55	constructed
“ Amherst .....	69	124
“ Shédiac .....	26	150
“ R. Miramichi....	74	224
“ Bathurst.....	56	280
“ Dalhousie.....	48	328
“ R. Metapedia....	30	358
“ R. Neigette.....	86	444
“ R. Rimouski ....	25	469
“ R. du Loup.....	56	525
“ South Quebec....	110	635
	—	—
Total distance...	635	

Greatest elevation 763 feet above the level of the sea—according to Major Robinson's report and sections.

**TEMISCOUATA ROAD.**

	miles	
Halifax to Truro.....	55	constructed
“ Amherst .....	69	124
“ Peticodiac.....	44	168
“ St. Jean.....	96	264
“ Intersection of	} 66	330
“ St. André and		
“ Woodstock at		
“ Bay du Chêne		
“ Woodstock.....	86	416
“ Grandes Chûtes.	70	486
“ Boundary line....	50	536
“ G. T. Railway }	} 64	600
“ at R. du Loup.		
“ South Quebec....	110	710
	—	—
Total distance...	710	

Greatest elevation, 1,437 feet above the level of the sea.

**MATANE AND CAP CHATTE ROAD**

This road winds along the banks of the river St. Lawrence, running down towards the gulf. It is, properly speaking, only 38 miles long, from Matane to Cap Chatte, and is but the first step in the great avenue of communication which it is highly important to open along the river as far as Gaspé Basin.

This road has been of great service to those poor sailors whose vessels were lost by shipwreck this autumn, near Cap Chatte. It is becoming rapidly settled.

The works, which on this road are performed by day-labour, were commenced on the 25th June, and continued until the 17th September.

Twenty-seven and a half arpents of new road have been made in different places, to avoid the very steep grades, which could not be reduced without incurring a very heavy outlay.

Thirteen grades, comprising 16 arpents of road, have been reduced by lowering the summit from 3 to 8 feet, and raising the base as much.

Ten miles and eight arpents of road have been repaired, and eighteen new culverts made.

Two bridges, one on the Grand and the other on the Little River Capucin, have been demolished, the embankments or abutments having been undermined by the action of the water. They have been reconstructed on a solid foundation.

The bridge over the Grand Méchin River, having been burnt last spring, was rebuilt; it is constructed with two embankments or abutments, and a pillar in the centre. This bridge is 150 feet long, 10 feet high, and 16 feet wide; it cost \$452, whereas the lowest price required by the contractors was \$600.

There remain still about ten miles of road to be repaired, and two bridges to be con-

structed, in order to avoid the banks of the Ruisseau à Sem and Ruisseau de la Vapeur. These four banks are very steep and dangerous, particularly in winter.

Amount of expenditure in 1862.....	\$1,831.00
Amount required to repair 10 miles of road.....	\$1,550.00
To construct two bridges.....	1,000.00
Total.....	\$2,550.00

### GASPÉ AND ST. LAWRENCE ROAD.

This road passes through the territory of the district of Gaspé, lying between Gaspé Basin and the boundary line between the counties of Rimouski and Gaspé. This vast range of territory, having a frontage of 138 miles on the River and Gulf of St. Lawrence, possesses no road of communication whatever, except over a tract of country 23 miles long, extending from Fox River to Gaspé Basin.

In 1860, the Hon. Mr. Rose, then Commissioner of Public Works, caused a survey of this territory to be made on a scale of great magnitude, under Mr. G. F. Baillargé, a skilful and laborious Engineer of this Department, who made a minute report and drew up plans of great interest, which are now deposited in this office. These plans show an exact survey over an extent of 150 miles in length and 20 miles in width, and the exploration of 150 miles of road between St. Anne des Monts and Fox River, the Great Valley des Monts and Gaspé Basin. The report is printed in the appendix.

This road forms the last link in the great chain of communication which runs along the south shore of the River St. Lawrence. If it be undertaken, it should at first be made narrower than other roads; and by constructing it gradually, section by section, from year to year, it would cost less, and the lands bordering upon the projected line of road would be occupied by settlers in proportion as the work progressed.

The portion of the road leading from Gaspé Basin to Fox River is now open. The works have been skilfully conducted under the superintendence of Antoine Painchaud, Esq. surveyor, whose report will be found in the appendix.

It is expedient to carry on the works on this road by degrees, and for this purpose a legislative grant is necessary.

Amount expended in 1862.....	\$3,727.77
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### MALBAIE AND GRANDE BAIE ROAD.

This road is used as a mail route between the village of St. Etienne de la Malbaie, on the St. Lawrence, and that of St. Alexis de la Grande Baie, on the Saguenay

As stated in previous reports, its total length is estimated at 76 miles, 10½ of which, at the Malbaie terminus, have been made by the inhabitants, and 65½ are being made by the Government.

In its present state it is passable throughout for sleighs in winter, but is not practicable for carts in summer.

The work done up to the present time may be described as follows :—

Nearly 8 miles opened, 18 feet wide, with proper forming and drainage, and 6 feet of clearing beyond the side ditches at Grande Baie.

6 “ opened, 12 feet wide, with partial forming and drainage, and no clearing beyond the River St. Jean

9½ “ similar to the latter, but not quite completed at the Passe des Monts.

Total, 23½ miles, which may be used as a summer road.

The remainder, for a distance of 42 miles, has been opened only as a winter route, for a breadth of about 8 feet.

The work done during the past year and the entire expenditure incurred may be detailed thus :—

The northern terminus of the road across the settlements of the Grande Baie was fenced in on both sides for more than a mile; 4½ miles of road were opened, of which 3½ have been formed with a breadth of 18 feet, and a clearing of 6 feet beyond the side ditches—the remainder being only 12 feet wide, without clearing. Eight bridges of a total length of 224 feet have been constructed, together with several culverts, and the remainder of the route has been cleared of fallen trees, and repaired.

Expenditure in 1856 .....	\$ 2,000.00
“ 1859.....	4,000.00
“ 1860.....	1,851.41
“ 1861.....	2,272.41
“ 1862 .....	1,881.91
Total.....	\$11,955.73

According to the original estimate, a further appropriation of \$4,500 will be required for the completion of the work; but this estimate, it must be observed, is for a road only 12 feet in width, of the most inferior kind, with partial formation and drainage, without clearing, difficult to travel over in wet weather, and frequently obstructed by fallen trees.

This road being the only land communication between Malbaie and Saguenay, it is desirable that it should be completed as soon as possible, and that it should be thoroughly formed and drained, with clearing for a breadth of 66 feet.

Although the country traversed by this route is very mountainous, there is a considerable extent of land fit for cultivation along the line, for at least 21 miles. During the past two years, lots have been taken up by settlers for a distance of 9 miles from Grande Baie; the remainder is likely to be settled as the work progresses.

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## PROJECTED ROAD.

### CARTIER ROAD.

At the request of the member for Saguenay, orders were given to an officer of this Department to examine this proposed line of communication between Malbaie and Grande Baie last summer.

The object of the examination was to ascertain if this new route, which the inhabitants of Malbaie had opened last year as a winter road, on the east side of the Malbaie River, and which they recommend the Government to open as a summer road, should not be adopted in preference to the route traced about fifteen years ago, on the west side of the same river, by Mr. James Stewart, under orders from the Department, and now in course of construction.

By the adoption of the projected line, all work done since 1855 on the first forty miles of the northern portion of the old route was to be abandoned; that done on the thirty miles of the southern portion, which is common to both routes, was to be preserved.

The reasons given for its adoption were that the new line was 12 or 15 miles shorter than the other, that it passed over land generally level, that it would be advantageous for the colonization of new townships and far more useful for the settlers of L'Anse St. Jean, and that its cost of construction would be far less than that of the old line.

The result of the examination made is shewn by the following extract from the report furnished on the northern portion :

“ As a winter road, the portion of the new line just described is certainly preferable, with respect to grades, to the corresponding portion of the old line through St. Agnes and the Passe des Monts ; the ascents and descents across the hills are shorter and of much easier grade.

“ Last year the inhabitants of Malbaie, after having opened the line for the passage of winter vehicles, constructed four buildings, provided with good stoves, at convenient distances along the route, for the shelter of travellers and of their horses.

“ As a summer road, it may be considered impracticable, on account of the great cost of its construction upon land nearly one half of which is paved or covered with boulders, and on account of the narrow gorge called La Passe des Roches, where enormous blocks of rock, fallen from the summits of gigantic mountains, present obstacles too costly to overcome.

“ As a colonization road, it offers but few advantages, the lands being either unfit for cultivation or of a poor quality for more than half the distance.

“ In conclusion, I must observe that it is only necessary to pass over the line once in summer, to be convinced that this report is far from exaggerating the unfavorable nature of the soil traversed by this portion of the projected road.”

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### ESCOUMAINS ROAD.

This is an extension of the road on the north shore of the St. Lawrence, from the Township of Callias, or County of Charlevoix, to the mouth of the Saguenay, opposite

Tadousac, a distance of about 12 miles,—and thence to the River Escoumains, 20 miles further eastward.

- It has been rendered practicable for wheeled vehicles from Escoumains to Bergeronnes for about 10 miles ; and thence, for winter vehicles, to Tadousac, 10 miles further.

The lands are being settled rapidly in the various townships traversed by this road.

A fine village has been formed at Escoumains, where the Pères Oblats have established the principal mission and constructed a church near the mills.

Only one mile of road has been constructed during the past year, owing to the boggy nature of the ground, which was covered with the heaviest description of timber and boulders. Fascening was required for most of the distance, and 9 bridges, some of which are of an expensive character, being across tidal streams, had also to be constructed.

The amount expended was, in 1856.....	\$2,000.00
“ “ 1861.....	1,537.50
“ “ 1862.....	1,011.00
Total .....	<u>\$4,548.50</u>

The amount required this year for the further prosecution of the works is \$3,000, of which \$1,200 will be chiefly devoted to the construction of two very important bridges required across the Rivers Grandes and Petites Bergeronnes.

## THE PROVINCIAL STEAMERS.

These vessels have rendered important service to the trade and navigation of the Lower St. Lawrence during the past year. They have performed the service for the protection of the fisheries ; the service of the light-houses, buoys, and beacons under the Trinity House ; the postal service to the lower ports ; relieved vessels in distress ; and have been instrumental in the preservation of property valued at upwards of four hundred thousand dollars. For particulars, reference is made to the statement published in Appendix L.

The several steamers have been employed during the past season in the following manner :—

The “ *Lady Head* ” made fourteen trips to the lower ports as far down as Pictou, carrying the mails and passengers. She was laid up in the floating-dock in Palace Harbor on the 21st of November.

The “ *Queen Victoria* ” was employed in the towage of vessels, and also in giving assistance to vessels in distress. She supplied the place of the “ *Lady Head* ” for the seventh trip, during the time the latter was undergoing repairs, and she was employed on two occasions for the conveyance of His Excellency the Governor General and family, one trip down the river and the other to Montreal. In the month of August, she was despatched to Shediac to bring up His Excellency Lord Mulgrave, the Lieut. Governor of Nova Scotia. She performed the last service of the season for the Trinity House in bringing up the floating light from the “ *Traverse*,” and as no further services could be rendered to the trade



after this, she was laid up in winter quarters at Blais Booms, Cap Blanc, on the 5th December, the season being too far advanced to admit of placing her in a floating dock.

The "*Napoleon*" made her first trip for the special service of the fisheries in the month of May, and left again on the 2nd June for the combined service of the fisheries and the Trinity House, to the light-houses and dépôts in the gulf and in the straits of Belle Isle. During the entire season she was placed at the disposal of the stipendiary magistrate, P. Fortin, Esq., appointed for the protection of the fisheries. On her return on the 31st of October, she was employed towing vessels, and was laid up for the winter in a floating dock at Gilmour's Cove, on the 25th November.

The "*Advance*" was used to place in spring and take up in autumn the numerous buoys on the Upper and Lower St. Lawrence. She has likewise on several occasions replaced the buoys which had been moved or carried away by the current or by ice, and has been employed for the erection of new beacons on the Lower St. Lawrence. In addition she has performed all other services required by the Trinity House. During the month of August and September, she had on board the officers and apprentice-pilots of the Trinity House, taking soundings in the north and south channels, as required by the Act 12, Vic. Cap. 44, Sec. 22. After this she was used for towing vessels, and at the close of the season, on the 21st November, was laid up for the winter in the floating dock at Palace Harbor.

Upon the next page will be found a statement of the receipts and expenditure in connection with the operations of these steamers. Although the direct revenue from these vessels does not appear at first sight to be equal to the annual appropriation, still, if credit be taken for the services performed for the Trinity House, for the transport of the mails, and for the protection of the fisheries, it will be observed that the saving of expense or indirect revenue more than counterbalances the cost of working them. If they were sold, and the services they now render performed by chartered vessels, it would cost not less than is stated in the report of the Commissioner for 1859, namely :—

For mail-service to the Lower Provinces.....	\$10,000
Trinity House service.....	8,000
Trips to Lighthouses, &c.....	12,000
Protection of Fisheries.....	10,000
	\$40,000
Total.....	\$40,000

It is satisfactory to observe a considerable increase in the revenue from the service of the steamers over the previous year.

The appropriation for 1861 was.....	\$50,000
That for 1862 was.....	30,000

Still, after paying working expenses, and without taking credit for the postal service, the Trinity House, and the fisheries, as above, there is an available balance at the end of the year of \$21,970.76, applicable to the operations of 1863, so that a lesser appropriation will be required for this year.

## PIERS.

### LANDING PIERS BELOW QUEBEC.

In 1861, the attention of the then Commissioner was drawn to the condition of the landing-piers constructed by the Government on both sides of the St. Lawrence, below Quebec, No repairs having been made to these public works for several years previous, although they had all suffered, more or less, from use and from exposure to storms and running ice, it was then considered necessary that measures should be adopted by this Department for the protection and preservation of these valuable works.

Certain repairs were accordingly authorised that year, which were carried on and completed during the past year, before the undersigned took office, at the piers at Malbaie, River du Loup, Les Eboulements, and Pointe aux Orignaux, a statement of which is given below.

As no outlay whatever for repairs had been incurred on the pier at Rimouski since its completion, although from its great length and exposed position it had suffered more than any of the others, the undersigned was induced, from the representations made to him of its neglected and dangerous position, to order a survey of it to be made by two competent officers of this Department. This duty was performed by Mr. Gauvreau and Mr. Rubidge, whose separate reports will be found in appendix I.

From the report of the last named officer, it appears that upwards of three hundred feet of the outer end had settled so far from the perpendicular as to threaten its dislocation and fall. One side of the pier was 5½ feet below the other, which rendered it impassable for wheeled vehicles, and difficult even for foot passengers.

The remedy suggested was to sink a line of cribs on the lower side, and on these to level up the work to the original horizontal line, These repairs were estimated to cost \$6,846.00, and the work has since been placed under contract at that estimate. It was proceeded with last year as far as the weather would permit, and preparations are being made this winter to prosecute the work to speedy completion in the spring.

A small outlay has taken place at L'Islet, for repairing the inclined landing-place.

#### REPAIRS OF LANDING PIERS BELOW QUEBEC.

	1861	1862
Malbaie .....	\$ 405.00	\$ 833.72
River du Loup.....	1,137.50	900.00
Eboulements.....	550.00	795.75
L'Islet.....		123.00
Rimouski.....		2,060.23
Pointe aux Orignaux.....	1,234.80	
T. Trudeau .....		21.50
	\$3,327.30	\$4,734.20

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**PIER AT ST. ANICET.—LAKE ST. FRANCIS.**

The appropriation 22 Vic., Cap. 83 has been applied to the construction of a steam-boat landing-pier at the village of St. Anicet, situated on the south shore of Lake St. Francis, in the County of Huntingdon.

The expenditure was entrusted to the local municipality, as being more immediately interested in the improvement; and the work was performed by contract under it, subject to the visits and reports of an officer of this Department, upon whose certificate of work done the payments have been made.

The site was selected by the Chief Engineer of this Department. The pier, including its approach, is three hundred and fifty feet in length, and is formed of a continuous super-structure, resting on detached cribs sunk twenty feet apart. The outer end, for 150 feet, has a breadth of thirty-four feet. The whole is reported to be well and solidly built. It was completed in August last. The expenditure in 1862 was \$1,920.

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**OFFICIAL ARBITRATORS.**


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In the Appendix (K) will be found a detailed statement showing the result of the proceedings before the Official Arbitrators, during the past year.

The Arbitrators held sittings in Quebec in the months of January, March, April, June, September and October, and one in Montreal and Beauharnois in May. The number of days on which they met for the despatch of business is seventy-seven. Awards were given upon six claims, one of which has since been appealed. Three claims are still pending, and three have been struck off the roll.

The Awards amount to.....	\$ 5998.85
The pay and expenses of the Arbitrators and Secretary, printing, stationery, and office expenses, &c.....	5713.96
Law costs, witnesses, &c.....	1634.50
	<hr/>
Total.....	<u>\$13,347.81</u>

These are the amounts properly chargeable to Arbitrations in 1862, but as several payments were made during this year for the awards and expenses of 1861, the gross expenditure, as given in Appendix A, is \$24,663.02.

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## PUBLIC BUILDINGS.

*Custom Houses.* No expenditure has taken place on any of these buildings.

*Post Offices.* The only outlay has been the sum of \$331.75, for certain indispensable repairs at the London Post Office.

*Montreal Court House.* The sum of \$4,141.31 has been expended on this building, for repairs to the roof, and masons' work, and for the more perfect ventilation of the Sheriff's offices.

*Montreal Gaol.* A proper work-shed within the yard of this gaol is very much needed for the shelter of the convicts while employed at manual labor. A plan for a suitable building of brick 120 X 30 feet has been prepared, and the cost estimated at \$3,983.

A plan has also been prepared for the proposed addition to the central wing of the gaol, to be of stone, 104 X 46 feet, and four stories high, to accommodate 160 prisoners; and estimated to cost \$48,472.

The number of prisoners confined within the old gaol during the past year has varied from 270 to 400, whereas it is not properly adapted for the reception of more than 300 at any season. In summer, it is frequently so much overcrowded that three or four prisoners have to be confined in one small cell, and, the ventilation being very imperfect, the air becomes tainted and unwholesome. According to the representation of the Sheriff and Gaoler, this has been the case for several years past, and, the subject having come under the notice of the Prison Inspectors, this plan has been prepared under their directions, for the purpose of providing the accommodation which, in their judgment, is considered a matter of absolute necessity.

The increasing population of the city having outgrown the provision made in former years for this class of the community, common humanity demands that some action be taken without delay to supply what is requisite for the numbers which are yearly added.

It is respectfully submitted whether these two sums, amounting to \$52,735, should not be embraced in the Estimates for this year.

It is further suggested whether it might not be advisable to employ the prisoners themselves in building this addition to the gaol, in the same manner as has been adopted at Kingston, in the erection of the Criminal Lunatic Asylum. By a proper system of management, it is thought that a large portion, at least, of the work might be performed by convict-labor within the limits of the gaol-yard.

Various minor repairs, which do not call for any particular remark, have been made upon the following buildings :

The Marine Hospital, Quebec.

The Court-Houses at Sherbrooke, Aylmer, and Three Rivers. And

The old gaols at Quebec and Montreal.

*Public Buildings, Toronto.* Occupation of the Parliament Buildings at Toronto was granted to the Military authorities, for officers' quarters, and possession given to the barrack master on the 11th July, 1861, on condition that "they were to be given back in the same order as received."

A fire occurred in the east wing, which was reported on the 18th July, 1861, as owing to a faulty flue, but it was subdued before much damage was done, and the repairs duly effected.

A more serious fire took place in the west wing on the 24th July, 1862, from some unknown cause, which destroyed the entire roof, and did much damage to the interior of the building.

The roof has since been rebuilt and the restoration of the wing effected by the Military authorities, who still remain in possession, free of rent, and during the pleasure of the Government.

Occupation of the Government House and adjoining stables was also granted to the Military authorities on the same terms. The keys were delivered over to the barrack-master on Thursday the 9th January, 1862, and on Friday the 10th, a fire occurred which destroyed the state portion of the building, but left the parts used for domestic purposes, as well as the stable, still available.

The Military authorities were duly apprised of the occurrence, but, as yet, have taken no steps to restore the building to its former condition.

*Departmental Offices, Quebec.* The various buildings owned or leased for the several departments of the Civil Government have required only ordinary repairs, and have been maintained at a moderate expense. It has, however, been necessary to provide additional accommodation for the Militia Department and the Bureau of Agriculture, by leasing and fitting up private dwellings for their use.

*The Governor General's Residence.* The expenditure which has taken place during the past year upon the two houses in St. Louis street, used for the residence of His Excellency the Governor General, arose from the liabilities incurred and payments made for alterations and additions to them, undertaken in 1861, which were not completed until the early part of 1862.

The expenditure in 1862 was \$48,855.82. This includes the building and fitting up of the stables, which are on public property, and the furniture and carpeting which will be available for use at Spencer Wood when these houses are given up.

*Spencer Wood.* The reconstruction of the Governor General's residence at Spencer Wood, in a plain, substantial manner, has been effected within the amount appropriated for it at the last session of Parliament. The expenditure in 1862 was \$14,263.76; and the payments which have since been made, or for which this Department is liable on account of this building, will still fall within the amount voted for it. These payments cover the cost of painting the walls and ceilings, the enlargement of the stables, and the repairs of the carriage-house and outbuildings.

To render this a suitable residence for His Excellency, both for winter and summer, it will be necessary to rebuild the conservatory at one end of the building for keeping plants and flowers; and for the preservation of the exterior walls, as well as for the sake of improving the appearance, the red brick should be painted

*Cataraqui.* According to the agreement entered into between one of my predecessors and the former owner, Mr. Burstall, this property, after it was no longer required as a

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residence for the Governor General, had to be sold at public auction, and any deficiency in price, short of the \$20,000 agreed upon, was to be made good to the owner. The property was accordingly advertised, and sold at public auction on the 2nd instant, when it realized the sum of \$12,100. The balance payable to H. Burstall, Esq. will have to be provided for in the Estimates.

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### OTTAWA BUILDINGS.

In the prosecution of these buildings, a great quantity of work unprovided for in the estimates having been proceeded with, the original appropriation was largely exceeded. and it was considered proper to suspend further operations in October, 1861.

On the 27th June, 1862, the Government, therefore, appointed a special Commission of Enquiry into matters connected with them; and, under these circumstances, it was deemed unadvisable to resume the works, or to take any steps which might disturb the relations existing between the Department and the contractors when they were stopped. Consequently, no further progress has been made towards their completion since that period.

The Department has, however, endeavoured to render every possible assistance to facilitate the researches of the Commission; and, with that object in view, the Chief Engineer was sent to Ottawa in July last, with all the official documents relating to the buildings for reference on the spot. All the clerks and measurers of works were, upon his recommendation, immediately transferred to the service of the Commission, in order to aid in carrying out the object for which it was named.

The principal evidence on these matters having been closed, further reference to the records of this Department, with few exceptions, ceased; and the officer entrusted with them was then directed to take means to protect the buildings from injury by the winter of 1862-3.

This has been thoroughly performed by covering in the works themselves and such materials as were liable to damage by exposure to the inclemency of the weather. In order to carry out these measures, the services of two of the clerks of works had to be withdrawn from the Commission for about six weeks.

When this was accomplished, the Chief Engineer returned to Quebec, from whence he was almost immediately sent back to Ottawa, with instructions to obtain such information regarding the present condition of the works and all matters connected therewith as would enable the Department to adopt the most satisfactory mode of resuming them, when it should be found practicable to do so.

It is believed that by this means the Department will be enabled to take prompt action in regard to these works.

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## NEW DISTRICT COURT HOUSES AND JAILS, C. E.

In the last annual report, it was stated that nine of the thirteen buildings had been completed and handed over to the local authorities at Beauharnois, St. Scholastique, Arthabaska, Sweetzburg, Sorel, Industrie, St. Johns, Montmagny, and Chicoutimi.

Those at Rimouski, Malbaie, Beauce, and St. Hyacinthe were completed and transferred to the Sheriffs last year.

Each Building has been insured for \$12,000 in the name of the Sheriff of each district.

Enclosure walls are required for the jail yards of the above localities. As no provision had been made, hitherto, for the same, it is desirable that their construction should be proceeded with as soon as the necessary funds are available for the purpose. A sum of \$1,300 will be required for each wall.

The outlay for the construction, fitting, and furnishing of all the jails and court-houses named above is shewn by the following statement:—

AMOUNT expended on Jails and Court-Houses, C. E.: 20 Vic., Ch. 44, under this Department, up to 31st December, 1862, and charged to the Municipal Loan Fund.

	Construction	Fitting up	Total cost
St Scholastique.....	\$27,751.14	1,338.32	\$29,089.46
Indu:trie.....	30,574.74	849.38	31,424.12
Sorel.....	26,808.62	1,264.91	28,073.53
Malbaie.....	30,675.15	1,483.29	32,158.44
Chicout:mi.....	28,964.48	736.89	29,701.37
Rimouski.....	31,809.21	832.73	32,691.94
Montmagny.....	32,746.80	854.13	33,600.93
Beauce.....	26,445.94	861.06	27,307.00
Arthabaska.....	29,241.59	1,491.63	30,733.22
Sweetzburg.....	25,617.96	939.55	26,557.51
St Hyacinthe.....	33,306.50	897.80	34,204.30
St Johns.....	25,371.36	769.57	26,160.93
Beauharnois.....	29,700.09	808.95	30,509.04
	\$378,973.58	\$13,198.21	\$392,171.79

(Signed,)

J. BAINE,

Book-keeper.

## KAMOURASKA JAIL AND COURT HOUSE.

This building was partially destroyed by fire on the 9th of last December.

Since that date the business of the Court has been carried on in another building, rented for the purpose at the rate of \$1.20 per day.

A small building has been rented also for the use of the prisoners, at the rate of \$60 per year.

Both of these buildings may be remitted to the proprietors after twenty-four hours notice.

The estimate furnished for the reconstruction of the addition built in 1859, so as to render it suitable for the double purpose of a Jail and a Court-House, amounts to \$3,850.

A further sum of \$800 will be required for supplying the building with the requisite furniture. Part of this sum has been already authorised to be expended for the immediate accommodation of the officers of the Court.

### MAGDALEN ISLANDS, COURT-HOUSE AND JAIL.

This building, which has been erected on one of the Magdalen Islands, called Amherst, was completed last October, and was afterwards handed over to the Sheriff.

It was commenced in June, 1861, and should have been completed on the first of November of the same year, according to the terms of contract; but difficulties arose respecting the site to be selected for the building by the municipal authority, in consequence of which the work had to be postponed, and a claim for damages was sent in by the contractor.

Amount paid to contractor for work performed.....	\$5,134.20
“ “ “ per award of Arbitrators.....	1,366.66
“ “ “ for witness fees.....	89.60
“ “ “ for superintendence.....	671.70
<b>Total.....</b>	<b>\$7,212.16</b>

The building has been insured for \$6,000 in the name of the Sheriff.

### COURT-HOUSE AND JAIL.—SAULT STE. MARIE.

It was stated in the last annual report that this work was given out by contract, but that the Contractor had failed in fulfilling his engagements. The works having been condemned by the officer in charge and abandoned by the Contractor, no further expenditure has taken place during the past year.

Owing to the very limited and inadequate appropriation for this building (\$4000), the Department was restricted to the adoption of a plan for a cheap wooden structure; but, as this did not meet the approval of the Board of Prison Inspectors, it was not deemed expedient to proceed upon this plan after the work was abandoned by the Contractor.

By direction of my predecessor, another plan has since been prepared for a stone building, to give better security and larger accommodation, suitable to the wants of the District, and conformable to the principles and conditions laid down by the Board of Prison Inspectors. The cost of such a building, including drainage, water-supply, and inclosure of Jail yard, is estimated at \$17,300. The Department cannot, therefore, undertake the construction of a building suitable for the wants of the District, until adequate funds are provided.



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## NEW JAIL, QUEBEC.

The original plan of this jail, which was prepared by the architect in accordance with the principles and conditions laid down by the Board of Prison Inspectors, contemplated the erection of 276 cells; but when it became known that a building of this magnitude would cost about twice as much as the amount at which the expenditure was then limited, namely, \$64,000, the plan was altered. A part of the central body and one of the wings were omitted, the front of the central portion reduced by one story, and brick jambs and interior lining of walls substituted for stone. This was done in order to keep the expenditure within the prescribed limit. By these alterations, the number of cells has been reduced to 138. After the contract was entered into upon this modified plan, certain changes were made for the safe-keeping of the prisoners, as stated in the last annual report. These changes and the reasons which led to their adoption are more fully set forth in the annual report of the architect in charge, which is given in the appendix H.

The contractors resumed the works early in spring, and continued their operations throughout the season, except for a few weeks in August and September, when their force became very much weakened; but they recommenced operations with vigour on the 25th September, from which time to the end of the working season a strong force was constantly employed.

The architect reports that the whole of the outer walls are now completed, together with most of the interior masonry, the roof-trussing well advanced, and that the quality of the work is satisfactory. He has given such full information in his report, in reference to this work, that it is unnecessary here to allude to it, further than to supply, from his previous measurements and returns, a detailed statement showing the general condition of the contract on the 4th October last, shortly after the works had been resumed. This statement is given in the appendix H, and shows the gross amount of contract and extra works then authorized, the amount of payments made, &c., &c., &c.

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## THE FOLLOWING STATEMENTS ARE APPENDED TO THIS REPORT.

No. 1. Statement of the several works under the charge of this Department which are in use and yield revenue; showing, under different heads, the expenditure on construction and the amount paid for land damages during the year 1862; the total cost of construction under this Department to the 1st January, 1863; and the cost of repairs and management during the year 1862.

No. 2. Statement of Public Works under the charge of this Department, incomplete and, as yet, unproductive, but on which tolls are to be levied as soon as they are available; showing the expenditure thereon in 1862, on construction, and on repairs and management, and the total expenditure up to 1st January, 1863.

No. 3. Statement of several Public Works Buildings in course of construction and under the charge of this Department, yielding no direct revenue, but in use for the public service, and authorized by Legislative appropriations; showing the amount expended thereon

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during the year 1862, and the total outlay upon them up to 1st January, 1863; also the amount expended in repairs and maintenance for the same period.

No. 4. Statement of expenditure on certain miscellaneous services under this Department during the year 1862.

No. 5. Statement of the expenditure incurred under this Department for the repairs and management of the Ordnance Canals for the year 1862.

No. 6. A detailed statement of the expenditure incurred in repairs and maintenance of Provincial Light-Houses for the year 1862, under this Department.

No. 7. Statement showing the total amount expended under the Department of Public Works during the year 1862, as detailed in the foregoing statements, numbered 1, 2, 3, 4, 5, and 6.

All of which is respectfully submitted.

U. J. TESSIER,

*Commissioner of Public Works.*

DEPARTMENT OF PUBLIC WORKS,

Québec, 20th February, 1863.


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APPENDIX TO THE REPORT

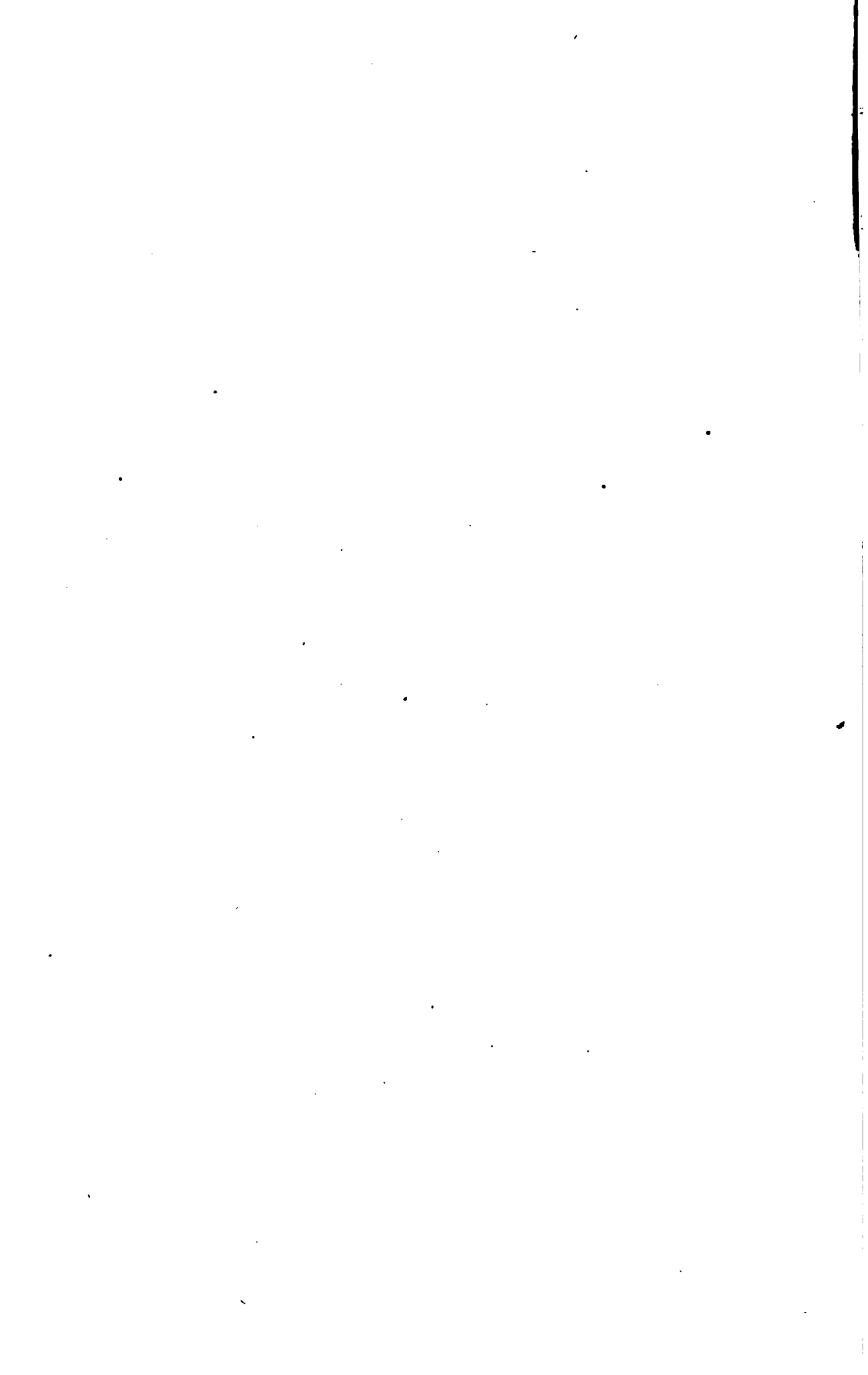
OF THE

COMMISSIONER OF PUBLIC WORKS,

FOR THE YEAR 1862.

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## APPENDIX A

## No. 1

STATEMENT of the several Works under the charge of this department which are in use and yield revenue, shewing, under different heads, the expenditure on construction and the amount paid for land damages during the year 1862, the total cost of construction under this department to the 1st January, 1863, and the cost of repairs and management during the year 1862.

NAME OF WORK.	Expenditure on construction during the year 1862.	Amount paid for damages in 1862.	Total expenditure on construction to 1st Jan'y., 1863.	Cost of repairs and management for 1862.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
<i>Canals.</i>				
Welland.....	52454 82	456 00	4719469 58	61250 22
<i>St. Lawrence Canals, viz :</i>				
Lachine.....	87020 52		2106487 60	22993 73
Beauharnois.....	991 43	338 00	1592200 81	15870 41
Cornwall.....	642 09		466687 83	12674 68
Williamsburg.....			1089739 93	11576 97
Junction.....			230796 11	
General expenditure.....	293 83		74727 95	
Lock Gates.....	12070 62		22865 22	
Chambly.....		170 48	69406 76	16293 95
St. Ours.....			123137 65	2345 69
Ste. Anne's.....			114596 49	2218 27
Burlington Bay Canal.....			291044 49	100 00
<i>Slides and Dams, &amp;c.</i>				
Ottawa.....	43232 65	11000 00	689811 51	15752 35
St. Maurice.....	2911 69		257880 48	12962 42
Trent, securing dams.....	195 00		2380 34	300 00
Saguenay.....			41019 74	725 25
<i>Harbors.</i>				
Port Stanley.....			229377 48	
Union suspension bridge reconstruction.....			5266 60	
<b>Total.....</b>	<b>199,812 65</b>	<b>11,964 48</b>	<b>12,126,956 57</b>	<b>174,963 94</b>

J. BAINE,  
Book-keeper.

DEPARTMENT OF PUBLIC WORKS, }  
February, 1863.

## No. 2.

STATEMENT of Public Works under the charge of this Department, incomplete and, as yet, unproductive, but on which tolls are to be levied as soon as they are available; shewing the expenditure thereon in 1862, on construction, and on repairs and management, and the total expenditure up to 1st January, 1863.

NAME OF WORKS.	Expenditure on Construction in 1862.		Repairs and Management during 1862.		Total expenditure to 1st January, 1863.
	\$	cts.	\$	cts.	\$ cts.
<i>Canals.</i>					
Chats Canal.....					373,191 98
Scougog inland navigation.....	742	83	736	06	479,760 73
	742	83	736	06	852,952 71

J. BAINE,  
*Book-keeper.*

DEPARTMENT OF PUBLIC WORKS, }  
February, 1863.

## No. 3.

STATEMENT of the several public works and buildings in course of construction under the charge of this department, yielding no direct revenue, but in use for the public service, and authorised by Legislative appropriations; shewing the amount expended thereon during the year 1862, and the total outlay upon them up to 1st January, 1863; also the amount expended in repairs and maintenance for the same period.

WORKS.	Total outlay up to 1st January, 1862.	Expenditure during 1862.	Total outlay up to 1st January, 1863.
	\$ cts.	\$ cts.	\$ cts.
Parliament Buildings, repairs, Toronto } Government House ..... do } Custom House ..... do } Post Office ..... do } Observatory ..... do } Female Lunatic Asylum ..... do } Osgoode Hall ..... do } Gun Sheds ..... do } Barracks, repairs ..... do } Railway Inspector's Office ..... do } Mechanics' Institute, completing Building ..... do } Custom House ..... Hamilton } Post Office ..... do } Gun Sheds ..... do } Post Office ..... London } Custom House ..... Kingston } Post Office ..... do } Lunatic Asylum and Gaol ..... do } Public Buildings ..... Ottawa } Court House ..... Montreal } do extraordinary repairs ..... do } Custom House repairs ..... do } Gaol do ..... do } Post Office do ..... do } Normal School do ..... do } Armoury ..... do } Marine Hospital ..... Quebec } Custom House ..... do } Gun Sheds ..... do } Court House ..... do } Post Office and Parliamentary Buildings ..... do } do additions thereto ..... do } Spencer Wood repairs ..... do } do re-construction ..... do } Governor General's residence, in consequence of fire at Spencer Wood in 1861 ..... do } Observatory repairs ..... do } Normal School ..... do } Gaol repairs ..... do } New Gaol ..... do } Gaols and Court Houses, C. E. } Gaols and Court Houses, C. E., 20 Vic, ch. 44 ..... } Aylmer Court House repairs ..... } Kamouraska Gaol ..... } Sherbrooke Court House and Gaol repairs ..... } Three Rivers Court House repairs ..... } St. Hyacinthe do do ..... } Dépot at Anticosti ..... } Rents, repairs, and maintenance Governor General's Residence, St. Louis Street ..... } Court House and Gaol, Algoma ..... } Gaol at Percé ..... }	274815 05 5104 18 28066 07 13884 65 9966 83 159 30 3679 23 637 69 525 62 16000 00 46587 61 52625 42 5566 67 39122 76 46010 24 39647 12 4293 92 1088344 40 806877 13 22237 62 1257 63 1767 45 3037 97 7335 73 856 68 94838 21 268098 50 4545 42 1226 37 59891 18 1623 59 4299 36 9991 67 318 77 7181 06 712 16 41093 31 35441 44 364764 29 523 65 11739 92 3558 65 4096 62 541 42 47 82 328338 74 816 79 343 85	331 75 1748 76 656 47 45 32 4141 31 300 00 172 09 36288 06 178 78 56 25 42801 97 48655 82 453 00	39454 51 9084 49 95494 68 1271 69 14263 76 884 25 77381 37 438063 04 11918 70 3614 90 366140 71 48555 82 769 79
Carried over .....		341381 43	

## No. 3.—STATEMENT of Public Works, &amp;c.—Continued.

WORKS.	Total outlay up to 1st January, 1862.		Expenditure during the year 1862.		Total outlay up to 1st January, 1863.	
	\$	cts.	\$	cts.	\$	cts.
Brought forward .....			241331	42		
<i>Light Houses.</i>						
Light Houses below Quebec .....	396503	55				
Light House apparatus, Quebec .....	54602	16				
Light Houses (new), Quebec .....	34953	03	8471	83	43424	86
Point Pelée Light House .....	60550	47	6458	62	67009	09
Snake Island Light House .....	10430	04				
Basin of Quinté Light House .....	108	16				
Light Houses, Lake Huron .....	147614	75				
Light House apparatus, Lake Huron .....	74949	16				
Floating Lights above Lachine .....	26397	93				
Gaspé Bay and Harbor Buoys .....	499	82				
Inland Lake and River Lights .....	6073	79	1077	50	7151	29
Father Point Light House .....	1453	61				
Ottawa River Navigation .....	3642	54				
<i>Roads.</i>						
Canada and New Brunswick .....	175158	56	16091	91	191250	47
Metapedia, South .....	28981	55	523	89	29505	44
do North .....	16382	59				
Eastern Canada and New Brunswick Road, by the Meta- pedia .....			27055	71	27055	71
Malbaie and Grande Bale .....	10123	82	1832	91	11956	73
St. Denis and Cap Chats .....	21291	74	1912	64	23204	38
Escoumains .....	1537	50	1011	00	2548	50
Marmora .....	4000	00				
Garrison Road, Toronto .....	1600	50				
Gaspé Road .....	12348	76	3727	77	16076	53
Côteau and Province Line Road .....	1482	01				
Cornwall .....			510	22	510	22
Batiscan Bridge repairs .....			642	00	642	00
<i>Harbors and Piers.</i>						
Port Bruce .....	6267	47				
Lake Huron .....	97448	82				
L'Orignal .....	2000	00				
Pier at St. Anciet .....	87	97	1920	00	2007	97
Landing Piers .....	768971	02				
Repairs of Piers .....	10630	70	4734	20	15364	90
Pier at Port aux Quilles .....	163	45				
Dredging Narrows, and New Bridge, Lake Simcoe .....	10138	30				
Dredging at Picton and Presque Isle .....	3856	20	5193	84	9050	04
Dredging operations .....	1078	56	1230	00	2308	56
Dredging Vessels, Steam Pumps, &c. ....	3155	08	63	31	3218	39
Dredging at St. Clair Flats .....	19984	45				
Richelieu Rapids Improvements (Ste. Anne de la Pêrade) .....	13713	95				
North River and Petite Nation Bridge Improvements .....	4254	11				
River Thames Navigation Improvements .....	3821	42				
			\$323788	77		

J. BAINE,  
Bookkeeper

DEPARTMENT OF PUBLIC WORKS, }  
February, 1863.



## No. 4.

## STATEMENT of expenditure on certain Miscellaneous Services under this Department during the year 1862.

	\$	cts.
Provincial Steamers.....	34,165	78
Tug Boats, Upper St. Lawrence.....	20,000	00
Surveys generally.....	4,939	59
Arbitrations, Awards, &c.....	24,663	02
Removal to Quebec in 1859.....	869	50
Advertising Sale of Provincial Steamers.....	21	72
Visit of H. R. H. Prince of Wales.....	1,106	92
Do Prince Alfred.....	1,100	00
Contingencies of Department for Engineering Branch.....	2,568	65
Advertising Hydraulic Lots, Rideau Canal.....	10	98
Militia Expenses for drilling purposes.....	1,937	19
Services of Steamer Advance in 1859.....	2,070	00
Survey, Harbors of Refuge, Lake Huron.....	955	30
Reformatory, Lower Canada, St. Vincent de Paul.....	18,600	77
Indemnity to Heirs of late Mrs. Delmont.....	1,000	00
Services of Steamer conveying H. E. Governor General to Montreal.....	1,600	00
Do do Lord Mulgrave from Shediac to Quebec.....	2,800	00
	118,409	42
<i>Less ;</i>		
Included in No. 1 Statement and also under the head of Arbitrations .....	11,964	48
	106,444	94

J. BAINE,  
*Book-keeper.*

DEPARTMENT OF PUBLIC WORKS, }  
February, 1863.

## No. 5.

## STATEMENT of the expenditure incurred under this Department for the repairs and management of the Ordnance Canals for the year 1862.

NAME.	Extraordinary repairs.	Ordinary repairs and Management.	Total expenditure.
	\$ cts.	\$ cts.	\$ cts.
Rideau Canal.....		23,232 16	23,232 16
Carillon and Grenville Canal.....		7,425 68	7,425 68
Low r Brewer's.....	1,445 85		1,445 85
Lock Gates for Rideau Canal.....	1,885 32		1,885 32
Black rapids dam.....	5,081 09		5,081 09
Breach at Hogsback.....	29,482 48		29,482 48
Carillon and Grenville Improvements.....	356 75		356 75
	38,251 49	30,657 84	68,909 33

DEPARTMENT OF PUBLIC WORKS, }  
February, 1863.

J. BAINE,  
*Book-keeper.*

## No. 6

A DETAILED statement of the expenditure incurred in repairs and maintenance of Provincial Light Houses, for the year 1862, under this department.

Name of Light.	Name of Keeper.	Amount of Salary paid.	Supplies and Repairs.	Total.
		\$ cts.	\$ cts.	\$ cts.
Lachine Pier.....	John Norton.....	385 00	116 50	501 50
Light Ship No. 1.....				
Do No. 2.....				
Do No. 3.....	Pierre Landré.....	250 00	107 27	357 27
Beauharnois.....	Benjamin Picard.....	250 00	96 00	346 00
Grosse Point.....	Joseph Meloche.....	225 00	126 40	351 40
Mackie's Point.....	Peter Shannon.....	435 00	219 70	654 70
Cherry Island.....	A. McDonald.....	175 00	67 00	242 00
Do Light Ship.....	E. S. Johnson.....	435 00	123 13	558 13
Lancaster Pier.....	G. H. Johnson.....	250 00	295 87	545 87
Cole Shoal.....	Thomas Hill.....	375 00	109 35	484 35
Grenadier Island.....	Richard Elliott.....	140 00	295 00	435 00
Lindoe Island.....	Joseph Austin.....	120 00	72 30	192 30
Gananoque Narrows.....	J. Wallace.....	140 00	66 90	206 90
Jack Straw Shoals.....	James McDonald.....	260 00	89 20	349 20
Spectacle Shoal.....				
Red Horse Rock.....	Daniel Bryant.....	500 00	112 38	612 38
Burnt Island.....	Joseph Mervin.....	120 00	69 05	189 05
Wolfe Island.....	Thomas Kilty.....	225 00	137 80	466 42
	Robert Gillespie.....	123 62		
Snake Island.....	L. Herchner.....	435 00	316 98	751 98
Nine Mile Point.....	John Dunlop.....	435 00	603 42	1038 42
False Ducks.....	Joseph Swetman.....	510 00	890 10	1400 10
Point Peter.....	W. A. Palin.....	435 00	511 75	946 75
Scotch Bonnet.....	Samuel Wilson.....	435 00	1060 42	1495 42
Presqu' Isle.....	Wm. Swetman, Sr.....	325 00	927 77	1252 77
Do Range Light.....	Wm. Swetman, Jr.....	250 00	128 55	378 55
Gull Island.....	George Roddick.....	435 00	650 10	1085 10
Gibraltar Point.....	George Durnan.....	435 00	503 32	938 32
Burlington Bay.....	George Thompsen.....	300 00	82 90	382 90
Port Dalhousie.....	Jonathan Woodall.....	400 00	420 43	820 43
Port Colborne.....	James Fortier.....	400 00	742 07	1142 07
Mohawk Island.....	John Burgess.....	435 00	298 97	733 97
Port Maitland.....	Peter Baikie.....	435 00	79 67	514 67
Port Dover.....			79 40	79 40
Long Point.....	H. H. Clarke.....	326 25	729 70	1055 95
Port Burwell.....	Alexander Sutherland.....	320 00	60 88	380 88
Port Stanley.....	Richard Ead.....	144 00	123 29	267 29
Point Peléo.....	P. McIntyre.....	435 00	962 57	1722 57
	W. Wadsworth.....	325 00		
Pelé Island.....	James Oummins.....	543 75	781 65	1275 40
Bois Blanc.....	James Hackett.....	435 00	493 15	928 15
River Thames.....	Thomas Cartier.....	435 00	160 37	595 37
Goderich.....	Humphrey Fidler.....	325 00	377 18	602 18
Point Clark.....	John Young.....	435 00	405 05	840 05
Chantry Island.....	D. McG. Lambert.....	326 25	562 45	888 70
Isle of Coves.....	D. McBeath.....	435 00	659 67	1894 67
	Wm. McBeath.....	300 00		
Griffith Island.....	Vesey C. Hill.....	435 00	251 98	686 98
Nottawasaga Island.....	George Collins.....	436 00	581 20	1091 20
	E. Collins.....	75 00		
Christian Island.....	Wm. Hoare.....	435 00	411 97	846 97
Green Shoal.....	D. Thomas.....	245 00	86 58	311 58
Point Claire, No. 1.....	Arsonne Glode.....	247 50	179 02	426 52
Do No. 2.....	Samuel Biron.....	245 00	69 91	314 91
Carried over.....		17036 37	16126 32	33163 69

No. 6.—STATEMENT of the expenditure incurred in repairs and maintenance of Provincial light houses, for the year 1861, under this department.—*Continued.*

	Total.
	\$ cts.
Brought forward.....	33162 69
Management, salary of Superintendent and his travelling expenses, freight and charter of Steamers delivering supplies, advertising, &c.....	5136 41
Placing buoys and light ships.....	718 83
Purchase of land for light house keepers' dwellings .....	168 10
Gaspe and Amherst Harbors Maintenance.....	109 00
Supplies on hand in store.....	750 00
	\$40,036 03

J. BAINE,  
*Book-keeper.*

DEPARTMENT OF PUBLIC WORKS, }  
February, 1863.

No. 7

STATEMENT shewing the total amount expended under the department of Public Works during the year 1862, as detailed in the foregoing statements, numbered 1, 2, 3, 4, 5 and 6.

STATEMENT.	Repairs and Maintenance.	Construction.	Miscellaneous.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
No. 1.....	174963 94	211777 13		386741 07
2.....	1478 89			1478 89
3.....	113121 33	210667 44		323788 77
4.....			106444 94	106444 94
5.....	68909 33			68909 33
6.....	49036 03			49036 03
Total.....	398,509 52	422,444 57	106,444 94	927,399 03

J. BAINE,  
*Book-keeper.*

DEPARTMENT OF PUBLIC WORKS, }  
February, 1863.

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## APPENDIX B.

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WELLAND CANAL OFFICE,  
St. CATHERINES, December 20th, 1862.

SIR,—In compliance with the instructions conveyed to me in your letter (No. 43,601) of the 11th instant, I have the honor to submit my annual report on the works under my charge.

The canal was opened on the 15th April, on which day, vessels passed through from lake to lake. A day or two previous, this was quite unexpected, from the firm state of the ice then in the canal, which obstacle was removed by means of an ice-breaker.

The navigation has been maintained throughout the season without interruptions, except in a few instances, when the delays were but trifling, caused by the shifting of lock-gates, or making repairs to the bridges, and the raising of the lower sill of the lock at Port Robinson.

On the 6th of December, the canal was closed by ice, the severity of the weather being such that it was in many places upwards of five inches in thickness, rendering it improbable that there would be any further passages of vessels. Subsequently the weather moderating, and there being a number of vessels yet to be passed through, I was enabled to have the channel opened by the ice-breaker, which I had received the necessary authority for putting in an efficient state, thereby furthering the progress of vessels that must have otherwise been detained. The navigation was closed on the 15th December.

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### REPAIRS AND MANAGEMENT.

Previous to opening the canal last spring, the repairs authorized upon the lock-gates, bridges, &c., &c., &c., were made, and the removal of bars from the bottom of the canal, clearing out the locks, &c., &c., &c., affected, thereby rendering the navigation thoroughly efficient, and lessening the probability of any detention.

The work of staunching the Dunnville dam has been completed, but too late in the season to thoroughly test the benefits to be derived therefrom. From the previous state of this work, there can be no doubt, much saving of water will be effected (by the staunching) when there is a scant supply.

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### WORK OF CONSTRUCTION.

The progress made with the work of deepening and widening the upper level of the Canal, for the purpose of admitting the water of Lake Erie, as the summit level, has not been as satisfactory as was anticipated in my previous report. This work has been steadily prosecuted throughout the season, but the difficulty experienced by the contractor in wasting the excavations has much retarded his operations. The appropriation required for carrying on this work next year will be \$30,000.

The work of raising and strengthening the embankments referred to in my last report has been completed, so far as appeared necessary, to secure the passage of vessels with the greatest draught of water that the canal admits of. But owing to the great traffic, the towing-paths became much worn and wasted by the constant travel of the two horses over them, and, in consequence, will annually require some outlay for their maintenance.

The necessity for the construction of another towing path, from Hurst's to Marlatt's bridge, is annually made more apparent, by the frequent delays experienced by vessels. Its estimated cost is \$18,100. The advantages to be derived from this improvement sufficiently justify my strongly recommending it to such favorable consideration of the Department as will authorise its being speedily proceeded with.

I herewith submit the following Schedules, by-reference to which may be ascertained the various annual expenditures upon this work, the collections of the revenue, &c., &c., &c.

*Schedules Nos. 1 and 2, (not printed)* shew the several appropriations made by the Legislature, and the expenditure upon the works to 1st December, 1862. Of the appropriations, there has been expended this year \$52,541.40, leaving a balance of \$26,030.34 applicable for next year's operations, in addition to the sum of \$30,000 before alluded to.

*Schedule No. 3 (not printed)* gives the cost of the repairs and management of the canal this year. These expenditures are defrayed from the canal revenue.

The cost of repairs is.....	\$22,120.73
Do do management.....	39,129.49
<b>Total for repairs and management.....</b>	<b><u>\$61,250.22</u></b>

The cost of the repairs is \$2,120.73 in excess of the amount furnished in the approximate estimate accompanying my report on this work last year. This excess has been incurred in making the following repairs not then anticipated, viz :

For repairs of the damages done to the lock-gates, bridges, &c., by vessels.....	\$ 698.00
For repairs of the damage by fire to the light house at Port Dalhousie..	512.82
For repairs of the damages done to the Pier at Port Dalhousie by a vessel.....	76.00
For putting in a dam to shut off water from the beach at Sulphur Creek weir.....	362.40
For repairs and strengthening Sulphur Creek weir.....	1,028.32
For putting down the sill at Port Robinson lock.....	407.75
For repairs of the scow used as an ice-breaker.....	373.53
For expenses of working scow, breaking ice to enable vessels to pass...	297.64
<b>Total.....</b>	<b><u>\$3,756.46</u></b>

The cost of the works not included in the estimate is \$3,756.46; had there not arisen a necessity for their execution subsequent to my furnishing the estimates, the expenditure for repairs would have been \$1,635.73 less.

*Schedule No. 4* shews the water-power and other property leased on this canal, with the erections &c.

The annual rent for property and water-power leased is \$8,999.10.

The amount collected in 1862 is \$7,363.90.

The arrears remaining due to 1st December, \$6,801.74.

The annual rent from the property and water power is shewn to be \$8,999.10; but as this sum includes several rentals the holders of some of which have failed, and the premises of these and others being in most cases either abandoned or burnt, or not in use, the collection of the rents cannot be enforced in the usual way, by shutting off the water. Therefore they must be in a great measure looked upon as unavailable. Upon these holdings, the annual rent is shewn to be \$1,480.34 (marked A, upon Schedule); included in this sum is the annual rental of premises which have been abandoned, amounting to \$563 (marked A, B, in Schedule); and \$3,239.50, for arrears, which may be set down as bad, there being no probability of their being collected. The others shew an annual rental of \$917.34, and the arrears amount to \$1,914.88, (marked A, C, on Schedule.) These premises have been burnt or are not in use, and the holders decline to pay

rent, as they are not using water. Until these privileges are resumed, there will be no means of enforcing collection in the usual way by stoppage of water.

Steps have been taken towards the collection of the residue of the arrears, and, where practicable, the water has been shut off.

*Schedule No. 5*, shews the land &c. disposed of, not being required for canal purposes. The solicitor, Mr. Miller, has been instructed to proceed with the collection of the arrears.

*Schedule No. 6*, gives a list of the vessels &c., upon which penalties have been imposed, for committing breaches of the canal regulations, with the amounts collected.

*Schedule No. 7*, (not printed) gives an approximate estimate of the probable cost of making the ordinary canal repairs for 1863, amounting to \$14,500.

Appended are statements shewing the revenue collected and number of vessels passed through the canal for several years, being an increase of 18 per cent in the revenue, and 13½ per cent in the number of vessels, over last year.

Certain deductions are to be made from the revenue collected, in accordance with the policy proclaimed, that 90 per cent of the tolls would be refunded upon all shipments through the canal to Canadian Ports. The object of the promoters of this scheme appeared to be, to divert the trade to these ports, and thereby increase the carrying trade of the Province. It is true that since its adoption the trade has materially increased, but this is due more to its prosperity than to the policy, as the amount that would be exacted as tolls from the public works is too small to divert shipments from other routes. By reimposing the tolls, a large revenue would be derived from the public works, without embarrassing shippers. The state of the Finances of the Province appear to afford sufficient reason for its adoption.

I have the honor to be, sir, your obedient servant,

(Signed,)

S. D. WOODRUFF.

## WELLAND CANAL.

TABLE of its revenues for the last three years.

Port of Collection.	1860	1861	1862
Colbourne.....	\$116,033.55	\$174,474.27	\$205,061.81
Robinson.....	3,502.78	4,775.37	6,373.06
Maitland.....	1,635.31	6,912.37	1,756.17
Dunnville.....	5,261.40	5,918.93	5,337.81
St. Catherines.....	1,259.71	1,412.10	1,527.43
Dalhousie.....	37,477.90	36,276.45	51,327.99
	\$165,220.65	\$229,769.49	\$271,384.27
Collected on rents.....	\$ 7,686.97	8,967.20	7,363.90
Do lands &c., sold.....	1,737.07	25.00	
Do fines and damages.....	2,116.10	2,267.80	573.00
	\$176,760.79	\$241,029.49	\$279,321.17

## NUMBER OF SAILING VESSELS AND STEAMERS WHICH HAVE PASSED THROUGH THE CANAL DURING THE LAST NINE YEARS.

In 1854.....	3,690.
" 1855.....	3,816.
" 1856.....	3,885.
" 1857.....	3,604.
" 1858.....	3,726.
" 1859.....	2,589.
" 1860.....	3,744.
" 1861.....	4,315.
" 1862.....	4,899.

# WELLAND CANAL.

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SCHEDULES 4 TO 6 INCLUSIVE.

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**Annual Rents of Water Power—Lands Sold—Fines and Damages, etc.**

## WELLAND CANAL.

SCHEDULE No. 4.—Statement shewing the annual rents of water power leased, and the rents of other property situated on the line of the Welland Canal, with yearly rent, together with arrears of rent, the amounts of payments made in 1862, with the balance due the 1st December, 1862.

Where situated.	Owners.	Owners or Occupants.	Description of Machinery.	Yearly Rent.	Amount of Rent, with Arrears, to 1st July, 1862.	Amount of Payments to 1st Dec., 1862.	Balances due on Rents to 1st Dec., 1862.	REMARKS.
				\$ cts.	\$ cts.	\$ cts.	\$ cts.	
Port Dalhousie ...	Robert Lawrie & Co....	R. Lawrie & Co.....	1st Run Stones .....	60 00				
			2d do .....	50 00				
			3d do at \$50 each..	50 00				
			Corn Cracker.....	10 00				
			Ground Rent .....	20 00				
			Interest on cost of Flume....	7 30				
				197 30	197 30	197 30		
Do	R. & J. Lawrie .....	R. & J. Lawrie .....	1st Run Stones .....	60 00				
			3d do .....	150 00				
			Ground Rent .....	20 00				
			Interest on cost of Flume....	10 00				
				240 00	240 00	240 00		
Do	R. & J. Lawrie .....	R. & J. Lawrie .....	Lot ½ acre land .....	20 00	20 00	20 00		
Do	Donaldson & Andrews	formly R. Morrison	1st Saw.....	80 00				
			1 Circular Saw .....	16 00				
			Ground Rent .....	20 00				
			Interest on cost of Flume....	5 00				
				121 00	266 50	226 00	60 50	
Do	Alexander Muir .....	A. Muir.....	Floating Dock, \$ 76 Dry Dock, 100.....	176 00	176 00	176 00		



Do	Donaldson & Andrews	Donaldson & Andrews	Dry Dock & Services Ground..	100 00	150 00	150 00	.....
Do	James Mavor.....	John Johnson.....	Lot.....	20 00	90 00	.....	90 00
Do	George H. Clark.....	G. A. Clark.....	Wharf.....	80 00	120 00	40 00	80 00
Lock No. 2	Bank of U. Canada.....	form'y J.L. Ranney	1st Run Stones.....	60 00	.....	.....	.....
			4 do @ \$50 each.....	200 00	.....	.....	.....
				280 00	910 00	.....	910 00
St. Catharines.....	St. Catharine's Water Power Co.....	St. Catharine's Wa- ter Power Co.....	Surp's water from Lock 11 to 3	500 00	500 00	500 00	.....
Do	Norris & Neelan.....	formerly C. Phelps..	Special lease.....	150 00	150 00	150 00	.....
Lock No. 4.....	do do .....	do do .....	Wharf.....	40 00	40 00	40 00	.....
Lock No. 5.....	Richard Collier.....	H. H. Collier.....	1st Saw .....	80 00	.....	.....	.....
			Small Machinery, 2d saw .....	60 00	.....	.....	.....
			Ground Rent.....	20 00	.....	.....	.....
			Interest on cost of Flume.....	7 66	.....	.....	.....
				167 66	167 66	167 66	.....
Lock No. 10.....	John Smith & Co .....	formerly S. Towers..	1st Run Stones .....	60 00	.....	.....	.....
			do .....	50 00	.....	.....	.....
			Corn Cracker.....	10 00	.....	.....	.....
			Ground Rent.....	20 00	.....	.....	.....
				140 00	140 00	140 00	.....
Locks No. 22 to 11	Wal'nd Canal Loan Co.	Wal'd Canal Loan Co.	Surplus water passing thro' Welland Canal, with stipa- lations.....	480 00	480 00	480 00	.....
Locks 12, 13 & 14	Gordon & Mackay .....	Gordon & Mackay ..	Water of waste weirs, Locks 12, 13, and 14, to supply Cotton Factory .....	240 00	270 00	240 00	30 00
Lock No. 16.....	John Brown .....	John Brown.....	1st Run Stones with cracker..	60 00	.....	.....	.....
			Additional power .....	80 00	.....	.....	.....
			Ground Rent .....	20 00	.....	.....	.....
				\$160 00	160 00	160 00	.....
			Carried over.....	3091 96	4097 46	2926 96	1170 50

\$30 in arrears for repairs of  
flume leading to factory.

WELLAND CANAL.

SCHEDULE No. 4.—Statement showing the annual rents of water power, leased, &c.—(Continued.)

Where situated.	OWNERS.	Owners or Occupants.	Description of Machinery.	Yearly Rent.	Amount of Rent with Arrears to 1st July, 1861.	Amount of Payments to 1st Decr., 1862.	Balance due on Rents to 1st Decr., 1862.	REMARKS.
				\$ cts.	\$ cts.	\$ cts.	\$ cts.	
Lock No. 20.....	Wm. B. Hendershot...	W. B. Hendershot ..	Carried forward .....	3091 96	4097 46	2926 96	1170 50	
			1st Saw .....	80 00				
			2nd Saw .....	60 00				
			1 Circ Saw for edging Boards ..	16 00				
			Ground Rent.....	20 00				
			Interest on cost of Flume ...	5 00				
Lock No. 21.....	William Besty .....	William Besty .....	1st Saw .....	181 00	362 00		362 00	
			2nd Saw .....	80 00				
			3 Circular Saws, at \$10 each ..	60 00				
			Ground Rent.....	48 00				
			Interest on cost of Flume.....	20 00				
Lock No. 22.....	do .....	do .....	Wheel for grinding bark, &c. ....	216 00	216 00	216 00		
			Interest on cost of Flume.....	3 60				
Lock No. 23.....	Commercial Bank.....	formerly W.H. Ward ..	2 Planing Machines, and 3 Circular Saws .....	63 60	63 60	63 60		
Lock No. 23.....	John McDonagh.....	do ..	1st Saw.....	50 00	25 00		25 00	
			2nd Saw.....	80 00				
			Interest on cost of Flume.....	6 00				
Lock No. 23.....	John Brown.....	John Brown .....	Wharf .....	146 00	146 00	146 00		
				40 00	40 00	40 00		

Lock No. 24.....	Bank of Upper Canada, formerly J. Keofoer.....	1st Run Stones ..... 2nd, 3rd and 4th at \$50 each. Interest on cost of Flume.....	60 00 150 00 12 00	222 00	222 00			{ 1 year's rent remitted by letter of authority, No. 43,436, Nov. 24, 1862.
do .....	Jehn Brown.....	1st Run Stones..... 2nd do .....	222 00 60 00 50 00 20 00					
do .....	D. Thompson's estate..	do Park & Cowen .....	Ground Rent .....					(a.) Mill burnt. (a. c.)
do .....	D. Thompson's estate..	1st Run Stones ..... 2nd and 3rd do, at \$50 each.....	130 00 60 00 100 00					
Lock No. 25.....	J. Woodward's estate..	1st Run Stones ..... 2nd and 3rd do, at \$50 each.....	160 00 6 00 100 00	240 00	240 00			(a.) Mill burnt. (a. c.)
Thoreld.....	Nutty & Woodward ...	Cotton Factory, use of water..	160 00	408 37	408 37			(a.) Mill shut down, and no (a. c.) { water used for some time.
Allanburgh.....	Norris & Neelon.....	do .....	100 00					(a.) No water used.
do .....	Wm. H. Merritt, jr ...	1st Run Stones..... 2nd and 3rd do, at \$50 each. Carding Machine .....	60 00 100 00 50 00 60 67					
do .....	J. & A. Bowman .....	Not occupied .....	270 67	286 31	270 67	15 64		
do .....	Tucker & Rannie.....	Water equal to 1 Run Stone. Interest on cost of Flume.....	80 00 7 10 87 10					
do .....	William Pennock.....	do .....	60 00 6 00	87 10	87 10			(a.) Premises abandoned. (a. b.) { No water used, nor rent carried out since 1859.
Pert Robenson ...	J. & J. Abbey .....	Dry Dock.....	66 00	231 00	231 00			
		Carried over .....	600 00	600 00	600 00			
			66 00	66 00	66 00			
			150 00	150 00	150 00			
			5800 33	7240 84	4788 33	2452 51		

## WELLAND CANAL.

SCHEDULE No. 4.—Statement shewing the annual rents of water power leased, &amp;c.—Continued.

Where situated.	OWNERS.	Owners or Occupants.	Description of Machinery.	Yearly Rent.	Amount of		Balance due on Rent to 1st Dec., 1862.	REMARKS.
					Rent with Arrears to 1st July, 1862.	payments. to 1st Dec., 1862.		
				\$ cts.	\$ cts.	\$ cts.	\$ cts.	
Pest Robinson	J. & J. Abbey	J. & J. Abbey	Carried forward	5800 33	7240 84	4788 33	2452 51	
do	D. E. McFarland, for merely Donald and McFarland	Dry Dock	1st Run Stones Ground Rent and House do Interest on cost of Flume	79 20 60 00 20 00 6 00	396 00		396 00	
do	D. E. McFarland for merely B. Band & Co.	1st Run Stones 2nd and 3rd do at 50 \$each Ground Rent of Mill do of store house and wharf. Interest on cost of Flume	86 00 60 00 100 00 20 00 20 00 6 00	86 00	86 00		86 00	
Merrittville	W. Thompson, formerly Dunlop & Seely.	1st Run Stones 2nd and 3rd do at \$50 each Other Machinery Interest on cost of Flume	206 00 60 00 100 00 50 00 6 00	206 00	206 00			
do	Dunlop & Seely	Moses Betta	1st Saw 3 Circular Saws at \$16 each Ground Rent Interest on cost of Flume	216 00 80 00 48 00 20 00 8 00	482 00	216 00	216 00	
				156 00	156 00	156 00		

do	do	Not occupied.....	1st Saw..... 2nd do..... 4 Circular Saws at \$16 each. Interest on cost of Flume.....	80 00 60 00 64 00 10 00	1177 00	1177 00	1177 00	(a.) Lessees left country, pre- mises abandoned, ma- chinery removed, and rent not carried for- ward since 1859. (a.b.)
do	Ebenezer Seely.....	Moses Betts.....	Old Acqueduct for Store house and Wharf.....	20 00	21 72	21 72	21 72	
do	Moses Cook.....	D. Cooper.....	1st Run Stone..... 2nd and 3rd do at \$50 each. Ground Rent..... Interest on cost of Flume.....	60 00 100 00 20 00 12 00	192 00	192 00	192 00	
do	Eli Mead.....	.....	Wharf Lot.....	25 00	77 50	77 50	77 50	
do	Alpheus Sherwood.....	.....	Wharf Lot.....	25 00	87 50	87 50	87 50	
Junction.....	John A. Hellenes.....	J. A. Hellenes.....	Wharf Lot.....	25 00	112 50	112 50	112 50	(a.) Wharf abandoned and removed in course of excavation made in (a.b.) enlarging Canal.
Marshville.....	John Graybiel.....	M. Graybiel.....	2 Runs of Stone, 1 Saw and Ground Rent.....	160 00	160 00	160 00	160 00	
Broadcreek.....	L. McCallum.....	L. McCallum.....	1 Upright Saw..... 2 Circular Saws at \$16 each. Ground Rent..... Interest on cost of Flume.....	80 00 32 00 20 00 11 60	143 00	143 00	143 00	
Port Maitland.....	Imlack & Hicks.....	do	1st Run Stones..... 2nd do..... Ground Rent..... Interest on cost of Flume.....	60 00 50 00 20 00 8 00	759 00	759 00	759 00	(a.) Mill burnt, Lessees failed, and premises (a. b.) abandoned.
Dunnville.....	Jacob Turner.....	Richd. Chambers.....	1st Run Stones..... 2nd do..... 1st Saw..... 2nd do..... Ground Rent.....	138 00 60 00 50 00 80 00 60 00 20 00	270 00	7,755 53	11,247 06	6,368 73
			Carried over.....					

WELLAND CANAL.

SCHEDULE No. 4.—Statement shewing the Annual Rents of Water Power leased, &c.—Continued.

Where Situated.	OWNERS.	Owners or Occupants.	Description of Machinery.	Yearly Rent.	Amount of Rent, with Arrears, to 1st July, 1862.	Amount of Payments to 1st Dec., 1862.	Balance due on Rents to 1st Dec., 1862.	REMARKS.
				\$ cts.	\$ cts.	\$ cts.	\$ cts.	
Dunnville.....	Samuel Darling.....	S. Darling.....	Brought forward.....	77 53	11247 00	5861 33	5385 73	
			Less 1, until Lake Erie level be adopted.....	99 00				
			189 00					
			1st Run Stone.....	60 00				
			2nd do.....	50 00				
			Ground Rent.....	29 00				
			130 00					
			Less 1, until Lake Erie level be adopted.....	43 33				
			36 67					
do .....	L. J. Weatherly.....	A. R. Carpenter.....	3 Carding Machines, 1 Fulling Mill, 1 Loom and Spinner and 2 Turning Lathes. Less 1, until Lake Erie level be adopted.....	80 00				
			26 66					
			53 34					
			80 00					
			20 00					
			100 00					
			Less 1, until Lake Erie level be adopted.....	33 33				
			66 67					
do .....	McIndoe & Gordon,	formly H. Mittleberger	1 Saw.....					
			Ground Rent.....					
			53 34					
			83 34					

				10 67					
do	Richard A. Clarke.	do Chisholm & Minor	1 Circular Saw, since added.	77 34	77 34	77 34	77 34		
			Yearly to be charged.....						
			1st Saw.....	80 00					
			2nd do.....	60 00					
			3 Circular Saws @ \$16 each	48 00					
			Ground Rent.....	20 00					
			Less 1, until Lake Erie level	208 00					
			be adopted.....	69 33					
				138 67	316 34	316 34	316 34		
do	A. E. St. John.....	T. C. Street.....	1st Run Stones.....	60 00					
			2nd and 3d do @ \$60 each.	100 00					
			Ground Rent.....	20 00					
			Less 1, until Lake Erie level	180 00					
			be adopted.....	60 00					
				130 00	960 00	960 00	960 00		
do	J. Brown and W. H. Merritt, Jr.....	John Brown.....	1st Run Stones, with crusher.	20 00					
			Ground Rent.....	20 00					
			Interest on cost of same.....	13 00					
				113 00	113 00	113 00	113 00		
do	John Oldfield.....	John Oldfield.....	1st Saw.....	80 00					
			2nd do.....	60 00					
			1 Circular Saw.....	16 00					
			Ground Rent.....	20 00					
			Less 1, until Lake Erie level	176 00					
			be adopted.....	58 66					
				117 34					
			Carried over.....	8371 89	18033 75	6688 92	8345 73		

(a.) Mill burnt, and no Rent.  
 a.b.) Carried forward since 1st  
 July, 1860.

WELLAND CANAL.

SCHEDULE No. 4.—STATEMENT showing the Annual Rents of Water Power leased, &c.—Continued.

Where Situated.	OWNERS.	Owners or Occupants.	Description of Machinery.	Yearly Rent.	Amount of Rent, with Arrears, to 1st July, 1862.	Amount of Payments to 1st Dec., 1862.	Balance due on Rent to 1st Dec., 1862.	REMARKS.
				\$ cts.	\$ cts.	\$ cts.	\$ cts.	
			Brought forward.....	8371 89	13033 75	6686 02	6345 73	
			Additional Machinery; 1 Gang Upright Saws, 1 Planing Machine, 3 Circular Saws for Lathing, 1 for cross-cutting, 1 for Bolting, and 1 for Sawing Butts.....	120 00				
				237 34				
Haldimand.....	J. Clarke & Brothers..	formerly C. Johnson	1st Saw.....	80 00	474 68	118 67	356 01	(a.) Mill burnt. (a.c.)
			Ground Rent.....	20 00				
			Less ½, until Lake Erie level be adopted.....	100 00				
				33 33				
				66 67				
do .....	J. C. & R. H. Kirkpatrick .....	formerly E. Brocklebank .....	1st Run Stone.....	60 00	166 67	166 67	.....	
			Ground Rent.....	20 00				
			Less ½, until Lake Erie level be adopted.....	80 00				
				26 66				
				53 34				
			2d & 3d Run Stones, \$50 each	100 00				
				153 34	153 34	153 34	.....	



do	J. Beatty & R. Band.	J. Beatty's Estate.....	1st Run Stone.....	60 00			
			2nd do .....	50 00			
			Ground Rent.....	20 00			
			Interest on cost of Flume.....	19 20			
				149 20	149 20	149 20	
Pert Colborne.....	H. K. Scholfield.....	Buffalo and L. H. Railway Company.....	Wharf Lot.....	25 00	62 50	62 50	
do	John Gordon.....	John Gordon.....	Wood Yard.....	25 00	37 50	37 50	
Post Robinson.....	John Donaldson for merly Robert Elliot.....	John Brown.....	Ground Rent of Store House.....	8 00	8 00	8 00	
Lock No. 25.....	John Brown.....	John Brown.....	1 Run of Stones with Cracker.....	60 00			
			Ground Rent .....	20 00			
				80 00	80 00	80 00	
				8,999 10	14,165 64	7,863 90	6,801 74

(Signed,)

(Signed,)

S. D. WOODRUFF,  
*Superintendent Welland Canal*  
 THOMAS ADAMS,  
*Paymaster and Clerk.*

WELLAND CANAL OFFICE, }  
 St. Catharines, December 19th, 1862. }

**WELLAND CANAL.**

**SCHEDULE No. 5.**—Schedule of Lands on the Welland Canal sold to sundry persons, with the amount of Sales and Interest to 1st December, 1862, amount paid to 1st December, 1862, and the balance remaining due on the 1st December, 1862.

PURCHASERS.	Number of Lot.	Where Situated.	Quantity.	Amount of Sale.	Amount of Interest to 1st Decr., 1861.	Amount of Sale and Interest to 1st Decr., 1862.	Amount paid (to 1st Decr., 1862).	Amount paid in 1862.	Balances due the 1st December 1862.	Remarks.
James B. Benson, on behalf of Hydraulic Co.....	.....	Lets below Thorold.....	211 a. 1 r. 17 per.	\$ cts. 8454 25	\$ cts. 5213 20	\$ cts. 13667 45	\$ cts. 2010 85	\$ cts. ....	\$ cts. 11656 60	
Municipality of the County of Welland .....	.....	Lands in Wainfleet, do Humberstone do ...	10,796 acres } 2,048 do } 68 do }	12912 00	6043 40	18955 40	3309 56	.....	15645 84	
				21,366 25	11,256 60	32,622 85	6,320 41	.....	27,302 44	

(Signed,) S. D. WOODRUFF,  
Superintendent Welland Canal.  
(Signed,) THOMAS ADAMS,  
Paymaster and Clerk.

WELLAND CANAL OFFICE,  
St. Catharines, December 20th, 1862. }

## WELLAND CANAL

SCHEDULE No. 6.—Statement shewing the amount of Fines and Damages levied, the amount paid to the 1st December, 1862, and the balance remaining due on the 1st December, 1862.

Year.	Date.	Description of vessel, &c.	Name of Vessel, &c.	Amount	Am't of	Amount	Amount	Remarks.
				of Fines levied.	Damages levied.	paid to 1st Dec., 1862.	remaining unpaid to 1st Dec., 1862.	
				\$ cts.	\$ cts.	\$ cts.	\$ cts.	
1862	April 22	Schooner	'S. H. Lathrop'		1000 00		1000 00	Paid since 1st Dec., 1862.
"	" 30	Steamer	'St. Nicholas'	80 00	4800 00		1800 00	
1860	May 30	Schooner	'Mohegan'		1963 00		953 00	
1861	" 16	do	'Amelia'		1246 00		1246 00	
1862	" 14	do	'Cuba'		10 00		10 00	
"	" 14	do	'Henry Hagar'	10 00	22 00		22 00	
"	June 26	do	'Hyphen'		15 00		15 00	
"	April 18	do	'Persian'	10 00		10 00		
"	" 21	do	'Queen of the Lakes'	20 00		20 00		
"	" 28	do	'B. Scovelle'		20 00	20 00		
"	May 3	Propeller	'Young America'		12 00	12 00		
"	" 13	Schooner	'Concord'		4 00	4 00		
"	" 15	do	'James Coleman'		25 00	25 00		
"	" 16	Propeller	'Vermont'		10 00	10 00		
"	" 16	Schooner	'Ocean Eagle'		50 00	50 00		
"	" 22	do	'Return'		20 00	20 00		
"	" 28	Raft	'A. M. Cresbie'	15 00			15 00	
"	" 28	Schooner	'Flora Watson'	10 00		10 00		
"	" 28	Propeller	'Young America'	10 00		10 00		
"	" 29	Schooner	'Marquette'		10 00	10 00		
"	" 29	do	'Mary Morton'	10 00			10 00	
"	June 6	Raft	'Deceros'	5 00			5 00	
"	" 6	do	'Donaldson'	20 00		20 00		
"	" 6	Schooner	'A. P. Kirtland'		5 00		5 00	
"	" 19	Propeller	'Wisconsin'	10 00		10 00		
"	" 25	Schooner	'Sowersby'	20 00		20 00		
"	" 26	Propeller	'Kentucky'		10 00		10 00	
"	" 28	Schooner	'Game Cock'		50 00	50 00		
"	July 3	do	'Starlight'		15 00	15 00		
"	" 8	Propeller	'Young America'		10 00	10 00		
"	" 30	Schooner	'Preble'	10 00		10 00		
"	Aug. 4	Propeller	'Granette State'		10 00	10 00		
"	" 11	Schooner	'Arabia'		11 00	11 00		
"	" 15	Propeller	'Bay State'	5 00		5 00		
"	" 15	Seow	'Collier'		2 00	2 00		
"	" 19	Propeller	'Buckey'		50 00	50 00		
"	" 20	Schooner	'Bridget'		5 00		5 00	
"	Sept. 1	do	'J. P. Mack'	5 00			5 00	
"	" 9	do	'H. E. Mussey'		30 00	30 00		
"	" 11	Propeller	'Akron'		16 00	16 00		
"	Oct. 6	Schooner	'L. B. Fortier'		10 00	10 00		
"	" 6	Propeller	'Vermont'	5 00			5 00	
"	" 13	Brig.	'Queen of the North'		15 00	15 00		
"	" 20	Schooner	'E. S. J. Bemis'		10 00	10 00		
"	" 20	do	'Teresa'		76 00		76 00	Paid since 1st Dec., 1862.
"	" 29	do	'J. P. Mack'		20 00	20 00		
"	Nov. 6	Propeller	'Wasp'		20 00		20 00	
"	" 15	Seow	'Ark'	13 00		13 00		
"	" 30	Schooner	'T. Y. Avery'		30 00		30 00	
"	" 30	do	'Todd'	10 00		10 00		
				\$258 00	\$9592 00	\$573 00	\$9277 00	

(Signed,)

S. D. WOODRUFF,  
Superintendent Welland Canal.

WELLAND CANAL OFFICE,  
St. CATHERINES, Dec. 29th, 1862. }

(Signed,)

THOMAS ADAMS,  
Paymaster and Clerk.

## APPENDIX C.

LACHINE CANAL OFFICE,  
MONTREAL, 31ST DEC., 1862.

SIR,—In compliance with your instructions in Letter No. 43609, I beg herewith to submit my annual Report for the year ending the 31st of December, 1862, on the works under my charge, which consist of the following:—the Beauharnois, Lachine, Chambly, and Carillon and Grenville canals, and the locks and dams at St. Ours and Ste. Annes.

The Beauharnois and Lachine canals, separated by Lake St. Louis, form the two eastern sections of the artificial channel connected with the Upper St. Lawrence navigation, terminating at Montreal, where it connects with sea-going vessels trading with all countries. The Harbor of Montreal has been crowded to its full capacity during the past season with ships engaged principally in the produce trade, which receive their cargoes of grain from vessels navigating these canals, transhipped by floating elevators. Large shipments of flour are also made from the mills connected with the Lachine canal, as well as from Canada West and the Western States. This route forms the natural navigable channel through which the vast products of the north-west are now finding their way to market. This trade must increase and develop itself from year to year, in proportion to the facilities that may be provided for its accommodation.

The returns of trade connected with these canals for the past year show very satisfactory results, the capacity of the wharves and stores at Montreal having been taxed to their full extent. If this trade is to be fostered, and the capacity of this inland navigation developed and encouraged, facilities must be provided for its accommodation, with dispatch in its operations; loss of time in discharging and loading vessels being a heavy tax on the trade. In some instances (and I believe they are not unfrequent) vessels loaded with grain from the West are kept beating about in the canal and harbor, waiting for arrangements to be made for discharging them, longer than it requires for the Montreal Ocean Steamship Company to discharge and load one of their large vessels; for this the forwarders must be paid, which not only forms a heavy tax on the trade, but has the natural tendency of retarding its development. Locks Nos. 1 and 2, and Basin No. 1, at Montreal, are already adapted to 16 feet draft of water, and ground has long since been purchased for extending the basin accommodation on both sides of the canal. All that remains to be done is to carry out and complete the basin and wharfage schemes so long contemplated by the Department which will give 17 feet depth of water in Basin No. 2, and extend two new basins to St. Etienne street, leading to Point St. Charles Station, with which easy access can be had with the Grand Trunk Railway, to and from which sea-going vessels can be taken by small, powerful tugs, such as are now used in the Atlantic ports. These new basins can be lined on both sides with stores and elevators, where a large portion of the ships now visiting Montreal could be loaded in as many hours as it now takes days to accomplish. This may be fairly considered a Provincial Work, and is but the first step towards developing the trade that must eventually centre in this city, and can be made available in time to meet the wants of the trade; it should not, however, in any manner, interfere with, or retard any improvement that may have been decided upon for improving the harbor.

### BEAUHARNOIS CANAL.

The sudden and unexpected thaw of April last flooded a large portion of the low lands in the vicinity of Lake St. Francis, raising the water in the Lake higher than was ever before known, causing several slight breaches in the dyke, through Hungry Bay, which have

since been repaired, and the lowest and most exposed portions raised. As this extreme high water was only of a few days duration, but little actual damage was caused by it. The work of raising the dyke was commenced too late in the season for completion, and will be resumed in the spring.

The dams at the head of the canal also suffered by the high water. The main or lower dam continues to sink in the centre, probably owing to wash and decay; they are now in good order.

The banks along the guard-lock and at the west end of the main dam have been raised and protected with stone, to guard against the possibility of damages arising from a recurrence of extreme high water in the lake. The main banks of the canal have been maintained as usual, several low points have been raised, and such portions as presented signs of weakness strengthened with stone; the banks above and below the regulating-weirs at Locks Nos. 11, 12, and 13 have also been protected with stone. There are still several low places on the long reach that must receive special attention next year.

The cost of maintaining the culverts and ditches has been much greater than usual, owing to the deep snow of winter, the high water last spring, and rains in the fall; they were all in good order at the end of the season.

The mechanical structures are generally in good order. The walls of several of the locks should be pointed, if possible, next April. Such repairs as were found necessary have been made to the gates and fixtures, all of which, as far as could be ascertained without drawing off the water, were in good working order at the close of navigation. The two pairs of upper spare gates that were being built at the date of report for 1861, were delivered in October. The lower gates broken out of Lock No. 13 in October, 1861, have been thoroughly repaired, making three full sets of spare gates now ready for use; at least one full set of these must be inserted early next season. There are also three pairs under contract which, it is thought, will be sufficient for the wants of 1863.

Several of the swing-bridges have received temporary repairs, they all require painting, and the bridge over Lock No. 14, wants a general overhauling during the winter; the farm and road bridges over the regulating-weirs may be considered in good order.

The masonry in the breast wall of the by-wash at St. Timothy is badly shaken, and has been supported a great portion of the season by timber-braces, and must be rebuilt before opening the canal next spring; sand and lime have been provided for that purpose.

The superstructure of the wharf at the head of the canal must be rebuilt at season of low water next year. The trade for the past two seasons has seriously felt the want of more extensive accommodation below the lower entrance lock. This can easily be remedied by extending the south pier some three or four hundred feet, which is estimated to cost \$24 per lineal foot of pier.

Owing to the large amount of snow and ice, the water was not shut off until the 16th of April, when the necessary preparations were made for opening navigation, and the water was again let in on the 28th; the navigation was fully opened on the 30th, the full draft of water being successfully maintained during the next seven months, and was closed by ice on the 30th of November.

There was \$254.42 collected for fines and damages by order of the superintendent.

There has been \$9569.11 expended for working expenses, and \$5940 for repairs, which includes the repairs to lock-gates broken by the "Walter Shanly" in October, 1861. The ordinary repairs for 1863 are estimated at \$7720.

## LACHINE CANAL.

The work of enlarging this canal through the Rock Cut, near Lachine, referred to in last year's report, was completed the beginning of May, and now forms the finest portion of the St. Lawrence canals; the narrowest portion of this cut being one hundred feet in width.

A new regulating-weir was also constructed during the winter, at Lock No. 4. These improvements have been highly beneficial to the trade, and have, to a great extent, removed the cause for the delays, so much complained of last year, above Lock No. 4.

The difficulties in passing the railway bridge have in a great measure been done away with by removing the slopes and improving the channel above and below the bridge, which was done by the Grand Trunk Railway Company.

The construction of the regulating-weir at Lock No. 3, for which plans and specifications were prepared and tenders received early last winter, should no longer be delayed. The difficulties of regulating water at this lock, and at the same time maintaining a uniform height for navigation, can only be removed by its construction.

The manufacturing establishments connected with this lock suffer great inconvenience for the want of a bridge. The construction of this bridge (plans for which have already been furnished) would relieve the Wellington Street bridge, and at the same time afford great accommodation to the western portion of the city.

The wood and timber trade at this port is now so great that it is quite impossible to afford suitable accommodation with the limited space that can be appropriated for that purpose. It is therefore all important that St. Gabriel Basin should be proceeded with at the earliest practicable moment. The construction of these basins would be a great relief to the local traffic in merchandise, which is yearly increasing to such an extent that it is found impossible to meet the wants of the trade with the present limited wharfrage accommodation.

Serious and aggravated delays often occur at the lower entrance of the canal, which is often so crowded that all operations are frequently suspended,—the canal officers having no control over vessels below Lock No. 1. There is a pier connected with the east wall of this Lock that was built by the Department for the accommodation of canal craft, and has always been maintained by the Canal, over which the Harbor Commissioners now claim and exercise full control. This pier was built for, and should be left exclusively for the use of vessels entering and leaving the canal, and should be in no way interfered with by the Harbor Commissioner except to collect the dues; by this means the delay could, to a great extent, be avoided, without inconvenience to the harbor.

The Wellington Street and Lachine bridges were thoroughly overhauled last winter, and portions of the timber prepared for rebuilding Montreal bridge, which work will be proceeded with as soon as a safe crossing can be made on the ice; the other bridges will only require ordinary repairs.

The locks and fixtures are generally in good working order. The walls of Lock No. 2 were pointed, and the north wing of Lock No. 4 rebuilt, last April. A new pair of upper gates must be provided for the old graving-dock at Montreal, and a new breastwork at the upper end of the old lock at Lachine. There are five-and-a-half pairs of spare gates on hand, viz: one lower gate and one pair of upper gates for Locks Nos. 1 and 2; one pair of lower and two pairs of upper gates for Locks Nos. 3 and 4; and one pair of old repaired gates for the guard-lock, with one pair of lower gates under contract for Locks No. 1 and 2. One pair of spare gates should also be provided for the guard-lock.

The regulating-weirs are generally in good order. The new weir at Lock No. 4 was brought into use before the cement in the masonry had proper time to set; the entire south wall in the race will therefore require repointing in the spring. The action of the water below the weir is so great that it may be found necessary to face about one hundred feet of this wall with plank.

The accommodation for vessels to make fast below the guard lock at Lachine is very limited, which is the cause of much misunderstanding and trouble between the lockmaster and the masters of vessels. To remedy this, the north pier should be extended about three hundred feet on detached cribs with a continuous superstructure. Several of the guide cribs in the basin at Lachine were broken and damaged by vessels during the season, all of which have been repaired.

The banks, slope-walls, flour-sheds, and wharves have all been maintained in good order, and will only require ordinary repairs. The wall in front of the mills on the south side of Basin No. 2, was pointed and grouted last spring, which had the desired effect in checking the leakage to a great extent.

The dredge has been employed throughout the season in the removal of silt and sediment from the bottom of the canal and basins, and can still be employed to good advan-

tage for a portion of the incoming season. The dredge was thoroughly overhauled last spring and is now in very good order; the scows will require new decks.

The water was let into this canal on the fourth day of May, but owing to some delays in the removal of coffer-dams at Lachine, and in completing the fixtures connected with the sluice-gates in the new weir at Lock No. 4, the full draft of nine feet was not obtained until the 7th, after which navigation was maintained until the 6th day of December, when the canal was permanently closed for the season,—the only interruption being at Lock No. 2, which took place on Tuesday morning, the 5th of May, when one of the lower gates gave way while in the act of filling the lock, causing a detention at this lock of two-and-a-half days; most of the time being occupied in removing the old gate.

There has been \$9,413.90 collected on this canal, besides tolls and rents, viz:—

For fines and damages by order of the superintendent	\$	392.50	
“ Sale of old barge.....		18.50	
			\$ 411.00
“ Dues on firewood at Montreal.....		1374.84	
“ “ “ at Lachine.....		321.78	
			1696.62
“ “ Timber in Lachine Basin.....			1345.53
“ “ Old lock at Montreal used as graving-dock			630.25
“ “ Vessels wintering in canal.....			488.00
“ “ Use of flour sheds.....			3484.32
“ “ Vessels entering canal from lower ports...			1408.18
			<u>\$9413.90</u>
The tolls for 1862 amounted to.....			\$135,843.71
“ 1861 “ .....			119,741.06
			<u>\$ 16,102.65</u>
Increase for 1862.....			\$ 16,102.65
The cost of repairs for 1863 is estimated at. ....			\$ 10,540.00

a detailed copy of which will be forwarded herewith, with details of the amounts collected for fines and damages.

### CHAMBLY CANAL.

This canal also suffered severely by the deep snow and sudden thaw of last winter, and the high water in the Richelieu River, which has unavoidably increased the expenditure for repairs beyond the amount estimated. The banks were frequently in danger of being swept away by the water from the creeks and ditches during the months of March and April. The wash from these ditches during winter often deposited mud to the depth of three feet in the bottom of the canal, which must be removed before opening the canal in the spring.

From the 20th of April to the 15th or 20th of May, the Richelieu river was, perhaps, higher than ever before known; between St. Johns and the Island of St. Therese, the water in the river stood on a level with the canal bank, making frequent breaches into the canal, and causing heavy and dangerous slides from the inside of the bank, which for some days endangered the navigation, and further damage was only prevented by the exertions of the superintendent and his men, who were kept constantly employed at this point. It was not until the middle of June that horses employed in towing could safely pass along the towing-path on that portion of the canal, but were crossed on a scow to the main shore at the head of the island. Slides have also occurred in other portions of the bank, which had been strengthened and protected with stone.

The removal of deposit from the bottom of the canal was also tedious and expensive, and could only be effected by forming coffer-dams at each end of the shoal, and pumping out the water; about four miles of the channel was cleared in this way before the navigation could be opened.

Two new pairs of lock-gates were built by the lock and bridge keepers last winter; one pair for Lock No. 8, and one pair for Lock No. 1, both of which were brought into use, and the lower gates of Lock No. 1 repaired.

Several towing-path and road bridges have been renewed, and others repaired.

The landing-pier at Chambly has been repaired and partially sheeted with plank to prevent its being raised by the ice. The storehouse and workshop have also been thoroughly repaired.

Two new pairs of gates should be built this winter, viz: the lower gates for Lock No. 2, and the upper gates for Lock No. 4; and the upper gates at Lock No. 5 should be repaired, which can principally be done by men on the permanent establishment.

The upper wing and recess walls at Locks Nos. 1 and 7 leak badly, and will soon have to be rebuilt; but with attention they may be made to stand a year or two. The sill of Lock No. 7, must be repaired next spring.

The abutments of Lapanes by-wash are built of timber and must be renewed; there are also a large number of towing-path and road bridges that can no longer be considered safe, which must be renewed. Swing-bridge No. 5 requires a new bottom, and No. 8 a new pivot-beam.

The trade became very active during the fall months, when all large vessels experienced difficulty by grounding at the foot of the slopes and on deposit from the ditches and creeks, all of which should be removed before opening the canal. This work is not only expensive but difficult to accomplish at that season of the year. A large portion of the banks still require strengthening with stone, to prevent further slides.

This canal was opened on the 6th day of May, and was maintained in navigable order until the 1st of November, when a breach occurred in the bank below Vickerman's by-wash, which interrupted navigation six days. It closed for the season on the fourth day of December; there was, however, much difficulty in passing vessels after the 16th day of November, on account of the ice. There has been \$69.70 collected for fines and damages during the season, and \$32.64 for dues on wood, &c., making a total of \$102.34, details of which, with the estimated expense of repairs for 1863, amounting to \$7440, will be forwarded herewith.

### ST. OURS LOCK AND DAM.

These works sustained considerable damage by high water and ice on the 17th, 18th, and 19th days of April. For a time it was thought a main portion of the island would be inundated, and the piers at the lock swept away by the floating ice. Several of the coping-stones in the upper wing walls of the lock were moved and broken. The water flowed over that portion of the dam between the lock and road near the mill, and washed away some two or three feet of the top of the bank, but was checked by the exertions of the superintendent and his men.

The piers, having been well braced the fall previous, sustained but little damage. These damages have all been repaired, and 103 toise of stone used in protecting the dam; 15 toise were placed in holes that had formed above the dam, and about 10 toise for securing the anchor cribs. By examinations made after breaking the water on the apex of the dam, it is found that a large quantity of stone is still required for protecting the centre, which now appears to be the weakest point. The apron-cribs at this point were found nearly empty. Some 75 toise of stone were used in filling a portion of them and the space between the cribs and lower side of the dam. At least 200 toise should be furnished for that purpose next season, and a new scow built for examining the dam and breaking the water for repairs, and the large scows should be repaired.



The upper portion of the lock-gates should be pointed, and the piers kept in repair, all of which is estimated to cost \$2800. The protection-walls on the island and at each end of the dam sustained but little damage. The repairs for 1862 amounted to \$1081.58, which was the balance of appropriation remaining over from 1861.

The navigation opened on the 25th day of April, and with the exception of a few hours delay in adjusting the gates, &c., was successfully maintained until the 2nd day of December, when it was permanently closed by ice.

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### ST. ANNE'S LOCK AND DAM.

The spring freshet carried away about thirty feet of the upper guide-pier above the lock and broke and carried away about one hundred and fifty feet of the top of the long dam, near the ice breaker. The superstructure of the guide-cribs placed about a mile below the lock was also displaced. These cribs have been thoroughly repaired; the upper one from the water surface, two courses of new timber placed on the lower one, and both filled with stone. The wing-dam below the lock has been raised four feet, and an opening made to allow barges to pass behind the long pier to avoid the strong current during season of high water. This opening was made in 1861, and was of great service to the trade last spring, barges and small steamers being able to approach and leave the lower entrance of the lock without difficulty. Some three hundred feet of the upper end of the long pier above the dam has been repaired and covered with new three-inch plank, and 190 feet of the face sheeted with three-inch elm plank. The upper guide-pier above the lock was repaired, and the corners of the remaining five sheeted with four-inch elm plank, and such other repairs effected as were found necessary.

There is still 200 feet of the long pier above the lock which must be repaired next year. Some 200 feet of the face should also be sheeted with elm or tamarack plank. These and other necessary repairs are estimated to cost \$900.

The trade over this route is yearly increasing, as shown by the annexed comparative statement of the trade for 1861 and 1862. The navigation at this lock opened on the 29th day of April, and was uninterruptedly maintained until the 2nd day of December, when it was permanently closed by ice.

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### CARILLON & GRENVILLE CANALS.

The trade through these canals is steadily increasing, and must continue to increase from year to year, as the land drained by the Ottawa River and its branches is improved and settled; their maintenance is therefore a matter of great importance to that section of the Province.

Notwithstanding the unusually low water in the Ottawa during the past season, the full draft has been maintained in these canals, except for a few hours on the Carillon section, when the waste by lockage was greater than could be supplied by the North River feeder.

The repairs for the past year have been confined to such works as were absolutely required for the maintenance of navigation, and consisted principally in repairing lock and sluice gates, cleaning the bottom at the most difficult points, making a passing-place above Lock No. 10, raising and improving the towing-path on the Grenville section which had become impassable, repairing fences, dredging the channel above the guard-lock at Grenville, and rebuilding the temporary dam across the North River for supplying the Carillon section with water. Raising this dam forms an annual expenditure of about \$200, the

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largest portion of which might be avoided by sinking a line of cribs across the river, the top of the cribs to be at line of low water, which would supply a much larger volume of water for navigation.

The superstructure of the pier at the upper entrance of the Grenville Canal is quite rotten; the repairs, therefore, cannot be dispensed with beyond the incoming season.

The construction of spare lock-gates, asked for in report for 1861, should be built during the winter and completed in time to be made available for opening the canal in May.

Special attention must be given to cleaning the bottom of the canal before letting in the water next spring, and portions of the banks on the Grenville station raised. This, with the ordinary repairs for 1863, is estimated to cost \$4100, a detailed copy of which will be found herewith.

There has been \$107.06 collected at various points along the line, for dues on firewood piled on canal grounds.

These canals were opened to the trade on the 3rd day of May, and closed on the 30th day of November.

I am, sir,

Your obedient servant,

(Signed,)

JOHN G. SIPPPELL,

Superintendent Engineer.

T. Trudeau, Esq.,

Secretary Public Works, Quebec.

## BEAUHARNOIS CANAL.

STATEMENT in detail of the estimated cost of repairs for 1863.

Structures.	I T E M S .	Quantities.	Price.	Amounts.	Totals.
			\$ cts.	\$ cts.	\$ cts.
Dykes and Dams .....	Dyke through Hungry Bay ...lin. yds	3500	0 25	875 00	
	Dams.....say			300 00	1175 00
Pier at Head Canal .....	Pine timber .....lin. feet	3000	0 17	510 00	510 00
Banks, Slope Walls, &c.....	Gen. repairs before opening canal..say			1000 00	
	Raising banks, &c .....lin. yds	500	1 00	500 00	
	Stone for walls .....toise	50	6 00	300 00	
	Mooring posts.....	50	2 00	100 00	1900 00
Ditches .....	Cleaning ditches.....arpents	350	2 00		700 00
Locks .....	General repairs.....	9	50 00	450 00	
	Pointing walls.....say			200 00	
	Repairs to retaining walls.....cub yds	250	2 00	500 00	
	Oak timber for bumping posts do ft	150	1 00	150 00	
	do lock gates..... do	250	1 00	250 00	1550 00
Bridges .....	General repairs.....	8	75 00	600 00	
	Bridge at lock No. 14 .....say			250 00	
	Painting .....	9	75 00	675 00	1525 00
Lock Houses .....	General repairs.....	18	20 00		360 00
	Total estimated cost for repairs...				7720 00

## BEAUHARNOIS CANAL.

STATEMENT of the amount of Fines and Damages collected by order of the Superintendent for the year 1862.

Date.	Name of Vessel.	Owners.	Amount.	Remarks.
			\$ cts.	
May 9.....	Propeller Whitby .....	Black & Co.....	5 00	Injury to bumping post.
" 9.....	" West .....	Cowan & Co. ....	9 00	" lower gates, Lock 14
" 21.....	Steamer St. Lawrence .....	Smith .....	10 00	Violation of canal regulations.
June 2.....	Propeller Protection.....	" .....	40 00	do do do
" 7.....	Barge Juno.....	Glassford .. .....	1 25	Injury to upper gates, Lock 9.
" 9.....	" Williamstown.....	Brown .....	2 75	" lower gates, Lock 10.
" 11.....	" Neptune .....	Baker .....	4 00	Violation of canal regulations.
" 17.....	" Jet.....	Cowan & Co.....	0 60	Injury to crab handle.
July 8.....	Steamer St. Helen.....	Smith .....	1 00	" ferry scow No. 2.
" 8.....	" Hope.....	Glassford .....	10 00	Entering Lock 11 at full speed.
" 22.....	" Ottawa.....	Jacques & Co.....	20 00	Injury to a scow and fine.
Aug. 12.....	Barge Portland .....	Chaffey.....	4 00	" upper gates, Lock 8.
" 22.....	" Jean Baptiste.....	Benoit.....	2 15	" " Lock 12.
" 25.....	Steamer Ranger .....	Black & Co .....	4 50	" " "
Sept. 3.....	" Boston .....	Chaffey .....	1 00	" lower gates, Lock 9.
" 11.....	" Clyde .....	Cowan & Co.....	8 00	" upper gates, Lock 10 & fine.
" 24.....	" Clyde.....	" .....	18 85	" lower gates, Lock 8 & fine.
Oct. 18.....	Barge Lyre.....	Glassford .....	15 00	" bumping post, lock 10.
" 17.....	" Neptune .....	Baker .....	5 00	" upper gates, lock 10.
" 23.....	Schooner Admiral.....	Wilson .....	61 62	" lower gates, Lock 9 and fine.
" 24.....	Barge Quebec.....	Laporte.....	0 70	" crab handle.
Nov. 7.....	Elevator Samson.....	Cowan & Co.....	10 00	" upper gates, Lock 8.
" 13.....	Schooner Mary Grover.....	Russell .....	20 00	" bridge over Lock 14.
			\$254 42	

(Signed,) **PIERRE LAURENCEL,**  
*Superintendent.*

## LACHINE CANAL.

STATEMENT in detail of the estimated cost of repairs for 1863.

Structures.	I T E M S .	Quantities.	Prices.	Amounts.	Totals.
			\$ cts.	\$ cts.	\$ cts.
Banks and Slope Walls....	General repairs ..			2600 00	
	Mooring posts.....	50	2 50	125 00	2725 00
Locks .....	General repairs to walls .....				
	Mitre sills and gates.....	5	150 00	750 00	
	Gates to old lock.....	2	300 00	600 00	1350 00
Bridges .....	Pine timber.....lineal feet	1500	0 25	375 00	
	do plank.....F B M	40000	30 00	1200 00	
	Spikes .....	1000	0 10	100 00	
	Overhauling Montreal bridge.....say			500 00	
	General repairs.....	4	50 00	200 00	2375 00
Regulating Weirs.....	Pine plank.....	10000	20 00	200 00	
	Pine timber..... lineal feet	500	0 20	100 00	
	Spikes, &c.....lbs	400	0 10	40 00	340 00
Pier at Lachine.....	Repairs to walls .....			275 00	275 00
Flour Sheds and Wharves..	Pine plank..... F B M	85000	20 00	1700 00	
	Spikes .....	2500	0 10	250 00	
	Water conductors.....say			75 00	
	Walls, south side of basin No. 2...say			400 00	
	Banks at wood and lumber basin...say			650 00	3075 00
Buildings .....	General repairs.....	8	50 00	400 00	400 00
	Total estimated cost.....				10,540 00

## STEAM DREDGE.

STATEMENT in detail of the repairs and working expenses for 1863.

	I T E M S .	Amounts.	Totals.
		\$ cts.	\$ cts.
Repairs .....	Deck and hull of dredge.....say	150 00	
	do scows.....say	250 00	400 00
Engine .....	Blacksmith work.....say	75 00	
	Engineer and assistant, fitting up in spring.....say	75 00	150 00
Working Dredge.....	Six months working expenses at \$600.....		3600 00
	Total estimated cost .....		4150 00

## LACHINE CANAL.

STATEMENT of the amount of Fines and Damages collected by order of the Superintendent for the year 1862.

Date.	Name of Vessel.	Owners.	Amount.	REMARKS.
			\$ cts.	
May 12...	Steamer Salaberry .....	Renaud.....	10 00	Damage to Lower Gates, Lock No. 1.
do 24...	Barge Mobawk .....	Laplante.....	5 00	Fined for infringing Canal regulations.
do 24...	do Glassmaker.....	Fortin .....	5 00	do do do
do 24...	Scow John Bull.....	do .....	5 00	do do do
June 2...	Steamer Avon .....	Jacques & Co.....	12 00	Damage to Lock No. 4.
do 3...	do Protection.....	Farrell .....	40 00	Fined for obstructing navigation.
do 12...	Barge Hermine.....	do .....	10 00	do do do
do 20...	do Eos .....	Smith .....	20 00	Damage to Bridge at Lock No. 5.
July 17...	do Newboro'.....	J. H. McLennan..	50 00	Damage to Guide, pier No. 7.
August 6...	do Emu .....	Elevator Co.....	5 00	Taking forcible possession of Lock 5.
do 8...	do Oak .....	Chaffey & Co.....	2 50	Fined for obstructing navigation.
do 11...	Schooner Black Hawk.....	do .....	6 00	Damage to culvert.
do 18...	Barge Flora.....	Arcand .....	10 00	do Wellington Bridge.
do 18...	do Almina .....	Portetance .....	12 00	do Lock No. 3.
do 18...	Steamer Ottawa.....	Jacques & Co.....	50 00	do Wellington Bridge.
do 18...	Crib of flat Tamarac .....	Auger .....	5 00	Fined for obstructing navigation.
do 25...	Crib of flat Timber .....	Lapointe.....	5 00	do do do
do 28...	Schooner Maria.....	Belanger.....	10 00	Damage to Cote St. Paul Bridge.
do 30...	Raft square Timber.....	Lapointe.....	5 00	Abandoned and obstructing navigation
do 30...	Crib flat do .....	Cusson .....	4 00	Adrift in channel.
do 30...	do do do .....	Normand .....	4 00	do do do
do 39...	do round do .....	Dickson .....	4 00	do do do
do 30...	4 cribs Cedar.....	Helmer .....	16 00	do do do
Sept., 6...	2 do .....	Carden .....	8 00	do do do
do 15...	Schooner Niagara.....	Muir & Co .....	8 00	Damage to Wellington Bridge.
do 15...	Crib flat Timber .....	Cusson .....	4 00	Adrift in channel.
do 20...	do do .....	McGaurran .....	4 00	do do do
Oct., 9...	Barge Henrietta Reeve .....	Johnson .....	12 00	Damage to sluice gate racks.
do 13...	do Azilda .....	Crowley .....	8 00	do Lock No. 2.
do 15...	do Union .....	Larpon .....	5 00	do Lock No. 3.
do 15...	Scow John Bull.....	Fortin .....	5 00	Obstructing navigation.
do 15...	do Ottawa .....	Legala .....	5 00	do do do
do 15...	Barge Lady .....	Sabourin.....	10 00	do do do
November .....	Schooner Paragon .....	Kemp .....	10 00	do do do
do .....	Scow Crosby .....	Chaffey .....	5 00	do do do
do .....	Steamer Amity .....	Colvert.....	8 00	
do .....	Steam Elevator.....	Orr & Co.....		
October 15...	Proceeds of sale of Barge Baronne .....		18 50	
		Total .....	\$411 00	

(Signed,)

ALEXANDER BISSETT,  
Superintendent.

## CHAMBLY CANAL.

STATEMENT in detail of the estimated cost of repairs for 1863.

Structure.	I T E M S .	Quantities.	Price.		Totals.
			\$ cts.	\$ cts.	
Prism of Canal and Banks	Cleaning canal bottom.....say			1500 00	3550 00
	Stone for protecting banks .....toise	150	6 00	900 00	
	Scowing stone and protecting banks lineal yards.....	5000	0 25	1250 00	
Locks .....	General repairs.....	9	75 00	675 00	1925 00
	Timber for repairs to gates, and for new gates.....	1000	1 00	1000 00	
	Pine timber..... do	500	0 20	100 00	
	Blacksmith work.....say			150 00	
Bridges.....	General repairs.....	9	50 00	450 00	1015 00
	Repairs to abutments.....	3	30 00	90 00	
	Timber for repairs ..... lin. feet	1000	0 20	200 00	
	Planks for do .....	10000	20 00	200 00	
	Blacksmith work.....			75 00	
Wharves, &c .....	Pine timber.....	3000	0 20	600 00	850 00
	Mooring posts.....	25	2 00	50 00	
	Stone filling.....toise	25	8 00	200 00	
	Total estimated cost.....				7440 00

## CHAMBLY CANAL.

STATEMENT of the amount of Fines and Damages collected by order of the Superintendent for the year 1862.

Date.	Name of Vessel.	Master or Owner.	Amount.	REMARKS.
			\$ cts.	
June 6...	Raft, square timber.....	Tucker, Captain.....	5 00	Damage to bridge No. 1.
July 9...	Barge of steamer 'Erie'.....	Halero do .....	2 50	do lock No. 4.
do 10...	Steamer 'Rose'.....	McNaughton do .....	2 00	do lock " 7.
August 4...	Steamer 'Rose'.....	do do .....	2 00	do canal scow
do 7...	Two horses belonging to.....	Boivin.....	0 50	do canal bank.
do 7...	Barge 'Experiment' .....	Martin, Captain.....	1 00	do bridge No. 5.
Sept. 3...	Barge 'Castor' .....	Laféche do .....	1 00	do lock " 2.
October 8...	Barge 'Safety Fund'.....	Birt do .....	2 50	Fined for abusing lock tenders.
do 8...	Steamer 'Erie'.....	Parker do .....	6 00	Damage to bridge No. 5.
do 20...	Barge 'George'.....	Vinet do .....	1 50	do do " 8.
do 23...	Steamer 'Erie' .....	Mallet do .....	1 00	do lock " 8.
Nov. 17...	Barge 'Major'.....	Champagne do .....	1 50	do do " 9.
do 22...	Boat 'Security'.....	Woodruff do .....	4 00	do do " 4.
do 24...	Amount paid by .....	G. Copeland.....	15 20	For plank and spikes.
do 29...	Barge 'Canada' .....	Guay, Captain.....	24 00	Damage to lock No. 5.
	Amount collected for wharf	age, &c .....	69 70	
			32 64	
			102 34	

(Signed),

P. T. CHARTIER,  
Superintendent.



## ST. OURS LOCK AND DAM.

STATEMENT in detail of the estimated cost of Repairs, for 1863.

Structures.	ITEMS.	Quantities.	Price.	Amounts.	Totals.
			\$ cts.	\$ cts.	\$ cts.
Piers and Lock .....	Painting and repairing gates .....say .....			150 00	
	Strengthening and repairing piers .....			300 00	450 00
Dam and protection walls..	Stone ballast for protecting dam...toise	200	10 00	2,000 00	
	New small scow, and repairs to large one .....			350 00	2,350 00
	Total estimated cost.....				\$2,800 00

## ST. ANNES LOCK AND DAM.

STATEMENT in detail of the estimated cost of Repairs, for 1863.

Structures.	ITEMS.	Quantities.	Price.	Amount.	Totals.
			\$ cts.	\$ cts.	\$ cts.
Dam above Lock .....	Pine timber.....lineal feet	2,000	0 20	400 00	
	Pine planks.....F. B. M.	12,000	20 00	240 00	
	Elm or tamarac plank ..... do	4,000	30 00	120 00	
	Spikes .....lbs.	250	0 10	25 00	785 00
Lock .....	General repairs .....say .....				115 00
	Total estimated cost.....				\$900 00

## St. ANNES LOCK.

COMPARATIVE Statement of the number of Steamers and other Craft that passed through the St. Annes Lock during the season of 1861 and 1862, and the amount of Tonnage and Tolls.

VESSELS.	1861.			1862.		
	Number.	Tons.	Amount of Tolls.	Number.	Tons.	Amount of Tolls.
			\$ cts.			\$ cts.
British Steamers.....	981	47,274	.....	923	49,906	.....
Sailing and other Craft.....	2,665	168,915	6,316 03	2,991	186,437	6,944 68
American Vessels.....	54	3,486	.....	86	5,386	.....
Total.....	3,650	219,675	6,316 03	4,000	241,729	6,944 68
				3,650	219,675	6,316 03
Increase for 1862 .....				350	22,054	\$628 65

(Signed,)

JOHN BARRETT,  
Collector.

## CARILTON AND RENVILLE CANALS.

STATEMENT in detail of the estimated cost of repairs for 1863.

Structures.	ITEMS.	Quantities.	Price.		Totals.
			\$ cts.	Amounts.	
			\$ cts. <th>\$ cts.</th> <td>\$ cts.</td>	\$ cts.	\$ cts.
Wharf at Grenville.....	Pine timber.....lin. feet	2500	0 17	425 00	575 00
	do plank.....F B M	6000	20 00	120 00	
	Spikes, &c.....lbs	300	0 10	30 00	
Prism and Banks .....	Cleaning canal bottom.....say	.....	.....	900 00	1750 00
	Raising and repairing banks.....	.....	.....	850 00	
Locks and Bridges.....	General repairs.....	13	50 00	650 00	1575 00
	Tamarac knees.....	10	25 00	250 00	
	Timber for repairs.....cub. feet	750	0 30	225 00	
	Carpenters' and blacksmiths' work...say	.....	.....	450 00	
Dams.....	Raising and maintaining temporary dam on North River .....	.....	.....	.....	200 00
	Total estimated cost.....	.....	.....	.....	4100 00

## APPENDIX D.

## RIDEAU CANAL.—ANNUAL REPORT.

OTTAWA, Dec. 31, 1862.

SIR,—This Canal was opened for navigation at the Kingston end on the 1st of May, and throughout on the 1st September, and continued open until the 26th November, when it was closed by the frost. On the 19th of April, this part of the country was visited by a flood which injured our canal materially, and caused other serious damage in the neighbourhood; on many of the tributaries of the Rideau River, mills have been erected and dams to retain the water; most of these dams gave way, thus adding to the flood, which destroyed many bridges and other property in its progress.

The most serious damage this canal sustained was the breach in the dam at Hogsback. This dam is fifty feet high; the surplus water flowed through a rocky channel on the easterly side and over a wooden dam eighty feet wide, which previous to 1841 was composed of posts and stop logs, but which was damaged by a flood at that time, and was then made up solid, by putting gravel about it and sheeting below; so that there were no means of drawing down the water in the reach above. During the flood, there was a sectional area of 1744 feet of water passing over Black Rapids Dam, the station above Hogsback; now an area of 1080 feet would raise the water up to the level of the great earth dam at Hogsback, so that a break was inevitable, and the dam was cut down to the regular bed of the river.

At Black Rapids, the stone dam was considerably out of repair, and was further injured by the flood, so that it was considered advisable to construct a new one. At Long Island, a breach was threatened at the point of the Island; the water was running over to the depth of four feet, but, by timely exertion, further damage was fortunately prevented.

The dams at the following stations were injured, viz: Burritt's Rapids, Merrickville, Old Slys, Smith's Falls detached Locks, and Poonamalie. Some of these were much decayed, and required extensive repairs under any circumstances. The Rideau Lake was fortunately drawn down lower than usual this season; the logs were only put in on the 15th of April, the day before the flood commenced. The Lake was thus able to retain most of the waters of the River Tay, and several smaller streams for a while. In one week the water in the lake rose three feet, thus keeping back a quantity of water equal to about 60 square miles area, by three feet deep; if this water had been added to the flood, the damages would have been greater.

The Hogsback dam was repaired at a cost of \$29,343, including a suitable provision made to pass any future flood. The canal now is in a much better state of repair than it has been for some time. During the past four years, the following works have been renewed or thoroughly repaired, which were previously in a state of dilapidation, and liable at any time to fail:—Hogsback Dam, repaired thoroughly; Black Rapids Dam and stone sill renewed; Long Island Dam renewed; Burritt's Rapids Dam repaired thoroughly; Maitland's Dam renewed; Smith's Falls Dam renewed; Beaver's Lower Mills, one side of lock rebuilt, new floor, and foundations.

These are all durable and permanent works. During the past year three pairs of lock gates also have been renewed, viz: at Hartwell's, Hogsback, and Edmond's Stations. The principal repairs that will be required this season are as follows: Kingston Mills, one pair lock gates to be renewed. The stone retaining dam which was built on the bed of the old creek is bulged outwards and must be supported. It is proposed to dump about 500 yards of coarse gravel in front of it, as there is not a good foundation to build any structures upon. Brewer's upper Mills, one pair of gates to be renewed, there is a great leak under the lower sill; attempts have been made to stop this leak, but have been partial failures; the foundation is partly rock and partly earth, and is difficult to manage. After the lock is laid dry, what repairs are necessary can be better ascertained.

Several of the bulkheads at the end of the canal have been in existence since the canal was built. They are now decayed, and will have to be renewed. It is proposed this year to renew Davis's, Poonamalie, and Old Slys; these are not large and will not be very costly. Merrickville Dam will require thorough repairs. It was badly shaken during the flood last spring, and was patched up to do duty during the past season. A dry dock is much needed at Ottawa; the locks have to be used to repair vessels when an accident occurs. There was formerly a wooden lock at the Bywash, at the Canal Basin; the lower gates are gone, but the upper gates have been renewed; still, the crib work to which these gates are hung is old and delapidated; it might last for many years, but might go away suddenly, in which case a great part of Lower Town would be flooded, and considerable damage done. I have proposed, instead of disturbing the upper gates, to build a dam with a small opening or sluice in it, where the lower gates formerly were, so as to be a safeguard in case the upper gates should fail. I believe this to be a necessary precaution, and it will be something towards a dry dock, in case one should be made here. With further reference to this by wash, which runs into the Rideau River, after traversing a considerable portion of Lower Town, the Municipality some time ago was desirous of having it covered over, and sent in a memorial, but this memorial did not express very clearly what was required. I put myself in communication with the authorities to find out what they did want, but there has been no action taken in the matter since. It would be desirable to have it covered over in the thickly settled parts of the city, as it is both unsightly and a depository for rubbish, &c. This will cost about three dollars per lineal foot or upwards, according to the character of the works.

With reference to the traffic on this canal, the returns are now made direct from the Lockmasters to J. S. McCuaig, Esq., Inspector of Canals, Kingston, instead of to this office, as formerly. The cost of the several works, mentioned before, to be done this season, together with other minor repairs, will be found stated in detail in the schedule annexed.

I have the honor to be, Sir,

Your obedient servant,

(Signed)

JAMES D. SLATER,  
Superintendent Rideau Canal.

### RIDEAU CANAL.

STATEMENT of the Expenditure for the Repairs and Management, &c., during the year 1862

YEARS.	Repairs,	Lock Master and Lock Laborers.	Office Establishment.
	\$ cts.	\$ cts.	\$ cts.
1862.			
January.....	18 30	589 00	353 99
February.....	109 16	532 00	846 97
March.....	1408 50	589 00	370 13
April.....	302 39	909 10	411 16
May.....	478 17	1271 00	864 51
June.....	1108 39	1280 00	380 39
July.....	482 37	1280 00	382 37
August.....	122 46	1289 00	356 96
September.....	335 64	1248 00	350 31
October.....	309 52	1289 00	374 96
November.....	223 52	1241 40	352 16
December.....	162 45	589 00	338 16
Total.....	\$6,060 87	\$12,057 70	\$4,382 06

## RIDEAU CANAL.

STATEMENT of the Expenditure for special and permanent Works, during the year 1862

	\$ cts.
Neilson, Contractor—Three pairs Lock Gates ; 1 at Hartwells ; 1 at Hogsback ; and 1 pair at Edmond's Stations.....	1886 02
April—Protecting the Works from damage by flood, at Hogsback.....	389 64
do — do do do Long Island.....	376 38
do —Hogsback Dam.....	29342 91
do —Black Rapids Dam.....	5143 77
Total.....	\$37,038 22

## RECAPITULATION OF COST.

	\$ cts.
Special and permanent works—brought down.....	37038 22
Sundry repairs and incidental— do.....	5060 87
Lock Masters and Lock Laborers— do.....	12057 70
Office Establishment and Management— do.....	4282 06
Total.....	\$58,638 86

## RIDEAU CANALS.—REPAIRS FOR 1863.

STATIONS.	Amount.	REMARKS.
	\$ cts.	
Kingston Mills.....	440 26	
do.....	200 00	Strengthening rear of Dam.
Brewers Upper Mills.....	378 09	
do Lower do.....	84 56	
Jones' Falls.....	152 98	
Davis'.....	220 53	Includes new Bulkhead.
Chaffers.....	83 80	
Newboro'.....	339 78	
Narrows.....	388 50	
Poonamalie.....	658 10	Includes new Bulkhead.
Smiths' Falls, detached.....	93 90	
do combined.....	40 44	
Old Slys'.....	493 05	Includes new Bulkhead.
Edmonds.....	22 50	
Maitlands.....	62 00	
Merrickville.....	461 32	
Clowes Quarry.....	239 00	
Nicholson's Rapids.....	396 80	
Burrill's Rapids.....	26 90	
Long Island.....	38 22	
Black Rapids.....	41 40	
Hogsback.....	47 60	
Hartwells.....	37 40	
Ottawa.....	248 60	
Dam at By-wash, do.....	400 00	
Total.....	\$5,540 73	

(Signed,)

JAMES D. SLATER,  
Superintendent Rideau Canal.

## APPENDIX E.

### ANNUAL REPORT OF THE SUPERINTENDENT OF OTTAWA WORKS.

OTTAWA WORKS, SUPERINTENDENTS OFFICE,  
Ottawa, 17th Dec'r, 1862.

SIR,—I have the honor to acknowledge the receipt of your communication of the 11th inst., requesting me to send to the Department as early as possible my annual report on the works under my charge.

For the information of the Honorable the Commissioner, I would state that the works on the Ottawa River and its tributaries are in comparatively good order, so that the outlay required to make them available for the business of the coming spring will be very moderate.

#### JOACHIM STATION.

The works there were well overhauled last winter. A new bulkhead will be required, the cost of which and of raising one of the support piers will be about.....\$300 00

#### CALUMET STATION.

The slides and other improvements there were thoroughly repaired last winter. About 5000 feet B. M. of plank will have to be provided, at a cost of \$15 per M.....\$75 00

#### MOUNTAIN STATION.

To repair the side piers of the long slide there will be required 2000 cubic feet of white pine timber @ 12c.....	\$240 00
Iron spikes, 500 lbs. @ 8c.....	40 00
Stone filling, 75 cubic yards @ 90c.....	45 00
Total.....	\$325 00

#### PORTAGE-DU-FORT STATION.

The slide there is in good repair, but the guide-boom, 887 feet long, will have to be renewed; the quantity of timber required for this purpose and for 5 new stop logs will be 2757 cubic feet @ 15c.....	\$413 55
Screw-bolts for boom, 457 lbs. @ 10c.....	45 70
Total.....	\$459 25

#### THE CHENAUX BOOMS

Are in good order and require no repairs.

#### CHATS STATION.

The slide is in a good state of repair. A new apron will have to be substituted for the old one; this has to be done annually, on account of the great tear and wear caused by the steepness of the slide. The cost of a new apron will be.....\$200.

#### THE REMONS BOOM

And piers require no repairs.

#### LITTLE CHAUDIERE STATION.

No outlay required on the slide and piers, but the excavated channel leading to the head of the slide is too shallow during the low water season. Many of the lumber merchants are anxious to pass their timber on the north side of the Chaudiere falls, as there is an extensive harbor a short distance below the outlet of the Hull slide, which is very convenient for "banding up" their "cribs." Rafts moored on the north side of the river are seldom disturbed by steamboats, and the distance to be walked by the men in returning to the head of the rapids is much shorter on this side than on the other. It is very desirable that the great body of timber which annually arrives at this city should be divided and

taken in about equal quantities through the Ottawa and Hull slides, so that the rafts may be delayed as short a time as possible. With the view of making this arrangement practicable at low water, I would strongly recommend that 900 cubic yards of rock be removed from the channel referred to, and that the work be done in the month of August next. The cost of blasting 900 cubic yards of rock in such a situation @ \$1.50 per yard will be.....\$1,850 00  
 Expense of constructing coffer-dam..... 200 00

\$1,550 00

I know of no improvement on the main river that would be more acceptable to the Ottawa Lumber Trade than the one just described.

**NORTH CHAUDIERE OR HULL STATION.**

The slide was reconstructed last winter and needs no repairs.

**SOUTH CHAUDIERE OR OTTAWA STATION.**

The slides require no repairs. Two new aprons should be provided, however, at a cost of \$200 each.....\$400 00

The booms and piers immediately above the Chaudiere falls, on both sides of the river, are in good working order.

**THE UNION SUSPENSION BRIDGE**

Was thoroughly overhauled and repaired two years ago, and is now in good order.

**THE LINE OF WOODEN BRIDGES**

Forming the southern approach to the Union Bridge is now nearly worn out. The roadway planking was renewed last spring, and, at the same time, supports were placed between some of the piers. Although the traffic on these bridges is very great, they can, with some patching, be used another year.

**THE WOODEN BRIDGE OVER THE HULL SLIDE**

On the northern approach to the Union bridge is new and in good order.

**POOLEYS BRIDGE,**

A wooden structure over the ravine at the end of Queen Street in the City of Ottawa, was built by the Government when the Suspension Bridge was constructed, and has been maintained at the public expense ever since. As the bridge is not in a line with the street just named, it should, in my opinion, be handed over to the Corporation, so that, in improving the streets, they may change the position of the bridge to suit the convenience of the public. I recommended this step in a former report, being of opinion that Pooley's bridge should become the property of the municipality and be kept up at the expense of the city. In the event of its being kept in repair by the Government, as heretofore, the roadway of the bridge will have to be renewed next spring at a cost of.....\$150 00

**CARILLON STATION.**

The long dams there are in a good state of repair.

**TRIBUTARIES OF THE OTTAWA.**

**I. PETEWAWA RIVER,**

On the north branch of this stream, the dam and slide at Crooked Chute require no repairs.

At Half-Mile Rapid there is a large deposit of gravel and boulders, where the dam connects with the westerly shore, under which the water found its way last spring. This passage will have to be stopped at an expense of about.....\$50 00

The large retaining-boom, support-piers, dam, and slide at the Bois-dar Station are in good working order and require no repairs. The same remarks are applicable to the long slide, dam, and boom at the Third Chute; the long dam, slide, boom, and support-piers at the Second Chute; the dam, slide, boom, and support-piers at the First Chute; the long retaining-boom and support-piers at the mouth of the river; and also to the improvements on the South Branch of the Petewawa, consisting of six slides.

## II. MADAWASKA RIVER.

The following improvements require no repairs this winter, viz:—The slide, retaining-booms, and piers at Chain Rapids, dams at Bailey's, Duck's and Boniface Rapids, dams and piers at Ragged Chute, main dam, guide-boom, and support-piers at High Falls, the three dams between High Falls and Calabogie Lake, the main retaining-boom and support-piers in Calabogie Lake, the guide-boom and piers at Burnstown bridge, the two long dams at Long and Flat rapids, the Crib slide at Arnprior, the main retaining-boom and support-piers at the mouth of the river, and the four mooring-piers at the head of Chats rapids.

At High Falls, some planking will have to be done to the slide at a cost of say \$100.00

The guide-pier, 100 feet long, 10 feet wide, and 8 feet high, at Balmer's Island will have to be rebuilt. The materials required will be 1500 cubic feet of white pine a 12c.....\$180 00

237 cubic yards stone filling a 50c..... 118 50

600 lbs. iron spikes a 8c..... 48 00

A new apron will have to be furnished for the Arnprior station at an expense of. . . . . 200 00

Cost of Madawaska repairs.....\$646 50

## III. GATINEAU RIVER.

The boom in the Lake, near the mouth of the river, requires 94 oak pickets turned from scantling six inches square and 3 feet long, the expense of which at 50c. each will be..... \$47 00

40 new fine caps, 14 in. wide, 6 in. thick, and 12 feet long, at 80c..... 32 00

Cost of Gatineau repairs..... \$79 00

The other improvements on the river require no repairs; the bridge over the canal is in good condition, having been built last winter.

As a general rule, I cause the small repairs at the several stations to be executed by the resident deputy slidemasters, as they are under pay throughout the year; under this system they have shewn their efficiency, and in many cases have proved themselves good mechanics.

It affords me much pleasure to report to the Honorable the Commissioner that so small an amount as that appearing in the annexed recapitulation will suffice for preparing the works under my charge for the business of another season.

## NEW WORKS COMPLETED IN 1862.

The new works on the Ottawa river consist of two large piers in the Chats Lake, at the head of the rapids. These piers are used by the raftsmen for mooring purposes, preparatory to running their timber through the rapids. At the Little Chaudiere Station, a long guard-pier was built, with the view of leading the cribs into the slide.

That portion of the west branch of the Petewawa River, for a distance of six miles above Lake Traverse, was improved. The works consisted of a dam, long slide, guide-boom, and support-pier at the Cascade or High Falls. The works at the lower stations consisted of side dams and glance-piers, together with a retaining-boom at the upper end of Lake Traverse.

On the Madawaska River, at Chain Rapids Station, two new support-piers for the retaining-boom were built. At the foot of the long slide at the High Falls Station, a support-pier and glance-boom were constructed.



The works connected with maintenance or repairs of the slides, &c., under my charge may be described as follows, viz :

Reconstruction of dam at the first chute of the Petewawa River.

Reconstruction of lower slide at Calumet Station.

Repairing of upper " " "

Lengthening slide at Mountain Station.

Reconstruction of slide at Hull Station.

Strengthening the works at Joachim Station.

Repairing long slide at High Falls Station (Madawaska River), and strengthening boom at the head of the same.

Reconstruction of bridge over Hull slide channel.

Reconstruction of bridge over Gatineau Canal.

Renewing portions of side piers of South Chaudiere or Ottawa slide.

The following statistics shew the importance of the Upper Ottawa Lumber Trade :

Square timber passed through Chaudiere slides, 1862, 15,561 cribs—

equal to.....	326,781 pieces.
Sawlogs from the Upper Ottawa arrived at Chaudiere, about.....	90,000 "
Square timber from Gatineau River, 1862.....	9,251 "
Saw logs .....	154,918 "

The tolls on the above timber payable to the Government amounted to about \$49,000.00.

In respectfully submitting the above,

I have the honor to be, sir,

Your most obedient servant,

(Signed) HORACE MERRILL,

Supt. of Ottawa Works.

T. TRUDEAU, Esq.,

Sec. of Public works.

#### RECAPITULATION.

Estimated cost of repairs at Joachim Station.....	\$ 300 00
" " " Calumet.....	75 00
" " " Mountain.....	325 00
" " " Portage du Fort.....	459 25
" " " Chats Station.....	200 00
" " " Little Chaudiere.....	1550 00
" " " South Chaudiere (aprons).....	400 00
" " " " " (Pooley's bridge).....	150 00
" " " Petewawa River.....	50 00
" " " Madawaska River.....	646 50
" " " Gatineau River.....	79 00

Estimated cost of all the repairs.....\$4284 75

## APPENDIX F.

### ANNUAL REPORT OF THE SUPERINTENDENT OF THE SAINT MAURICE WORKS.

SUPERINTENDENT'S OFFICE, ST. MAURICE WORKS,  
Three Rivers, Dec. 15th, 1862.

SIR,—In compliance with the instructions of the Honorable the Commissioner of Public Works, bearing date the 11th instant, I have the honor to enclose my annual report for 1862.

#### REPAIRS.

Having, on the 20th August last, submitted to the Department a report containing an approximate estimate of the repairs required before the opening of the river next season, there are but few points which I consider to be necessary to be brought under the notice of the Honorable the Commissioner in this report.

The repairs, referred to in the foregoing paragraph, having received the sanction of the Government were immediately commenced, and are now nearly all completed. Inasmuch as the sum appropriated for repairs, viz, \$1544, is greater than the average amount thus expended in former years, it may be necessary to explain that this excess is caused entirely by the fact that the works are getting old and are decaying. Signs of decay must naturally be expected to exhibit themselves in increased numbers and magnitude from year to year. Booms are a description of work not only very liable to accident but exceedingly expensive both to keep in order and to operate, and should be dispensed with when possible.

The extent of booms, dams, slides, piers, &c. belonging to the St. Maurice works may be seen by the annexed appendix.

There is little worthy of notice in the operations of the past season. The booms, since they were extended in the spring, have all worked remarkably well. Some difficulty was experienced in putting out the boom at Shawinegan in consequence of a change in the current, but was effectually overcome without serious delay.

A few pieces of boom were broken last spring while in their winter quarters, by the departure of the ice. None were, however, lost, but were repaired by the permanent hands at the slide, without any additional expense.

#### MAINTENANCE.

The cost of maintenance the past year was \$7328.56c. This amount, although a little more than last year, is \$717 less than the average cost of the five preceding years. The continued low water during the summer prevented several parties from completing their *drives* until late in the fall, thereby obliging me to keep the booms in full operation throughout the season, and consequently causing additional expense in maintenance.

#### LANDS REQUIRED.

It is a matter of very great importance that sufficient land should be acquired at the mouth of the river to operate the booms without trespassing upon private property. I would therefore respectfully urge that the necessary land be purchased in accordance with my special report upon the subject with as little delay as possible.

I have the honor to be, sir,

Your obedient servant,

(Signed) HENRY R. SYMMES, Supt.

**EXTENT OF PUBLIC WORKS ON THE RIVER ST. MAURICE.**

**STATION 1.—MOUTH OF RIVER.**

Booms, feet in length.....	12,181
Mooring-piers, number of.....	46
Anchor-piers, " .....	4

**STATION 2.—GRÈS FALLS.**

Booms, feet in length.....	6,000
Anchor-piers, number of.....	6
Mooring-piers, " .....	1
Side-pier, feet in length.....	200
Unfinished slide, piers, &c	

**STATION 3.—SHAWINEGAN FALLS.**

Slide, feet in length.....	600
Mooring-piers, number of.....	18
Side-piers and dams, feet in length.....	600
Anchor-piers, number of.....	33
Booms, feet in length.....	18,000

**STATION 4.—GRANDE MÈRE.**

Slide, feet in length.....	400
Booms, " " .....	3500
4 side-piers " .....	500
Anchor-piers, number of.....	10

**STATION 5.—LITTLE PIÈLES.**

Side-pier dam, length of.....	250
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**STATION 6.—LA TUQUE.**

Mooring-piers, number of.....	2
Anchor-piers, " .....	11
Side-dams and piers, feet in length.....	1291
Booms, " " .....	3500

**RECAPITULATION.**

Description of Works.	Number of	Feet in length.
Booms.....		43,181
Mooring-piers .....	67	
Anchor-piers.....	64	
Side-piers and dams.....	19	2,841
Slides.....	2	1,000

(Signed) HENRY R. SYMMES, Supt.

T. TRUDEAU, Esq.,  
Secretary, Dep't of Public Works, Quebec.

## APPENDIX G.

REPORT OF MR. G. F. BAILLAIRGÉ ON THE GASPÉ AND SAINT LAWRENCE ROAD.

CEDARS, 20th March, 1862.

T. TRUDEAU, Esq.,

Secretary of Public Works, Quebec.

SIR,—I beg to transmit you herewith my report describing the location of the proposed Coast Road from Cap de Chatte to Great Fox River, with its branch to Gaspé Basin, and the climate, population, resources, and general features of the country along the same, for a distance of 181 miles, 41½ of which are across seigniorly lands, 65½ across townships, and 73½ on the unsurveyed Crown lands of the Gaspé Peninsula.

The detailed estimate for each mile of the entire distance is enclosed with the above.

The maps of the district explored will be completed in a fortnight at earliest, and will be forwarded together with other documents connected with the survey.

The profiles and specification of the work will be sent as soon as it is possible to complete them.

I have the honor to be,

Sir,

Your most obedient servant,

(Signed,)

G. F. BAILLAIRGÉ

(Copy of No. 57917.)

CEDARS, 15th March, 1862.

T. TRUDEAU, Esq.,

Secretary, Department of Public Works, Quebec.

SIR,—In my report for 1860, concerning various roads in progress of construction below Quebec, I recommended that the country should be explored, between Ste. Anne des Monts and Great Fox River, for the purpose of locating the last link of roadway still wanting on the South Shore of the St. Lawrence, in the main highway between Quebec and Gaspé Basin.

### MAIN LINE OR COAST ROAD.

In January, 1861, I received instructions from the Crown Lands and Public Works Departments, to proceed with the proposed exploration and road location, and to form two surveying parties, with the view of completing the field-work during the same winter.

The necessary outfit having been provided, I reached Ste. Anne des Monts on the 26th of the same month. Here I organized the two parties, one of which I placed under the charge of my assistant, Mr. A. J. Scott, on the Eastern division of the proposed route, between Great Fox and the Great Magdalen Rivers, and the other under my own management, upon the Western division, between the lower end of the Matane and Cap de Chatte Road, and the last named river. The field operations upon the former were begun on the 15th, and on the latter on the 1st of February; they were completed in May, together with my inspection of Mr. Scott's portion of the line.

### LENGTH OF MAIN ROAD.

During the above period, the length of road line located, opened, blazed, levelled, and chained, was as follows:

From Matane and Cap de Chatte Road to lower end of Ste. Anne des Monts or to Township Tourelle, along present road through settlements.....	13.20 miles.
From Ste. Anne des Monts to Great Magdalen River, opened through forest.....	64.22 "
<b>Total on the Western division.....</b>	<b>77.42</b>

From Great Magdalen River to Great Fox River, opened through forest.....		
Total on the Eastern division.....	50.78	"
Total length of Main Road.....	128.20	
LENGTH OF SIDE ROADS.		
Side roads along the River Cap de Chatte to Upper Bridge site, on land partly cleared.....	2.24	"
Total number of miles located, &c.....	130.44	
of which 33 $\frac{1}{4}$ miles pass across five seigniories.		

EXTENT OF COUNTRY EXPLORED ALONG MAIN LINE.

During the same period the Western division was explored from the Coast to the valley of the Magdalen River, and to the range of the Notre Dame on the Shick-shock mountains; the Eastern division was also explored, from the coast to the Southward, for a distance of 4 miles or more.

NEW TOWNSHIPS AND BRANCH ROAD TO GASPÉ BASIN, PROPOSED IN FORMER REPORT.

While the work was in progress, I furnished a report on the 23d of March, respecting the general character of the line chosen; and, suggested, amongst other things, the expediency of laying out the front ranges of two new townships, between Tourelle and the Seigniorship of Mont Louis, and of tracing a branch road from the neighborhood of the Magdalen to the north side of Gaspé Basin. This would promote colonization across the interior, and give uninterrupted access to that important port, by avoiding the long and dangerous ferryage of 3 miles or more from the basin across the Bay of Gaspé to the peninsula, which is the terminus of the road now completed to Griffin's Cove and thence to Great Fox River, where the proposed Coast road terminates.

NEW TOWNSHIPS.

Subsequently the Crown Land Department instructed Mr. Charles Roy, the Surveyor to proceed with the survey of the proposed townships, which was begun in July and carried on during the fall. The new townships have been named Christie and Duchesnay.

BRANCH LINE TO GASPÉ BASIN.

On the completion of the winter's work, I was requested by the Public Works Department to make my arrangements for continuing the parties previously employed upon the exploration and location of the proposed branch road.

In June, I accordingly despatched one party under Mr. W. Fergusson, explorer, to Gaspé Basin, and another under my assistant, to Grande Vallée des Monts on the St. Lawrence, instructing them to make a preliminary examination of the country between those two points, and to pass as much as possible through the valley of the North West or Dartmouth River.

Serious obstacles were met by both, and especially by the latter, in the traverse from the St. Lawrence to the Dartmouth; finally the probability of a passage was ascertained.

On the 6th of July, my assistant began his field-work from the St. Lawrence; on the 12th I began mine from the basin. Having lost 19 days by rain, we completed the work on the 5th of September.

LENGTH OF BRANCH LINE.

The length of branch road located, opened, blazed, levelled, and chained, was 50.49 miles, of which

43.11 miles from Catholic Church of Gaspé Basin, round by the Bluff to the Grande Vallée des Monts, through the forest, (with the exception of 3 miles at and above Anse aux Cousins, on the South side of the north-west arm of Gaspé Bay,) and

2.38 miles from Annett's saw-mill at the latter place, by the Portage road, to the church at the basin.

8.00 miles of the Branch Road pass through the Seigniorship of Grande Vallée des Monts.

## BOTH LINES.

The full length of line located during the winter and summer amounts to 180.93 miles, of which 41½ altogether are across seigniories, and the remainder on Crown Lands.

## GENERAL FEATURES OF THE COUNTRY ALONG MAIN LINE.

In describing the general features of the country traversed by the main road line, along the South Shore of the St. Lawrence, I shall repeat part of what has been already stated in my report of the 23d of last March, availing myself at the same time of the information contained in Sir Wm. Logan's Geological Reports respecting the Gaspé Peninsular. (See Reports for 1844-5, 1857-8.)

## CAP DE CHAT TO TOURELLE.

There is an excellent road, for the first 13 miles across the Township of Cap de Chatte, the Seigniorie of Ste. Anne des Monts, and part of the Township of Tourelle, passing generally near the shore, along an almost continuous line of settlements; but here the travel is seriously interrupted by the want of bridges across the rivers Cap de Chatte, Grande Ste. Anne, and Petite Ste. Anne.

In these localities, where the extent of level land is greater than along other parts of the line, there is a large agricultural and fishing settlement, with church, school, post offices, mills and trading establishments. The first 3 ranges of lots, which are partly level, partly hilly, are either settled or occupied.

In the valleys of the Chatte and the Ste. Anne, much of the soil consists of drift clay and sandy loam of a good quality. On the heights, from the St. Lawrence to the range of the Notre Dame Mountains, at 12 miles in the rear, the soil is chiefly sandy loam of a lighter quality, wooded with fir balsam, spruce, and white birch, with white pine and cedar. The timber on the low lands, which is nearly of the same description, is intermixed with maple, ash, poplar, &c., and is also of a larger size.

## RIVER CHATTE.

The River Chatte, which is navigable for canoes, for a distance of about 32 miles, runs across the range of mountains already named and cleaves them to their very base. The whole area unwatered by this stream is upwards of 300 square miles, half of which lies to the South of the great mountains, or among them.

## GRANDE STE. ANNE RIVER.

The Grande Ste. Anne River, which reaches the base of the same mountain range at a distance of about 13 miles from its mouth, may be ascended in canoes for a distance of nearly 32 miles; it drains an area nearly equal to that drained by the Chatte.

Lumbering operations were carried on for some years upon both streams by Mr. Price, but, the supply of pine having failed, they have been discontinued.

## MATANE AND CAP DE CHATTE ROAD.

The new road from Matane to Cap de Chatte, which was begun in 1857 and opened throughout in 1860, was almost impassable until last fall, notwithstanding which it has given a great impulse to the colonization of this section of country. Within the last six years, no less than 14 miles have been settled along this road which was greatly improved during the latter part of last year.

From Matane down to Cap-de-Chatte, a distance of about 45 miles, the breadth of country more or less fit for colonization, between the St. Lawrence and the Notre Dame Mountains, is about 22 miles at the Matane River, whence it diminishes eastward to 12 miles, at the Chatte and Ste. Anne Rivers.

The Matane, which measures a distance of about 53 miles from its outlet to the first three lakes at its head, is supposed to drain an area of nearly 800 square miles.

## NOTRE DAME MOUNTAINS.

The range of the Notre Dame or Shick-Shock Mountains, which begins at the Matane and runs nearly east and west magnetically, is about 2000 feet in height, and two miles in breadth, at its western termination. At the Chatte, it increases to 3500 feet in height and to six miles in breadth. At the Ste. Anne, where it seems to split—one portion running towards the south-east and the other a little to the north of east—one of the most elevated

summits, called Mount Albert, attains an elevation of 3778 feet. From the latter stream, the northern portion of the range, which reaches a height of 4000 feet near the head of the Marsouin River, continues to the rear of Mont Louis, until it strikes the River Magdalen, with a breadth of about  $1\frac{1}{2}$  miles, at about 17 miles from the St. Lawrence; thence from the south side of the Magdalen, with heights rising from 1500 to 2000 feet, it is subdivided into a series of parallel ridges, cut transversely by the deep gorges of north and south flowing streams, until it reaches Cape Gaspé, where it terminates with cliffs 700 feet in height. It occupies the most of the space between the St. Lawrence, on the one side, and the Bay of Gaspé and the Dartmouth River, on the other side.

From the Magdalen westward, the summits of the highest peaks are bare rock. West of Mount Albert, on the less elevated portions, but on the highest plains, the principal growth is dwarf spruce, with a small proportion of white birch of diminutive size, growing widely apart; the intervening surface being covered with tall ferns. At a lower elevation, the soil supports a mixed growth of larger size, consisting of a very open bush of spruce, white and black birch, cedar, and some white pine. East of Mount Albert, which is a vast bare rock, the range towards the Magdalen is generally destitute of vegetation; the rocks of a pale green colour, are generally hard, close textured and silicious, on the summits of the highest peaks, near the Chatte Mount Albert. Barn shaped and Conical mountains are composed of igneous rock or trap; Table-topped mountain, another of the most elevated peaks, and belonging to the same range, is composed of intrusive rock, and occupies an area of 72 square miles, the greater part of which is bare rock.

#### CAPE GASPÉ AND DARTMOUTH.

The limestones and calcareous shales which occupy the whole of the promontary of Cape Gaspé, also skirt the north-east bank of the north-west arm of Gaspé Bay and the Dartmouth River

#### COAST.

From Cap de Chatte to Tourelle, the banks of the St. Lawrence vary from 12 to 50 feet in height.

Between Tourelle and Great Fox River, the coast is flanked by an almost continuous series of cliffs towering from 100 to 400 feet in height, interrupted at intervals of from three to six miles by numerous streams descending from the south. These are walled in on either side by mountain ridges which increase in height as they recede from the shore or from 800 to 2000 feet or more, at distances varying from 8 to 15 miles, where, on the portion west and north of the Magdalen, a somewhat level tract of land, at their base is found, forming what is commonly called the Grande Savanne; this depression or valley, which has been examined, extends from the Ste. Anne, eastward to the Magdalen.

Long stretches of the beach, along the shore, are composed of shaly rock, sand, and gravel; or are scattered over with fragments of rock from the cliffs, and are only partly covered during high water, whilst others remain submerged during low water, but for short distances. This is the route followed by the mail carrier, for the weekly transmission of the mails to and from Cape Rosier and Gaspé Basin. Such points as are covered by water, constantly or only occasionally, when the tide is high, are generally avoided by passing across the spurs of the head-lands or the summits of the cliffs, or by waiting until the tide is partly low.

No continuous line of road therefore is practicable along the beach.

#### COAST ROCKS.

Between the Chatte and Tourelle, the coast consists of bands of conglomerate limestone, black vituminous shales, and thin calcareous sandstones.

From Tourelle downwards, the cliffs in many places are nearly perpendicular and sometimes overhanging and threatening destruction to the foot traveller at their base. West of the Magdalen, they consist chiefly of frequently disturbed strata of coarse and fine grained calcareous sandstone, in beds of various thicknesses, interstratified with black graptolitic or indurated and vituminous shales, and their arenaceous limestones; east of the Magdalen the rocks possess a very uniform lithological character; they consist of black vituminous argillaceous shales, interstratified with thin gray calcareous sandstones, and

thin grey yellowish weathering limestones. Graptolites are found on some of the limestones and in the shales.

Bands of black dolomites, capable of yielding good hydraulic cement, and limestone fit for burning, are occasionally found among the strata, together with an abundance of building and flag stones.

#### SOIL AND TIMBER ON HIGHLANDS.

The mountains of which these cliffs form the base present, upon their slopes and summits, long stretches of land fit for cultivation and settlement; the most elevated portions are generally covered with a growth of white birch, spruce, and balsam fir, from 6 to 12 inches in diameter, 40 to 60 feet in height, on a good description of light sandy loam; on the less elevated portions and upon the slopes, the same description of timber, but of a larger size, prevails, being frequently intermixed with black birch, cedar, maple, and poplar, from 9 to 18 inches in diameter, by 40 to 50 feet or more in length, and the soil improves in quality, in proportion to the size of the timber and the quantity of earth and vegetable matter, which increase with the decrease of surface elevation above the sea. As far as could be judged in the winter season, from the description and size of the timber and the soil on the roots of overblown trees, the land along the western division of the line is superior to that along the eastern division, where the soil is apparently more stony and gravelly, and of a lighter and drier nature. On the whole, it appears more favourable for cultivation than the lands along the Témiscouata and Saguenay routes, which I examined and reported upon in 1860.

#### SOIL AND TIMBER ON LOW LANDS.

The valleys of the numerous streams emptying into the St. Lawrence, together with those of their tributaries, are generally narrow, varying from  $\frac{1}{2}$  and 1 mile wide at the outlets, to  $\frac{1}{4}$  and  $\frac{1}{2}$  mile, a short distance southward, say 1 to 4 miles. Larger groves of maple and a variety of hard and soft wood of the description already mentioned, and among these a luxuriant growth of cedar, are found along the margin of the streams and in many of the ravines. The soil, composed frequently of drift clay, is very fertile, the slopes and summits of the highest portions consisting generally of sandy loam.

#### FISHING SETTLEMENTS.

The various fishing establishments, of which there are no less than 25 along the main line, are to be found near the mouths of these streams at several of which good material can be found for the manufacture of red bricks, and where grain and vegetables of the ordinary description such as potatoes, cabbages, turnips, beets, onions, cucumbers, &c., are raised successfully, the yield being

	Wheat	Oats	Peas	Rye	Barley	Potatoes	
In the valley of River à Martre.....	20 to 1	20 to 1	15 to 1		18 to 1	15 to 1	cultivation begun 6 years ago.
“ “ the Marsoin River.....	15 to 1	28 to 1	18 to 1	15 to 1	14 to 1	20 to 1	“ “ 4 “
“ “ Mont Louis.....	16 to 1	22 to 1	15 to 1		20 to 1	18 to 1	old French settlement.
On the heights.....	10 to 1	16 to 1	12 to 1	12 to 1	20 to 1	16 to 1	do “
In the valley Magdalen.....	5 to 1		6 to 1	6 to 1	7 to 1	7 to 1	on some of the poorest land.

The yield at the Magdalen would be as great as elsewhere if properly cultivated.

The wheat sometimes suffers from frost, but this inconvenience will probably diminish as the breadth of clear land increases along the coast.

#### MANURE.

Although the dung of cattle is not wanting at many of the stations, fish offal is the favourite manure used, owing to the highly fertilizing qualities of the ammonia and phosphate of lime which it contains; it renders the poorest soil productive.

#### MAPLE SUGAR.

Large quantities of maple sugar are manufactured at all these stations every year.

#### FISH.

As to fish, the varieties taken consist chiefly of trout and salmon in the rivers and lakes; halibut, codfish, herring and mackerel along the coast.



The average quantity of codfish taken yearly is about 100 quintals or cwt. per fishing boat manned with two men.

At Great Fox River, which is the most prosperous of the fishing stations, there are numerous trading establishments, together with church, schools, post office, and a population of about 400 persons.

#### FURS.

Valuable furs, such as deer, martin, otter, mink, beaver, red and grey fox, lynx, bear, fitch, are obtained by the settlers and Indians in the forest at not remote distance from the shore. Porcupines, which are abundant, are generally sought for as an article of food by the poorer class.

#### TIMBER AND SOIL FIVE MILES BACK FROM ST. LAWRENCE.—TIMBER AND SOIL GRANDE SAVANNE.

West of the Magdalen, the soil and timber already described are found for at least five miles southward from the St. Lawrence, after which the country becomes more mountainous and poor as you proceed inland, towards the valley of the Magdalen, where the soil is thin both on the hills and on the flats, the timber consisting of balsam fir, white birch, spruce, and white cedar, until reaching the Grande Savanne where tamarack, black spruce, white birch and balsam fir of small size are found, and where the soil is either wet or sandy and scarcely fit for settlement, especially on approaching the great mountain range of Notre Dame.

#### PINE.

Pine, for lumbering purposes, is generally scarce; excepting near the Magdalen, south of the Grand Falls, and eastward towards the Grande Vallée des Monts River, where it is reported to be the most abundant. But even there, the quantity, so far as ascertained, is such that it would not suffice for any extensive lumbering operations, beyond the period of a few years.

From the Grand Falls to the Terrace Mountains, a distance of about 12 miles,  $\frac{1}{2}$  of the timber upon the slopes of the mountains consists of white pine, large enough in some cases for squared timber, but generally more suitable for saw-logs. The only obstacles to the running of the timber are, one fall of 12 feet another of 62 feet, and the rapids, near the portage, about five miles from the mouth of the river; by improving these, an unlimited supply of water power could be brought into use, in which case, sawn timber might be floated with safety down to the mouth, from the falls.

Elsewhere, along the other streams, groves of from 200 to 1500 are found at from three to six miles back from the St. Lawrence.

Along the Mont Louis the number of pines may be estimated at 6000, the chief portion of which is in the seigniory. Along the valley of the Gros Mâle the number of pines is about 3000, varying in diameter from 18 to 36 inches, and generally sound.

#### MAPS OF COUNTRY EXPLORED SHOW DETAILS RESPECTING SOIL, TIMBER, ROCKS, &c.

The particulars respecting soil, timber, rocks, &c., in the different localities too numerous to be detailed in a report, will be found upon the maps which have been prepared, shewing the road location and the topographical features of the entire section of country explored.

#### DESCRIPTION OF MAIN ROAD LOCATION.

With respect to the location of the proposed coast road, I have selected the best engineering line that could be found in a section of country abounding in every direction with lofty mountains and deep gorges running transversely across the route. It is generally from  $\frac{1}{2}$  to 1 mile or more from the St. Lawrence, crosses the streams at the most convenient points for bridging, and passes generally through or near to existing settlements.

Various portions of the line are traced so that one range of lots can be found between it and the coast towards the north, whilst towards the south, from one to four ranges of lots of sufficiently level land, can be laid out.

The line located is much inferior to that of the Metapediae road, with respect to graduation; the number of hills across its course, is as nearly great as upon the Kempt road or upon the Malbaie and Saguenay road. The grades of the different hills at the streams and

ravines, in many cases, will be as great as one in five; a very small proportion of the line passes over level land.

#### GREATEST ELEVATION OF MAIN LINE ABOVE THE LEVEL OF THE SEA.

The most elevated portions of the route are those across the Sauteux Mountain, between Ruisseau à Castor and Ruisseau Vallée, and Grande Coupe or Grand Ruisseau Mountain, between the Magdalen and Grande Vallée des Monts, respectively 759 and 739 feet in height.

#### NO PASSAGE FOUND AT MONT LOUIS EXCEPT ALONG THE BEACH AND THROUGH THE VALLEY OF ANSE PLEUREUSE OR GRAND MATTE RIVER.

Above and below the Mont Louis which is one of the most mountainous tracts, the mountain ridges are so lofty and impenetrable, that I despaired, at one time of finding my passage. After having sought in vain during several days, I came to the conclusion of turning the mountains, by locating the road around their base, along the beach near the foot of the cliffs, where side-wharfing from three to four feet in height generally, and of about eight feet at other points will be required, viz: for a distance of about  $2\frac{1}{2}$  or  $3\frac{1}{2}$  miles from above the west side of the cove of the River à Pierre down to the Mont Louis grist-mill or to Pointe-à-Corbeau, in case that the present mill route, which is very hilly, should not be followed; and also for a distance of half-a-mile or more along the west side of the lake commonly called Lac de l'Anse Pleureuse in the valley of the Grand Matte River, more commonly known as River de l'Anse Pleureuse.

#### LOCATION AROUND COVE OF RIVER A PIERRE.

For about half-a-mile, on both sides of the cove of the River à Pierre, the breadth of beach dry at high water is very narrow; besides which it is scarcely possible to construct any wharfing that would remain unobstructed by gravel sliding from the sides of the cliffs or that could resist the combined action of the waves and ice during heavy gales of wind, especially during the spring and fall of the year.

#### DETENTION DURING HIGH WATER.

Travellers will therefore have to wait, in order to pass over the bare beach, for two or three hours after the beginning of low tide.

Fragments of rock occasionally roll down from the summits of the vertical cliffs bordering the cove, which would probably render it hazardous to pass at night; the mail-carriers and other foot travellers have however been passing here nearly every week, both day and night, for the last 30 years, and no accident to any one has occurred up to the present time.

#### ROADWAY ON THE ICE.

In winter the ice is stationary, or nearly so, along most of the coast, and occupies the space between high and low water for a breadth of about 50 feet at the narrowest spots, such as that under consideration, and of from 100 to 500 feet elsewhere. Generally a good roadway can be obtained for considerable distances. Such is the present winter route used by horses between Mont Louis and the River à Pierre.

Below Mont Louis, I at first located the road along the beach, from the River Grand Matte down to the Gros Mâle River; finding the route to be too dangerous, I afterwards decided on locating it along the valley of the Grand Matte. This alteration causes a deviation of four miles to the southward.

#### LOCATION ALONG VALLEY AND LAKE OF GRANDE MATTE RIVER.

In this valley, the river and lake bearing the same name are walled in by lofty and precipitous hills which reach a height of about 900 feet,—their slopes, with a grade of one in three more or less, coming close to the margin of the lake.

On the west side, which is the most favourable, the bank of the lake is steep, and its margin very narrow for about half a mile, for which distance side-cutting and side-wharfing will be required.

The ground on the west side of the lake should be thoroughly examined in summer, in order to ascertain whether a firm footing can be obtained for the foundation of the roadway, and whether any danger is to be apprehended from the sliding of gravel or stones from the slope of the mountain.

If there are any doubts of obtaining a safe and permanent roadway along the lake, then it will be necessary to search for another passage across the mountain, between the valley of the Mont Louis and that of the Grande Matte, passing south of the Lac des Olives. Possibly a practicable route might be found in that direction but it is not probable, as we endeavoured to pass that way without having succeeded.

**LOCATION OF ROAD AROUND COVE OF RIVER A PIERRE AND ALONG THE LAKE, THE BEST THAT CAN BE FOUND.**

If the route proposed for overcoming the obstacles above and below the Mont Louis is not considered sufficiently safe, or should the passage along the lake be found impracticable, it is exceedingly doubtful whether any other route can be found; in which case the project of constructing a continuous highway down to Fox River would have to be abandoned, unless by locating the western end of it 15 miles further to the south, along the Grande Savanne. This, in winter lies concealed beneath eight feet of snow, and is embosomed amongst mountains sometimes capped with snow in summer, and the gorges, leading to it, from the gulf settlements, would render the construction of routes to the main artery, not only difficult and expensive, but in many cases impracticable.

The line selected will offer the greatest advantage for the carriage and distribution of the mails, besides which it will be accessible in case of shipwrecks.

**HARBOURS CONNECTED BY COAST ROAD.**

It connects the Magdalen, the Mont Louis, and the Ste. Anne, which are the only harbours along this part of the coast.

**DESCRIPTION OF HARBOURS.**

The Magdalen is the safest and is the most frequented by American fishing schooners. It would be available for larger vessels, were it not for a sand bar in front; over this bar there is a depth of about 17 feet at the ebb of the tide.

The Mont Louis offers an excellent shelter for small coasting vessels.

The Ste. Anne where the depth of water is greater than in the others, is obstructed at its entrance by a dangerous rock which renders its egress and ingress difficult. The depth of water over the bar in spring tides, is said to be about 12 feet.

**ECONOMIC MATERIALS RENDERED ACCESSIBLE BY COAST ROAD.**

As the line passes over a considerable extent of lands of a good quality for settlement, and as it will, by the means of a few branch roads, afford access to the valuable quarries of green, red, blue, and brown striped serpentine, spreading over an area of probably 10 square miles on Mount Albert, and also to the rich and abundant chronic iron deposits, on the same mountain 24 miles back from the mouth of the Marsouin and 34 from that of the Ste. Anne, following the valleys of those streams; also to the fine roofing-slates, tile-stones, and flag-stones along the former stream and its main tributary called Henly's Brook, from 2½ to 7 miles back from the St. Lawrence, the whole of which is described in the Geological Report for 1858:—there is not the least doubt that its construction will lead to the settlement of the adjacent lands, provided free grants are made. Several persons already have selected lots along the line of chaining.

**DESCRIPTION OF BRANCH ROAD.**

**BRANCH ROAD TO GASPÉ BASIN.**

I shall now describe the proposed branch road from Grande Vallée des Monts to Gaspé Basin. Twenty-seven and a quarter miles from the basin westward, pass for a short distance along the north west arm of Gaspé Bay, and thence through the valley of the north west or Dartmouth River, on either side of which there is a considerable quantity of land fit for cultivation. The flats of the river, which vary from ¼ to 1 mile or more in width, are very productive; the adjoining mountain slopes and terraces, although of a drier and more stony nature, present generally good soil, the average quality being what may be termed good sandy loam.

## MILL SITES.

Along the river in the above distance there are some excellent mill-sites. The prevailing sort of timber is balsam fir, spruce, black and white birch, poplar, and cedar. Pine is scarce, most of it having been already cut by lumberers. The most valuable timber remaining is spruce from 12 to 24 inches in diameter, and from 50 to 80 feet in length.

The summits of the mountains which skirt the stream on both sides, appear to have an elevation of about 1500 feet above the level of the sea.

Nineteen miles of the above distance pass over level or undulating land, the remainder being across hills, some of which present ascents and descents as steep as 1 to 5.

The first 9½ miles from the basin are on the south side of the north-west arm and of the Dartmouth.

## PORTAGE ROAD AT GASPÉ BASIN PREFERRED TO ROAD AROUND BLUFF.

Starting from the basin, two routes were traced for the first two miles; one from the Catholic Church around the Bluff and the other along the present Portage Road about half-a-mile west of the church and nearly opposite the steamboat landing, both lines connecting at Annett's saw-mill, at l'Anse-aux-Cousins, on the south side of the north-west arm. The Portage road as terminus is said to be preferred by a majority of the inhabitants.

From this mill the line passes for about three miles through the settlements as far as Stanley's saw-mill; thence continuing along the south side of the north-west arm, it reaches and crosses the Dartmouth River at the 9½ mile; thence it follows the river upon its north side and traverses it a second time at about ½ of a mile above the falls, near the 16½ mile; thence it follows on the south side, until it reaches and crosses the stream a third time, near the 27½ mile.

The remaining 20½ miles to Grande Vallée des Monts pass over a more mountainous region, and offer little inducement for colonization, owing to the small extent of level land on either side of the line.

## ROAD GRADE.

The road grade for about half the distance is either level or undulating, and for the remainder it is composed of a series of short ascents and long descents varying from 1 in 5 to 1 in 10, to within the last two miles which are generally level to the St. Lawrence.

Fir, spruce, and white birch from 6 to 12 inches in diameter, and 40 to 50 feet in length prevail on the high lands and cedar, mixed with the preceding, on the low land; the latter measuring from 12 to 24 inches in diameter by 30 to 40 feet in length.

The soil for half the distance from the third crossing of the Dartmouth is sandy loam of a good quality; the remainder, towards Grande Vallée des Monts, is of an inferior quality, being more gravelly and stony.

## LOCALITIES DESCRIBED IN GEOLOGICAL REPORTS.

The description of the geological features of the district traversed by the proposed new routes, is given in the reports of Sir W. Logan for 1844-5, 1857-8, before referred to, for the following localities, viz:

The coast from Cap Rosier to Matane and upwards.

The river Cap de Chatte across to the Cascapediae and thence to the Bay des Chaleurs, a distance of about 74½ miles on a straight course, or of 111 miles along the windings of the course followed through the valleys of the streams, traversing the range of the Notre-Dame or Shick-shock mountains near the sources of the same.

The rivers Grande Ste. Anne and Marsouin up to the same mountain range.

From Grand Etang to the Dartmouth River, and from Griffin's Cove along the new government road to the Bay of Gaspé.

## RELATIVE ADVANTAGES OF BRANCH ROAD AND COAST ROAD.

The distance to Gaspé Basin by the Branch Road Location is about 10 miles shorter than by the present mail route *via* Griffin's Cove and Peninsula.

In winter 25 miles out of the 48 might be travelled probably upon the ice of the Dartmouth, the depth of water in which was found to vary from to 36 inches.

Although the inland route is somewhat superior to that along the St. Lawrence as regards grade and quality of soil, the inducement to settle along the latter will be greater,

owing to the advantage of fishing, the facilities afforded by the numerous existing settlements and trading establishments, and the probability of the road being kept open in winter.

It might be more expedient therefore to construct the inland route as a colonization road, and the St. Lawrence route as the main highway.

## CLIMATE AND POPULATION.

Having taken observations from the commencement of the field operations respecting the climate, depth of snow, population, &c., I was surprised during the coldest months to find such mild weather and so little snow, when I anticipated the very reverse.

### TEMPERATURE, COLDEST MONTHS.

The highest, lowest, and the average temperature since the 27th of January were as follows, viz : for January,  $-4^{\circ}$ ,  $29^{\circ}$ ; February,  $-24^{\circ}$ ,  $48^{\circ}$ , av.  $15^{\circ}$ ; March,  $0^{\circ}$ ,  $48^{\circ}$ , av.  $21\frac{1}{2}^{\circ}$ ; April,  $5^{\circ}$ ,  $47^{\circ}$ , av.  $33^{\circ}$  Fahrenheit.

### SNOW AND RAIN.

From the 1st of February, snow fell for 17 days, and rain during 7 days.

The depth of snow upon the ground on each side of the road line, varied from 3 to 4 feet, and further inland on approaching the Shick-Shock mountains, above the Magdalen, it increased from 4 to 8 feet.

In the valleys where the land is cleared, the snow disappears towards the 7th of May, and where it is not cleared, towards the 15th; on the highlands through the forest, it disappears between the 15th of May and the 1st of June.

Towards the source of the Magdalen and westward, snow is seen upon the highest summits of the Notre Dame or Shick-shock mountains in July and August.

### TEMPERATURE, WARMEST MONTHS.

During the warmest months the average temperature was, in May  $\times 45^{\circ}$ ; June  $\times 57\frac{1}{2}^{\circ}$ ; July  $\times 64\frac{1}{2}^{\circ}$ ; August  $\times 61\frac{1}{2}^{\circ}$ ; September  $\times 53^{\circ}$ ; October  $\times 40\frac{1}{2}^{\circ}$ .

### SNOW AND RAIN.

Snow fell for 2 days and rain for about 40 days; 21 of which in July and October which were the rainiest months (see detailed register of temperature, &c., appendix, No. 1.)

Agricultural operations begin generally towards the 15th of May, and the crops are housed towards the 15th of October.

### POPULATION.

The local population of the isolated settlements to be connected with each other and with the provincial highway terminating at Ste. Anne des Monts, by means of the projected routes, may be stated as follows: Cap de Chatte, 450; Ste. Anne des Monts, 869; Mont Louis, 200; Grande Vallée des Monts, Anse du Grand Etang and Sydenham north, 304; Sydenham south, 81; Fox, 588; Gaspé Bay north, 316; Gaspé Bay south, 520; Cap Rosier, 1060.—Total 4385 as per census returns of 1861.

### DRIED COD FISH EXPORTED.

So far as I could ascertain, the total quantity of dried cod-fish exported from the above places, the same year, was about 37,000 cwt.

Further details respecting the population, the agricultural and fishing produce, &c., of the various fishing stations along the coast, are given in the census sheets, appendix No. 2.

### APPROXIMATE ESTIMATE.

The probable cost of the proposed main road from Cap de Chatte to Great Fox River, and of the proposed branch road from Grande Vallée des Monts to Gaspé Basin, may be stated as follows:

Main road, western division, section No. 1, 13.20 miles in length.	
Bridge across River Cap de Chatte, 1154 feet long, near outlet...	\$12,956.76
“ “ “ Grande Ste. Anne, 953 “ “ “ ...	10,241.02
“ “ “ Petite Ste. Anne, 200 “ “ “ ...	600.00

2,307

Total.—\$23,797.78

or an average cost per mile of \$1832 86.

The cost of bridging the two former streams near their outlets being much greater than what I was at first led to suppose, it would be as well probably to defer their construction until the completion of the main road, and in the mean time to establish a scow-ferry on each.

If they were bridged at about 1 mile above their outlets, the cost would be reduced to \$11,000, but the distance to be travelled would be increased by 4 miles, and such a location would prove highly inconvenient to the public.

The local population to be benefited immediately by the use of the ferries or the construction of the bridges, comprises about 1300 persons.

<b>WESTERN DIVISION.—Section No. 1, probable cost brought forward</b> .....		\$ 23,797.78
Do do do No. 2, 61.22 miles in length.....		
From Ste. Anne des Monts to Great Magdalen River.....	\$ 64,333.30	
Total length of bridging 3,568 feet in 64 bridges.....		
Average cost per mile, \$1,001.63.....		
<b>EASTERN DIVISION.—50.78 miles in length</b> .....		
From Great Fox River to Great Magdalen River.....	\$ 41,972.70	
Total length of bridging, 4,294 feet in 73 bridges.....		
Average cost per mile, \$826.56.....		
<b>Total probable cost of proposed main road, 115 miles in length, exclusive of section No. 1 on the Western Division, and comprising 137 bridges and 7862 lineal feet of bridging...</b>	<b>\$106,306.00</b>	<b>\$106,306.00</b>
<b>BRANCH ROAD 48.11 miles in length</b> .....		
From Grande Vallée des Monts to Catholic Church Gaspé Basin .....	\$ 47,036.00	\$47,036.00
Total length of bridging 4,206 feet in 83 bridges.....		
Average cost per mile \$977.68.....		
<b>Total probable cost of the whole work when fully completed, for the entire distance of 176.31 miles, on the main road and branch road. Total number of bridges 223.....</b>		<b>\$177,139.78</b>
<b>Total length of bridging on both routes 14,375 feet.....</b>		
<b>Average cost per mile, \$1004.71.....</b>		

The above estimate, which comprises a sum of 15 per cent for superintendence and contingencies, is for a road of nearly the same character as that of the Metapedia Road, maintaining the most favourable gradients which the natural features of the country would permit, such being my instructions. The breadth of clearing is intended to be 66 feet, and that of the road formation 20 feet on favourable ground; this breadth is to be reduced where expensive side cutting of rock cutting may occur.

The average cost per mile being greater than was expected, it is proper to observe, that although a considerable portion of the road will cost little more than \$600 or \$700 per mile, yet the amount of bridging and side logging on other portions is so great, that the average sum for the whole is increased to about \$1000.

The estimates forwarded herewith shew in detail the description and grades of the ground, and the nature of the work to be done with its probable cost on each mile. The construction of the work proposed will confer great advantages both to existing and future settlers and to the public at large. Along the main or coast road, at every 4 or 5 miles, in summer or in winter, the traveller will be sure to find all the requisites of food and shelter at moderate prices, an advantage not to be found on the present route which connects the Bay des Chaleurs with the St. Lawrence.

It must not be forgotten, however, that the course of the proposed highway lies across numerous steep and lofty hills, such as those that are met with on the Kempt and the Malbaie and Saguenay roads.

For this reason, whatever its advantages may be in other respects, it is not likely to become a favourite route, with through-travellers to and from Gaspé and the Bay des Chaleurs.

The route around by the Matapedia road, now in progress of construction, although longer by 41 miles, will generally command a preference; because the Metapedia link, when completed, will be far superior, with respect to grades and fast travelling, to the link of road now proposed to be constructed between Ste. Anne des Monts and Great Fox River, together with its branch to Gaspé Basin.

If it is decided to proceed with the work, it should be commenced from each end of the line, and let in small sections of  $\frac{1}{2}$  mile in length, as is already practised on the Matapedia road, in order to give the inhabitants of the locality a chance of undertaking a portion of it.

Excellent workmen, capable of performing the various portions of the work required, can be found at Cap de Chatte, Ste. Anne des Monts, Great Fox River, and elsewhere along the line.

The management of the work, owing to the many difficulties to be overcome, should be entrusted only to persons of tried skill and experience.

In concluding, I beg to acknowledge the useful services of my assistant Mr. Allan G. Scott, who located and opened 70 miles of the line in a very judicious and satisfactory manner.

The explorers, draughtsmen, and others who assisted in carrying on the survey, or in performing other service connected with the same, are deserving of much credit for their efforts at all times, to expedite the portion of work allotted to each.

The maps and profile together with the specification and other papers, which are not quite completed, will be forwarded shortly.

I have the honor to be,

Sir,

Your most obedient servant,

(Signed,)

G. F. BAILLARGÉ.

Superintendent Engineer.

SCHEDULE G.—MILLS ON WESTERN DIVISION.

TABULAR STATEMENTS from G. F. Baillairgé's Maps of the Gaspé and St. Lawrence Exploration, respecting Water Power, Population, Temperature, Agricultural and Fishing Produce, Economic Materials, and the comparison of the two Routes from Quebec to Gaspé by the Metapediac Road and by the Gaspé and St. Lawrence Route.

Description.	Where Situated.	Proprietor.	Remarks.
Grist Mill.....	Near Cap de Chatte.....	Louis and Joseph Roy.....	In operation.
Saw Mill.....	On River Cap de Chate, six miles up stream.....	William Price.....	Not in use.
Saw Mill and Grist Mill.....	On Ruisseau du Naufrage, about four miles above Grande Rivière Ste. Anne.....	Madame Michaud.....	In operation.
Saw Mill.....	Near outlet of Petite Rivière Ste. Anne.....	Jean Baptiste Susseville.....	In operation.
Saw Mill.....	Near outlet of Ruisseau à Patates.....	Jean Baptiste Sasseville.....	Not in use.
Grist Mill.....	On St. Lawrence, one and three quarter miles above outlet of River Mont Louis.....	Donald Fraser, Seigneur.....	In operation.
Grist Mill (horse power).....	At Mount Louis.....	François Lapointe.....	In operation.

MILL SITES ON WESTERN DIVISION.

LOCALITIES.	Fall available.	Depth of Water in Winter.
Petite Rivière Ste. Anne. In Second Range.....	12	Water 3 ft. deep. Lowest water, Aug. 15 to Oct. 15.
Ruisseau Caster. Near St. Lawrence.....	15	Water 1 ft. deep in winter.
Ruisseau Vallée. At two arpents from St. Lawrence.....	8	do do do
F.rière à Mart. e. At two miles back from St. Lawrence.....	10	do do do
Rivière Marsoulin. At four miles back from St. Lawrence.....	12	do do do
Rivière Petite Magdeleine. Near St. Lawrence.....	10	do do do
Rivière Grande Magdeleine. At the Falls near the Portage, at about five miles from the St. Lawrence.	Supply unimpaired. 1 Fall of 12 ft. 1 Fall of 62 ft.	Water 3 to 5 ft. deep in winter.

REMARKS.—The breadth of the various streams along the coast is generally from forty to sixty feet, excepting the Great Magdalen, which is about two hundred feet wide one mile above its outlet. More or less water power may also be found on the other streams, along the entire route on both divisions; water power is abundant along the North West or Darlemouth River, followed by the proposed French Line of Road from Gaspé Basin to Grande Vallée des Monts. The only mill observed on the proposed Branch Line was Annett's saw mill, at l'Anse-aux-Cousins, on the South side of the North-West Arm of Gaspé Bay, at about two miles above the Basin. No mills were observed on the Eastern Division of the Main Road.—G. F. B.



## WESTERN DIVISION.

POPULATION of the Fishing Settlements from Cap de Chatte to Great Magdalen River, and the quantity of Cod Fish taken by the Residents at each Station in 1861.

STATIONS.	Population.		Number of Fishing Boats.	Cod Fish taken.		REMARKS.
	Number of Families	Number of Persons.		Average quantity each Boat.	Total Quantity.	
				Cwts.	Cwts.	Cwt. Cwt.
St. Norbert du Cap de Chatte...	80	450	32	78	1300 1200	Dried (1 dried.-2 fsh fish) P kled in bris., 1 brl.-2cwt.
Ste. Anne des Monts.....	125	780	129	33½	2800 1530	Dried. Pickled
Ruisseau Castor.....	1	3	1	100	100	Dried.
Ruisseau Vallée.....	1	6	1	100	100	Dried.
Rivière à Martres.....	2	12	2	110	200 20	Dried. Pickled.
Rivière Marsouin.....	3	18	4	90	300 60	Dried. Pickled.
Rivière Claude.....	4	20	3	41½	100 24	Dried. Pickled.
Rivière a la Pierre.....	1	9	5	96	380 100	Dried. Pickled.
Rivière Mont Louis.....	30	200	31	87	1900 800	Dried. Pickled.
Rivière d l'Anse Pleureuse.....	2	10	1	105	45 60	Dried. Pickled.
Rivière Grande Magdeleine.....	10	57	7	72	306 200	Dried. Pickled.
Total .....	259	1565	216	.....	11525	

## EASTERN DIVISION.

Population of the Fishing Settlements from Cape des Rosiers to the Great Magdalen River and the quantity of Codfish taken by the residents at each Station in 1861.

STATIONS.	Population.		Number of Fishing Boats.	Codfish taken.		REMARKS.
	Number of Families	Number of Persons.		Average quantity each Boat.	Total Quantity.	
Cap des Rosiers.....	56	325	30	90	2700	The portion of Township bordering the St. Lawrence.  Family resides at Echouerie, $\frac{1}{2}$ mile West.
Griffin's Cove.....	43	280	23	100	2800	
Great Fox River.....	62	400	35	110	3850	
Little do .....	9	50	8	100	800	
Petit Cap.....	12	85	6	95	480	
Cap au Serpent.....	1	2	1	60	60	
Pointe Jaune.....	5	22	4	50	200	
Anse à Vallean.....	3	20	8	100	800	
Ruisseau aux Echalottes.....	0	0	1	80	80	
Anse du Grand Etang.....	1	2	20	140	2800	
Pointe Sèche.....	3	130	14	100	1400	
Grand Cloridorme.....	10		9	80	720	
Petit do .....	8		8	80	640	
Petite Vallée des Monts.....	3	24	3	70	210	
Grande do .....	11	80	30	80	2400	
Total .....	227	1420	205		19940	

N. B.—The quantity of Codfish for the Bay of Gaspé, from Grand Grève to Gaspé Basin inclusive, is about 6,000 cwts.

G. F. D.

## COUNTY OF GASPÉ.

Population of the County of Gaspé exclusive of the Magdalen Islands as per Census Return of 1861.

Cap de Chatte .....	450	Township.
Cap des Rosiers.....	1060	do
Douglas.....	988	do
Fox .....	588	do
Gaspé Bay, North.....	316	do
Do South.....	520	do
Grand River.....	879	Seigniori.
Grande Vallée des Monts.....	304	do
Anse du Grand Etang.....		do
Sydenham, North.....		Township.
Malbaie.....	1077	do
Mont Louis.....	200	Seigniori.
New Port.....	415	Township.
Pabos.....	754	Seigniori.
Percé.....	2720	Township.
Ste. Anne des Monts.....	869	Seigniori.
Fydenham, South.....	81	Township.
York .....	205	do
Total population.....	11426	

MEAN TEMPERATURE

Along the Coast and at Gaspé Basin.

Months.	Degrees Fahrenheit.	REMARKS.
February .....	+ 15° .....	Snow 17 days.
March .....	+ 21½° .....	Rain 7 days.
April .....	+ 33° .....	Depth of snow near road line, 3 to 4 feet.
May .....	+ 45° .....	
June .....	+ 57½° .....	} { Snow 2 days. Rain 40 days.
July .....	+ 64½° .....	
August .....	+ 61½° .....	
September .....	+ 53° .....	
October .....	+ 40½° .....	

Snow.—The depth of snow upon the ground, on each side of the road line, varied from 3 to 4 feet. Inland, on approaching the Shick-Shock Mountains, above the Magdalen, it increased from 4 to 8 feet. Towards the source of the Magdalen and westward, snow is seen upon the highest mountains in July and August. In the valleys, where the land is cleared, the snow disappears towards the 7th of May; and where it is not cleared, towards the 15th, on the highlands throughout the forest, it disappears between the 15th of May and the 1st of June.

G. F. B.

WESTERN DIVISION.

TOTAL and average yield of Grain, and quantity of Maple Sugar made in 1861, at the various Settlements along the Coast:

Names of Localities.	B U S H E L S .												lbs.	REMARKS.	
	Wheat.		Oats.		Pease.		Rye.		Barley.		Potatoes.				Sugar.
	Total Produce.	Av. per Bushel.	Total Produce.	Av. per Bushel.	Total Produce.	Av. per Bushel.	Total Produce.	Av. per Bushel.	Total Produce.	Av. per Bushel.	Total Produce.	Av. per Bushel.			
(a) Cap de Chatte, St. Norbert.....	1100	.....	2000	.....	800	.....	1200	.....	2000	.....	10000	.....	3200	Settlement begun 30 years ago, by Louis and Joseph Roy.	
(b) Ste. Anne des Monts.....	1900	.....	3400	.....	1300	.....	2000	.....	3400	.....	15000	.....	4875	Settlement begun 30 years ago, by Jean Be. Sasseyville, and others.	
Rivière à Martres Valley.....	40	20	40	20	30	15	.....	.....	300	18	600	15	1600	Cultivation begun 6 years ago, by Peter Maloney and Isaac Gase.	
Rivière Marsonin Valley.....	60	15	80	28	40	13	.....	.....	400	14	800	20	1200	Cultivation begun 4 years ago. Settled about 30 years, by P. Henley.	
Rivière Claude Valley.....	.....	.....	.....	.....	10	3½	.....	.....	33	8½	390	7½	1500	New Settlement begun by Hubert Cas-tangé.	
Rivière à la Pierre Valley.....	.....	.....	12	12	.....	.....	.....	.....	18	9	184	14	2300	New Settlement begun by Pollot Ouellet.	
River Mont Louis Valley.....	350	16	.....	22	.....	15	.....	.....	.....	20	.....	18	.....	} Old French Settlement. Sugar made on Seigniorly and on Crown Lands. Settled by James Henley. Settled for several years. Cultivation very indifferent and on some of the poorest land.	
River Mont Louis Heights.....	.....	10	200	16	276	12	270	.....	440	.....	6800	.....	3900		
River Anse Pleureuse Valley.....	30	10	.....	.....	.....	.....	.....	.....	20	10	200	11½	1750		
River Great Magdalen Valley.....	137	5	.....	.....	71	6	73	6	60	7	667	7	.....		
Total.....	3617	.....	5732	.....	2627	.....	3653	.....	6671	.....	33,641	.....	20,325		

(n)—The Agricultural Population, and the area of Cultivated Land in this portion of the Township of Cap de Chatte, is increasing rapidly every year. Agriculture, being more remunerative than Fishing, is preferred by the majority of the population. Hunting is very seldom practised, although wild animals are more or less numerous. St. Norbert is destined to become a large Parish.

WESTERN DIVISION.—Remarks (a)—Continued.

Although Yellow and White Pine are still to be found along the valley of the river Cap de Chatte, the lumbering operations formerly carried on upon the river, by Mr. Price, have been discontinued, owing to the scarcity of Pine. The want of a scow, ferry, or bridge across the river Cap de Chatte is a great drawback to colonisation. A great number of lots in the 2nd and 3rd ranges, have been taken by persons who do not settle thereon, and the same being sought for by persons who are ready to cultivate them and to reside thereon, but whose applications are refused, owing to the former, the Crown Land regulations should be enforced, in order to give equal justice to all parties.

(b)—The Parish of Ste. Anne des Monts comprises part of the Township of Cap de Chatte, of the Seigniory of Ste. Anne des Monts, belonging to John LeBoutillier, M.P.P., and part of the Township of Touraine. This Parish, of which St. Norbert may be termed the offspring, is rising rapidly into importance. Fishing is no longer the favoured pursuit, agricultural operations being more remunerative. The 1st range is generally thickly settled along the St. Lawrence. The lots on the 2nd and part of the 3rd ranges have been already taken, and are in course of being settled. A scow, ferry, or bridge across the Grand Rivière Ste. Anne would be a great inducement to colonisation. Lumbering operations were carried on some years ago along this river, but have been discontinued, owing to the scarcity of Pine. Many of the lands of the 2nd and 3rd ranges are taken by persons who do not settle thereon, which prevents bona fide settlers from occupying these lands, as at Cap de Chatte.

G. F. B

CATALOGUE shewing the varieties of Trees found in the Township of Cap de Chaste and several other sections of the country explored.

NAMES.		BOTANICAL.		SIZES.		REMARKS.
ENGLISH.	FRENCH.			inches.	feet.	
Yellow Pine.....	Pin Jaune.....	<i>Pinus Variabilis</i> .....	9 to 18 to 18 X 60 to 70 ..	27 to 36 X 60 to 90 .....	} On stony or gravelly soil. Fit for saw logs and squared timber.	
White Pine.....	Pin Blanc.....	<i>Pinus Strobus</i> .....	9 to 10 to 15 X 30 to 40 ..	24 to 30 X 70 to 80 .....		
White or Sea Spruce.....	Epinette Blanche.....	<i>Abies Alba</i> .....	6 to 9 to 12 X 40 to 50 to 60	15 to 18 to 24 X 70 to 80 ..	} On light soil, sandy loam—good for masts.	
Grey Spruce.....	Epinette Grise ou Epinette de Savanne.....	<i>Abies Nigra (Poiret)</i> .....	9 to 18 to 18 X 60 to 70 ..	do do do .....		
Red Spruce or Tamarac.....	Epinette Rouge.....	<i>Abies (Larix) Americana</i> .....	18 to 24 X 60 .....	do do do .....	} On light soil, sandy loam—do	
Black or Double Spruce.....	Epinette Noire.....	<i>Abies Nigra (Michaux)</i> .....	9 to 10 to 15 X 30 to 40 ..	do do do .....		
Fir Balsam.....	Epine.....	<i>Abies Balsamea</i> .....	15 to 18 X 50 .....	do do do .....	} Abundant on dry soil.	
Red Cedar.....	Cedre Rouge.....	<i>Thuja Occidentalis</i> .....	20 to 24 to 36 X 40 to 50 to 70	do do do .....		
White Cedar.....	Cedre Blanc.....	<i>Acer Saccharinum</i> .....	12 to 15 X 60 .....	do do do .....	} On heavy soil, clay, low land—good for shingles, frames, fence rails, &c.	
Hard or White Maple.....	Erable Blanche.....		15 to 18 X 50 .....	do do do .....		do do do .....
Gray Maple.....	Erable Grise.....	<i>Acer Rubrum</i> .....	12 to 15 X 40 to 45 .....	do do do .....	} On rich soil—clayed loam.	
Soft Maple.....	Plaine.....	<i>Acer Striatum</i> .....	8 to 10 X 20 to 30 .....	do do do .....		
Striped Maple.....	Bois Barré.....	<i>Betula Lenta</i> .....	15 to 24 to 36 X 60 .....	do do do .....	} do do do .....	
Black or Red Birch.....	Merisier Rouge.....	<i>Betula Excelsa</i> .....	12 to 15 X 60 .....	do do do .....		
Yellow Birch.....	Merisier Blanc.....	<i>Betula Populifolia</i> .....	6 to 10 to 18 X 40 to 50 ..	do do do .....	} On light soil.	
Canoe Birch.....	Bouleau Rouge.....	<i>Betula Papyracea</i> .....	10 to 15 to 24 X 50 to 60 ..	do do do .....		
Balsam Poplar.....	Peuplier.....	<i>Populus Balsamifera</i> .....	12 to 15 to 30 X 60 to 70 ..	do do do .....	} On dry soil on high lands.	
Aspen or White Poplar.....	Tremble.....	<i>do Tremuloides</i> .....	7 to 8 to 12 X 30 to 40 .....	do do do .....		
Black Ash.....	Frêne Noir.....	<i>Fraxinus Sambucifolia</i> .....	10 to 12 X 50 to 60 .....	do do do .....	} do saplings good for hoops.	
White Ash.....	Frêne Blanc ou Frêne Frêne.....	<i>do Acuminata</i> .....	10 to 13 to 15 X 40 to 50 ..	do do do .....		
White Elm.....	Orme.....	<i>Ulmus Americana</i> .....	20 to 24 to 30 X 50 to 70 ..	do do do .....	} On good soil—good for wheel nave, &c.	
Mountain Ash.....	Cormier, Maskoubains.....	<i>Cerasus Pennsylvanica</i> , or <i>Prunus</i> .....	6 to 10 X 15 to 20 .....	do do do .....		
Wild Red Cherry.....	Merisier.....	<i>Alnus Incana</i> .....	6 to 8 X 30 to 40 .....	do do do .....	} On light dry soil.	
Alder.....	Bois Boc.....	<i>Acer Spicatum</i> .....	3 to 5 X 12 to 20 .....	do do do .....		
Mountain Maple Shrub.....	Bois Boc.....	<i>Acer Spicatum</i> .....	13 to 23 X 10 to 15 .....	do do do .....	} On borders of ponds, river, lakes, &c.	
Hazel Nut, or Beaked Hazel .....	Coudrier Noisetier.....	<i>Corylus Americana</i> .....	1 to 2 1/2 X 6 .....	do do do .....		
Straw Palestris.....	Bois de Peupl.....	<i>Salix Lacina</i> .....	1 X 5 .....	do do do .....	} Indication of good soil generally found in the valleys of all the streams.	
Willow.....	Sauze Jaune ou Blanc.....	<i>Viburnum Lantanoides</i> .....	8 to 9 X 15 to 20 .....	do do do .....		
Hobble-bush.....	Bois d'original.....	<i>Taxus Canadensis</i> .....	8 to 4 X 15 to 20 .....	do do do .....	} On damp soil.	
Greenland Hemlock.....	Bois.....	<i>Vitruum opulus</i> .....	.....	do do do .....		
High Cranberry.....	Pimblina.....	.....	.....	do do do .....	} Abundant amongst trees on low ground.	
.....	.....	.....	.....	do do do .....		

N. B.—The above shews the description and size of the various species met with throughout the Exploration.

## WESTERN AND EASTERN DIVISIONS.

*Fisheries.*—(See Report of P. FORTIN, Esq., on Fisheries in Gulf of St. Lawrence for 1859.)

*Cod-Fish.*—The common Cod (*Morrhua Vulgaris*), is found in great quantities along the coast from Cape de Chatte to Paspébiac, and even as far as New Richmond in the Baie des Chaleurs.

It appears at uncertain dates, generally between the 10th May and the 1st of June, but sometimes later.

It gene ally stays in the sea at a depth of from 25 to 60 fathoms ; it is seldom taken in more than 75 fathoms ; but when the instinct of reproduction is felt, it approaches the shore in pursuit of the caplin, of which it then makes its chief food, and remains six or eight weeks in twelve, eight, and even five fathoms.

Cod-fishing along the coast is generally carried on in 20, 30, or even 40 fathoms, the boats being manned by two men, each of whom has two lines.

The months of June, July, and August are the most favorable for the cod fishery.

Herring, caplin, and launce are the favorite bait used ; these are taken with seines, when they come near enough to the shore, or with nets in deeper water.

The fishing from the beginning of the season to the 15th August is called the summer fishing ; what is carried on after that date is called the autumn fishing. All the cod taken until September is salted and dried for the purpose of being exported to foreign countries ; what is taken from September to the close of the fishing season is merely salted and packed in barrels, and in that state it comes to the Quebec and Montreal markets.

*Haddock.*—The Haddock (*Morrhua Aeglefinus*) and the Hake (*Phycis Americanus*), are frequently taken in autumn off the coast of Gaspé, but these are not salted for exportation.

*Herring.*—Herrings (*Clupea Harrengus*), are found in immense numbers along a portion of the coast of Gaspé, especially in the spring of the year ; large numbers are also to be met with during the summer season.

*Mackerel.*—(*Scomber Vernalis*)—in the Baie des Chaleurs, as well as off the coast of Gaspé and along the shores of the St. Lawrence, is the most plentiful during the months of August, September, and October.

*Salmon.*—Salmon (*salmo solar*), is found in most of the large streams along the coast.

*Trout.*—Most of the rivers and lakes are well supplied with trout of various kinds. The brook trout, (*salmo fontinalis*) and the salmon trout (*salmo trutta*), which are the best, are chiefly met with near the shores of the Gulf and the estuaries of the rivers.

*Various.*—Halibut, plaice, and other fish are also taken along the coast.

*Oysters.*—Artificial oyster-beds were established in 1859 by P. Fortin, commander of the Government schooner *La Canadienne*, at the following places, viz: at the entrance of the Grand River Cascapedia, on the eastern side of the middle channel leading into the river ; the superficial extent of the shoal, on which the oysters were deposited, is about four arpents in length by three-quarters of an arpent in width ;—opposite Mr. Horace Le Boutillier's house, about four arpents from the entrance of Gaspé Basin ;—and a mile further up opposite Mr. Short's house, both being on the south coast. On the first bank were deposited eighty barrels of oysters, covering a space of four arpents in length by one in breadth, and on the second bank seventy barrels were deposited.

## WESTERN DIVISION.

*Economic Materials.*—(See Geological Report, 1857, 1858.)

*Common Brick Clay.*—An abundance at the mouth of the Magdalen and in several of the bays along the coast, both above and below the Magdalen, but none seen in the interior.

*Copper Ore.*—Traces met with near the mouth of the Great Capucin River, at about nine miles above the River Cap du Chatte.

*Chronic Iron.*—On the summit of Mount Albert : strewn in abundance on the surface among the fragments of Serpentine. It occurs in loose masses weighing from a few ounces to twenty pounds, almost quite free from rock and running in a direction N. 44° E. Loose

masses so abundant that in a few hours a ton of the ore might be collected by a single person; their cleanness leaves little doubt that there must be a rich deposit close to the surface, beneath the moss and soil.

*Serpentine.*—The Serpentine of Mount Albert, occupying an area of not less than ten square miles, would yield an inexhaustible supply of material capable of economic application. The rock appears to be unusually solid, and in several places vertical cliffs, several hundred feet in height, show nothing but bare Serpentine, while masses of eight and ten feet in diameter, fallen from them, lie at their base. The general colors as far as observed, were green or green mottled with red, and mahogany brown striped with red; occasionally a bluish tint was mingled with the other colors. The distance of the locality from the St. Lawrence, by the valley of the Great St. Anne River, is thirty-four miles. By the valley of the north tributary branch of the St. Anne and the valley of the Marsouin, the distance is twenty-four miles. In either direction roads could be easily constructed, while a great part of the way is well adapted for settlement.

*Roofing Slates, Tile Stones and Flag Stones.*—The best roofing slates were observed on Henley's brook. The nearest exposure of the rock yielding them is about two and a half miles above the junction of the brook with the Marsouin, or about four miles from the St. Lawrence, and it prevails for a breadth of two and a half miles up the valley of the brook. The slates might be obtained in thickness varying from an eighth to a quarter of an inch, and in slabs of eight or ten feet square with very smooth surfaces. Some parts of the rock gave thicker slabs, measuring from two to three inches, and would serve as excellent flag stones. The color of the rock is a dark bluish gray or black. Some bands of the slate are calcareous, and these for roofing purposes should be avoided.

The same rock comes out in the strike upon the Marsouin river from seven to nine miles from the St. Lawrence, and would here give a material of much the same character.

*Building Stones and Flag Stones.*—From the grey calcareous sandstone beds along the coast.

*Lime.*—In the limestone conglomerates and from the black beds occurring among the strata of the rocks described along the coast.

An abundance of building and flagstones and limestone fit for burning may be obtained four miles below Cape Magdalen.

*Hydraulic Cement.*—The black yellow weathering dolomites of the Mountain Portage on the Magdalen similar to those of the Grande Coupe six miles below the Grand Etang river, afford a material which gives a strong hydraulic cement, setting in a few minutes, under water to a very hard and tenacious mass of a yellowish color.

The stone differs from that at Quebec from which Captain, now Major General Baddely, B. E., first prepared a cement now manufactured by Mr. Pierre Gauvreau; this contains no magnesia, while the Gaspé stone is a dolomite. The calcareous beds weathering to a brownish tinge among the strata in the cliff above the mouth of the Marsouin are probably of a magnesian character and possibly fit for hydraulic purposes.

*Mineral Springs.*—There are two mineral springs above the Grande Ste. Anne river. One of them is two and the other five miles from the river. Both are under high water mark, and they are both sulphurous, and may be saline. Another of a similar character occurs between high and low water, about two hundred paces below Petite Ste. Anne river. In the valley of the Marsouin, on the east side of the river about nine miles up, there is a spring with a small flow of water; but it is strongly sulphureous and slightly saline. Well beaten paths lead to it, shewing that it is much resorted to by the wild animals of the country.

*Timber.*—White and Yellow Pine, Spruce and Cedar are the only marketable description of Timber met with.

#### EASTERN DIVISION.

#### *Economic Materials.*

*Common Brick Clay.*—Clay fit for the manufacture of red bricks exists in abundance at the mouth of the Magdalen, as well as in several bays along the coast, above and below the Magdalen, but such clays are not seen in the interior.



*Serpentine*.—Some of the rocks of Mount Serpentine would probably answer for the purposes of ornamental architecture. The rock, however, is too much cracked and flawed to yield large sized blocks.

*Limestone*.—At four miles below Cape Magdalen and at some other points, but more at Cape Gaspé than elsewhere, because here the beds contain a great number of fossils, of which those more westward seem to be almost destitute.

*Building and Flag Stones*.—May be had in abundance along various parts of the coast, and especially at four miles below Cape Magdalen.

*Hydraulic Cement*.—The black yellow weathering dolomites of the mountain portage on the Magdalen, and those of the Grande Cape, about six miles below Grand Etang, furnish material giving a very strong hydraulic cement.

*Sulphuret of Lead or Galina*.—In the limestone cracks at the bight of Little Gaspé Cove, and at Indian Cove near the fishing stage of Messrs. Pierre and Antoine Simon, ore said to contain more antimony than lead, per analysis of Mr. de Rottermond.

*Mineral Springs, &c.*.—One bituminous spring on south side of the St. John River about one and a half mile above Douglastown. The liquid is Petroleum, which oozes from the mud and shingle of the beach.

Another bituminous, about two hundred yards up a small fork of Silver Brook, which is a tributary of the south west arm, falling into it about six or seven miles above Gaspé bay. One pint collected in one hour.

Sulphurous spring, two miles from the basin at one thousand yards back from the road, along the south west arm within twenty yards of the upper dividing line of Mr. B. Patterson's lot.

Another, sulphurous, on right bank of small brook about three-quarters of a mile from its junction with the north-west arm just above Point Aux Navets, four and a half miles from basin; Sulphurated Hydrogen Gas bubbles up and escapes at the sources. The waters contain in solution, soda, magnesia and lime in the form of muriates and sulphates.

QUEBEC TO GASPE BASIN,

Via Provincial Highway, along South Shore of the St. Lawrence to St. Flavie; thence by Navigation Road, when completed; thence by the present Highway along the North side of the Baie des Chaleurs.

FROM	TO	Intermediate Mileage.	Total Mileage from Quebec.	REMARKS.
Quebec	Rivière du Loup	114	114	128 per Grand Trunk Railway. Government Wharf about 1½ miles from Village.
Rivière du Loup	Rimouski	66	180	Government Wharf about 1 mile from Village. North end Metapédia Road, on St. Lawrence, at 5 miles from North end of Kempt Road.
Rimouski	St. Flavie	21	201	At Junction of River Ristigouche.
St. Flavie	Mouth of River Metapédia	93½	294½	South end Metapédia Road, on Ristigouche.
Mouth of River Metapédia	James Sillars	5	299½	On the River Ristigouche.
James Sillars	South end of Kempt River	3	302½	do do
South end of Kempt River	Opposite Cambelltown	4½	307	Along Bay of Ristigouche.
Opposite Cambelltown	River Nouvelle	18	325	do Baie des Chaleurs.
River Nouvelle	Carlton	10	335	do do
Carlton	Great Gaspédia River	13½	348½	do do
Great Gaspédia River	Great Bonaventure do	22½	371	Chief Lieu Co., of Bonaventure, along Baie des Chaleurs.
Great Bonaventure do	New Carlisle	8½	379½	Along Baie des Chaleurs.
New Carlisle	Paspébiac	3	382½	do do
Paspébiac	Nouvelle, (Township of Hope)	5½	388	do do
Nouvelle	West Point of Port Daniel	9	397	do do
West end of Port Daniel	Fabou, Village	21½	418½	do do
Fabou	Grand River	7½	426½	do do
Grand River	Junction of Road, 1½ miles above Percé	18½	445	do do
Junction of Road, 1½ miles above Percé	Malbale, at outlet of Barachois	8½	453½	do do
Malbale	Belle Anse	2½	456½	At Road intersection, 2½ miles above Pointe Peter, between Baie des Chaleurs and Gaspé Bay.
Belle Anne	Douglas Town	11½	468½	Along Gaspé Bay.
Douglas Town	Gaspé Basin	6½	475	Fort Rainy.

QUEBEC TO GASPE BASIN,

Via Provincial Highway, along South Shore of St. Lawrence, to Ste. Anne des Monts, thence by proposed Road to Great Fox River, thence by the New Road to Griffins Cove and Peninsula and the Ferry across Gaspé Bay.

FROM	TO	Intermediate Mileage.	Total Mileage from Quebec.	REMARKS.
Quebec .....	Rivière du Loup .....	114	114	128 miles from Railway, Government Wharf, about 14 miles from Village.
Rivière du Loup .....	Rimouski .....	66	180	Government Wharf, about 1 mile from Village.
Rimouski .....	Ste. Flavie .....	21	201	North End Metapedia Road.
Ste. Flavie .....	Métis .....	5	206	North End Kempt Road.
Métis .....	Matane .....	33½	239½	West End New Road.
Matane .....	St. Denis .....	9	248½	East do do
St. Denis .....	Cap de Chatte .....	36	284½	West do proposed.
Cap de Chatte .....	Latourville .....	13½	297½	Via proposed road.
Latourville .....	Great Magdalen River .....	64½	362	do do
Great Magdalen River .....	Great Fox River .....	59½	412½	New Government Road.
Great Fox River .....	Griffin's Cove .....	6	418½	do do
Griffin's Cove .....	Peninsula .....	7	425½	do do
Peninsula .....	Gaspé Basin .....	3½	429	Ferry across Gaspé Bay.

N. B.—The mileage of the various places along the Provincial Highway, as above, is that which is generally charged to Travellers. The above Route is 41½ miles shorter than the Route by the Metapedia and the Baie des Chaleurs.

G. F. E.

GASPÉ BASIN, 16th December, 1862.

To the Honorable the  
Commissioner of Public Works, Quebec.

SIR,—All the works on the Gaspé and St. Lawrence roads entrusted to my charge being closed for the season, I have now the honor to submit my report.

No repairs having, for the time being, been found absolutely necessary, there has been no outlay this year on the first division of the road. I would suggest, however, that two breakwaters be constructed at Watering Brook bridge; the one outside the centre pile, to prevent the blocks of ice and wood, which the spring tides and easterly gales may accumulate on the shore, from injuring the foundations; and the other inside, to throw back on to the rock on the other side of the Brook the trees and blocks of wood which on the occasion of a sudden flood, like those of the autumn of 1861, collect in heavy masses against this pile.

The cost of these two breakwaters, together with some other trifling but indispensable repairs to the bridge, may amount to about \$150; the work should be undertaken during the winter, as the timber necessary for the construction of the breakwater cannot be found on the spot, and must necessarily be brought over the ice, from the South Shore of the bay.

It is on the second division that the heavy rains of the fall of 1861 caused the greatest damage. This section, however, has been repaired in such a manner as to resist any future floods of the same nature. In the fifth mile, the greater part of the road is now protected by a wharf constructed on either side, of round timber, leaving ditches from four to five feet wide, and in some places five feet deep to facilitate the draining off of the water. To the east of the road, on the side nearest to the river, three large drains six feet wide, have been constructed at proper distances crossing the road, with discharging ditches of the same proportions.

Over the "Fork" a bridge has been built of a height sufficient to admit the passage of any substance which may in future be carried down by the river from the mountains, after the heaviest rains.

In the sixth mile, the road was completely blocked up in one spot by a slide of the mountain on the left. The obstruction has been entirely removed, the road restored to its previous condition, and a good drain made, crossing the road, to carry off the surplus water which could not find its way into the side ditch.

Finally, the whole of this division has undergone the necessary repairs, and has been restored to such a condition that the rains of last autumn, which, however, were not to be compared to those of last year, have been insufficient to cause the smallest damage.

The cost of the works on this division, including the balance due to the contractors on the operations of last year, amounts to \$1,260.00.

The works on the third division comprise the construction of a bridge over the "Mauvais Pas" brook, and another over the "Grand Ruisseau." These two bridges have been built in a substantial manner, and are now completed. The "Ruisseau à la Femme" the nearest to Fox River, required a bridge of some size; and to avoid the necessity of its construction, I preferred to deviate from the old track, and to cross at a place some acres higher up, where the hollow formed by the brook is much less considerable, and where the construction of a bridge of only 20 feet has proved sufficient to span this watercourse. I also caused a piece of road about twenty chains long to be constructed at the extreme west; and this completes this division as far as the east bank of the Great Fox River.

The cost of these works, including repairs made on some other portions of this division, together with the balance due on last years' contracts completed this year, amounts to the sum of \$1011.00.

The sum of \$3,600.77, appropriated for this road in 1862, has been distributed as follows:

To pay the amount expended in 1861 in excess of the appropriation of the preceding years.....	\$ 714.58
Cost of works on the second division in 1862.....	1260.00
Cost of works on the third division in 1862 .....	1011.00
Superintendence and contingent expenses .....	610.15
Making a total of .....	\$3595.68
And leaving a balance of.....	5.09
	\$3600.77

in favor of the road.

Although the completion of a road connecting the important establishments of the Grande Grève and Fox River with Gaspé Basin may be considered a work of great value to this section of the county, and one also of incalculable advantage for the easy transport of mails, still the County of Gaspé in general can never derive any material benefit from the undertaking until this great postal avenue be extended as far as the Seigneurie of Ste. Anne des Monts.

The ground on this portion of the coast presents no serious obstacle to the construction of a road; and the survey made by G. F. Baillargé, Esq., has proved that this means of communication might be effected at but little expense. I beg to refer you to his report for all details connected with the construction and estimate of the works.

The whole of which is respectfully submitted.

(Signed,)

ANT. PAINCHAUD,  
Superintendent,  
Gaspé and St. Lawrence Road.

T. TRUDEAU, Esq.,

Secretary, Department of Public Works, Quebec.

SIR,—As all the troops expected *via* the Temiscouata Road, had arrived at Rivière-du-Loup before the 10th instant, I suspended all works on the Road, which, up to that time, had been maintained in excellent condition. The total cost of keeping up the 70 miles of road (including the two portage roads to and from Fort Ingall) between Rivière-du-Loup and the Province line, including the cost of rollers, snow-ploughs, &c., is \$6,321.95. The estimate of the probable cost of the work (*viz*: \$3,000.00), which I submitted to the Department on the 24th December last, was made when there was only about 15 inches of snow on the ground; had we then commenced to keep up the Road, it would have cost much less; but before the necessary snow-ploughs and rollers could be made, there was over three feet all through, and the single track in the middle of the road made by one-horse trains and sleighs—which are much narrower than the double sleighs used in conveying the troops—was hardly 2½ feet wide and about 2 feet high, so that horses getting off this narrow track would fall into the deep snow at the sides; we were therefore obliged to cut down this track with axes, for an aggregate distance of about 36 miles, in order to secure a uniform surface to work upon, and to make a hard and level track 12 feet wide, according to my instructions from the Department.

We had a great many snow storms and drifts during the month of January; in fact, during the whole winter, nearly every fall of snow was accompanied by high winds and drifts; we were therefore obliged to cut a passage through some banks of snow before the plough could be used, and then to shovel away the snow left by the plough on the sides of the road, so as to leave room enough for it to pass through at every ensuing snow storm. In the beginning of February the snow was five feet deep at the Grande Fourche. The very severe snow storm of the 24th—25th February,—filling up the whole width of the

road and forming huge banks of snow in many places—together with the continued soft weather in the beginning of March, made it necessary to keep a large number of men continually employed in repairing and filling up deep ruts and holes made by the heavily laden double-sleighs.

Since the 10th inst. we have commenced the plan of the road, and we will continue to work at it until it is finished.

I have the honor to be, sir,

Your most obedient servant,

(Signed) JOSEPH ROSA,  
Superintendent.

## APPENDIX H.

### REPORT OF MR. CHARLES BAILLARGÉ, ON THE NEW JAIL AT QUEBEC.

QUEBEC, 11th February, 1868.

T. TRUDEAU, Esq.,  
Secretary of Public Works.

SIR,—In compliance with the instructions contained in your communication of the 6th inst. (No. 44,269), I have the honor to report for the information of the Honorable the Commissioner:—

Plans for the proposed Jail were first advertised for in January, 1856, when 12 different sets of designs were sent in, estimated to cost respectively from £16,500 to £177,000. None of the designs however met the entire approval of the Board of Prison Inspectors; in consequence of which, I received instructions, dated 11th June, 1860, founded on an order of His Excellency the Governor General in Council, to prepare a complete set of designs "in accordance with the principle and conditions laid down by the Board of Prison Inspectors, the outlay not to exceed £16,000."

Now, the two conditions were incompatible, as a jail for 300 inmates could not be built for less than double the amount mentioned.

On the 30th July, 1860, a communication was sent from the Board of Prison Inspectors approving of the plans as being in conformity with the principles of the board, and remarking at the same time "that a smaller building than that prepared by me would not afford the amount of accommodation required for a jail in this city."

The Commissioner of Public Works not wishing, however, at the time, to incur the responsibility of carrying out the whole building, ordered the contract to be prepared, with the omission, for the time, of such portions of the building as could be momentarily dispensed with, to keep within the amount appropriated, £16,000.

The present contract was awarded to Messrs. Murphy & Quigley, who had submitted the lowest acceptable tender for the work, and signed on the 31st January, 1860, since which time the contractors have managed (in spite of an unremanerating contract price, strikes among their men, and other disheartening circumstances) to bear out against all difficulties, and have so far pushed on with the work that the whole of the outer walls are now completed, together with most of the interior masonry, and the roof-trussing well advanced.

The quality of the work done so far is such as to do honor to all parties concerned.

The style of architecture adopted, though not generally considered as belonging to any particular period, possesses many of the characteristics of the Norman period, and, as such is well suited to buildings of the kind, its massive proportions and the size and quality of the stone used in the construction of the edifice being such as to render it not only most secure against the escape of prisoners, but almost impregnable from without and of easy defense from within.

The building will at least have the merit of looking like what it is intended for, which cannot be said of many buildings, though it is highly important that such should always be the case.

It may not be amiss to state, as affording some idea of the quality and intended durability of the work, that the whole of the chimney stacks are specified to be made out of solid layers of stones with the flues cut through them, no vertical joint of any kind being allowed, and the importance of this, little as it has in general been attended to, will readily be admitted, when it is considered what a never ending source of expense such exposed parts of a building are, in a climate like that of Canada.

In fact, I may make bold to say that, when completed, the Quebec jail must be pronounced the most substantial and durable edifice ever erected in Canada for a like sum of money.

The works remaining to be done to complete the building consist in the remainder of the roofing, the construction of the tower and chimney-stacks, the stoops to the several entrance-doors, and the inside carpenter's and joiner's work, plumber's work, gas-fitting, painter's and glazier's work.

There are now on the premises much of the heaviest and most expensive material for the watch-tower and large quantities of stone for concrete, &c., together with the whole of the timber-scantling for roof-trussing, the whole of the drainage and ventilating tubing, and other materials.

Mr. Whitty, than whom a more efficient hand in his line could not be found in Canada, is already far advanced in the completion of his contract for the cast and wrought-iron work of the building, the whole of the window-gratings and cell and chapel galleries being completed, and all the corridors and cell-doors on the premises, together with the whole of the iron-stays intended to counteract the thrust of the vaulted floors.

The joinery is so far advanced that the deafening floors are laid throughout, most of the sashes are glazed, primed, and put in place, the others being on the premises, and the inside doors nearly completed.

Mr. Pye has secured the contract for the whole of the plumbers' work and gas-fitting, and Mr. McKay for the painting and glazing, both of whom will no doubt carry out their works, as usual with them, in a way to secure the approbation of the Department.

Mr. Chartré will, I believe, be the successful competitor for everything in his line of business, including roofing in tin, zinc, and galvanized iron, eaves, gutters, &c., together with the whole of the heating and ventilating arrangements (stoves and stove-pipes only not included); all of which have been planned and specified in detail, and included in the contract amount: a circumstance the more desirable when compared with the immense additional cost of such works if made a separate contract of.

It may be necessary to explain what might otherwise be considered as an extra authorized by the Hon. Mr. Cauchon during his Commissionership. For reason of internal salubrity, the Board of Prison Inspectors had set forth in their "conditions" not only that all the interior walls should be built of brickwork, but that the outer walls should be faced with bricks on the inside:

I had submitted for the consideration of the Department, during the Commissionership of the Hon. Mr. Rose, that more securely to guard against the escape of prisoners, the inner brick-facing should be replaced by one of solid stone masonry, and that, provided some such stone as the Cap-rouge sandstone were made use of for the purpose, the sweating of the walls, which occurs more or less with calcareous stone, would thereby be avoided.

The brick lining at that time had not yet been commenced, but my suggestion was not sanctioned at the time. After the resignation of the Hon. Mr. Rose, I again applied to the Hon. Mr. Cauchon, his successor in the Department, for leave to make the alteration recommended by me, setting forth again that though, as far as the solidity of the building was concerned, there could be no objection to the inside brick-facing, it was nevertheless far from offering the same security against the breach-leving propensities of the inmates.

The Commissioner thereupon ordered the required alteration to be carried out, and with much propriety I believe, as the building will thereby be made not only much safer against the escape of prisoners, but far more durable and strong than if carried out as at first intended.

For similar reasons, two of the party-walls which become exposed by the omission of the western and part of the central wings were also ordered to be built of stone, and the cell door-jambes which I had originally intended to be of cut stone, but which had been replaced in the contract by brick jambes, to bring it within the £16,000 already mentioned, were also very judiciously ordered by the Hon. Mr. Cauchon to be carried out as at first intended.

The items above set forth were undertaken by the Contractors at the additional cost of \$13,184, and cannot be considered absolutely indispensable.

One of the portions of the building omitted in the contract, with the view already alluded to of reducing the total cost to £16,000, was the fourth story of the central portion of the edifice, the construction of which has, however, since been agreed on by an Order in Council, at a further sum of \$7,500, upon representation, made by the Architect, of the absolute necessity, both in point of appearance and accommodation, of carrying out the original design.

With regard to the southern half of the central wing, which is intended to contain the dining-room and infirmaries, together with rooms for the nurses, physicians, &c., I think it highly important that this portion of the edifice should be proceeded with immediately; as, otherwise, not only will the inmates have to dine in the corridors, a proposition not to be for a moment entertained, but one of the intended chapels will have to be made an infirmary of, thus leaving but one chapel for both denominations,—a circumstance for many reasons undesirable, and reprobated by the clergy of both denominations; and there will be no rooms for physicians, nurses, and other indispensable attendants.

This work I estimate at \$20,000. The remaining or western wing, which will contain 138 cells, and the construction of which is insisted on by the Board of Prison Inspectors as of absolute necessity, I estimated to cost \$50,000.

In consequence of some correspondence between the Department and the Royal Engineer Office, I submitted a plan for proposed loop-holes under the eaves cornice, which was approved of, and the cost of carrying out the same will entail a further expenditure of about \$2000.

Minor extras have been recommended, amounting in the aggregate to about \$5000, and which would probably be swelled to \$10,000, in the event of the whole building being carried out.

The Royal Engineers had also recommended at the same time that the central corps and central or southern wing of the building be made fire-proof, which could have been done at a cost of about \$20,000 by the mere substitution of wrought-iron joists in place of the wooden ones intended, and a filling in of brick-arches or concrete. No arrangement was come to on the subject, in consequence of the Royal Engineer Department not volunteering to bear part of the additional expense of a work recommended by them with the view of rendering the jail fire-proof throughout, and strong enough to answer the purposes of a fort in case of necessity.

As it is, the side wings which contain the prisoners have been planned by me to be thoroughly fire-proof throughout their whole extent, so that the whole of the roofing over them might be entirely consumed or reduced to ashes without in the least inconveniencing the prisoners in their cells below.

It may be well to add, in conclusion, that the present contract is for.....	\$64,000
Cost of replacing the inside brickfacing of walls, and the brick cell door-jambes, by cutstone walls.....	13,184
Cost of fourth story over main corps.....	7,500
Loop holes in cornice.....	1,000
Cement used in vaults instead of mortar.....	760
Recognized extras.....	1,292
	<hr/>
	\$87,786
Amount paid including last estimate.....	72,614

Balance to become due.....\$15,172



PROBABLE COST OF COMPLETING THE BUILDING ACCORDING TO ORIGINAL DESIGNS.

	Amount brought over.....	\$87,786
Probable cost of finishing the Southern wing.....		20,000
Do do Western wing.....		50,000
Plans and superintendence.....		11,500
Contingencies.....		10,000
Total probable cost of the jail when completed, exclusive of boundary-walls, &c.....		\$179,286

I have the honor to be, Sir,  
Your obedient servant,  
(Signed,) CHARLES BAILLARGÉ.

STATEMENT of Progress Estimates and Payments made to Messrs. Murphy & Quigley Contractors for New Gaol, Quebec, during the year 1862.

Monthly Estimate.	Gross Am't of work done per Estimate.	Drawback retained per Estimate.	Amount certified to be paid.	Previous payments.	Drawback Paid.	Amount paid on monthly estimate.	Gross Amount Paid.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
1862.							
February..	43,819 75	1,093 75	42,726 00	39,745 60	.....	2,500 00	42,245 60
March .....	45,602 75	1,361 17	44,241 58	42,245 60	.....	1,995 98	44,241 58
April .....	48,220 95	1,753 94	46,467 01	44,241 58	.....	2,224 38	46,465 96
May 31 .....					1,753 00		48,216 96
May .....	52,342 52	619 15	51,723 37	48,218 96	.....	3,604 41	51,723 37
June.....	56,354 02	1,220 87	55,133 15	51,723 37	.....	2,409 78	54,133 15
Oct 10 .....	60,731 07	1,877 48	58,853 64	54,133 15	.....	4,720 49	58,853 64
" 25 .....	65,693 57	2,531 80	62,561 77	58,853 64	.....	3,708 13	62,561 77
Nov. 8 .....	68,073 32	2,978 77	65,094 55	62,561 77	.....	2,532 78	65,094 55
" 22 .....	70,447 57	3,334 89	67,112 68	65,094 55	.....	2,018 13	67,112 68
Dec. 6.....	72,787 57	3,678 39	69,059 18	67,112 68	.....	1,946 50	69,059 18
" 20.....	74,552 57	3,950 65	70,601 92	69,059 18	.....	1,542 74	70,601 92

DEPARTMENT OF PUBLIC WORKS,  
Quebec, February, 1863.

J. BAINE,  
Book-keeper.

## APPENDIX H

STATEMENT of the sums authorized, the proportion of work executed, and the value of work remaining for the completion of the New Jail at Quebec, the 4th October, 1862.

	Amount authorised.	Value of Work done as per August Es- timate subsequently admitted by Architect.	proportionate value yet remaining to complete.
<b>I. CONTRACT WORK.</b>			
To amount of Contract Work.....	\$ cts. 64,000 00	\$ cts. 43,993 57	\$ cts. 20,066 43
<b>II. EXTRA WORK.</b>			
To amount for substituting stone lining to building in lieu of brick and stone jambs to cells, authorised and commenced 6th August, 1861; confirmed by O. C. 21st July, 1862.....	12,184 00	10,567 00	2,617 00
To amount for arches in brickwork laid in cement; authorised 29th May, 1862; confirmed by O. C., 21st July, 1862.....	760 00	} estima- ted by Arch't as done. } 253 33	506 67
To amount for loopholes in cornice and roof, commenced the 3rd March, 1862; confirmed by O. C. 21st July, 1862.....	1,000 00	.....	1,000 00
To amount of extra work recognised by Architect after making deductions for works omitted.....	1,292 44	} estima- ted by Arch't as done. } 860 00	452 44
To amount authorised for fourth story, in addition to contract sum by O. C., 5th September, 1862.....	7,500 00	3,000 00	4,500 00
	87,726 44	58,673 90	29,062 54
Amount paid Contractors to date.....	.....	54,133 15	.....
		4,540 75	.....
Less 15 per cent drawback.....	.....	680 75	.....
Balance .....	.....	3,860 00	.....
Total amount of work done.....	58,673 90	.....	.....
15 per cent drawback to be retained as per Contract.....	3,800 90	.....	.....
	49,873 00	.....	.....
Amount paid Contractors to date.....	.....	54,133 15	.....
Amount due as per Contract.....	.....	49,873 00	.....
Amount over paid, if the whole of the drawback were retained according to Contract.....	.....	4,260 15	.....

(Signed,)

JAMES H. ROWAN,

OFFICE OF PUBLIC WORKS, }  
4th October, 1862. }

## APPENDIX I.

## REPORTS OF THE ASSOCIATE ENGINEER AND ARCHITECT OF THE PIER AT RIMOUSKI.

OFFICE OF PUBLIC WORKS,  
QUEBEC, August 8th, 1868.

T. TRUDEAU, Esq., Secretary.

SIR,—Conformably with instructions from the Commissioner of Public Works, I visited the landing-pier at Rimouski, below Quebec, on the 2nd of the present month, the outer end of which pier, for a length of three hundred feet, I found had subsided from the level on the north-eastern face, at the most depressed point, distant about one hundred and twenty feet from the ends; while at the extremity or pier-head, the inclination from the level was only about fourteen inches towards the same direction, north-easterly.

I have been informed that this subsidence of the pier has been not so much a gradual process, occurring from the period of its first construction, as the sudden and partial effect of violent storms, during extraordinary tides, of recent date. The heaviest seas, striking the pier in this direction, and acting on and displacing the softer material of which the bottom of the river is composed at this particular spot, may, I think, be taken as the true cause for the heeling over of the pier to an extent that is dangerous to its present use and threatens its ultimate destruction.

Mr. Gauvreau has reported on two modes of remedying the damage the pier has sustained; either by taking off the timbers and stonefilling down to low water on the exposed face, and rebuilding up the same to the required level; or, otherwise, levelling up the sunken portion of the pier to a horizontal line. The first proposition, although the more costly, and extending over two years operations, he the most confidently recommends; covering as it does an outlay of \$6785.

Upon giving both these projects some consideration, it appeared manifest to my mind that, in adopting either method, little would be accomplished towards restoring the stability of the pier or enabling it to resist the disastrous effects of future storms, such as prevail in this locality. By merely taking down and rebuilding the superstructure of the pier on the same *inclined base*, nothing would be gained, except that the planked platform on top would be contracted to a *less width*, from restoring the slope or batter to the north-east side, where it has become out of the perpendicular. The result, however, would be, after great cost, to present a less solid mass to resist the force of the sea, and could not be depended on as an effectual and remedial measure.

On the accompanying plan, which I have prepared to show the extent of the disturbance which the pier has sustained from the causes set forth, I have likewise laid down in red tint, an extra pier of support, or ramp, towards the sunken side, which, while it will afford additional facilities for landing, wholly wanting on this exposed side of the present pier, will also act as a "*breakwater*," and prevent the further canting of the pier in this direction, by giving it a broader base of support.

The expenditure on this proposed improvement, although slightly exceeding Mr. Gauvreau's estimate, might, as suggested, by him, be extended with advantage, over two years operations, namely: for the first year, sinking cribs, solidly filled with stone, 15 to 16 feet in width, up to the level of low water line,—a precaution which would secure the present pier against further upsetting, as may be anticipated; the superstructure to be completed the year following, after the cribs have taken a solid bearing on the bed of clay and sand. The outlay for the present year would be about two thousand eight hundred and one dollars (\$2801), and that for the second year four thousand and forty-five dollars (\$4045), a total of \$6846.

The remainder of the landing pier at Rimouski, for a distance extending to the shore, of several hundred feet, I found in excellent condition and repair.

I have the honor to be,

Sir,

Your obedient servant,  
(Signed,)F. P. BURIDGE,  
A. E. P. W.]

DEPARTMENT OF PUBLIC WORKS,  
 QUEBEC, 30th June, 1862.

T. TRUDEAU, Esquire, Secretary.

SIR,—I have the honor to submit the following remarks, based on the report of Mr. L. P. Gauvreau, on his inspection of the repairs to be made to the pier at Rimouski.

This pier is entirely unserviceable for vehicles carting goods, and at certain times dangerous even for foot passengers; for independently of a cavity which the tide has made, by carrying off the filling from a space of 900 feet long and five or six feet wide, the pier has sunk five or six feet on the north-east side of its outer end along a surface of 250 feet.

This sinking was caused by the nature of the site, which is composed of shifting sand on the north-east, and of rock on the south-east.

The face-timber on the north-east side has sunk many feet into the sand; whereas on the other side, the foundation being solid, it has retained its original level.

In this manner, in a width of only thirty feet, there is a difference of level of five or six feet. I think it, therefore, my duty, in view of the interests of the inhabitants of the place (who are unable to make use of the pier) and also of the Government, to recommend that the pier be repaired as soon as possible, in order to prevent further damage.

There are two methods of repairing it: the first—which I consider the most economical, being the surest—is to demolish the damaged portion down to water level, and to reconstruct it this summer to within two or three feet of its intended height; the remainder could be added the following spring, and this would allow it time to take a solid level during the winter.

The second method is to level the sunken portion, by adding the face timber and stone necessary. I would not, however, recommend this second method, although it would be effectual if the pier had a solid foundation; but if it continues to sink, the portion of the face-timber under water will break under the load of stone, which, finding a vent, will not only cause great expense in repairs, but will also prove a serious obstruction to vessels, which will be afraid to approach for fear of striking on the stone fallen from the pier; or else—whereas this pier, at the period of its construction, had a batter of three feet from top to bottom, which it has entirely lost by the sinking alluded to, (for the north-east side is now perpendicular to the water level,)—it will, without doubt, incline outwards, and the pressure on the face-timber will upset it. This will be the consequence if the pier remains in its present condition. In my opinion, the surest means would be to reconstruct the damaged portion.

It is true the cost may appear high, but it must be remembered that piers of this kind require certain repairs to be made every year, failing which, the damage increases to a considerable extent; so that if the damage in this case is extensive, it is partly because no repairs have ever been made, whereas other piers below have been repaired once, and even twice.

I have the honor to submit herewith estimates of the probable cost of the work to be done, adopting either of these methods. (2nd not printed.)

As soon as it is decided that the work shall be proceeded with, I will furnish a plan and specification showing how the repairs should be made, according to the method selected.

I have the honor to be,

Sir,

Your obedient servant,  
 (Signed,)

P. GAUVREAU,  
 Architect.

## No. 1.

Estimate of the probable cost of necessary repairs to the Pier at Rimouski, to be made during the summer of 1862.

Reconstructing the damaged portions up to low water level.

5,666 Cubic feet of Pine for Face-Timber,.....	\$ 15	\$ 849 90
12,500 " " Timber for Ties.....	12	1500 00
7,500 " " Platform.....	7	525 00
250 Toise of stone for filling .....	4 00	1000 00
19,575 lbs of Iron.....	5	978 75
		<u>\$4,858 65</u>

(Signed,)

P. GAUVREAU.

QUEBEC, 30th June, 1862.

## No. 2.

Estimate of probable cost of works to be performed at Rimouski Pier, during the summer of 1863, over and above Estimate No. 1.

44 Squares of Planking.....	\$3 00	\$ 132 00
1800 Feet of Fenders.....	25	450 00
6000 lbs of Iron for Fenders.....	5	800 00
Iron straps for lining at the end of the Pier.....		50 00
200 Squares of Planking.....	5 00	1000 00
		<u>\$1,932 00</u>

(Signed,)

P. GAUVREAU.

QUEBEC, 30th June, 1863.

## APPENDIX J.

## LAKE ST. PETER—REPORTS ON WORKS.

HARBOUR COMMISSIONERS' OFFICE,  
Montreal, 23rd January, 1863.

SIR,—I have now the honor, by direction of the Harbour Commissioners of Montreal, to enclose the reports and financial statements, as requested by you, in connection with the operation of deepening Lake St. Peter.

These statements have been prepared by the superintendent of the works, and the Commissioners authorize me to state most respectfully that, although they were not furnished monthly, in accordance with the copy of the Order in Council which you forwarded for their information on 26th July last, they thought that from the late period when the works were recommenced, returns made at the close of the season might meet with the approval of the Hon. the Commissioner of Public Works.

With this assurance of their desire to afford you every information in their power, the Harbour Commissioners trust you will find the reports and accounts now furnished satisfactory and explicit.

The following are the documents enclosed :

1. C. L. Armstrong's report on lake works for the year 1861.
2. C. L. Armstrong's report on lake works for the year 1862.

3. C. L. Armstrong's returns of expense incurred in lake operations during the year 1862, for the respective months of August, September, October, November, and December, with a recapitulation showing the total amount of same in sum of \$17,948.89cts.

4. Statement showing the amount expended on the lake works in 1861, as already furnished to the Provincial Government in our annual returns.

With reference to the latter named statement for 1861, the amount of \$27,376.34 cts. represents the net cost of dredging the channel of navigation between Montreal and Quebec. Deducting, however, the expense of working that portion of the channel commencing opposite to Montreal, and the expenses incurred while the dredging vessels were employed in the harbour proper, together with the balance at credit of the lake operations account for 1860, the total cost of dredging in the lake for 1861, is \$16,269.92cts.

By these returns, you will perceive the Commissioners do not include the immense cost for repairing the dredges and steamers damaged by the freshet last April, which amounts to no less than \$24,875.60cts., as well as the cost of preparing the vessels for work in the spring, previous to that accident, in sum of \$12,080.50cts. These two amounts are now standing at debit of the Harbour of Montreal, in the books of the Trust.

I have the honor to be,  
Sir,  
Your obedient servant,  
(Signed,)

ALEX. CLERK,  
Secretary.

T. TRUDEAU, Esq., Secretary,  
Department of Public Works, Quebec.

SOREL, 13th January, 1863.

ALEX. CLERK, Esq., Secretary,  
Harbour Commissioners, Montreal.

SIR,—For the information of the Harbour Commissioners, I beg to lay before you the following statement of our dredging operations for the year now ended.

Owing to the very serious damages to the dredges, tenders, barges, &c., caused by the freshet of April last, and the time necessarily spent in making the extensive repairs required, which cost no less than \$24,875.60cts., we were unable to commence operations in the lake till late in the season. The steamers "St. Lawrence" and "St. Peter," were constantly employed for upwards of two months in lifting and searching for missing vessels, anchors, and chains. Dredge No. 2 was sunk in 20 feet of water, on the west side of the Richelieu, opposite the barracks, and, owing to the steepness of the bank, afterwards settled into 37 feet of water. Dredge No. 3 was sunk about a mile below in the St. Lawrence.

The barge "McCarthy" was also sunk in 37 feet of water, about 500 feet further down the river than dredge No. 2, and the barge "Whitney" was sunk in the St. Lawrence in 46 feet of water. Having discovered the whereabouts of the last named barge shortly after the accident, I caused a buoy to be placed over her, otherwise we should have been unable to find her out, as she sank to the bottom in forty-six feet of water, as before stated; and, but for the anchors and chains on board, belonging to the different dredges, it would not have been worth while to raise her, as we found an immense quantity of sand had settled in her, she being then an open barge; but when repairing her since, I have had her made into a *deck* barge.

The steamer "St. Peter" was carried out about three miles below the barracks, but although nearly full of water, she fortunately escaped, as she was kept from sinking by the wrecks of several *bateaux* underneath, the only damage sustained by her being to the flange of her larboard wheel; she was nevertheless put to work immediately with the one engine. Some of the scows were carried away through the Islands, as far as the entrance to Lake St. Peter, and, all being more or less damaged, had to be hauled up here for repairs.

The raising of the dredges and barges was a work of great difficulty, and particularly of dredge No. 2, owing to the great quantity of sand in her, and lying as she did in a hole, which caused us to expend a great deal of time in getting the lifting-chains underneath.

Once lifted, it was found necessary to have her towed down to the St. Lawrence, as the shores of the Richelieu were too steep to ground her, so as to enable us to take a second lift. We grounded her in twenty-eight feet of water, and by numerous lifts of from eighteen inches to two feet each, raised her up to eight feet water, which necessarily required a large outfit in chains, ropes, planks, &c., and the constant employment of the steamers "St. Lawrence" and "St. Peter," and four scows. In raising these dredges, and the barge "Whitney," we worked at great disadvantage, and lost considerable time for the want of a proper diving dress.

Upon receiving instructions from the board, dredge No. 3 was taken to the lake on the 2nd August, and commenced to follow up the channel from below the winter buoy, opposite Machiche, where we had left off cutting the 20 feet channel, and on the 8th September, dredge No. 2 anchored further up the stream, leaving one chain length between the two dredges.

These two dredges worked together, bringing up the 20 feet channel, till the 26th November, without any accident to the machinery, and losing no time, except from stress of weather and unavoidable detention while vessels were passing.

The season having been unprecedentedly stormy, with high winds from the south and south-west, caused a considerable loss of time. The great number of sea-going vessels passing up and down the river, to which we gave a free and uninterrupted passage, by drawing the dredges close to the north shore, also caused considerable time to be lost; each vessel on an average detaining us about half an hour or two scow loads, equal to about 148 cubic yards for each dredge.

My anxiety to finish the channel in the lake, induced me to continue working the dredges there till the close of the season, instead of removing them about the 1st of November, as heretofore done to Lavaltrie, where the fall weather is less severely felt.

The number of effective days, working by the two dredges jointly, is 137, removing 3137 scow loads full, which at 70 cubic yards each load, amounts to 219,590 cubic yards; and this has been done in the most unfavourable season, particularly as the second dredge began working only on the 8th of September, so that a great part was done not only in the most stormy season of the year, but also when the days are short. I have likewise to remark that the dredges having been wholly employed in *finishing up* and *trimming* the channel, they could not necessarily excavate as many yards per day as usual; and I have to add that I found the centre of the channel deeper than the sides, which I can only attribute to the bottom having been disturbed by the deeply laden vessels as they passed along, and thereby in some measure deepening the excavation, part of the disturbed material having undoubtedly been carried away by the current, but some part also settling at the sides. Only for this fact, the sides would have been found of equal depth with the centre, the frame being a true index of the depth of the channel from bank to bank.

The dredges were moored as described by Mr. Keefer, in his report for 1855 (page 15):—"The dredge is moored on chains leading from the bow and stern, in the direction of the channel, and also by four chains at right angles to the channel, one out from each quarter of the vessel. In this position, she may be compared to a *turtle*, chained by the head, tail, and the four legs, and floating over the channel to be cut.

"Instead of cutting a continuous trench by hauling ahead on the bow chain, the buckets take a feed of two or three feet, after which this chain remains taut, and the dredge is breasted over by means of the side-chains, broadside on, from one side of the channel to the other, the buckets crossing the whole width of a channel of 150 feet (now 300 feet), and leaving the bottom true and even. When the opposite side of the channel is reached, she is heaved forward for another feed, and recrosses the channel in the same manner, cutting from left to right and from right to left alternately. Her bucket-frame, sweeping across the channel, acts as a huge plan with revolving cutters. Thus, from the very nature of the system, there is a guarantee that when she has once gone over the ground, no obstruction above the level to which the buckets were lowered can have been left behind. The four winches are worked by the engine. The adaptation of the old

Board of Works' dredges to this mode of working is due to Captain Bell, and to this arrangement, chiefly, I attribute the great advance made in dredging. I am not aware of any similarly efficient gearing in use elsewhere." Any want of uniformity existing in the face of the banks must be attributed to the working of the breast-chains on each side, and caused by the moving of the dredges across the channel. But the channel itself, when finished, could not be made more suitable for navigation; in fact, no person engaged in navigation has ever found fault with it.

The material in the third cut is much softer than when the operations began, and consequently the buckets do not bring up the same quantity of stuff that they did in the beginning, when it would come up in large lumps, above the lips of the buckets; whereas now the buckets are filled with soft stuff and water, merely filled. Likewise, the boilers of the dredges are now short of flues, which causes a deficiency of steam, although attended with a greater consumption of fuel. For instance, dredges Nos. 2 and 3, when new, had 19 flues each, and lifted 28 buckets, whereas No. 2 has now only 12 flues, and lifts, as necessary, 34 buckets, and No. 3 has 11 flues, and lifts 35 buckets. A consequence of this deficiency of steam is, that less excavation is done, and the tender is frequently obliged to wait for the filling of the scows.

The extra expense incurred in dredging in deeper water, I noticed in one of my former reports, and the same thing has been observed by the late superintendent, who in his report for 1855 (page 2), states as follows: "At the same time we have had a large proportion of lost time in comparison to the last two seasons. This is owing to the long continuance of heavy winds during summer, and the dredges being constantly working in deep water, the sea has more effect upon their machinery than when they are working in shallow water. When on this subject, I should remark as the channel is increased in depth our loss of time will increase in proportion."

The total expenditure in dredging operations since we began on the 2d of August, amounts to the sum of \$17,948.89cts., shewing the actual cost of dredging, exclusive of spring repairs, to be 8½ cents per cubic yard, in trimming up and finishing the channel in the not most favorable season of the year for doing the work. The spring repairs to the fleet, previous to the freshet, amounted to \$12,080.50cts.

The repairs required to prepare the fleet for next spring's work, admit of no delay.

With regard to estimating these, I beg to remark that no estimate for repairs of old vessels can be much depended upon, because frequently when the repairs more urgently required are made, others are found to be equally necessary. For instance, the steamer "St. Lawrence" last year; and another example is dredge No. 2, which we have just commenced to repair by taking out a piece of her keelson, and doing so, we found other pieces equally bad, and one leg of the frame defective also, though the outside is perfectly sound. After my experience in the making of the dredges, I have no improvement to suggest in the machinery, other than I have spoken of, and I have seen none that do work as efficiently.

The officers and men in the service have always exerted themselves to the utmost, and I consider it due to them to say that, after an experience of some thirty-six years as master of a vessel, I do not believe that any company is better served than the Harbour Commissioners.

I remain, Sir,  
Your most obedient servant,  
(Signed,) C. L. ARMSTRONG,  
Superintendent.



## RECAPITULATION

Showing the total expenditure incurred by the Harbour Commissioners of Montreal, on account of the operations for improving the channel of navigation in Lake St. Peter, from the 2nd August, to the 31st December, 1861 :—

To Salaries and wages.....	\$5694.64
“ Wm. Kelly, groceries, cordage, &c., &c.,.....	1036.60
“ Store ships and incidentals, &c.,.....	2920.78
“ D. & J. McCarthy & Co., lumber, &c.,.....	19.32
“ T. Chalmers, vegetables, &c.,.....	143.58
“ D. Sexton, butcher.....	665.12
“ J. Strachan, baker.....	191.00
“ Coal account.....	5649.00
“ Insurance.....	1504.08
“ J. Portelance, blacksmith.....	67.60
“ Wm. Woolley, baker.....	1.13
“ A. McGibbon, groceries.....	13.55
“ Richelieu Co., freight.....	35.53
“ E. & J. G. Patneaud, castings.....	6.96
	\$17,948.89

(Signed,)

C. L. ARMSTRONG,  
Superintendent

SOREL, 31st January, 1862.

ALEX. CLERK, Esq., Secretary,  
Harbour Commissioners, Montreal.

SIR,—I beg leave to lay before you for the information of the Harbour Commissioners, a statement of the improvements effected in the channel of Lake St. Peter during the past season.

On the 14th day of September last, dredge No. 2 was sent to the Lake to begin dredging from the White Buoy up, and remained there till the 23rd of November, when she was brought up to the Island and dismantled, while part of her crew was engaged in hauling up and repairing four of the scows, by giving them new sterns, and repairing bottoms to light water-mark, and that in a substantial way.

Noticing that the large ships drawing as much water as could be found in the unfinished part of the channel at the slight curve at the little buoy, did not obey their helm as well as in the other part of the channel, I thought it best to leave off about a mile below, and come up to the white buoy. In the spring, we will return to the place we left in the fall of 1860, to bring up the 20 feet channel, while the water will be high enough to allow vessels of 23 feet to go up.

We dredged last year, though frequently interrupted by heavy gales, 970 scow loads, equal to 67,900 yards. I propose to commence working between Lanoraie and Lavaltrie, as we have heretofore done, in early spring, until the easterly gales are over.

The new steamer St. Peter, I may say, has been found to answer every expectation. The St. Lawrence has been hauled up, and I regret to say she is in a worse state than could be expected. The engine, kelsons, and frame are rotten, and must be taken out. The main kelson is broken; that will be repaired, and will be put in good running order.

The engine of the Oregon was taken out this fall, and is on the wharf here.

The hull has been hauled up in Messrs. M'Carthy's yard, with the boiler in her.

All the dredges require to be overhauled in their machinery, and particularly dredges Nos. 2 and 3, and all require thorough caulking, and a good deal of carpenter work in their wells.

The Harbour scows require thorough repair to low water mark, new decks, sides, &c.  
 All the buoys have been hauled up on the Island to-day.  
 The wharf at the station has been put in good repair, with an ice-breaker on the west end.

I remain, Sir,  
 Your obedient servant,  
 (Signed,) CHAS. L. ARMSTRONG.  
 Superintendent.

STATEMENT showing the amount expended by the Harbour Commissioners of Montreal, in carrying on the operations for improving the ship channel between Montreal and Quebec, for the year ended 31st December, 1861 :—

Paid salaries of superintendent, officers and engineers.....	\$6027.00	
Wages of crews of dredging fleet, and incidental expenses paid by the superintendent..	\$14,193.06	\$20,220.06
Blacksmith, and engine makers work.....		481.73
Shipwrights repairs and outfit of vessels.....		1,399.43
General supply of groceries, ship-chandlery, paints, oils, cordage, tools, iron, hardware, pork, flour, butter, and fittings.....		3407.48
Insurance against fire on the steamers and dredges.....		2,444.00
Bread.....		265.15
Butchers meat.....		642.28
Stationery and books.....		50.58
Flags for the vessels.....		113.00
Hire of steamer "John Redpath" .....		1,400.00
548½ chaldrons coal consumed by steamer and dredges .....	\$2,248.85	
Firewood .....	\$21.60	2,270.45
Carrying supplies and freights.....		140.95
Amount of expense incurred in widening and deepening that portion of the channel of navigation, opposite to the Harbour of Montreal.....		\$32,835.11
		11,107.02
		\$43,942.13
Less proportion of outfit and expenses charged to the dredging operations in the Harbour of Montreal, for the period during which the vessels were working in 1861, in this port.....		\$10,092.89
Balance at credit of lake and river dredging account for 1860, per statement herewith, "E".....		6,472.30
		16,565.19
Total expense for 1861.....		\$27,376.94

(Signed,)

ALEX. CLERK,  
 Secretary.

E. & O. E.,  
 Harbour Office, Montreal, 31st January, 1862.

## E

Final statement of the Lake and River operations account for the year 1860 :—

To the amount received 22nd October, 1860, from the Provincial Government, being the first instalment of the sum of £40,000, as agreed by them to be paid to the Harbour Commissioners, on account of bringing the ship channel improvements to completion.....	\$32,000.00	
To this amount received, being second instalment of the above sum of £40,000 on 27th April, 1861.....	32,000.00	
	<hr/>	\$64,000.00
Less gross amount of expenditure during the year 1860, according to statement rendered to the Provincial Government on 14th March, 1861 .....		57,527.70
		<hr/>
Balance carried to the credit of Lake and River improvements for the year 1861, per statement herewith .....		\$6,472.30
		<hr/>

E. & O. E.,

Harbour Office, Montreal, 31st January, 1862.

(Signed,)

ALEXR. CLERK,  
Secretary.

APPENDIX K.

STATEMENT shewing the result of the proceedings before the Official Arbitrators in 1862.

Claims awarded on	Nature of Claim.	When referred.	Amount claimed.	Amount awarded.	With or without costs.	Amount of cts.	Date of award.
*Hooker, Jacques & Co.....	Detention of Steamers in Canals above Montreal .....	1861. Feby. 19..	\$ cts. 15715 84	\$ cts. ....	w/heat	unsettled.	March 28..
Edward Slevin .....	Loss of time, &c., Jail and Court House, Magdalen Island .....	Novr. 28..	2224 70	1366 66	with	do	Jany. 9..
Louis Touchette .....	Loss of Tools—Piers, St. Anne de la Perade.	do 8..	302 00	.....	without	do	do 15..
Sirclair & Skelsey.....	Damages—Contract for 13 Jails and Court Houses, L. C .....	Oct. 19..	84951 05	.....	do	do	June 10..
Edward Quinn .....	Loss of Timber—Works on River St. Maurice	1862. April 30..	34215 87	.....	do	do	Novr. 4..
S. X. Cimon.....	Damages—Contract for Jail and Court House, Malbaio .....	Aug. 28..	62204 36	4632 19	with	do	do 4..
<b>CLAIMS STILL PENDING.</b>							
Benjamin Brewster .....	Land taken for a slide on the Ottawa.....	1861. Jany. 21..	not specified.	postponed	until next	meeting.	
Denis Maguire .....	Supplies furnished to Government Steamers.	Oct. 19..	130 30	do	do	do	
J. G. Gagnon .....	Contract for Saguenay Works .....	do 19..	not specified.	do	do	do	
<b>CASES STRUCK OFF THE ROLL.</b>							
G. & W. Tate .....	Offset against Rent—Dry Docks. Montreal ..	1861. Novr. 12..	failed to appear.	.....	.....	.....	
A. P. Macdonald & Co .....	Works at Chat's Canal.....	1862. April 24..	general reference	.....	cancelled by order in	.....	Council.
Inhabitants of Beauharnois, St. Cecile & other parishes	Damages caused by Beauharnois Dam .....	May 12..	do	do	do	do	
<b>CASE UNDER APPEAL.</b>							
*Hooker, Jacques & Co.....	Award appealed from by claimants—Case has been heard in the Superior Court, but judgment has not been rendered .....	.....	.....	.....	.....	.....	

(Signed,)

G. TUDOR PEMBERTON,  
Secretary Official Arbitrators.

Quebec, 30th December, 1862.

## EXPENDITURE on account of Arbitrations, of the year 1862.

Date.	NAMES	Amounts.	Totals.
1862.	Office:—	\$ cts.	\$ cts.
December	T. Kirkpatrick, salary	1000 00	
do	J. A. Moreau, do	1000 00	
do	P. Vankoughnet, do	1000 00	
do	G. T. Pemberton, as Secretary	1000 00	
do	T. Kirkpatrick, traveling expenses	422 72	
do	J. A. Moreau, do	434 01	
do	P. Vankoughnet do	433 60	
do	G. T. Pemberton, do	41 62	
do	Messenger	65 00	
February	Desbarats & Derbishire, stationery	18 50	
October	Aug. Coté, stationery and printing	155 70	
November	J. N. Duquet, do do	34 09	
September	— Brousseau, printing	10 40	
do	Montreal Telegraph Company	15 36	
January	Auld & Rouselle, boxes	16 61	
December	Cab hire, firewood, stationery, &c	63 44	5713 96
	Awards:—		
January	Edward Slevin	1366 66	
December	S. X. Cimon	4632 19	5998 85
	Costs in re:—		
January	Edward Slevin, unsettled, paid on account	39 60	
do	Louis Touchette, do do	170 25	
May	Sinclair & Skelsey, do do	437 15	
November	Edward Quinn do do	46 00	
do	S. X. Cimon do do	941 50	1634 50
			13,347 31

## APPENDIX K.

STATEMENT shewing the result of the proceedings before the Official Arbitrators in 1862.

Claims awarded on	Nature of Claim.	When referred.	Amount claimed.	Amount awarded.	With or without costs	Amount of costs.	Date of award.
*Hooker, Jacques & Co.....	Detention of Steamers in Canals above Montreal .....	1861. Feby. 19...	\$ cts. 15715 84	\$ cts. .....	without	unsettled.	March 28..
Edward Slevin .....	Loss of time, &c., Jail and Court House, Magdalen Island .....	Novr. 28...	2224 70	1368 66	with	do	Jany. 9..
Louis Touchette .....	Loss of Tools—Piers, St. Anne de la Perade. Damages—Contract for 13 Jails and Court Houses, L. C .....	do 8..	502 00	.....	without	do	do 15...
Edward Quinn.....	Loss of Timber—Works on River St. Maurice	Oct. 19...	84951 05	.....	do	do	June 10...
S. X. Cimon.....	Damages—Contract for Jail and Court House, Malbaie .....	1862. April 30..	34215 87	.....	do	do	Novr. 4..
		Aug. 28..	62204 36	4632 19	with	do	do 4...
<b>CLAIMS STILL PENDING.</b>							
Benjamin Brewster .....	Land taken for a slide on the Ottawa.....	1861. Jany. 21..	not specified.	postponed	until next	meeting.	
Denis Maguire .....	Supplies furnished to Government Steamers .....	Oct. 19..	130 30	do	do	do	
J. G. Gagnon .....	Contract for Saguenay Works .....	do 19..	not specified.	do	do	do	
<b>CASES STRUCK OFF THE ROLL.</b>							
G. & W. Tate .....	Offset against Rent—Dry Docks. Montreal .....	1861. Novr. 12..	failed to appear.	to appear.	.....	.....	
A. P. Macdonald & Co .....	Works at Chat's Canal.....	1862. April 24..	general reference	reference	cancelled by order in	.....	Council.
Inhabitants of Beauharnois, St. Cecile & other parishes	Damages caused by Beauharnois Dam .....	May 12..	do	do	do	do	
<b>CASE UNDER APPEAL.</b>							
*Hooker, Jacques & Co.....	Award appealed from by claimants—Case has been heard in the Superior Court, but judgment has not been rendered .....	.....	.....	.....	.....	.....	

(Signed)

G. TUDOR PRIBERTON,  
Secretary Official Arbitrators.

Quebec, 30th December, 1862.

## EXPENDITURE on account of Arbitrations, of the year 1862.

Date.	NAMES	Amounts.	Totals.
1862.	Office:—	\$ cts.	\$ cts.
December .....	T. Kirkpatrick, salary.....	1000 00	
do .....	J. A. Moreau, do .....	1000 00	
do .....	P. Vankoughnet, do .....	1000 00	
do .....	G. T. Pemberton, as Secretary.....	1000 00	
do .....	T. Kirkpatrick, travelling expenses.....	422 72	
do .....	J. A. Moreau, do .....	434 01	
do .....	P. Vankoughnet do .....	433 60	
do .....	G. T. Pemberton, do .....	41 62	
do .....	Messenger .....	68 00	
February .....	Desbarats & Derbishire, stationery.....	18 50	
October .....	Aug. Coté, stationery and printing.....	155 70	
November .....	J. N. Duquet, do do .....	34 09	
September ...	— Brousseau, printing .....	10 40	
do .....	Montreal Telegraph Company.....	15 36	
January .....	Auld & Rouselle, boxes.....	18 61	
December .....	Cab hire, firewood, stationery, &c .....	63 44	
			5713 96
	Awards:—		
January .....	Edward Slevin.....	1366 66	
December .....	S. X. Cimon.....	4632 19	
			5998 85
	Costs in re:—		
February .....	Edward Slevin, unsettled, paid on account.....	89 60	
do .....	Louis Touchette, do do .....	170 25	
May .....	Sinclair & Skelsey, do do .....	437 15	
November.....	Edward Quinn do do .....	46 00	
do .....	S. X. Cimon do do .....	941 50	
			1634 50
			13,347 31

## APPENDIX L.

PROVINCE OF CANADA, for Provincial Steamers in account current with Department of Public Works for the year 1862.

Dr.	\$ cts.	Cr.	\$ cts.
To amount paid in 1862 for advertising sale of Steamers.....	21 72	By balance available, 1st January, 1862	19933 46
" amount expended in 1862 for outfit, fuel, running expenses, and repairs..	71022 76	" appropriation for 1862. 25 Victoria ch. 3.....	30000 00
" balance available for current expenditures of 1863.....	21970 96	" revenue for 1862 paid in at Receiver General's .....	37756 98
		" Amount placed to the credit of Receiver General, for services of Steamer proceeding to the assistance of " S. S. North Briton .....	1225 00
		" outstanding debts, stock of coals available for 1863 about.....	5000 00
<b>Total.....</b>	<b>93,915 44</b>	<b>Total .....</b>	<b>93,915 44</b>
		By balance available for 1863 .....	\$21,970 96



EXTRACT OF TOWAGE ACCOUNT FOR 1862.

Date.	Name of Vessel.	Consignee.	From.	To	In distress.	Value.	Amount Received.	REMARKS.
May 2.....	Ship "Ben Lomond"	Jos. White.....	Father Point...	Quebec.....	1	\$ 20000 00	\$ cts. 521 88	
17.....	Bark "Ovan"	Julien & Frères.....	Lea Pelerins.....	do.....	1	16000 00	558 95	
June 2.....	"Pride of Canada"	John Shaw & Co.....	Caribous.....	do.....	1	.....	881 00	
" 4.....	"Csar"	E. Burstall.....	Gut Canso.....	do.....	1	28600 00	1936 14	
" 23.....	Bark "Wolfe's Cove"	Gilmour & Co.....	Metis.....	do.....	1	10000 00	608 00	
July 11.....	"Pride of Canada"	John Shaw do.....	Brandy Pots...	do.....	1	34000 00	808 75	
Aug. 15.....	"John Moore"	John Moore.....	Green Island...	do.....	1	28000 00	503 75	
" 17.....	"Sarah"	Dickey & St. Pierre.....	Metis ..	do.....	1	12000 00	600 00	
Sept. 17.....	"Patrician"	Burstall & Co.....	.....	do.....	1	20000 00	268 75	
Octr. 31.....	Schr. "Sirtus"	John Henderson.....	.....	do.....	1	.....	830 72	
Novr. 26.....	"Clydesdale"	Ross & Co.....	Quebec.....	Eic.....	.....	80000 00	500 00	
" 29.....	Bark "Avondhue"	Gillespie & Crawford.....	do.....	Brandy Pots.	.....	26608 00	437 50	
" 30.....	Ship "Edward Oliver"	Falkenberg & McBlain.....	do.....	Eic.....	.....	76000 00	512 00	
Dec. 1.....	"Echo"	M. J. Wilson.....	.....	Brandy Pots.	.....	50096 00	481 25	
				Approximate value.....		401,504 00	9448 69	Without the steamers, these 4 vessels would not have proceeded, on account of the ice.
								Amount received for towage of the above named vessels.

(Signed,)

J. B. MARTEL. B. K.

Quebec, 12th February, 1863.

GENERAL REPORT

OF THE

Commissioner of Public Works,

FOR THE

YEAR ENDING 31<sup>st</sup> DECEMBER, 1868.

FURNISHED

IN ACCORDANCE WITH THE PROVISIONS OF THE 26<sup>th</sup> CHAPTER OF THE CONSOLIDATED STATUTES  
OF CANADA, SECTION 22.

Approved by order of the Legislative Assembly.



QUEBEC:

PRINTED BY THE COMMISSIONERS, BY BOSTER, BROWN & CO., ST. DAVUL'S STREET,  
1869.



# GENERAL REPORT

OF THE

*Canada* — *Dept.*  
Commissioner of Public Works,

FOR THE

YEAR ENDING 31<sup>ST</sup> DECEMBER, 1863.

FURNISHED

In compliance with the provisions of the 28th chapter of the Consolidated Statutes  
of Canada, section 24.

Printed by order of the Legislative Assembly.



QUEBEC:

PRINTED FOR THE CONTRACTORS, BY HUNTER, ROSE & CO. ST. URSULE STREET.  
1864.

1864, Mar. 18.

Gift of  
the Legislative Assembly,  
Alpheus Todd,  
Librarian.

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# REPORT

OF THE

## Commissioner of Public Works,

FOR THE YEAR 1863.

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To His Excellency the Right Honorable CHARLES STANLEY,  
Viscount MONCK, Governor General of British North  
America, &c., &c., &c.

MAY IT PLEASE YOUR EXCELLENCY:—

The undersigned Commissioner of Public Works has the honor to submit, as required by law, the following general report upon the several public works and buildings under the charge of his department, for the year ending 31st December, 1863.

He thinks proper to remark that although the duty of furnishing an account of the transactions of his department for the whole of the past year devolves on him by virtue of his office, he can only speak of them from personal knowledge since the 23rd July last, when, at Your Excellency's command, he assumed the responsibility of directing its affairs; the report of its proceedings previous to that date being derived from the records of his office.

In consequence of the necessity which has existed for restricting expenditure in every branch of the service as much as possible, consistent with its efficient administration and actual requirements, the gross outlay upon all the Public Works, for construction, and for repairs and management, during the past year, amounts to the sum of only \$821,073.31, which is less than it has been any year since 1851; the average of the annual expenditure during this period of thirteen years having been \$1,216,362.

The details of this expenditure, arranged under their proper heads in the usual tabular forms, are given in the Statements Nos. 1, 2, 3, 4, 5, 6 and 7, appended to this report.

No. 1. Statement of the several works under the charge of this department, which are in use and yield revenue; shewing, under different heads, the expenditure on construction, and the amount paid for land damages during the year 1863; the total cost of con-



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struction under this department to the 1st January, 1864; and the cost of repairs and management during the past year.

No. 2. Statement of the Public Works under the charge of this department, incomplete and, as yet, unproductive, but on which tolls are to be levied as soon as they are available; shewing the expenditure thereon in 1863, on construction and on repairs and management, and the total expenditure up to the 1st January, 1864.

No. 3. Statement of the several Public Works and buildings in charge of this department or in course of construction under it, yielding no direct revenue, but in use for the public service, and authorized by legislative appropriations; shewing the amount expended thereon during the year 1863, and the total outlay upon them up to the 1st January, 1864; also the amount expended for repairs and maintenance during the past year.

No. 4. Statement of expenditure on certain miscellaneous services under this department, during the year 1863.

No. 5. Statement of the expenditure incurred under this department for the repairs and management of the Ordnance Canals, for the year 1863.

No. 6. A detailed statement of the expenditure incurred in the repairs and maintenance of the Provincial Light House, under the charge of this department, for the year 1863.

No. 7. Abstract statement, shewing the total amount expended under the Department of Public Works, during the year 1863, as detailed in the foregoing statements numbered 1, 2, 3, 4, 5, and 6.

The undersigned has given his careful attention to the internal organization and working of his department, and is gratified to find that many improvements, tending to its efficiency, have of late years been introduced. Considerable progress has also been made in collecting the title deeds of the public lands in the charge of this department, and in arranging and classifying the archives of this office. He has also had under consideration, and intends to put in practice without delay, a further classification of the different officers of the department into special categories, better adapted to the services these officers are called on to perform, and the adoption of certain additions to the present system of keeping the books of his department, for the purpose of rendering it more complete, and by which the Commissioner will be enabled to guard against unnecessary and unauthorized expenditure.

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## INLAND NAVIGATION.

The success of the St. Lawrence, as a competing route for Western trade, is a matter of such vital importance to the interests of this Province, that the subject has already been frequently brought before Your Excellency, in the annual reports of this department. It has also been ably discussed by persons whose experience and commercial standing entitle their opinions to the greatest consideration; and the necessity of action in regard to it, becomes yearly more apparent.

It is evident that the River St. Lawrence is the natural outlet to the vast and fertile region bordering upon the great interior lakes of North America. Upon the improvement of this immense stretch of water communication, the Province has already expended over fourteen and a half millions of dollars, and established a scale of navigation, unrivalled in point of capacity, between Chicago and the head of ocean navigation at Montreal.

But it is to be regretted, that the experience of past years has proved that the benefits anticipated from these improvements have been, as yet, but partially realized; and that notwithstanding the undeniable superiority of the Provincial line, it has attracted but a small portion of the great stream of traffic, which flows from the grain producing districts of the West, to the Atlantic seaboard.

It is therefore evident that some powerful cause must be in operation, to produce a diversion of the trade from the channel which seems to have been marked out for it by nature, into lateral and artificial routes of much less capacity or speed, and greatly increased cost of transport.

The greatest drawback to the success of this route, as a competitor for European trade, is the high rates of ocean freight from Montreal and Quebec, when compared with those from New York. The latter city being the great commercial emporium of the Northern States, controls the bulk of the import trade; consequently, freights run lower at that port than any other on this part of the continent, because vessels arriving out with cargo can afford to carry produce to Europe cheaper than those trading to Quebec or Montreal, which, in great part, have to make the voyage here in ballast. Besides, as the staple exports of Canada are bulky, whilst the tonnage of her imports is comparatively small, it is evident that we cannot hope to compete for European freights, except by carrying so much cheaper on our line of internal communication, as to compensate for the disadvantage of the ocean voyage.

Although the minimum capacity of the canals is nearly double that of our most formidable rival—the enlarged Erie Canal; and, when taken in connection with speed, the season of navigation is equally as long as upon the latter; it is evident, from the existing state of affairs, that still further advantages must be afforded, ere we can obtain a fair share of the trade in question.

It is believed that the only means by which this can be effected, is by an enlargement of the Welland and St. Lawrence Canals to a uniform draught, and carrying capacity for vessels of at least 800 or 250 tons burthen,

This would permit the majority of the fleet of proellers and large schooners now engaged in the transport trade on Lake Erie, to descend to Montreal and Quebec without breaking bulk; and there tranship into sea-going vessels—thus considerably reducing freights, and tending to bring about the desired result.

The manifest advantage in speed which the route possesses, together with the cheapening of freight referred to, would doubtless operate favorably in making Quebec and Montreal *entrepôts* for goods imported into the Lake Regions, and thus diminish ocean charges, by providing a larger per centage of cargoes both ways. It is also probable that the mercantile enterprise of these cities would not be slow to take advantage of such favorable circumstances. It must, however, be borne in mind that the export trade to Europe forms by no means the only important business for which the Provincial canals might successfully compete; as it is now well understood that a very large quantity of the cereals brought to Albany, is consumed in the New England States, and never leaves the country at all.

With a view, therefore, of pointedly drawing attention to the means by which it is believed that a large share of this, as well as the trans-atlantic trade, can yet be secured to the Province, reference is again made to the subject.

Even before the present Canal system was in full operation, it was foreseen that to ensure anything like an adequate return upon the large expenditure then being incurred, it would be necessary to complete the series, by connecting the waters of the St. Lawrence with those of Lake Champlain. By this means it was believed that we could successfully compete with the Erie Canal, either for the carriage of grain to the great centre of distribution for home consumption at Albany, or to New York for exportation to Europe.

The inhabitants of the Northern States on the Atlantic seaboard, being largely engaged in manufactures, have to import food from the agricultural districts of the West; and the magnitude of the trade thus created is estimated by various competent authorities, at from *five-eighths* to *three-fifths* of all the vegetable food which annually arrives at the level of tide water in the Hudson River.

It would therefore seem, that any well-matured scheme, by which the Provincial Canals might be made the principal channel for so large and profitable a transport, would be well worthy of consideration.

In the existing state of our connections, the cargo of a vessel arriving at Montreal, loaded with grain for the Eastern States, cannot be portaged to Lake Champlain, except at such an increase in the cost of transport as would nullify all the advantages of the St. Lawrence navigation, and give the Erie route a decided superiority in point of cheapness.

But were the River St. Lawrence united to Lake Champlain by a canal of dimensions equal to the enlarged scale of navigation above referred to, this serious drawback would then be removed; and the Province would reap the full benefit of the unequalled advantages which it ought to derive from the possession of the *natural* route.

The Annual Report for 1862, of the Auditor of Canal Tolls, &c., for the State of New York, shows that the average cost of transport of wheat from Chicago to New York, via Buffalo, or by way of Oswego (including canal tolls), was as follows:—

	1861.	1862.
1 Ton, Chicago to Buffalo .....	\$ 3.80½	\$ 3.49
“ Buffalo to New York.....	5.24½	5.27½
<b>Total,</b> .....	<b>\$ 9.05</b>	<b>\$ 8.76½</b>
1 Ton Chicago to Oswego.....	\$ 5.22	\$ 5.07
“ Oswego to New York.....	3.70	3.68
<b>Total,</b> .....	<b>\$ 8.92</b>	<b>\$ 8.75</b>

This does not seem, however, to include the cost of transshipment either at Buffalo or Oswego.

The vast increase in the trade of the latter port, since the opening of the enlarged Welland canal in 1845, clearly demonstrates the effect of extended natural navigation. Oswego, with vessels of from 250 to 400 tons burthen, which pass through the Welland canal, is able to compete with Buffalo, although propellers of 750 to 1000 tons burthen arrive there from Chicago.

This arises from the simple fact that there are about 118 miles less canal navigation on the Oswego route than on that *viâ* Buffalo to Albany.

The following table will shew the comparative amounts of produce which arrived at Oswego from the West, from 1845 to 1862:—

	Tons.		Tons.
1845.....	44,560	1854 .....	72,975
1846.....	63,905	1855 .....	124,004
1847.....	87,329	1856 .....	222,542
1848.....	90,411	1857 .....	104,332
1849.....	119,201	1858 .....	172,874
1850.....	133,473	1859 .....	93,345
1851.....	146,204	1860 .....	249,069
1852.....	182,434	1861 .....	277,679
1853.....	227,631	1862 .....	276,237

It may, therefore, be fairly inferred that a proportionate success would attend the Champlain route, could vessels of large tonnage reach Whitehall without breaking bulk; and that the cities of Montreal and Quebec would also be greatly benefitted, as regards the increased facilities for transatlantic trade which would result by bringing the large inland vessel alongside of the ocean ship.

Even at present, a propeller of ordinary speed, can make the trip from Quebec to Lake Erie in about 5 days, and that from Lake Erie to Quebec in 4 days; whilst the voyage by canal boats, of less than one half their tonnage, seldom occupies less than 12 days between Buffalo and tide water in the Hudson river. Goods shipped from Quebec also reach the upper lakes earlier in the spring than those from New York *viâ* the Erie canal; and produce for the European market can be shipped later from Chicago, *viâ* Montreal, than by

the Buffalo route, for the reason that the voyage is made on the river and through our canals much quicker than by the Erie canal.

The tables in the appendix shew the dates of opening and closing of navigation at the port of Quebec, the St. Lawrence and Welland canals, the Erie canal at Buffalo, and the Hudson river.

The Champlain connection would also facilitate the large export of sawed lumber, which now finds its way into the United States, for home consumption, from various points along the Canadian frontier, by costly, and often circuitous routes; and would enable it to be laid down at the minimum of transport charges at the great lumber mart of Albany. It would also form a direct route for that portion of this staple product of the Ottawa valley, required for the American market.

Thus the trade, which now merely *crosses* Lakes Ontario and Erie into the United States, from the West and Upper Canada, would find a speedier and less expensive route to market.

This advantage would no doubt be quickly appreciated by merchants and forwarders.

By the return of the auditor for New York tolls, previously cited, the total movement in tons of produce of Western States and Canada, and other freight which arrived at tide water by the Erie canal in 1862, was as follows, viz. :—

	Tons.	
Flour in bbls.....	197,460	
Wheat in bulk.....	980,085	Tons.
	<hr/>	1,177,299
Other agricultural products.....		791,142
Products of the forest .....		563,346
Manufactures .....		14,170
Other articles.....		48,880
		<hr/>
Total from the West.....		2,594,837
“ from New York State.....		322,257
		<hr/>
Total <i>viâ</i> Erie Canal to tide water.....		2,917,094
From tide water.....		399,098
Internal movement on canal .....		1,778,458
Arrived at tide water by Champlain Canal.....		485,615
From tide water, do. do. ..		18,525
		<hr/>
Total movement on all the New York State Canals.. ..	Tons	<u>5,598,785</u>

STATEMENT of Grain, &c., which arrived at Montreal by the St. Lawrence Canals, from the Western States and Canada, in the years 1862 and 1863, furnished by the Collector of Canal Tolls :—

	Tons.	
1862.—Flour in bbls.....	83,323	
Wheat in bulk.....	234,250	Tons.
	<hr/>	817,574
Corn, rye, barley and other grain.....		105,297

Pork, beef, butter, ashes, and other freight .....	333,999	
Total downward, 1862 .....	756,870	
do upwards.....	125,794	
Total movement on St. Lawrence Canals.....	882,664	
	Tons.	
1863.—Flour in bbls. ....	75,444	
Wheat in bulk.....	149,800	Tons.
		225,244
Corn, rye, barley and other grain.....	62,223	
Pork, beef, butter, ashes, and other freight.....	390,466	
Total downward.....	677,933	
do upward.....	113,489	
Total movement on St. Lawrence Canals.....	791,422	

The comparisons of movement of freight are chiefly confined to the Western trade, as bearing directly upon the question now under consideration. Thus in 1862, there was received at tide water in the Hudson River 2,917,094 tons, whilst only 756,870 tons, arrived at Montreal during the same year.

The returns also shew that the New York Central and New York and Erie railways carry about 35 per cent. of the aggregate freight moved both by them and all the New York State Canals, which total amounted, in 1862, to the large figure of 8,619,173 tons.

These facts shew conclusively that notwithstanding the great length of artificial navigation by the Erie route, it has, through the strenuous exertions and far-sighted policy of the State legislature, attracted an immense trade; the disadvantages of the route having been, as far as possible, obviated by continued and liberal expenditure upon its improvement.

The result has been, that last year a revenue of nearly 5 (five) millions of dollars was derived from this canal.

It is believed that the period has now arrived when it is still more imperative upon the Province to adopt a policy calculated to demonstrate the real superiority of the St. Lawrence route, by completing our canal system, and enlarging it to such dimensions as will place it beyond the reach of successful competition, in the cheap transport of imported goods for the Western market, or in the speedy export of the vast and overflowing vegetable products which now find their way through other channels to the Eastern States and to Europe.

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## WELLAND CANAL.

The idea of effecting an uninterrupted water communication between Lakes Erie and Ontario, appears to have been entertained by a few enterprising individuals, residing in the Niagara district, long before the means of carrying it into practice could be obtained.

For the gradual development of the scheme by which this was ultimately accomplished, the Province is, however, greatly indebted to the indefatigable exertions of the late Hon. William Hamilton Merritt, who, for many years, devoted himself to the work of maturing our canal system.

Now that the period has arrived, when the demands of trade render it necessary to enlarge the capacity of this canal, a brief sketch of its early history, and the difficulties overcome in its construction, may not be deemed uninteresting.

As far back as the year 1818, the dividing ridge between the Chippewa River and the head of the Twelve Mile Creek, was examined with a view to the uniting of these points by a canal, and a profile of the route was shortly afterwards exhibited at York, to members of the legislature, which was then in session. No further action was, however, taken in the matter until 1823, when a line was surveyed; and in 1824 an Act was passed incorporating the Welland Canal Company, with a capital of £40,000, for the purpose of establishing a navigation from lake to lake, for boats of from 20 to 40 tons burthen. The canal to be four feet deep, seven feet wide at bottom and 19 feet at water surface.

Ground was broken on the 30th November, 1824, without any ceremony, nor did the public at that time seem to be at all aware of the importance of the work.

It was scarcely commenced, however, upon this small scale, when the people became rapidly convinced of the great benefits which its construction could not fail to confer upon the trade of the Province, and in 1825, upon a petition from the Company, Parliament resolved to increase the capital to £200,000, and to aid the undertaking by the loan of £25,000. This was done with the proviso that the company should construct a canal for *schooner navigation*, by increasing the dimensions of that originally designed, to 7 feet 6 in. depth of water, 34 feet width at bottom, and 52 feet 6 in. at top, except through the "deep-cut," which was to be only 15 feet wide at bottom and 32 feet 6 in. at top. The locks to be made of wood, 22 feet wide and 100 feet long.

Although £75,000 of this increased capital stock was readily subscribed for in New York, and £25,000 in Upper and Lower Canada; some difficulty arose in disposing of the remaining £100,000 in the English market, which threatened seriously to interfere with the progress of the work. Under these circumstances, the legislature, in 1827, passed a Bill by which the Province became a shareholder to the amount of £50,000, and in the same year the Government of Lower Canada also aided the scheme by taking stock in it to the amount of £25,000.

In 1828, the company obtained a loan of £50,000 sterling from the Imperial Government at 4 per cent.; being forced, from the embarrassed state of their finances, to apply for this, even though, by the acceptance of the loan, they forfeited a gratuity of £27,000 ster-

ling, offered to their agent by the Chancellor of the Exchequer upon certain conditions, chiefly relative to the passage of His Majesty's troops through the canal, free of toll.

But at the close of this year (1828), the engineer reported that disastrous slips had occurred in the "deep cut," which would increase its cost to a much larger sum than the original estimate.

Notwithstanding the occurrence of this, and many other unlooked-for difficulties, which both augmented the outlay upon the works and retarded their completion, the confidence of the projectors of the canal remained unshaken as to the ultimate success of the scheme. At length, by frequent legislative aid, coupled with indomitable energy on the part of the company, it was partly accomplished; and on the 30th November, 1829, a schooner of 85 tons burthen passed between Lakes Erie and Ontario *via* the Chippewa River. On the 20th May 1833, however, the main route was completed, on the same scale, to Port Colborne, and the original project thus fully carried out. In order to effect this, the Province took some additional stock in the undertaking that year.

Although a through navigation was thus secured, the locks and other structures being of wood, put together more with reference to present economy than stability, will account for the frequent failures, the large outlay for maintenance, and the financial difficulties of the company, which continued unabated after the opening of the canal.

These continued annually to increase, and although Governmental aid was given at various times, it became quite evident that the company were unable to maintain the works in that effective condition which their importance demanded.

Representations having been frequently made to that effect by the company, who urged that the work should be controlled wholly by the Government, the legislature, shortly after the union of the Provinces in 1841, passed an Act to purchase the rights of private stockholders;—subsequently transferred the management of the canal to the Board of Works,—and, by the Act 4, 5 Victoria, cap. 28, £500,000 was appropriated to enlarge and render this line of navigation permanent throughout.

Up to the 31st December, 1841, this canal was debited on the books of the Province with £462,856 18s. 10d.,

equal to .....	\$1,851,427.77
Debentures issued under Act 7 Vic., c. 34, for payment of back interest on stock, &c., &c .....	675,356.42
Amount expended under Department of Public Works for enlargement, erection of permanent structures, land damages, &c., up to 31st December, 1863.....	4,766,460.70

Total expenditure by the Province..... \$7,293,244.89

Of this amount about \$1,400,000 is chargeable to increasing the depth of water to *ten feet* on the mitre sills of the locks, and to widening and bottoming of the summit level, to admit the waters of Lake Erie as a feeder.

This latter work, from the commencement of the enlargement under this department, has been considered indispensable, from the gradual failure of the Grand River, as a feeder, to furnish the necessary supply.

But although arrangements were made for carrying it out, various unavoidable causes obstructed its progress, and it was proceeded with slowly, even after the Port Colborne



branch had been laid dry (and remained so for several years), with a view of affording an opportunity of executing the work to the best advantage.

The water was subsequently let in, and a contract made for its completion by means of steam excavators; but the parties to whom the work was entrusted failed to carry out their agreement.

At length arrangements were made with the present contractor, under whose energetic management the work has been conducted as expeditiously as its nature and attendant circumstances would permit.

The prism of the canal between Allanburg and Port Colborne has been nearly doubled in sectional area. The bottom width, originally intended to be only 26 feet, having been made 50 feet, to admit of two vessels passing each other at any place on the line. The depth has also been increased fully two feet for the whole distance.

This part of the work is now rapidly approaching completion on the scale above stated. The time, however, is not far distant, when its capacity must be still further increased.

But the work of greatest importance to be undertaken, is the construction of a new line of canal from Thorold downwards to Lake Ontario, with locks capable of passing a large class of propellers. This is believed to be so urgently necessary, that it cannot be too often brought under notice. As its execution will necessarily occupy several years, its early commencement becomes all the more imperative; and although the Department is not yet in possession of sufficient information to enable it to recommend any precise line, this can be readily obtained, and the extent of the necessary improvements determined, when the means of carrying them out are placed at the disposal of the Government.

By the Report of the Superintendent (Appendix B), it will be seen that the progress made during the past season with the work on the summit level, has been such as to warrant the belief that two seasons more will suffice for its completion.

In 1863, there was expended on it the sum of .....	\$49,981
Superintendence and contingencies.....	5,010

Total .....	\$54,991
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For the operations of next season, an appropriation of \$60,000 will be required.

The construction of a second tow path on the Thorold level, between Hurst's and Marlutt's Bridges—and the widening of the channel-way between these points, (alluded to in previous reports)—would so much facilitate the passage of vessels, that it is deemed advisable to bring the subject again under notice. The estimated cost of these works is \$18,100

Large fleets of upward bound vessels, being often detained at Port Colborne by winds which are favorable to downward vessels entering the canal, frequently leads to such an over-crowding of the harbor, as results in considerable delay and damage; which, it is believed, can only be obviated by increased accommodation.

This is the more necessary, from a large portion of it being generally occupied for purposes connected with the Welland Railway, at the southern terminus of which an elevator has been erected for the transfer of grain, and the lighterage of vessels of greater draught than those which can pass with full cargoes through the canal.

The railway, by affording facilities for lighterage, has tended to bring a larger class of vessels to this port, which has, no doubt, been beneficial to all the interests concerned.

It is therefore believed, that in view of the railway requiring further frontage and basin accommodation, it might be granted at such a point as would not interfere with vessels entering or leaving the canal, upon the company contributing a reasonable sum towards defraying the expenses of the enlargement.

The design of the harbor is such, that its area can be made one third greater than at present, without interruption to the trade or interference with existing works. Its enlargement, which is considered indispensable, is estimated to cost \$64,000.

During the season of low water, vessels of ordinary draught cannot pass through the cut between the Lock at Port Robinson, and the Welland River. This is fully 1300 feet long, and is then barely six feet in depth. Since the works were assumed by Government, no outlay has been made upon it.

There being considerable trade on this route in sawed lumber, grain, &c., it is believed that the deepening and improvement of the channel, would be of sufficient advantage to warrant the outlay for the work, which is estimated at \$2,500.

The staunching of the dam at Dunville, referred to in previous reports, has been well tested during the past year, (the season being drier than usual,) notwithstanding which, the water has been kept up better than heretofore.

All the various works of repairs and maintenance have been promptly attended to, as they became necessary, and spare gates provided to meet any ordinary emergency which may occur during the coming season. On the 13th April navigation was opened, and was closed on the 13th December.

During the season, three interruptions occurred, by the breaking of lock gates, which collectively amounted to four days.

The storm of the 1st January of the present year has damaged the piers at Port Colborne harbor; but being now covered up by large masses of ice, an estimate of the probable cost of repairing them cannot now be arrived at.

Repairs, 1863.....	\$15,392.02
Management, &c., 1863.....	40,855.98

Total,.....	<u>\$56,248.00</u>
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On reference to Appendix B, Schedule No. 5, it will be seen that large arrears are due for lands bought, and privileges acquired along the line of this canal, amounting in all to \$28,940.58.

As no payments have been made on these purchases for a number of years, it appears advisable that some action should be taken to recover the large sum in question.

REVENUE FOR THE LAST FOUR YEARS.

	1860.	1861.	1862.	1863.
Tolls.....	\$165,220.65	\$229,769.49	\$271,384.27	\$225,442.01
Collected on rents.....	7,686.97	8,967.20	7,363.90	9,014.79
Do. on lands &c.....	1,737.07	25.00	.....	516.83
Do. on fines and damages.	2,116.10	2,267.80	578.00	4,664.50
Totals.....	<u>\$176,760.79</u>	<u>\$241,029.49</u>	<u>\$279,921.17</u>	<u>\$239,637.63</u>

## WILLIAMSBURG CANALS.

These canals are the highest in the St. Lawrence series, and have less sectional area than any of the others; their bottom width in cutting being only 50 feet. The comparatively slight rapids which they were constructed to overcome, are generally navigated both ways by passenger steamers, so that they are principally used by upward bound freight craft.

They are now in three divisions, and are collectively  $11\frac{1}{2}$  miles in length; but separated by stretches of river navigation  $4\frac{1}{2}$  and 10 miles respectively in length.

When these canals were first opened, the embankments on the river side were, in many places, but slightly protected with stone, and the inner face of them was left wholly exposed to the action of the water. This has necessitated a considerable expenditure for the past few years in facing and lining them with stone.

During the past year, nearly one lineal mile of this class of work has been done, and the banks raised and strengthened at all the lowest and weakest points. Another season's work, even at this rate of progress, will complete the whole. With an ordinary outlay for repairs, these canals have been kept (in other respects) in an efficient state throughout the season of navigation, which commenced on the 1st day of May, and closed on the 7th of December.

One pair of lock-gates were built and brought into use last spring; but in order to be prepared for casualties, one pair of spare gates should be provided this year.

The north pier at the upper entrance of Rapide du Plat Canal, which for some years was much out of repair, has been rebuilt from the foundation upwards, for a length of 138 feet. The superstructure has, however, yet to be put on.

To remove slides, and the material deposited in these canals by the action of the water, previous to the banks having been lined with stone, a steam dredge was set to work in September last, and is found to be the most economical mode of clearing out the channel without interfering with the navigation.

The dredge can be similarly employed with advantage for the whole of the next season, as, now that the water in the St. Lawrence is low, deeply-laden vessels cannot pass through the upper reaches of the canals unless the channel be cleared out.

The necessity of proceeding with the several works recommended in the last annual report of this Department, but for which no appropriation was made, is urgently called for. They are as follows:—

The reconstruction of the swing bridge over lock No. 23, in the Village of Morrisburg.  
The rebuilding of the outer part of the pier at the entrance of the Gallops Canal.

It is also very important that the swing bridge over the lock at Edwardsburg should be rebuilt. The guard booms in the rock cut on the Iroquois Canal are so completely worn out, as to be of very little service. It is, therefore, proposed that if the weather is favorable in April next, the water shall be drawn off the canal, and the sharp, angular points of rock, which now project into the cut, removed. The booms can then be entirely dispensed with.

Repairs 1863 (including protection of banks, &c) . . . . .	\$3,818.44
Management . . . . .	\$6,046.12
	<hr/>
Total . . . . .	\$9,864.56

### CORNWALL CANAL.

This is the largest of the St. Lawrence Canals, being nearly double the bottom width of those immediately above it, and one fourth wider than those below. The locks are also 10 feet wider than any of the others which form the series.

By the carefulness of the superintendent, the high embankments forming the upper reach, which are constructed of porous material, have been maintained in good order throughout the season, at a comparatively small outlay.

For about a fortnight previous to the opening of the canal, on the 2nd of May last, the water was drawn off to enable the necessary repairs to be made. The season lasted for 223 days, having closed on the 12th December, with but a single interruption of 8 hours, viz., on the 20th of August, whilst repairing one of the mitre sills of lock No. 19.

The three pairs of spare gates delivered last year make, together with those on hand, 8 pairs in all. It is believed that these are sufficient to meet any ordinary contingency for some years.

The various works referred to in last year's report as being required, have now become urgently necessary. They are as follows, viz. :—Rebuilding the wharves at the upper and lower entrances of the canal, and the wharf adjoining the Town of Cornwall.

The other matters necessary to be attended to are the raising and protection of the embankments during the coming season, for which 200 cords of stone should be furnished this winter, and mooring posts provided and fixed.

Some of the recess platforms of the locks require to be replanked, and new segments provided and laid before the opening of navigation. No steps having been taken by the lessees of the water-powers at Cornwall to place the head gates to their mills in proper repair; the superintendent reports that if this be not attended to at once, danger may be apprehended to the safe navigation of the Canal.

It therefore seems advisable to notify them, that unless these repairs at once effected, before the canal is opened next spring, that the water will be cut off from their mills by dams or otherwise.

Repairs, 1863 . . . . .	\$2,089.74
Management . . . . .	10,089.61
	<hr/>
Total . . . . .	\$12,179.35

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**BEAUHARNOIS CANAL.**

This canal is the only one of the series which is located on the south shore of the St. Lawrence. It passes through a well settled part of the country, and is consequently crossed by a large number of swing bridges. These, together with the long dykes on both sides of its upper entrance, rendered necessary by the backing of the water there, considerably increase the cost of maintenance. 4000 lineal feet of the dyke through Hungry Bay was raised last year, for a height of about 20 inches, and a like extent will have to be done during the ensuing season. The dam, built across a branch of the St. Lawrence to deepen the upper entrance, requires constant care and watchfulness to maintain it efficiently.

The bridges are generally in good repair, with the exception of that over the guard lock at the head, which should be rebuilt before the opening of navigation.

The superstructure of the pier at the upper entrance requires to be rebuilt, and suitable timber should be delivered this winter for that purpose.

The by-wash at St. Timothy was partly repaired last spring; but some leakage having been found in it last summer, it will require further attention before the season opens.

It was intended to have repointed the lock walls at many places last spring; but the weather having proved unfavorable, this work was not done.

It must, however, be proceeded with next season.

Three pairs of new lock-gates were provided last year, one of which was immediately brought into use at Lock No. 8. There are now six pairs of spare gates on hand; but some of them being old gates repaired, it is believed that 2 pairs of new upper gates should be provided this year.

The pier at the lower entrance, referred to in the last annual report, and for the extension of which no appropriation was made, should be lengthened in order to afford sufficient accommodation for vessels navigating the canal: as much inconvenience and delay are experienced from large numbers being collected there without having proper mooring space. It is important that this work should be done next season. Its estimated cost is \$7000.

The navigation of this canal, which was opened on the 2nd of May, was maintained until the 4th December, with but one interruption of about 18 hours, whilst repairing the lower gates of lock No. 10, which were carried away by a vessel. This occurred on the 16th May last.

The repairs for 1864, generally of an ordinary nature, are estimated to cost \$7,165.

Management, &c., 1863 .....	\$8,857.31
Repairs. do .....	6,113.33

Total.....	<u>\$14,970.64</u>
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## LACHINE CANAL.

The Ottawa River enters the St. Lawrence above Lachine by two branches: one opposite the foot of the Beauharnois Canal, and the other (or navigable channel) a few miles further down Lake St. Louis.

The influx of this large body of water has the effect, in time of floods, of greatly increasing the fluctuation to which the St. Lawrence itself is liable, and necessitates all the works at the head of the Lachine Canal being adapted for a variation of at least seven feet between extreme high and low water.

The repairs of wharves, dock-walls, flour sheds, &c., at the foot of the canal, together with those required at Lachine, greatly increase the annual cost of maintenance.

The excessive current produced in this canal by the inordinate supply of water used for milling purposes at various points along the line, has led to so much difficulty in its navigation, as to be a heavy tax upon the trade.

Representations to this effect having been frequently made by forwarders and others, this Department, several years ago, took steps to limit the supply to what was then in use.

But, notwithstanding the uncertainty of furnishing even that quantity of low water, and the well known injury inflicted on the trade, some of the lessees claim the right to a greater supply than they at present receive, although they have already fully double the amount of power considered available at the time when the leases were granted.

It would, therefore, appear that the interests of these parties are directly opposed to the successful and unimpeded navigation of one of the most important of the canals; and, with a view of settling these matters, the whole question is now before the Provincial Arbitrators.

Another great drawback upon the trade is the deficiency of wharfage and basin accommodation at Montreal; vessels being frequently detained several days waiting for a berth at which they can unload. This has been frequently referred to in the annual reports of this Department; but no means having been appropriated for the purpose of remedying it, it is therefore considered advisable to draw attention to the urgent necessity which still exists for these improvements.

The enlargement of the St. Gabriel Basin (for which plans were prepared some years ago) would afford about 3,000 lineal feet of additional wharfage, where a large number of inland vessels could lie at one time, and by this means room would be available in basin No. 1 for the larger class which it is intended to accommodate.

To facilitate the transfer of grain into the larger vessel, the deep water basins referred to in the report of last year, and proposed to be constructed between the present canal and St. Etienne Street, on the property acquired by Government for that purpose, are still urgently required.

As regards their cost, it is believed that the funds arising from the sale or lease of warehouse and other lots adjoining them, would eventually pay for their construction, and would also bring into use a large and valuable tract of land which is now entirely unproductive.

For the accommodation of the inhabitants of the west end of the city, a bridge at the St. Gabriel Lock is much required. This would relieve the Wellington Street Bridge, which is now often inadequate to accommodate the large travel over it.

A regulating weir and raceway at this lock are also urgently required. The probable cost of these works will be submitted in the estimate for 1864.

This canal was opened on the 4th of May, and closed on the 10th of December, without any interruption to the navigation (arising from accident) during the season.

The bridge above lock No. 2 was in great part renewed last year; and materials provided for the repairs of Brewster's and Côte St. Paul Bridges, this winter.

A pair of lock gates suitable for either of the locks at the lower entrance, were provided last year. The canal is now well supplied with spare gates, with the exception of one pair required for the guard lock, which must be built this winter.

The steam dredge and scows were put in good order last spring, and have been employed during the entire season clearing out basins Nos. 2, 3 and 4. The expenditure on which was \$4,453.11.

The principal repairs to be attended to this year are as follows:—  
Pointing the lock walls. Repairs to bridges and regulating weirs.  
Repairs to flour-sheds, wharves, banks and slope walls, &c.  
These are estimated to cost \$10,090.

Management &c., 1863 .....	\$11,391.14
Repairs, do .....	9,608.10
Total .....	<u>\$20,999.24</u>

Collected for fines and damages by order of the Superintendent. \$	289.00
Dues on firewood at Lachine.....\$	271 65
Do. lumber in basin do. ....	1,075 45
	<u>1,347.10</u>
Use of old lock at Montreal as a graving dock.....	684.25
Vessels wintering in canal.....	584.75
Storage in flour sheds.....	3,181.11
Wharfage on vessels entering canal from lower ports, and on firewood.....	5,530.70
Temporary use of canal lands for repairing vessels during winter of 1863-4.....	190.00
Rent of water-power and other property.....	11,417.50
Total.....	<u>\$23,224.41</u>

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## CHAMBLY CANAL.

The trade by this route during the last season has greatly exceeded that of any preceding year; the revenue from tolls having amounted to \$25,070.66.

Within the past few years, several of the locks on this canal have been rebuilt, and the defective parts of other structures thoroughly repaired, so that the works are now in a moderately good condition, except the guard lock at St. Johns and one of the combined locks at Chambly, which will shortly require extensive repairs.

The unusual height of water in the Richelieu during the months of May and June last, led to considerable damage by softening the canal banks, and causing slides, especially on the river side.

A large amount of deposit has been formed in the canal bottom during the period of freshets by the numerous creeks, ditches, &c., which discharge into it. This impedes the passage of large flat-bottomed vessels, and otherwise leads to considerable detention.

The removal of such obstructions by hand labor in the spring being very expensive. It is therefore proposed to perform this work by dredging during the season of navigation.

Last winter, the staff of the canal were employed in constructing a pair of new gates for lock No. 4, and in rebuilding one of the swing-bridges. They also placed all the lock gates and bridges in good working order.

This canal was opened on the 1st of May, and closed on the 8th of December. The only detention experienced was from the causes above mentioned.

The banks between locks Nos. 3 and 6 have been raised, and such other portions as required it have been strengthened and protected with stone. The ordinary repairs were also attended to during the season.

The cost of repairs for 1863 was.....	\$ 8,430 62
For management, &c.....	6,022 50

Total.....	\$14,453 12
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The flooring of several of the locks has been displaced, and it will be necessary to replank them before the opening of navigation.

The upper gates at locks 2 and 4 must be rebuilt, and those at 5 and 7 thoroughly repaired.

The superstructure of part of the wharf at St. Johns must be renewed; and the clearing out of the bottom of the canal and further protection of the banks proceeded with, together with repairs to locks, bridges, &c. All of which are estimated to cost \$7,560.



### ST. OURS LOCK AND DAM.

The high water in the Richelieu in May and June last, inundated a large portion of these works; and the ice injured the west abutment of the dam and wing wall of the lock. These damages have been repaired, and precautions taken to guard against further injury from a similar cause.

During the season, part of the apron cribs below the dam, and some sink holes above it, have been filled with stone.

The protection walls, banks and piers below the lock have also been repaired, and such other work done as became necessary during the season. The cost of which was:—

For repairs.....	\$2008 70
Management.....	1,210 70
<b>Total.....</b>	<b>\$3,219 40</b>

The balance on hand from last year will, it is believed, be sufficient to effect the ordinary repairs of the coming season.

Navigation by this route commenced on the 27th April, and closed on the 3rd day of December. It was interrupted in all for about 30 hours, whilst adjusting the lower gates of the lock.

### STE. ANNE'S LOCK.

The returns from this lock shew a considerable increase in the trade during the past year; but there has been, nevertheless, a decrease in the revenue, in consequence of the rates of toll having been lowered.

A very small expenditure took place last season upon these works. But from the report of the superintendent (Appendix C), it appears that the superstructure of the wing dam above the lock, for a length of 200 feet, is much decayed and requires immediate renewal. About 500 feet of the inside of it should also be sheeted with elm plank, and the docking on the river side below the lock should also be protected, to prevent damage from rafts or ice during high water.

These works, together with providing some mooring posts, &c., are estimated to cost \$1200. The Ottawa, *via* this route, was opened on the 28th April, and navigation was continued without interruption until closed, on the 5th December.

Management, &c., 1863.....	\$464 82
Repairs, &c., do .....	72 52
<b>Total.....</b>	<b>\$537 34</b>

Tolls, &c., collected amounted to..... \$5018 64

## CARILLON AND GRENVILLE CANALS.

No expenditure has taken place on these canals since their transfer to the Government in 1856, beyond what has been found absolutely necessary to maintain them in a passable condition—owing to the scale of navigation being so limited, and many parts of the works radically defective in location.

Eight of the locks are from 128 to 132 feet long, and from 32½ to 32½ feet wide, whilst the remaining *three* are only from 106½ to 108½ feet long, and from 19½ to 19½ feet wide, with barely five feet draught of water.

The prism is also of very irregular form, the bottom width varying from 18 to 40 feet, and that at the surface from 50 to 90 feet.

The navigation of these canals opened on the 1st of May, and closed on the 2nd of December, with only one interruption of 2½ days during the season, which was caused by the failure of one of the lock gates. 4 pairs of new lock gates were built last season, and will be brought into use next spring; 3 pairs are, however, now required, and should be constructed before the opening of navigation.

The superstructure of the pier at the head of the Grenville Canal was rebuilt last year, and such other indispensable repairs effected, as were necessary to keep the canals open.

In August and September last, the water of the Ottawa being unusually low, the depth at the upper entrance of the Grenville Canal was so much reduced as to cause serious detention to vessels at that place.

A few years ago, a channel was partially cleared out by means of a float and scoop, worked by a capstan from the shore. This process, although slow, was tolerably effective; but the channel being narrow, and the banks steep and gravelly, the action of high water and frost on them has again tended to fill it up, so that the passage of loaded square-bottomed barges is greatly impeded at periods of low water.

To remove these obstructions, it is proposed to employ a dredging machine next summer, the expenses connected with which are estimated at \$1200.

The structures on these canals are generally in a very bad condition, and considerable repairs to them must now become frequently necessary.

The north wall of lock No. 2 leaks considerably, and will require to be staunched next spring, by pointing both sides and puddling in the rear.

The breast wall of lock No. 10, must also be re-built, which, together with the general repairs to the other locks, is estimated to cost \$2,035. Repairing dam at North River, and clearing out feeder, together with the removal of deposit from the canal bottom, raising the banks, &c., \$3,225. Making the total estimated outlay for repairs next season to be \$6,460.

Management &c., 1863.....	\$4,105 24
Repairs, do. ....	4,385 54

Total.....	\$9,040 78
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## RIDEAU CANAL.

The works on this line of navigation have been maintained in a serviceable condition during the past season, with less expenditure than heretofore, which may be accounted for by the fact that several of the most extensive and dilapidated structures have been rebuilt, and others thoroughly repaired since the canal was transferred to the Government.

As stated in previous reports, many of the works were then in a ruinous condition; and from the comparatively small revenue derived from the traffic, the outlay has been confined to such works of maintenance as could not be dispensed with.

The navigation of this canal, which was opened on the 1st May, and closed at the end of November, was uninterrupted throughout the season. The flood of last spring, although nearly as high as that of the preceding year (which caused so much damage), passed off without accident to the works; ample provision having been made for its control, in the new structures. There is, however, some difficulty experienced from jams of ice and driftwood in the spring, to remedy which, booms will have to be provided.

A thorough repair of all the numerous works on this long line of canal would, of course, involve a very large outlay, besides being at variance with the policy which has hitherto guided its maintenance. Although, no doubt, desirable, it could not, however, be recommended as an expenditure upon which an adequate return might be anticipated.

The superintendent, in his report of last year (*Vide Appendix D.*), estimates the cost of placing the canal in fair condition at \$16,317.93; but adds that some of the works embraced in this estimate might be postponed for another season. By this means, the expenditure for next year would be reduced to \$8,777.43, which should be increased by the cost of six pairs of new lock gates, which appear to be urgently required. This would make a total of \$13,577.33.

Various applications having been received by the Department for additional bridges along this line of canal, rendered necessary for the convenience of the public by the increase of settlers and the erection of mills in the vicinity, it is believed that, considering the small number of these structures now existing, and the long distances by which they are separated, the memorials for the erection of others may, in some cases, be favorably entertained.

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## BURLINGTON BAY CANAL.

In November last a vessel, in entering this canal, struck both the side piers with such force as resulted in the sinking of the vessel, but caused very little damage to the works. The vessel was, however, raised soon afterwards, without interruption to the navigation.

All the principal works are otherwise in good condition, and have required no outlay for maintenance last year.

But the ferry scow, which has been in use for many years, is now nearly worn out. The construction of a new one and certain repairs to the wale pieces, &c., are estimated by the superintendent to cost \$600. He has been authorized to have these works executed.

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**INLAND NAVIGATION—NEWCASTLE DISTRICT.**

The nature and situation of the works on this line of navigation are such as to call for considerable annual expenditure. If the necessity for maintaining them however, continues to exist, the outlay must, of course, increase in proportion to the decay of the structures.

Many claims have been, and still continue to be made, for damages alleged to arise from various causes in connection with the works; and as they yield no revenue whatever, whilst the cost of their construction, management, &c., has, so far, been borne wholly by the Government, it seems reasonable that the parties or localities benefitted should contribute towards keeping them in repair, either by the payment of tolls, or by the municipalities assuming their control and the responsibility of their proper maintenance.

During last season, some repairs were made to the dam at Bobcaygeon, and the lock gates put in better working order. The dam requires to be further staunched next season, and the lock should be cleared out.

Some repairs and additional gravelling are required to the dam at Buckhorn. The navigation of the Scugog River is obstructed by sharp bends in its course, together with fallen trees and stumps, which should be removed,

The dam at Lindsay was repaired and staunched last season, and the slide in connection with it placed in better condition.

The construction of a bridge over the Scugog at the Town of Lindsay was placed under contract in June last. It consists of three spans. The piers and abutments are of a good class of masonry; the superstructure is of timber work. The approaches have been executed by the municipality on a valuation previously fixed by the chief engineer, with the proviso that the Corporation should assume all responsibility in connection therewith.

The contract works have not been proceeded with in an expeditious manner, and the coffer dams yet remain to be removed, besides several minor matters still to be attended to.

On the completion of this work, it will be transferred without delay to the Corporation of Lindsay.

Repairs for 1863.....	\$1,044 21
Management.....	856 50
Expenditure connected with Lindsay bridge.....	3,018 67
	\$4,919 38

## LAKE ST. PETER.

The deepening and improvement of the navigable channel between Quebec and Montreal was assumed in 1860 as a Provincial work ; but the Montreal Harbor Trust (under whom operations were carried on for the previous nine years) were still charged with its management under certain stipulations, chiefly regarding the dimensions of the channel and the relative responsibilities of the Government and that Corporation for payment of the expenditure incurred in completing the work.

In accordance with the understanding then arrived at, and for the guidance of this Department, the chief engineer was instructed to obtain by personal examination, the necessary information regarding the mode of conducting the dredging operations, together with the progress made, and the financial and other arrangements connected therewith ; but, from several unavoidable causes, his report has been delayed. In the meantime, however, he furnishes the following statements respecting the matter in question.

Commencing at Montreal and proceeding downwards, the channel-way at Pointe-aux-Trembles and Verchères has been deepened and improved to a depth of 20 feet.

Between La Valtrie and Isle Plate, there yet remains about two miles in length which, at low water, is now only 18 feet in depth.

At the upper part of Lake St. Peter, there are yet between  $3\frac{1}{2}$  and 4 miles to be deepened from  $1\frac{1}{2}$  to 2 feet. From this point to the foot of the Lake, the channel is the full depth of 20 feet at low water. Thence to Quebec, there is also a like depth ; but the channel would be much improved by removing a small shoal which lies off the mouth of the Becancour River. This shoal is not marked on the Admiralty Chart. It is of small extent, and has 17 feet over it at low water.

The point of the shoal opposite Ste. Anne de la Parade, should also be removed. There are also three small shoals or "Poullier," one off Cape Levrant, another a short distance below this, and the third off Cap La Roche. These should be deepened.

The work to be done at the various points enumerated above, appears to embrace all that is necessary in the way of dredging, to establish a ship channel of 20 feet in depth, at low water, between Montreal and Quebec.

Additional buoys will, however, be required at various points to more clearly mark it out.

In order to execute this work as rapidly as possible, it is very desirable that all the dredges and plant [under the trust] should be thoroughly repaired ; and that those generally employed in the Lake should continue their operations until the full depth is obtained. The dredges employed in the Harbor of Montreal [owned by the Commissioners] should also be brought down to La Valtrie, for the purpose of simultaneously dredging the channel to the required depth at that point.

The obstructions referred to below these places, can be subsequently attended to ; and it is believed that were the dredges kept constantly at work in the manner indicated, that the whole might be completed by the season of low water in 1865.

The following is an abstract of the Expenditure, &c., on these works, up to the 31st December, 1863 :—

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**SOURCES FROM WHENCE THE TRUST OBTAINED FUNDS FOR THE PROSECUTION OF THE WORKS.**

Debentures issued.....	£170,000 0 0
1852 to 1860—Tonnage dues collected.....	24,881 17 9
1859. Advance on account of Plant.....	15,000 0 0
1860. Do work done.....	16,000 0 0
1862. Do do.....	4,487 4 5
Received from Trinity House and other sources.....	1,294 16 5
	£231,663 18 7
1851. Delivered to the Harbor Trust by government when the works were assumed by the Trust: Plant, &c., at Trust's valuation.....	9,000 0 0
	£240,663 18 7
Total.....	\$962,655.71

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**EXPENDITURE ON LAKE ST. PETER AND THE RIVER ST. LAWRENCE IMPROVEMENTS UNDER MONTREAL HARBOR TRUST.**

Expended for outfit and dredging operations, from 1851 to December 31st, 1862.....	£227,606 10 10
Paid for interest on debentures, &c., from 1851 to 5th January, 1860.....	60,433 7 10
Total.....	£288,039 18 8
	\$1,152,159.73
Expenditure for 1863, on dredging operations, outfit, &c.....	35,484.64
Total expenditure.....	\$1,187,644.37
Amount received by trust (as above shewn).....	962,655.71
	\$224,988.66
Excess of expenditure over receipts.....	\$224,988.66
Present estimated value of Plant.....	120,000.00
	\$104,988.66

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## LAKE AND RIVER LIGHT-HOUSES, BUOYS, &c.

### ABOVE LACHINE.

It is the practice of this department annually to invite tenders for the principal supplies required for the light-house service. A vessel is subsequently chartered for their delivery, which generally occupies from 15 to 20 days.

To enable this system to be properly carried out, the superintendent makes a return in detail of the articles on hand each year, and in the spring submits a statement of the supplies required for the ensuing season.

On the completion of his annual inspection, he reports the condition of the lighting apparatus, towers, &c., at the respective stations.

Works of general repairs and maintenance are executed under the immediate orders of the superintendent; but in carrying out those which involve large outlay, the localities are usually visited and plans for them matured by the chief engineer. There are fifty-one light stations under the control of this Department. At three of these one keeper has charge of two lights—at four stations there are two keepers to one light—and at Port Dover the Company who purchased the harbor provided a light-keeper:—thus the average throughout is one keeper to each light.

The light keepers are considered permanent officers, and are retained whilst they continue faithfully to discharge the duties entrusted to them. They are paid fixed salaries, according to the service performed. Each keeper makes a quarterly return of the articles consumed at his station, together with a statement of the supplies on hand; and notes any special occurrence which takes place during that period.

The lights are exhibited from shortly after sundown until a little before sunrise, commencing (in the lakes) generally between the 1st and 15th of April, and continuing until between the 15th and 25th December, each year; and in the river, the time of lighting up in the spring and extinguishing in the fall, is regulated by the opening and closing of the navigation.

Thirty-nine of the light houses are now illuminated by means of coal or mineral oil; and it is intended that all the other catoptric or reflector lights shall be fitted up this year for the use of that kind of oil. No change is, however, at present contemplated in regard to the lenticular lights, on Georgian Bay and Lake Huron.

The usual repairs incident to such works have been promptly attended to during the past year; and several of the structures connected with them have also been rebuilt or strengthened. Of the latter class are:—

The construction of protection works adjoining Point Claire light-house pier; raising and securing the superstructure on which the Lancaster light stands. Thoroughly overhauling the hull, and renewing the deck of the light ship moored in Lake St. Francis. Painting and fitting up light ships, Lake St. Louis.

Arrangements have also been made for the erection of a dwelling house for the light keeper at Wolfe Island.

The construction of additional protection works on the lake side of the light-house on Pelée Island, Lake Erie, rendered necessary by the action of the waves during high winds, by which the north point of the island was cut away.

Filling, and levelling up with a heavy class of masonry in hydraulic mortar, the interior of the caisson on Point Pelée reef; putting on and securing iron bands round the structure; caulking and painting the light-house and constructing a landing place; putting up boat cranes and other necessary fixtures for the convenience of the keepers, and for the delivery of stores.

The works at Point Pelée are well advanced, but not yet completed. Several of the repairs and works recommended in the previous reports of this Department, but for which no means have been provided, are of course, through lapse of time, now more urgently necessary. The principal of these are:—

A new range light at Grosse Point, head of Beauharnois Canal; further protection works, and a new lantern at McKie's point, Lake St. Francis; building a pier round Gull Island light-house, on Lake Ontario, (indispensable to its safety); construction of a break-water at Long Point light-house, Lake Erie; and also at Nottawasaga Island, Georgian Bay. All of which, together with ordinary repairs, are estimated to cost \$8,500.

The cost of ordinary repairs, maintenance and salaries last year (1863) was as follows:—

Repairs.....	\$ 2,346.52
Supplies.....	4,047.61
Coal oil.....	2,452.90
Sperm oil.....	4,737.50
Charter of steamer.....	1,500.00
Salary and travelling expenses of Superintendent.....	2,295.00
Light-house keepers salaries.....	17,327.84
Placing buoys and light-ships.....	304.87
Advertising and printing.....	988.48
Total.....	\$36,000.72

#### LIGHT-HOUSES BELOW QUEBEC.

The only work of any extent which was carried on under this department, in connection with this service during the past year, was an addition to the light-house pier at Crane Island Shoal, rendered necessary in order to protect that structure from the effects of the batture ice. This was put under contract in the latter end of September, but before it was quite finished, the winter had set in. It will be resumed and completed next spring.

Nothing has yet been done towards the construction of lights either on the Bird Rock or Cape Ray. The importance of these has been repeatedly pointed out by mariners, by the Quebec and Montreal Boards of Trade, and by others directly interested in the Atlan-



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tic trade. It has also been frequently brought under notice in the annual reports of this Department, and the sites for the light-houses in question have been examined and reported upon in detail by the chief engineer, who also suggests the mode of carrying out the works.

The objects to be obtained by these improvements are: the diminishing the risks of navigation; the reduction of rates of insurance; and the general benefits which would consequently ensue to the trade.

It is believed that these considerations are of such importance as to demand the early construction of leading sea lights at the two places above named; and this becomes all the more necessary, in view of the enlargement of the Provincial Canals, by which a larger share of the Western exports to Europe will doubtless be secured to vessels navigating the River and Gulf of St. Lawrence.

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## TUG SERVICE, UPPER ST. LAWRENCE.

In order that the vessels passing through the canals may experience no delay on the river and lakes connecting the St. Lawrence Canals, it is necessary that an efficient tug service should exist on each of the four sections, viz :

From Lachine to Beauharnois Canal.

“ Beauharnois Canal to Cornwall Canal.

“ Cornwall Canal to Prescott.

“ Prescott to Kingston.

This service has for many years past been sustained by Government subsidies, which have decreased from time to time, as the trade of the St. Lawrence increased. Thus, the bonus given with the contract which expired in the fall of 1860 was \$24,000; with that which expired in 1862, \$20,000; and with that of 1863, \$16,000, with a tariff of ten per cent. less than that of the former contracts. The business done during the past year is given in the following statement taken from returns furnished by the contractors. It exhibits the number of towages on each division up and down, and the amounts collected under the contract tariff :

### UPWARDS.

Lachine to Beauharnois Canal .....	939	\$ 6,440.54
Beauharnois Canal to Cornwall .....	640	9,169.79
Dickinson's Landing to Kingston .....	559	18,665.09

### DOWNWARDS.

Kingston to Dickinson's Landing.....	449	10,141.88
Cornwall to Beauharnois Canal .....	482	4,618.62
Beauharnois Canal to Lachine .....	704	3,438.79

	3773	\$52,474.71
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As compared with the business of 1862, this shews a falling off in the number of towages of 18½ per cent., and in the amount collected of 23 per cent

It was feared that if the Government were suddenly to withdraw its aid and control, without giving due notice and affording time for the preparations which such a proceeding would render necessary on the part of the forwarders to enable them to carry on their business, the trade would suffer considerable inconvenience and loss. Tenders were therefore, invited last summer for the performance of the service for a period of three years, commencing the 1st May, 1864. Two were received, one asking a bonus of \$10,000, and the other \$12,000, a year: the tariff for towage in both cases to be 10 per cent. lower than that of previous years.

But, as the latter tender offered to place a greater number of vessels on the line, and was, in other respects, advantageous, it was considered that the service would be more efficiently performed, and the public interests best consulted, by its acceptance. Arrangements were therefore entered into for one year, with Messrs. Calvin and Breck, who had hitherto carried out their contracts for similar service in a satisfactory manner.

# RIVER WORKS.

## OTTAWA WORKS.

All the public works upon the Ottawa and its tributaries under the charge of this Department were placed in good order by the superintendent during the last winter, and withstood the pressure of the spring floods, the shoving of the ice, and the passage of more than the usual number of cribs of timber and saw logs, without suffering any serious damage or calling for more than the ordinary repairs. They have been maintained throughout the year in perfect working order, and a moderate outlay will now suffice to keep them in the same efficient state for the business of the present year.

The cost of repairs and management for the past year, notwithstanding the increase of business, is nearly the same as for the previous year, as may be seen by the following statement :—

	Amount charged to Revenue in 1862	and in 1863.
For repairs... ..	\$ 4,856.46	\$ 4,376.86
Management.....	10,895.89	11,410.09
Total.....	\$15,752.35	\$15,786.95

To facilitate the running of timber down the main channel of the Ottawa river, it was found necessary to clear it of certain formidable obstructions lying directly in the course of the crib channel at Portage du Fort, and at the upper entrance of the Little Chaudière slide.

The former of these obstructions, known as the Black Rocks, was successfully removed by blasting. The latter consists of a rocky shoal, the excavation of which was placed under contract; but, owing to the failure of the contractor, it is not yet completed. It is, however, expected that the work will be finished by his securities in due time, before the rise of water in spring. The expenditure on these works is included in the foregoing statement of the cost of repairs for 1863.

The necessary repairs for 1864 are estimated by the superintendent to cost \$4,910.22. A detailed statement of them is given in his report, Appendix E.

It being necessary that these repairs should be completed before the breaking up of the ice in spring, authority of Council was obtained for proceeding with them during the winter. They are now well advanced, and it is confidently expected that all the works will be placed in good order before the spring business commences.

As regards the lumber business of the past year, it is satisfactory to observe a continued increase in this branch of our productive industry. The returns present the following result for the past two years :

	1862.	1863.
The number in 1862 and in 1863 of pieces of square timber from the Upper Ottawa which passed the Chaudière slides, was }	326,781	351,255
Of saw logs which arrived at the Chaudière.....	90,000	120,000
Of square timber brought down the Gatineau river.....	9,251	no return
Of saw logs brought down the Gatineau river.....	154,918	221,184

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## NEW WORKS.

### RIVER DU MOINE.

The improvements authorized on this tributary by the appropriation of \$8,850 of the last session of Parliament were completed last spring. They extend from the mouth of this river to the head of the Long Rapids, a distance of 45 miles, and consist of the various works enumerated in the report of the superintendent, given in the Appendix E. For a considerable distance above the Long Rapids the river is free from any natural obstruction to the running of timber, and the effect of these improvements has been, as originally intended, to open up 80 miles of this river to the lumber trade. So far as they extend, they answer the purpose and have given general satisfaction; but application has recently been made to this Department for further improvements on the upper part of it on the ground that the proprietors cannot avail themselves of their limits, on which they have to pay Crown dues, nor bring down to market the timber cut upon them, until these obstructions are removed.

Without some more satisfactory information in reference to the situation, nature, and extent of the improvements called for than is at present in the possession of this Department, it is impossible to form any opinion as to the propriety, or otherwise, of undertaking them as public works. For the purpose of obtaining such information of a reliable character, the superintendent has been instructed to make an examination of the river, to report upon the application, and to submit an estimate of the probable cost of the proposed improvements.

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### THE PETEWAWA.

Further improvements have likewise been prayed for by the manufacturers of lumber and holders of licences on this river, to enable them to carry on their business successfully. Their memorial having been referred to the superintendent, an examination of the river was made by him at the season of low water, in August last. From his report it would appear that the several improvements asked for by them, and estimated by him to cost \$13,847.89, are of a class that might legitimately be undertaken as a portion of the public works on that tributary, provided the parties getting out lumber on it agree to pay an additional toll, to make good this expenditure. He remarks that, "as the Petewawa is one of the principal feeders of the Ottawa, and the lumberman has made little or no encroachment on its upper forests, it appears to me that the extension of the chain of river works as far as Cedar Lake would be advantageous both to the Government and the lumberman; since, with reasonable tolls throughout, the lower works already constructed by the Department would yield an increased revenue, and large quantities of valuable timber that might otherwise be destroyed by fire or be left standing in the woods would be taken to market." There are not less than ten limits still further up the stream that would be affected by the proposed improvements between Cedar Lake and Trout Lake which would thus be made to yield revenue.

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## THE COULONGE.

It appears to have been the settled policy in reference to the public improvements on the Ottawa, ever since their first commencement, to confine the public expenditure as much as possible to the main channel of the river, and only to extend it to such of its principal tributaries draining large and valuable tracts of well timbered lands as were of sufficient magnitude and importance to warrant the improvement of them as public works, leaving the minor streams to private enterprise.

But, from the nature of the lumber-trade, private enterprise is always in advance of the Government Works. In extending these operations up the numerous tributary streams, all abounding in valuable timber, the lumbermen often find it necessary to undertake the construction of extensive works, to enable them to get out their property and protect it from injury in passing the rapids, the cost of which is just so much sunken capital.

To avoid such unprofitable investments, as well as to secure the advantage of authoritative control, they call upon the Government to make the improvements and maintain the booms as a part of the system of public works. But, coming from interested parties, such applications have to be entertained with caution.

Inquiry must first be instituted as to the nature and cost of the works, the character and extent of the forests, and the probable production and permanence of supply.

Up to this time the public expenditure has been confined to the four great tributaries:—The Gatineau, the Madawaska, the Petewawa, and the Du Moine.

This Department is now called upon by the holders of limits and parties engaged in getting out square timber and saw-logs on the River Coulonge, who have sustained great losses on their property, to undertake the improvement of this river as a public work; and steps have been taken to obtain the necessary information. The superintendent has examined the river and submitted a plan and estimate of the works that are required for its improvement. It appears from his report that the difficulties to be overcome are of rather a formidable character.

The chasm at the High Falls necessitates the construction of a slide upwards of half a mile in length, to pass a fall of 125 feet in this distance; and in one place this slide must be suspended against the face of a perpendicular rock rising forty feet above the surface of the water. The cost of this slide is estimated at \$13,890.61, and the total outlay on this river, including the cost of a boom at the mouth, may amount to \$15,000.

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**STAFF EMPLOYED.**
**PERMANENTLY.**

- 1 Superintendent.
  - 1 Clerk.
  - 1 Paymaster.
  - 1 Messenger.
  - 9 Deputy Slide-masters.
- 
- 18 all the year round.

**OCCASIONALLY.**

- 3 Acting Deputy Slide-masters.
  - 5 Boom-men.
  - 2 Assistants on Slide at Chaudière.
  - 1 Foreman.
  - 17 Laborers.
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28 from 3 to 7 months during the running season, in addition to the regular Staff.  
(See Appendix E.)

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**ST. MAURICE WORKS.**

All the works on this river have been operated with entire success throughout the past season. There has been no accident worthy of remark, nor any loss of timber, and the management appears to have given general satisfaction.

The works are now in good order and will not require a greater outlay than \$600, including provision for a storehouse at the mouth of the river, to prepare them for the active operations in spring; and, under your Excellency's authority, the superintendent has been instructed to proceed with the necessary repairs, as called for in his report, Appendix F.

An appropriation having been granted at the last session of Parliament for the purchase of land at the mouth of the river, for right of way and means of access to the public booms, and as a site for a storehouse for the safe keeping of the property connected with them, the undersigned directed one of his Engineers to lay off the land so required to be taken, and has entered into arrangements with the proprietors for the purchase of it. Some delay has been occasioned in searching for titles, but it is expected that the transfer will shortly be effected, and all further inconveniences and difficulty attending the management of the works at this point will then be removed.

The cost of repairs and management for the past year contrasts favorably with that of the previous one, as shewn by the following statement :—

	In 1862.	In 1863.
The cost of repairs - - - - -	\$ 5,641.36	\$1,511.50
Do. management - - - - -	7,321.06	6,888.40
	<u>\$12,962.42</u>	<u>\$8,399.90</u>
The staff employed consists of :		
1 Superintendent	} permanently employed.	
1 Messenger		
1 Slide-master		
1 Assistant do.		
3 Book-keepers.		
—		
7 in all.		

The business done upon this river remains about the same as in former years; but a fair increase may be expected henceforth.

## SAGUENAY WORKS.

These works have been in successful operation throughout the past season without sustaining any injury or requiring any expenditure whatever for repairs.

The slide and dams are reported to be in good order for the business of this year.

From the representations of the person in charge, it appears to be indispensably necessary to incur a small expenditure of about \$200 for the erection of a storehouse for the protection of the Government property connected with the works, as well as to afford shelter for himself and his assistant in working the slide during bad weather.

The business done upon this river continues to increase. The property which passed these works was

	In 1862.	In 1863.
White pine logs.....	43,289	44,113
Red pine logs.....	.....	8,000
Spruce logs.....	7,000	21,000
	<u>50,289</u>	<u>73,113</u>
Square timber.....	.....	420.
Red spruce knees.....	715	218

The cost of management in 1863 was \$688.40.

The staff employed consists of 1 slide-master, permanent; 1 assistant, for running season only.

## ROADS IN UPPER CANADA.

The undermentioned turnpike roads, constructed in Upper Canada by this Department, and subsequently, under the authority of the Acts of Parliament, 12 Vic., cap. 6, and 13 and 14. Vic., cap. 14, transferred to certain incorporated companies, by Orders in Council in 1851 and 1852, on the conditions therein set forth, have this year been again resumed by the Government, in consequence of the failure of these companies to perform the conditions of the transfer; and the tolls since collected on them have been paid to the credit of the Receiver General.

The Hamilton and Port Dover Road, 37 miles in length, including the bridge over the Grand River at Caledonia, was resumed by Order in Council dated 18th May, 1863.

The Windsor and Scugog Road, 19 miles in length, and Whitby Harbour were resumed by Order in Council dated 19th May, 1863.

The Toronto Roads, East, West, North, and Lake Shore, altogether 73 miles in length, were resumed by Order in Council of the 4th September, 1863.

### HAMILTON AND PORT DOVER ROAD.

The holders of this road not only failed in making their payments to the Government as they fell due, but so utterly neglected the necessary repairs for several years past as to allow it to go to destruction and become almost impassable, while they still continued to exact tolls. To remedy the evil, legal steps were taken by the local municipalities to compel the holders either to make the repairs or to desist from taking tolls; but, failing in this, they made formal complaints by memorial to the Government, representing the dangerous state of the road, and that persons travelling on it not only incurred great loss and inconvenience, but were, in addition, wrongfully obliged to pay toll.

A thorough examination of the condition of the road and bridges was therefore ordered to be made by an engineer of this department. This duty was performed by Mr. G. F. Baillargé in the month of August last. From his report it appears that the whole road, with the exception of four miles macadamized near Hamilton and the seven miles gravelled on top of the planking in the vicinity of Hagarville, was then in such bad order as to render it absolutely dangerous to travel on. Ten out of the twelve bridges were only prevented from falling by props underneath, and the Caledonia Bridge itself was supported in the like temporary manner.

Should these supports be carried away by the spring flood, as they are very likely to be, this important structure will become a complete wreck, and traffic will be suspended.

The estimate which he has submitted for repairing the road in the most economical manner, merely to render it passable, including the rebuilding of the Caledonia Bridge and the other bridges and culverts where indispensably necessary, amounts to \$53,172. He also estimates the probable gross revenue from tolls, on the completion of the repairs, at \$12,000 a year.



The undersigned, having received your Excellency's authority, on the 15th September last, to expend the sum of \$20,000 towards the repairing of this road where most needed to put it in such a condition that it might be disposed of on terms advantageous to the public, caused the works to be proceeded with at once.

The superintendence of the repairs was entrusted to Mr. Alexander Macdonell, an experienced contractor; and under his judicious and energetic management this important highway between the two great lakes has been so far repaired and put in order as to warrant the re-imposition of tolls, which took place on the 7th December last. The working season having soon after come to a close, the works were suspended on the 16th of December.

From his report of the progress thus made, it appears that the superintendent succeeded, in the short time allowed, and in wet and unfavorable weather, in putting the most important part of the road—that portion between Hamilton and Hagarville, 24 miles in length—in such good condition as to give general satisfaction to the public. The repairs on this portion, owing to its being very much travelled on, have been more costly than they will be on the remaining part, which is not so much used. New planks were laid on six miles; old planks relaid on two miles; and five miles have been gravelled which were formerly planked. Four bridges and four culverts have been rebuilt, and the remaining ones have undergone general repairs. The southern portion, from Hagarville to Port Dover, 13 miles, is all planked, and has been only partially repaired.

The expenditure in 1863 has been \$16,000. In addition to this there will yet be required to complete the repairs of this road in such a manner as to put it in passable order and justify the continued collection of tolls. For the general repairs of the remainder of the road, bridges, and culverts in the same manner as the rest..... \$14,000

For the reconstruction of the Caledonia Bridge..... 10,662

Total amount required.....	\$24,662
Amount expended.....	16,000

Total expended and estimated cost of repairs .....	\$40,662
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In view of the indispensable nature of these repairs and of the fact that the tolls are remunerative, the undersigned recently obtained your Excellency's authority for the expenditure of this amount for their completion. Arrangements have accordingly been made for placing the reconstruction of the bridge under contract, and as soon as the weather will permit the other repairs will be proceeded with.

#### TORONTO ROADS.

These roads comprise :—

- 1.—The Young street road, north, from the city limits to Holland Landing - - - - - 33 miles.
- 2.—The Kingston road, east, from the city limits to Rouge Hill, at the line dividing lots 32 and 33 in Pickering, including Don Bridge - 17 miles.

3.—The Dundas street road, west, from the city limits to Springfield,  
at lot 33, in the township of Toronto - - - - - 19 miles.

4.—The Lake Shore road, south-west, from the city limits to the west  
bank of the Humber River, including the bridge on that river - - - 4 miles.

In all - - - - - 73 miles.

Immediately after possession of these roads was resumed by the Government, the collector was called upon to report their condition and furnish a statement of the necessary repairs. On the 19th October last he reported that

The Young Street Road for a distance of five miles from the city was nearly worn out, and, in some places, cut through; the next five miles not quite so bad; and the remaining twenty three miles in fair condition. The repairs on this road he estimated at \$12,650.

The Kingston Road, for a distance of three miles from the city, was in very bad order; the next five miles very much worn and requiring heavy repairs; and the remaining nine miles in fair order. The Don Bridge is considered unsafe, but may be preserved for two years longer by a present outlay of \$400. The bridge at Rouge Hill also requires some repairs, and, altogether, the necessary repairs on this road are estimated at \$8,540.

The Dundas Street Road is reported to be in a ruinous state, owing to the wet and sandy nature of the soil and the absence of proper drainage. The repairs on this road are estimated at \$10,490.

The Lake Shore Road, for the first three miles, is in tolerably fair condition, but the remaining portion, which was formerly planked, is worn out, and must be made over again.

The cost of repairs and reconstruction is estimated at \$1,740.

The total estimated cost of repairs is \$33,420.

On this report, the undersigned received your Excellency's authority on the 31st October last to expend the sum of \$10,000 for the repairs of such portions of these roads as might appear most urgently to require them; but the season was then too far advanced to admit of doing them before winter set in. Authority has been given to the collector to procure stones and have them broken this winter, to be in readiness for use in the spring, and this work is now in progress.

There was no expenditure in 1863.

#### WINDSOR AND SCUGOG ROAD.

This road runs from Whitby Harbour on Lake Ontario to Port Perry, at the head of Lake Scugog, and is nineteen miles in length.

The repairs called for last year are not of a serious nature. Authority was given to the collector to expend \$300 on the road and a like sum on the harbour; but the accounts not having come in, no expenditure is charged to this work in 1863.

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**LANCASTER ROAD, U. C.**

Under the appropriation of 1854, a new road of a little more than four miles in length has been made and opened in the front concession of the Township of Lancaster, County of Glengarry, between the old province-line and the village of Lancaster, as a substitute for the old road, rendered impassable for a large portion of the year by the high water in Lake St. Francis. The new road branches off from the old one about a mile and a half west of the province-line near the centre of Lot No. 11, and runs in a direct course to the centre of Lot No. 28; and then down the centre of that lot to its intersection with the old road at a point about two miles east of Lancaster Village, being about 22,100 feet in length. It has been graded, ditched, and fenced, and substantial bridges have been built over the three creeks that cross it.

All the work was performed under one contract entered into in March last. It was commenced in June, and fully completed in August for the contract sum of \$8,147. The total expenditure, including the cost of superintendence, is \$8,294. Previous to its commencement, a by-law of the Municipality of the Township of Lancaster was passed, on the 23rd February, 1863, for opening and establishing this new line as a public highway; and since its completion, and in pursuance of the provisions of the statute, it has been delivered over to the local municipality by proclamation of the 9th December last, to be maintained by that body from and after the 1st January, 1864. It is very desirable that all works of this class, after they have once been constructed and opened for the public at the expense of the Province, should in this manner be given over to, and be received by, the local municipalities through which they run, to be thereafter maintained and kept in order by the people who use them; the Government being thus relieved of all further control over them.

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## ROADS IN LOWER CANADA.

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### THE CAUGHNAWAGA ROAD.

When the sum of \$1,500 was voted by the Legislature for the repairs of the road across the Indian Reserve at Caughnawaga, the season was too far advanced to allow this Department to get the work performed by contract last fall.

All that could be accomplished, therefore, towards improving the condition of the road leading from Caughnawaga to St. Martin and to Chateaugay has been performed by day's labour, under a competent foreman. In this way the worst parts have been repaired and made passable at an outlay of \$767.51. The remainder will be completed in the ensuing spring.

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### TEMISCOUATA ROAD.

No work was done towards the completion and repair of this road during the past year, in consequence of the late date—the 15th October—at which the appropriation was made. The amount entered in the statement No. 3 as expended in 1863 is for payment of services rendered by Joseph Hudon, Esquire, as paymaster during the construction of the road.

There still remain one and three quarters of a mile of road to be completed, and the general repairs so much needed in many places, the cost of which, as given in the annual report for 1862, will be

Deduct the balance of appropriation on hand	\$6,000.00
	1,237.71
	\$4,762.29

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### MATANE AND CAP CHATTE ROAD.

Certain portions of this road, more particularly the banks of the Ruisseau à Sem and the Ruisseau de la Vapeur, were reported by Mr. Rosa, the superintendent of the Metapedia Road, in the month of September last, to be in a dangerous state. Authority was then given him to proceed at once with such repairs as were indispensably necessary to maintain it in a safe condition. These repairs, estimated to cost \$1,000, will be defrayed out of the general appropriation of 1862 for roads in Lower Canada, of which there is a balance yet on hand available for this purpose.

These repairs were commenced too late in the season to admit of their completion last fall.

The bridge over the Grand Mechin has been secured, and the timber has been got out for the bridge over the Ruisseau à Sem, which will be about 200 feet long and 38 feet high, and, when finished, will enable travellers to avoid two dangerous hills.

The repairs which Mr. Rosa has undertaken will be completed early in the ensuing spring, within the estimate; but there will still remain about ten miles of road to be repaired and a bridge to be constructed over the Ruisseau de la Vapeur, the banks of which are steep and dangerous. The amount required for these works next summer will be about \$1,725, in addition to the \$1,000 already authorized.

The amount expended in 1863 was \$178.10.

#### METAPEDIA ROAD.

This important line of communication between Canada and New Brunswick, connecting the settlements on the St. Lawrence with those on the Bay of Chaleur by the most practicable passage across the great peninsula of Gaspé, is now so far completed as to be available for carrying the mails, and has been used this year by travellers to and from the Lower Provinces; but, considering its position and the purposes it was designed to serve, it is still in an imperfect condition.

The portions of it undertaken by this Department have been completed in a manner suitable for a provincial highway; but owing to the rough state of the connecting links formed by the old Kempt Road, it is as a whole imperfect, either as a military road, or even as a good common road for the use of the settlements it was intended to serve.

The old Kempt Road had been traced out and constructed as early as the year 1830, and some improvements made upon it in the years 1842, 1843, and 1844; but it was never cleared out more than fifteen feet in width, nor formed as a road, and was little better than a bridle-path, by which the mails were carried on horse-back in summer and by dog-teams in winter.

By the direct course which it took over the mountainous region which intervenes between the St. Lawrence and the Ristigouche, it necessarily presented a succession of steep hills and bad swamps wholly unsuited for the location of a provincial road or the transit of merchandize. Hence it occurred that after it had been reported by Major Robinson that the valley of the Metapedia afforded the most feasible line for the contemplated intercolonial railway, having a summit of only 763 feet above the sea, the line of the old Kempt road was abandoned, and the roads since known as the north and south Metapedia, following nearly the line of his survey, have been undertaken by this Department.

The northern division, begun in 1857, extends from St. Flavie, on the St. Lawrence, to the head of Lake Metapedia, a distance of 38½ miles

The southern division, commenced in 1859, extends from Noble's, at the forks of the Causapsca, along the Metapedia Valley, to its intersection with the Ristigouche, and thence, along the left bank of this river, to the residence of Mr. James Sillars, a distance of - 38½ "

The central division extends from the head of Lake Metapedia, along the west side of that lake to Nobles, at the mouth of the Causapsca,—a distance of 27½ miles by the old Kempt road. A new location is necessary, to avoid the hills and swamp of the old road, but the distance may be assumed to be the same - - - - 27½ "

Making in all . . . . . 99½ miles.

The old Kempt road was so badly traced in the first instance that no part of it could be made to work in with the new line chosen for the northern division; nor is it expected that any part of the central division, now forming an imperfect connection between the other two divisions will be available when an equally good class of road is to be made; while on the southern division a new line altogether has been taken, which, although more circuitous than the old line, is yet the only practicable one for the kind of road that has been constructed.

The reason for this general abandonment of the line of the old Kempt road is found in the fact that the hills encountered upon it are very numerous, and frequently present inclinations as steep as one in six, sometimes one in four, and in one case, for a distance of 300 feet, one in three; while those on the northern and southern divisions, as far as completed, have been reduced,—the former generally to one in fourteen, and in a few cases to one in ten,—the latter generally to one in twenty, and in some cases to one in fourteen.

It is easier, therefore, to change the line and avoid the hills than to undertake the reduction of them to a corresponding inclination.

The progress made on this road during the past year, under Mr. Rosa's superintendence, is as follows:

#### NORTHERN DIVISION.

Five miles of road completed under contracts. A truss-bridge of three spans of 50 feet each constructed over the river Metis—measuring in all 271 feet in length. Some portions of the old road repaired.

With the exception of two sections of about seven arpents each, all the work given out by contract on this division has been completed. These sections, however, only require a little more crowning of the roadway, for which a sufficient drawback has been retained to finish them in the spring.

The total length of new road now completed on this division is about 25½ miles, leaving only 7¾ miles to be made through the forest and one bridge to be constructed over the river Blanche to make the connection between the St. Lawrence and lake Metapedia. The completion of these 7¾ miles of road will be a great benefit to travellers, as this part of the old Kempt road, which they are now obliged to use, is very hilly and rough.

#### SOUTHERN DIVISION.

There have been completed under contract this year a truss-bridge over the Assemet-quagan, a bridge of round cedar-logs over the Three Islands Gulch, and 57 sections,—making in all 15½ miles of road.

There still remain to be completed 3¼ sections, of an aggregate length of 8¾ miles, which were placed under contract. Of these, 16 sections have been abandoned by the contractors, seven of which have since been given out to others, and the remaining nine will have to be finished next year, at an advance upon the original contract price.

This division, even in its present unfinished state, is passable throughout, and has been used this year by the mail-carriers and by all travellers in preference to the old road.

#### CENTRAL DIVISION.

This consists at present of the old Kempt road, on which it has been necessary to make certain repairs, in order to keep up the communication. Two bridges of round cedar-

logs, put under contract last year, have been completed, those across the Metapedia and Causapschal repaired, and many parts of the road cleared of underbrush and otherwise improved.

The total expenditure this year has been \$36,449.86.

The amount required to complete this road and to pay balances due on existing contracts, according to the estimate of the superintendent in charge, is as follows :

NORTHERN DIVISION—33½ MILES.

Balance due on existing contracts - - - -	\$	70.89	
Making 7½ miles of road through the forest at \$1100 a mile - - - - -		8525.00	
A bridge over Rivière Blanche - - - - -		2200.00	
Repairing portion of road made in 1860-61, and completing other portions made by days-labour - -		500.00	\$11,295.39

CENTRAL DIVISION—27½ MILES.

Constructing 27½ miles of road at \$1100 a mile -	\$	27,250	
A truss-bridge over the River St. Pierre - - - -		2,000	
Ditto, over the River Metapedia - - - - -		3,500	
			\$32,750.00

SOUTHERN DIVISION—38½ MILES.

Balance due on existing contracts - - - - -	\$3,305.05		
Probable amount required to complete the remaining lots abandoned by the original contractors - -	816.00		
A bridge over the River Causapschal - - - - -	3000.00		
Making hand-railing, culverts; widening and repairing road made in 1858-9-60-61- - -	6,000.00	13,121.05	
Total amount required to complete, including superintendence and contingencies - - - -			\$57,166.44

The excess of this over the former estimates submitted by this Department in its previous annual reports is accounted for as follows :—

*First.*—As regards the works undertaken on the northern and southern divisions, a better class of road has been constructed since the time when it was considered expedient to render it available as a military road, for which purpose it has been made wider, with easier grades and stronger bridges than contemplated by the first specification.

*Secondly.*—As regards the central, and certain unfinished portions of the northern, division, it was originally intended to make use of the old Kempt road, without change of line; but the superintendent has now provided in his estimate for making a new road on these portions also, on the same scale as the rest, but on an entirely new location, so as to avoid the hills which render the old line incapable of improvement if the same specification is to rule.

Upon the inexpediency of attempting the amelioration of the old road and making use of it to complete the connection, the undersigned submits the special report of the superintendent, given in Appendix G.

From this report it appears that, owing to its unfavorable location, the old road is impracticable as a military road, from the fact that many of the hills on it are very steep, having some inclinations of one in four, and the others ranging generally from one in six to one in eight; while to clear it out to the proper width, build the bridges, and make such improvements as it admits of would cost \$17,262, which is more than half the estimate for the better class of road; and still, with all this expenditure, it would be inferior to the other divisions, and the money spent on it would be wasted.

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### GASPÉ ROADS.

No work has been performed on any of these roads by this Department during the past year. The sum of \$219.15, taken out of the general appropriation of 1862 for roads in Lower Canada, was paid to one of the contractors, being the balance due him for work performed in 1862.

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### NORTH SHORE ROADS

As no money was voted for any of these roads last year, the works were not resumed, and there has been no expenditure, except \$21 for a survey on the Escoumains road, which was paid for out of the same appropriation as above.

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### PROVINCIAL STEAMERS.

These vessels are four in number. Three of them, the "*Queen Victoria*," "*Napoleon III*," and "*Lady Head*," are iron screw-steamers, and the other, the "*Advance*," is a wooden side-paddle steamer.

They have all, with one exception, been employed during the past year in the same service as before, that is to say, in visiting and delivering supplies to the Light-houses and depots on the River and Gulf of St. Lawrence, and attending to the buoys and beacons under the charge of the Trinity House of Quebec; in the annual examinations of the channels by officers of the Trinity House and apprenticed pilots, as required by the Statute; in the Postal Service to the lower ports; in towing for the trade, and relieving vessels in distress. But the use of any of these steamers for the protection of the Fisheries was superseded by the employment of the Provincial schooner "*La Canadienne*." This vessel, which was wrecked in 1861 at Point Caribou, on the North Shore, was brought back to Quebec, and repaired and refitted by this Department in time to perform the service for the fisheries in 1863.

The particular service rendered by each of these steamers is as follows:—The "*Lady Head*," carrying the mails, passengers, and freight to Picton, Nova Scotia, and the inter-



mediate ports in Canada and New Brunswick, commenced her first trip on the 6th May, and continued regularly in the service until she broke her shaft on her eighth trip, while on her way to Pictou, thirty miles below Shediac. She was brought back to Quebec by the "*Napoleon*," and there laid up for the remainder of the season. A new shaft and screw were fitted in this vessel in time to permit her to go into winter quarters on the 30th November, in the floating-dock at Palais Harbor.

The "*Victoria*," after going into Gilmour's dock to receive a new screw, a spare one being on hand, was made ready for service on the 19th May. On the 12th June, she was sent to Pictou in the service of the military authorities with a detachment of Her Majesty's troops; and, on the 25th of the same month, was despatched to the assistance of the shipwrecked passengers and crew of the Canadian Royal Mail steamer "*Norwegian*," lost on St. Paul's island. On the 8th September she took the place of the "*Lady Head*," and performed the postal service to the lower ports for the remainder of the season. The whole number of trips made in 1863, notwithstanding the break-down of the "*Lady Head*," was fourteen, the same as in preceding years.

The "*Napoleon III*" was ready at her wharf on the 5th May for towing vessels for the trade. She left early in June, in the service of the Trinity House, for the light-houses and depots along the river and Gulf, down to the Straits of Belleisle, taking with her several passengers for the salmon fisheries on the Rivers Godbout, Moisie, and Mingan, returning to Quebec on the 12th July. She remained from that time until the 4th August in the service of the trade, when she was again despatched on the Trinity House service, to visit and provision the light-houses on the St. Lawrence between Quebec and Father Point. On the 14th September she started on her third trip in connection with that service, taking down the autumn supplies to the light-houses and depots on the river and gulf. She returned on the 3rd October, and remained from that time at the disposal of the trade, towing vessels, until the 19th November, when she was sent to convey to Anticosti the light-house keeper appointed in place of Mr. Ballantine, deceased, and to bring back the family of the latter. She was placed in winter-quarters in Blais' booms on the 30th November.

*The "Advance."*—It was considered necessary to make very extensive repairs to the hull of this vessel, and to procure her a new boiler, causing an expenditure of \$12,132.93, which is charged to the service of the Provincial steamers. These repairs were completed by the 6th August, when this vessel was placed at the service of the Trinity House, and made during that month the customary annual trip to the pilot ground in the lower part of the river, with the officers of the Trinity House and the apprenticed pilots, for the examination of the channels, as required by law. After having towed some vessels for the trade, she was employed at the close of the navigation in taking up the buoys in the upper and lower parts of the river, and in bringing up the floating light-ship from the Traverse; and, finally, on the 1st December, went into winter-quarters at Blais' booms.

In the Appendix A, No. 4, the expenditure charged to the Provincial steamers for 1863 is stated to be \$42,898.08; but, in this sum are included the extraordinary repairs to the "*Advance*" and "*La Canadienne*;" the former amounting almost to reconstruction, and the latter being properly chargeable against the service of the fisheries. Deducting these heavy items, it will be observed that the services rendered by these vessels have actually cost less in 1863 than in any former year. The position of this account will be better

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understood by reference to the statement of it given in Appendix K, according to which the amount expended for outfit, fuel, running-expenses and repairs was - \$59,365.39 and the amount of revenue therefrom in 1863, paid to the Receiver General was - - - - - 35,631.87

leaving as the net cost of these services - - - - - \$23,733.52

Although this presents a favorable view of last year's management, it is still desirable to discontinue the running of vessels on Government account for the benefit of the navigation, so soon as the trade can safely be left to take care of itself.

The authority of your Excellency having been obtained on the 13th October last to sell the "*Queen Victoria*" and "*Napoleon III.*," public notice was given, inviting tenders for them up to the 23rd November last. Upon this notice eighteen tenders were received, but as they were all either too low or unsatisfactory as regards the mode of payment proposed, none could be accepted; and another notice has been issued, again inviting tenders, and fixing the 1st March next as the time for receiving them.

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## HARBOURS OF REFUGE

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### CHANTRY ISLAND—LAKE HURON.

The Breakwater Pier at Chantry Island, off the port of Southampton, was constructed by this department in 1858, at a cost of \$29,208, and, in connection with the light-house on that island, is of great advantage to the general trade of this lake, as well as to that of this port in particular.

It extends from the north-east end of the island in a direction towards the main land, and under its lee vessels find shelter and good anchorage; but, from a desire to run it out as far as possible with the funds appropriated, it was not raised sufficiently high in the first instance to prevent the sea breaking over it and doing injury to the works.

The pier was examined by the chief engineer in the month of July last, and was found to be considerably damaged by the action of the waves and of ice. The covering planks were loose and liable to be torn off; a part of the island had been washed away some years previously, and there was then an opening of 120 feet between it and the end of the pier.

On his report and recommendation, such repairs as were indispensable for the safety and preservation of the works were proceeded with, and completed by contract last autumn, at a cost of \$442.50, and charged to the appropriation of last year.

Under the authority of the same appropriation, the other works for raising the pier and connecting it with the island will be put under contract in the ensuing spring.

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## LANDING PIERS BELOW QUEBEC.

### RIMOUSKI PIER.

The works designed for the protection of this pier and placed under control in October, 1862, and on which some progress was made in that year, were resumed last spring by the contractor, and completed by the end of the season.

They consist of an additional width of 15 feet of crib work, extending for a distance of 255 feet from the outer end of the pier along its eastern face, and the levelling-up of the sunken portion of the old pier to one uniform height.

The expenditure in 1863, including the cost of superintendence, was \$5,161.77, which amount has been charged to the appropriation, 24 Vic., cap. 1, for repairs of existing works.

### PIER AT L'ISLET.

The repairs begun at this pier in 1862, being such as were essential to the protection of this important work, were completed last year at a cost of \$486.87, which sum has been charged to the same appropriation as above.

In regard to these piers generally, it is highly important that some measures should soon be adopted for their future care and maintenance. The seven landing-piers were constructed between nine and ten years since, at an outlay of \$768,971.02 for construction, and \$21,013.54 for repairs up to the present time.

From natural decay and exposure to the grinding effects of the ice, they are all beginning, as might be expected, to demand an annual outlay for repairs. Hitherto, these repairs have been borne by the Government without receiving in return any revenue from the works, which are of so much importance to the coasting trade as well as to the parishes for whose benefit they were constructed. If they are to remain as a permanent charge on the Government, it is necessary that a person should be appointed at each pier to take care of it and keep it in repair; that regulations should be adopted for the proper using of them; and that tolls should be levied on all vessels touching, and on all property landed or shipped at these piers: the tolls to be regulated so as to be sufficient to pay the cost of management and repairs, and thus preserve this valuable property from deterioration, and maintain it for the benefit of the trade on the lower St. Lawrence.

With a view of ascertaining their present condition, a survey of all these piers was made last summer by one of the Engineers of this Department, from which it appears that, in addition to the sums already spent, a further outlay will be required on each, to put them in good order, as follows:—

Eboulements, north shore	- - - - -	\$345.50
Malbaie, north shore	· · · · ·	281.03
Berthier, south shore	- · · · ·	408.20
L'Islet	do · · · · ·	588.05

Rivière Ouelle do	-	-	-	-	-	-	-	-	-	151.66
Rivière du Loup do	-	-	-	-	-	-	-	-	-	572.24
Rimouski do	-	-	-	-	-	-	-	-	-	674.12

Total estimated cost of repairs - - - - \$3,010.80

The repairs called for consist chiefly of replacing iron straps, fenders, sheeting, and planking torn from the sides and ends of the piers and slips by the action of the ice and of vessels made fast to them. In all other respects, the engineer reports the piers to be generally in good order, and remarks that "their present condition shows that nothing has been expended on them hitherto but what was essential to render them substantial and durable, and that the work formerly done has been well done in its most important parts." His report on the state of these piers, omitting the details of the estimates, is given in appendix L.

## OFFICIAL ARBITRATORS.

It became necessary to refer five new claims to the Official Arbitrators last year. Three cases were still pending from the previous year. To investigate into these eight claims, the Arbitrators held three meetings in Quebec and two in Montreal, the proceedings before them having occupied forty-five days.

On the claims submitted, four awards were made, amounting in all to \$6,027.80; one claim was withdrawn, and three are still pending. For the particulars in relation to these claims see the detailed statement, Appendix I, furnished by the Secretary.

Two of the awards made by the Arbitrators—one in 1861, and the other in 1862—were appealed from; but both were confirmed by the judgment of the Superior Court.

The amount paid in awards in 1863, including some made in former years, was.....	\$10,972.67
The pay and expenses of the Arbitrators and Secretary, printing, stationery, and office expenses amount to .....	4,991.53
Law costs, witnesses, &c., .....	3,882.23
<b>Total, agreeing with statement No. 4, .....</b>	<b>\$19,846.43</b>

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## PUBLIC BUILDINGS.

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The amount expended during the past year in the construction, repairs, and maintenance of the several public buildings, under the charge of this department, is given in detail in the statement No. 3 of appendix A of this report. In further explanation of this, the following remarks are added :—

SPENCER WOOD.—The expenditure on this property was chiefly for the completion and fitting up of the residence in a suitable manner, and for the clearing-up and improvement of the grounds.

It comprehends the balance due on the contract, the protection of the external walls by clap-boarding; the inside painting, papering, bell-hanging, and plumbers' work; the construction of a conservatory; the painting and glazing of the out-offices: the repairs of fences and barracks; the planting of trees, and putting the grounds in proper order.

The payments for rents, repairs, and maintenance of public buildings amount to \$34,802.67. Of this sum there have been paid \$14,674 for the rents of the several buildings in Quebec now occupied by the Departments of the Civil Government, and \$1,536.95 for repairs to the masonry of the old Custom-house at Quebec; the balance is for the ordinary repairs and maintenance of these and the other buildings in Quebec, Montreal, and Toronto, the property of the Government.

Of the public buildings throughout the Province, it is only necessary to state generally that there was expended on the Marine Hospital at Quebec the sum of \$1,641.32 for internal repairs, plastering, and painting, and for repairing the roof. On the Court House at Quebec, \$120 for repairing the boundary wall. On the Court House at Montreal, \$525 for insurance, and \$21.29 for putting up a stove in the Registrar's Office; and on the Post Office at London, \$358 for internal fittings.

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### COURT-HOUSE AND JAIL, SAULT STE. MARIE.

As the amount voted for the erection of a Court-house and Jail for the District of Algoma falls short of the estimated cost of the buildings, if constructed according to the plan prepared for them by the architect of this Department to meet the requirements of the Board of Prison Inspectors, it is necessary that another plan, falling within the limits of the vote, should be prepared and submitted for the approval of that Board, before the works can be proceeded with.

The appropriation of last year was	\$ 8,000
The balance of former appropriations	3,230
	<hr style="width: 10%; margin-left: auto; margin-right: 0;"/>
Total amount available	\$11,230

The estimated cost of a stone building on the plan above referred to, including cost of drainage, water-supply, and a jail-yard enclosure, was \$17,800.

Another plan, conformable to the present conditions, is now in course of preparation, to secure, if possible, the erection of suitable buildings for the amount appropriated.

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## NEW DISTRICT COURT HOUSES AND JAILS, L.C.

There has been paid out, during the past year, the sum of \$861.20, for various incidental expenses connected with these buildings, including balances due on contracts and some minor works required for their completion or repair.

At the Court-house at Malbaie, it was found necessary to construct a retaining-wharf, for the protection of the building, and to fence in the grounds. For these purposes the expenditure of \$1140 was sanctioned by Your Excellency on the 6th October last, and the works are now in progress.

### ADDITIONAL WORKS REQUIRED.

The thirteen Court-houses and Jails which were erected by this Department for the judicial districts in Lower Canada, under the authority of the Act 20 Vic. cap. 44, and duly handed over to the local authorities in the years 1861 and 1862, have since been examined officially by the Prison Inspectors; and in their reports they recommend the following additional works as indispensably necessary at every place.

The enclosure of the jail-yard, for the use and safe keeping of the prisoners, by a high stone wall. (This was referred to and recommended in the last annual report, but no provision has yet been made for it.)

The erection of porches at the entrance-doors, wood-sheds, and outside privies.

The cost of these several works for each district is estimated at \$1,718, and for the thirteen districts the total outlay required to carry out the recommendations of the Inspectors will be \$22,334.

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## NEW JAIL, QUEBEC.

This building, which, according to the contract, should have been fully completed by the 1st November, 1862, is still in an unfinished state.

The works were resumed at the beginning of the last season by the contractors' securities, and have since been prosecuted by them in a satisfactory manner. Although they were obliged to take down and rebuild a large portion of the outer walls and of interior brick work which had been damaged by exposure to the winter frosts and rains, they have completed the masonry and brick work, got the building roofed in and enclosed, and performed a large share of the interior finishing. The works were suspended on the 1st January last, but will be resumed shortly. With proper exertion they can be completed by the 1st June next.

As the building was not covered in until late last autumn, the brick vaulting of the cells and corridors became saturated by the fall rains; and for the protection of the building during winter, it was necessary that this brick work should not be allowed to freeze. To guard against this, the contractors were called upon to heat the building during the winter, as obliged by the contract; but, having refused to do so, this expense has, for the present, to be borne by this Department. It is estimated to cost \$1,000, in addition to \$578 paid for stoves and pipes, which, under any circumstances, would have to be provided, to heat the building when finished.

Mr. P. Gauvreau, of this Department, who has, since May last, succeeded to Mr. Baillargé in the superintendence of this work, has furnished a report on the present position of the contract and additional works, from which the following statement is derived :

1.—Works authorized and in progress :—

Amount of contract	- - - - -	\$64,000.00
Substitution of stone lining for brick inside of building, and for door jambs to cells	- - - - -	18,184.00
For adding a fourth story to central part	- - - - -	7,500.00
Substituting cement for common lime in arches of brick work	- - - - -	760.00
For making loop-holes in cornice	- - - - -	1,000.00
Extra work recognized by architect	- - - - -	1,292.44
Substitution of tin for slate in the covering of the roof	- - - - -	850.00
		<hr/>
Total when completed	- - - - -	\$88,586.44
Amount paid to the contractors	- - - - -	77,657.96
		<hr/>
Balance due on completion	- - - - -	\$10,928.48

The estimated cost of the works remaining to be done, to complete the building at the contract schedule rate, is \$5,428.

2.—Amount expended :—

Paid to the contractors	- - - - -	\$77,657.96
Paid for plans, superintendence, and contingencies	- - - - -	8,909.97
		<hr/>
Total	- - - - -	\$86,567.93

3.—Additional works required.

It will be necessary to have the water laid on from the city water-works for the service of this prison, the cost of which is estimated at \$1,000. The lighting of it, either with gas or coal oil, has also engaged the attention of this Department, but no decision on this subject has yet been arrived at.

To meet the requirements of the Board of Prison Inspectors, and enable them to carry out their views in reference to prison discipline, it will be necessary, before this jail can be used, that it should be enclosed by a high stone wall, and that this enclosure should be divided off into separate yards for males and females.

About twenty acres of the Bonner property have been reserved for the use of this prison, to afford space for carrying on the various mechanical trades in which the prisoners may be usefully employed. This reserve will have to be enclosed by a rubble-stone wall, and a road made and maintained all around it; but this is not immediately necessary. It will be sufficient for present purposes to provide for the interior walls, enclosing a space of about 4 acres, including the jail as now built and the projected extension of the southern and western wings. This wall, 18 feet in height, is estimated to cost \$10,400. Its immediate construction is necessary, to afford the means of putting in operation this year the system of management and classification recommended by the Inspectors.

If this were done, it would seem quite practicable, with a properly organized system of prison labor, to perform all the works remaining to complete the jail and its enclosure according to the original design, and thus provide, at the least possible expense, double the amount of accommodation afforded by the building as it now stands.

The works which might be accomplished in this manner by prison labor, and which might be prosecuted from year to year at a moderate outlay, consist of those referred to in this and former reports, which have been estimated to cost, if performed by contract, as follows:—

The extension of the southern wing, .....	\$20,000
The extension of the western wing, .....	50,000
The construction of the external boundary walls and of the road around it, .....	18,800
<b>Total, if done by contract, .....</b>	<b>\$88,800</b>

It may be remarked that all the rubble-stone required for these works can be quarried on the spot, by the prisoners themselves, within the limits of the reserve set apart for the use of this prison.

#### KAMOURASKA JAIL.

Under the authority of the appropriation by the Legislature in its last session of \$8,000, for repairing this building, which was partially destroyed by fire in December, 1862, the works required for its restoration were put under contract on the 1st December last, and are now in progress. It is expected that they will be completed by the 1st May next, as required by the contract.

#### IMMIGRATION SERVICE.

On the recommendation of the Honorable the Minister of Agriculture, approved by Your Excellency, on the 12th March last, a shed has been erected on the wharf at the old Custom-house, for the use of immigrants arriving in this city, in place of the one at the India wharf, which had been given up; and on the further recommendation of the Parliamentary Committee on Immigration and Colonization, with the same approval, a landing slip has been constructed, and the wharf repaired and enclosed by a hand-railing as a security against accident. Offices have been fitted up for the Immigrant Agent, in the old Custom-house, and water laid on for the use of immigrants. The cost of these improvements was \$2,247.45.

There has also been expended the further sum of \$1,032.50 for the general repairs of the wharf and buildings at the Grosse Isle station; making the whole outlay on this service \$3,279.95, as entered in Statement No. 4 of Appendix A.



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## PUBLIC BUILDINGS, OTTAWA.

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The report of the commission of enquiry into matters connected with these Buildings, having been submitted in the latter end of January, 1863; authority of council was shortly afterwards granted for the resumption of the works upon the basis therein recommended.

As the original contractors had delivered and prepared a large quantity of materials and were fully provided with the necessary plant before the suspension of the works in 1861, it was deemed advisable to offer them the completion of the buildings, upon the terms set forth in the report above referred to.

This offer having been accepted by them; (after certain preliminary arrangements were made) contracts in accordance therewith were entered into on the 13th April, 1863. Early in the following month, work commenced on all the Buildings, and was vigorously proceeded with until the winter set in, when it became necessary to confine operations to the interior, and to the preparation of materials for next season's use. This is now being expeditiously proceeded with.

The progress made during the past year is strikingly manifested by the present imposing appearance of the Buildings; and an idea of what will be their ultimate architectural effect has been largely developed.

They form three sides of a quadrangle, containing an area of nearly ten acres; and are situated upon a rocky point rising about 160 feet above the level of the Ottawa, which flows at its base.

This elevation commands an uninterrupted view of the river, the city and the surrounding country; thus enhancing the suitableness of the site, which is, in other respects, an advantageous one.

Entering the square from Wellington Street (its southern boundary), the east and west sides are flanked by the Departmental Blocks; and the north side is formed by the principal front of the Parliament Buildings.

Even in the present unfinished state of the works, it will be seen that the Quadrangle faces of the Blocks are sufficiently diversified in outline to avoid the monotony which such an extent of similar style might be supposed to entail; whilst the more regular horizontal lines, and the grand central tower of the Parliament Building, form a pleasing contrast to all the rest; producing a combined effect of grandeur and harmony which, it is believed, cannot be surpassed by any other Public Buildings upon this Continent.

The main roofs of the Departmental Blocks are completed and slated throughout. The roof of the principal front of the Parliament Buildings is also put on, and that part of it west of the main tower slated.

The roofs of the Legislative chambers and Library have not yet been commenced: the latter portion of the building remaining nearly as it was when the works were suspended.

The towers of the Departmental Blocks have generally been carried above the level of the roofs, and then temporarily covered in, it having been decided to direct all efforts, after the resumption of the works to prepare them for occupation at as early a date as possible; for which purpose the completion of the towers was, of course, not of pressing necessity.

In the Parliament Buildings, the front angle towers are carried up full height; and the western ones roofed: whilst the central tower stands a considerable height above the main cornice. The Speaker's towers have also been carried up and covered in.

The windows are in place, and glazed; and it will thus be seen that the exterior fronts of the Buildings present a finished appearance, with the exception of the portions above-named.

The principal works which have been proceeded with on the *Parliament Buildings*, in addition to those above-mentioned, are as follows, viz:—

The *Basements* have been prepared for the floors: the air-ducts covered with flagging the hot-air and steam-vaults completed, and the ceilings, &c., made ready for plastering.

The division walls in the outer portion of the *Library* have been carried up to the height of the basement: and the iron joists and concrete floors laid over them.

The *Boiler-house* has been paved; and the ducts covered with flagging—the division walls and arches under the fuel tram-way, and the side walls above it have been carried up full height—the necessary iron joists and concrete laid—and the building roofed—stairs constructed, and the side walls carried up to receive the roof of the main building.

*Ground floor.* The iron joists and concrete floors have been laid in the corridor, marble pillars placed and arches constructed in members' lobbies—interior side and end walls of both chambers carried up—marble pilasters placed, and cornice laid around galleries; and walls of legislative chamber carried up to height of roof.

*First floor.* All the interior walls have been carried up to full height: and the iron joists and concrete floors laid throughout. The interior walls are carried up, and the cornice laid on the flanks and rear of the buildings. About 20 of the chimney-tops are completed, and the others carried up above the roof.

During the season, about 4200 cubic yards of masonry was built—nearly *three millions* of bricks laid—about 2500 cubic yards of concrete laid—upwards of 165 tons of iron floor joists placed—and over 30 tons of lead used on the flats of the roofs and for other purposes.

On the *Departmental Buildings*, progress has been made on the following works in addition to those referred to above, viz:

Levelling up and laying concrete floors. Paving boiler-house and fuel rooms—completing air and steam-vaults—covering ducts and carrying up division walls. Laying concrete floors in the first and part of the second stories—plastering and finishing the basements and part of the first stories.

During the season about 4500 cubic yards of masonry was built, fully *one million* of bricks laid, and over 2760 cubic yards of concrete.

Considerable inconvenience has been experienced by the non-arrival of the iron joists from England for part of the upper floors and ceilings of these buildings, and for the boiler-houses. Steps have, however, been taken to ensure their delivery early next spring.

The various works connected with the system of heating and ventilation have also been carried on as expeditiously as circumstances would permit.

The amount paid during the past year has been as follows, viz :—

Paid to contractor Parliament Buildings - - - -	\$120,725 88
Do do Departmental Buildings - - - -	101,800 03
Do do for heating and ventilation - - - -	5,563 81
Superintendence and contingencies - - - -	20,257 96
Total - - - -	<u>\$248,347 68</u>

All of which is respectfully submitted.

M. LAFRAMBOISE,  
*Commissioner of Public Works.*

DEPARTMENT OF PUBLIC WORKS,  
Quebec, 18th February, 1864.

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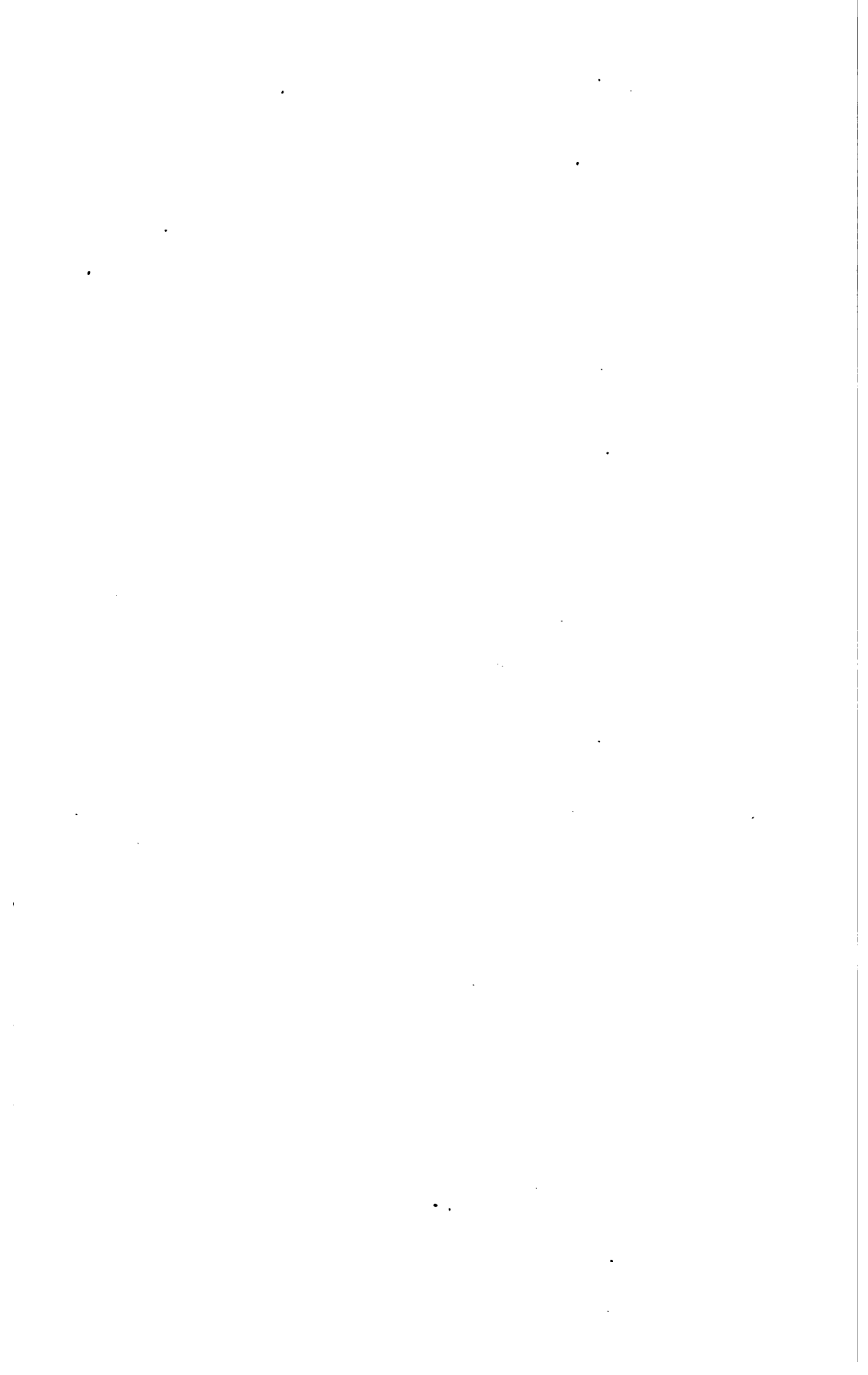
APPENDIX TO THE REPORT

OF THE

COMMISSIONER OF PUBLIC WORKS,

FOR THE YEAR 1863.

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## APPENDIX A.

## No. 1.

STATEMENT of the several Works under the charge of this Department which are in use and yield revenue, shewing, under different heads, the expenditure on construction and the amount paid for land damages during the year 1863, the total cost of construction under this Department to the 1st January, 1864, and the cost of repairs and management during the year 1863.

NAME OF WORK.	Expenditure on construction during the year 1863.	Amount paid for damages in 1863.	Total expenditure on construction to 1st Jan'y, 1864.	Cost of repairs and management for 1863.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Welland Canal .....	46810 00	181 12	4766460 70	56248 00
<i>St Lawrence Canals, viz:</i>				
Lachine.....	10414 98		2116902 58	20999 24
Beauharnois .....		5143 00	1597403 81	14970 64
Cornwall.....	462 87		467150 70	12179 35
Williamsburg.....			1089739 93	9864 56
Junction.....			230796 11	
New Lock Gates.....	16965 00		39830 22	
General expenditure.....	107 25		74835 20	
Chambly Canal.....		367 75	69774 51	14458 12
St. Ours Lock.....			123137 65	3219 40
Ste. Anne's Lock.....			114596 49	543 54
Burlington Bay Canal.....			291044 49	
<i>Slides, Dams, &amp;c.</i>				
Ottawa.....	8850 00	520 00	699181 51	15786 95
St. Maurice .....			257886 48	8399 90
Trent securing dams.....			2380 34	200 00
Saguenay .....	3450 67		44470 41	688 40
Port Stanley Harbor .....	1154 40		230531 88	
Union Suspension Bridge, reconstruction .....			5266 60	
<b>Total.....</b>	<b>88215 17</b>	<b>6211 87</b>	<b>12,221,383 61</b>	<b>157552 90</b>

DEPARTMENT OF PUBLIC WORKS, }  
February, 1864.

J. BAINE,  
Book-keeper.

## No. 2.

STATEMENT of Public Works under the charge of this Department, incomplete and, as yet, unproductive, but on which tolls are to be levied as soon as they are available; shewing the expenditure thereon in 1863, on construction, the total expenditure on construction up to the 1st January, 1864, and the cost of repairs and management during the year 1863.

NAME OF WORKS.	Expenditure on Construction in 1863.	Total expenditure on construction to 1st Jan'y, 1864.	Cost of repairs and management for 1863.
	\$ cts.	\$ cts.	\$ cts.
Chats Canal.....		373191 98	
Seugog Inland Navigation.....	4362 88	484123 61	556 50
	4362 88	857315 59	556 50

DEPARTMENT OF PUBLIC WORKS, }  
February, 1864.

J. BAINE,  
Book-keeper.

## No. 3.

STATEMENT of the several Public Works and buildings in course of construction under the charge of this Department, yielding no direct revenue, but in use for the public service, and authorized by Legislative appropriations; shewing the amount expended thereon during the year 1863, and the total outlay upon them up to the 1st January, 1864; also, the amount expended in repairs and maintenance for the same period.

WORKS.	Total outlay up to 1st January, 1863.	Expenditure during 1863.	Total outlay up to 1st January, 1864.
	\$ cts.	\$ cts.	\$ cts.
Parliament Buildings, repairs, Toronto } Government House..... do } Custom House ..... do } Post Office..... do } Observatory ..... do } Female Lunatic Asylum..... do } Osgoode Hall..... do } Gun Sheds..... do } Barracks, repairs..... do } Railway Inspector's Office..... do } Mechanics' Institute, complet- ing Building..... do } Custom House..... Hamilton } Post Office..... do } Gun Sheds..... do } Post Office..... London } Custom House..... Kingston } Post Office..... do } Lunatic Asylum and Gaol ..... do } Court House and Gaol ..... Algoma } Public Buildings ..... Ottawa } Court House ..... Montreal } Do extraordinary repairs, do } Custom House, repairs..... do } Gaol, do ..... do } Post Office ..... do } Normal School..... do } Armoury ..... do } Marine Hospital..... Quebec } Custom House ..... do } Gun Sheds ..... do } Court House ..... do } Post Office and Parliamentary Buildings ..... do } Do additions thereto.. do } Spencer Wood, repairs..... do } Do reconstruction... do } Governor General's Residence, in consequence of fire at Spencer Wood in 1861..... do } Observatory, repairs..... do } Normal School..... do } Gaol, repairs..... do } New Gaol ..... do } Gaols and Court Houses, C. E..... } Gaols and Court Houses, C. E., 20 Vic, ch. 44..... }			274815 05 5104 18 28066 07 13884 65 9966 83 159 30 3679 23 657 69 525 62 16000 00 46587 61 52625 42 5566 67 39812 51 45010 24 39647 12 4293 92 769 79 1354431 41 307433 42 26378 93 1257 63 2067 45 3037 97 9104 49 856 68 97136 00 263008 50 4545 42 1391 69 59891 18 1623 69 4299 35 28015 71 9991 67 318 77 7181 06 884 25 86567 93 35441 44 438924 24
<i>Court Houses and Gaols, C. E., repairs, vis :</i> St. Johns..... } Aylmer..... } Sherbrooke ..... } Three Rivers ..... } St. Hyacinthe..... } Kamouraska ..... } Percé ..... } New Carlisle..... }	438063 04	861 20	158 00 523 63 3614 90 4096 62 541 42 12619 20 343 85 113 12
Carried over.....		275814 62	

## No. 3.—STATEMENT of the several Public Works, &amp;c.—Continued.

WORKS.	Total outlay up to 1st January, 1863.	Expenditure during 1863.	Total outlay up to 1st January, 1864.
	\$ cts.	\$ cts.	\$ cts.
<i>Brought forward</i> .....		275814 62	
Dépot at Anticosti.....			47 82
Governor General's Residence, St. Lewis Street.....			48855 82
Rents, repairs and maintenance, Public Buildings .....	366140 71	34802 67	400943 38
<i>Light Houses.</i>			
Light Houses below Quebec.....			396503 55
Light House apparatus, Quebec.....			54602 16
Light Houses (new) below Quebec.....	43424 86	5028 36	48453 22
Pointe Pelée Light House.....	67009 09	1959 68	68968 77
Snake Island Light House.....			10430 04
Bay of Quinté Light Houses .....			108 16
Light Houses, Lake Huron.....			147614 75
Light House apparatus, Lake Huron.....			74949 16
Floating Lights above Lachine.....			26397 93
Gaspé Bay and Harbor Buoys.....			499 82
Inland Lake and River Lights.....	7151 29	1162 58	8313 87
Father Point Light House .....			1453 61
Ottawa River Navigation.....			3642 54
<i>Roads.</i>			
Canada and New Brunswick, by the Témiscouata.....	191250 47	1762 29	193012 76
Metapedia, South.....			29505 44
Do North.....			16382 59
Eastern Canada and New Brunswick Road, by the Metapedia	27055 71	36449 86	63605 57
Malbaie and Grande Baie.....			11956 73
Matane and Cap Chats.....	23204 38	178 10	23382 48
Escoumains.....	2648 50	21 00	2569 50
Marmora .....			4000 00
Garrison Road, Toronto.....			1600 00
Gaspé Road .....	16076 53	219 15	16295 68
Côteau and Province Line Road .....			1482 01
Côteau and Cornwall Road .....		8284 00	8284 00
Cornwall Road.....			510 22
Caughnawaga Road .....		767 51	767 51
Hamilton and Port Dover Road.....		16000 00	16000 00
Batiscan Bridge, repairs.....			642 00
<i>Harbors and Piers.</i>			
Port Bruce.....			6267 47
Lake Huron.....			97448 82
L'Original .....			2000 00
Pier at St. Anicet.....			2007 97
Landing Piers .....			768971 02
Repairs of Piers .....	15364 90	5648 64	21013 54
Pier at Port aux Quilles.....			108 45
Dredging Narrows, and New Bridge, Lake Simcoe.....			10138 30
Dredging at Picton and Presqu' Isle .....			9630 04
Dredging operations .....	2308 56	3722 14	6030 70
Dredging Vessels, Steam Pumps, &c.....			3218 89
Dredging at St. Clair Flats.....			19284 45
Richelieu Rapids Improvements (Ste. Anne de la Pérade)....			18713 96
North River and Petite Nation Bridge Improvements .....			4254 11
River Thames Navigation Improvements.....			3821 42
Deepening Lake St. Peter .....		18189 39	18189 39
Pier at Chantry Island.....		442 50	442 50
		410452 49	

DEPARTMENT OF PUBLIC WORKS, }  
February, 1864. }

J. BAINE,  
Book-keeper.



## No. 4.

## STATEMENT of expenditure on certain Miscellaneous Services under this Department, during the year 1863.

	\$	cts.
Provincial Steamers.....	42593	08
Advertising Sale of Provincial Steamers.....	94	94
Tag Service, Upper St. Lawrence.....	16000	00
Do do advertising Tenders for 1864.....	489	31
Surveys generally.....	1558	89
Arbitrations, Awards, &c.....	19989	43
Visit of H. R. H. the Prince of Wales.....	412	25
Contingencies of Department.....	60	60
Do do for Engineering Branch.....	3652	88
Advertising Hydraulic Lots, Rideau Canal.....	337	23
Militia Expenses.....	566	44
Survey, Three Rivers and Arthabaska Railroad.....	317	65
Emigration Service.....	3279	95
	89657	05
<i>Less:</i>		
Included in No. 1 Statement, and also under the head of Arbitrations.....	9662	54
	79994	51

DEPARTMENT OF PUBLIC WORKS, }  
February, 1864.

J. BAINE,  
*Book-keeper.*

## No. 5.

## STATEMENT of the expenditure incurred under this Department for the repairs and management of the Ordnance Canals, for the year 1863.

NAME.	Extraordinary	Ordinary	Total
	Repairs.	Repairs and Management.	Expenditure.
	\$	cts.	\$
	cts.	\$	cts.
Rideau Canal.....	1805	23168	24973
Do Survey.....			600
Do Repairs at Hogsback.....	26		26
Carillon and Grenville Canal.....		9040	9040
Lock Gates for Carillon and Grenville Canal.....			3085
			37726

DEPARTMENT OF PUBLIC WORKS, }  
February, 1864.

J. BAINE,  
*Book-keeper.*

## No. 6.

A DETAILED Statement of the expenditure incurred in repairs and maintenance of Provincial Light Houses, for the year 1863, under this Department.

Name of Light.	Name of Keeper.	Amount of Salary paid.	Supplies and Repairs.	Total.
		\$ cts.	\$ cts.	\$ cts.
Lachine Pier.....	John Norton.....	385 25	161 84	547 09
Light Ship No. 1.....				
Do No. 2.....				
Do No. 3.....	Pierre Landré.....	250 00	141 22	391 22
Beaubarnois.....	Benjamin Picard.....	250 00	134 17	384 17
Grosse Pointe.....	Joseph Meloche.....	225 00	176 20	401 20
Mackie's Point.....	Peter Shannon.....	435 00	165 60	600 60
Cherry Island.....	A. McDonald.....	175 00	160 65	335 65
Do Light Ship.....	E. S. Johnson.....	435 00	140 60	575 60
Lancaster Pier.....	G. H. Johnson.....	250 00	533 48	783 48
Cole Shoal.....	Thomas Hill.....	325 00	479 68	814 68
Grenadier Island.....	Richard Elliott.....	140 00	120 40	260 40
Lindoe Island.....	Joseph Austin.....	120 00	135 40	255 40
Gananoque Narrows.....	J. Wallace.....	140 00	126 50	266 50
Jack Straw Shoals.....	James McDonald.....	260 00	420 40	680 40
Spectacle Shoal.....	Daniel Bryant.....	346 15	195 60	761 69
Red Horse Rock.....				
Burnt Island.....	James Ward.....	219 94		
Wolfe Island.....	Joseph Mervin.....	120 00	184 16	304 16
Snake Island.....	Thomas Kilty.....	225 00		
Nine Mile Point.....	Robert Gillespie.....	250 00	140 90	615 90
False Ducks.....	J. Hepburn.....	435 00	155 80	590 80
Point Peter.....	John Dunlop.....	435 00	401 70	836 70
Scotch Bonnet.....	Joseph Swetman.....	127 50		
Presqu'Isle.....	Frederic Swetman.....	326 25	430 60	884 35
Do Range Light.....	V. A. Pailin.....	435 00	400 40	835 40
Gull Island.....	Samuel Wilson.....	435 00	320 60	755 60
Gibraltar Point.....	Wm. Swetman, Sr.....	325 00	410 40	735 40
Burlington Bay.....	Wm. Swetman, Jr.....	187 50	180 50	330 50
Port Dalhousie.....	James Cummins.....	62 50		
Port Colborne.....	George Roddick.....	435 00	415 40	900 40
Mohawk Island.....	Robert Roddick.....	50 00		
Port Maitland.....	George Durnan.....	435 00	505 40	940 40
Port Dover.....	George Thompson.....	300 00	125 40	425 40
Long Point.....	Jonathan Woodall.....	400 00	265 50	665 50
Port Burwell.....	James Fortier.....	400 00	211 20	641 20
Port Stanley.....	John Burgess.....	435 00	300 60	735 60
Pointe Pelée.....	Peter Baikie.....	435 00	190 60	625 60
Pelée Island.....	Wm. Carlisle.....		82 50	82 50
Bois Blanc.....	H. H. Clarke.....	543 75	420 50	964 25
River Thames.....	Alexander Sutherland.....	320 00	165 90	485 90
Goderich.....	Richard Ead.....	144 00	120 80	264 80
Point Clark.....	P. McIntyre.....	435 00		
Chantry Island.....	Wm. Wadsworth.....	189 29	1020 60	1780 60
Isle of Coves.....	James Edwards.....	135 71		
Griffith Island.....	James Cummins.....	217 50	481 40	916 40
Nottawasaga Island.....	Wm. Swetman, Jr.....	217 50		
Christian Island.....	James Hackett.....	435 00	255 40	690 40
Green Shoal.....	Thomas Cartier.....	435 00	225 96	660 96
	Humphrey Fidler.....	325 00	225 34	550 34
	John Young.....	435 00	391 22	826 22
	D. McG. Lambert.....	435 00		
	Wm. McG. Lambert.....	50 00	394 26	879 26
	D. McBeath.....	435 00		
	Wm. McBeath.....	300 00	380 40	1115 40
	Vesey C. Hill.....	435 00	810 41	745 41
	George Collins.....	435 00	205 40	640 40
	Wm. Hoare.....	435 00	227 76	762 76
	D. Thomas.....	250 00	85 50	335 50
Carried over.....		16927 84	12756 26	29684 09

No. 6.—A DETAILED Statement of the expenditure incurred in repairs and maintenance of Provincial Light Houses, &c.—*Continued.*

Name of Light.	Name of Keeper.	Amount of Salary paid.	Supplies and Repairs.	Total.
		\$ cts.	\$ cts.	\$ cts.
Brought forward.....		16827 84	12756 25	29584 09
Pointe Claire No. 1.....	Arsène Glode .....	250 00	95 68	345 68
Do No. 2.....	Samuel Biron .....	250 00	82 60	332 60
		17327 84	12934 53	30262 37
Management, salary of Superintendent and his travelling expenses, freight and charter of Steamers delivering supplies, advertising, &c. ....				4783 48
Placing buoys and light ships.....				304 87
Supplies on hand in store.....				650 60
				36000 72

J. BAINE,  
*Book-keeper.*

DEPARTMENT OF PUBLIC WORKS, }  
February, 1864.

No. 7.

STATEMENT shewing the total amount expended under the Department of Public Works during the year 1863, as detailed in the foregoing Statements, numbered 1, 2, 3, 4, 5 and 6.

STATEMENT.	Repairs and Management.	Construction.	Miscellaneous.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
No. 1.....	157552 90	94427 04		251979 94
2.....	556 50	4362 88		4919 38
3.....	69452 40	341000 09		410452 49
4.....			79994 51	79994 51
5.....	34641 21	3085 06		37726 27
6.....	36000 72			36000 72
Total .....	298203 73	442875 07	79994 51	821073 31

J. BAINE,  
*Book-keeper.*

DEPARTMENT OF PUBLIC WORKS, }  
February, 1864.

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## APPENDIX B.

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WELLAND CANAL OFFICE,  
ST. CATHERINES, December 19th, 1863.

SIR,—I have the honor to submit my annual report on the works under my charge, in compliance with your letter to that effect to me, No. 47,922, of the 4th instant.

It having been announced that the canal would be open on the 13th April, it was found necessary, owing to the firm state of the ice, to break a channel by means of an ice breaker, in order to allow vessels to pass through on that day, which must otherwise have been detained some days.

There have been three interruptions in the navigation this year, causing a delay of about four days. The first occurred on the 8th July, by the steamer "Bristol" breaking a gate at lock No. 21; on the 16th September, the four gates at lock No. 23 were carried away by the propeller "Vermont," and on the 14th November, one of the upper gates of lock No. 2 was destroyed by the schooner "Selkirk." The cost of making these repairs was promptly paid. The navigation has otherwise been efficiently maintained throughout the season.

The canal was closed by frost on the 10th December. The weather subsequently moderating, a channel was opened on the 12th, by means of the ice-breaker, to pass a steamer through, which had been detained from reaching the canal by adverse weather. It may be considered as closed on the 13th December, on which day the last boat passed through, making 244 days of navigation for the season, inclusive of interruption.

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### REPAIRS AND MANAGEMENT.

The repairs of the sill of the lock at Port Robinson were attended with considerable trouble, in consequence of great leakage; but this was finally overcome, and the repairs properly effected.

The repairs authorized upon the other works of the canal, so far as practicable, were completed before the opening of navigation. During the season, the principal attention has been in the maintenance of the works and repairs of casualties.

The stanching at the Dunnville dam, alluded to in my last report, has been fully tested this year, and the result is highly satisfactory; with more than ordinary drought, the level of the canal has been much better maintained than hitherto.

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### WORK OF CONSTRUCTION.

This work comprises the enlargement of the canal above Allanburgh, and consists of the deepening and widening of it, to admit the water of Lake Erie as the summit level. The progress made is much more satisfactory than hitherto. At the same rate, this work may be completed in two years. There will be required an appropriation of \$60,000 for carrying it on another year.

The necessity for the formation of a second towing-path upon the Thorold level, between Hurst's and Marlatt's bridges, fully justifies my again submitting it for your favorable consideration. Its estimated cost is \$18,100.

Repeated complaints have been made by millers, scowmen, and others, of the insufficiency of water in the channel leading from the lock at Port Robinson to the River

Welland. This channel has but seven feet depth at ordinary water level, but when the water is low there is scarcely six feet. This depth does not admit of boats passing with a full load. The probable cost of sinking the channel to a sufficient depth, say eight feet at low water, will be about \$2,500. This sum appears a small outlay, compared with the benefits which will be derived therefrom, as a large trade is carried on through it.

The enlargement of the harbor accommodation at Port Colborne is much called for. Large fleets of vessels are frequently detained in the harbor by head-winds, and as these winds are favorable for those vessels making the canal and the southern terminus of the Welland Railway, the overcrowding of the harbor is such that much delay and considerable damage frequently ensue. In the estimate a sum of \$64,000 is submitted for enlarging it and the pier work on its south-east side.

I herewith submit *Schedules* No. 1 to 7 (inclusive), shewing the various expenditures upon this work, the collections of the revenue for rents, land sold, &c., &c.;—and an approximate cost of maintenance another year.

*Schedules* Nos. 1 and 2 shew the estimated cost of the proposed works of construction, with the several appropriations made by the Legislature, and the expenditures thereon to 1st December, 1863 (*not printed*).

*Schedule* No. 3 gives the cost of the management and repairs of the canal this year. These expenditures are defrayed from the canal revenue.

The cost of management is .....	\$40,855.98
Do do repairs .....	15,392.02
	<hr/>
Total .....	\$56,248.00

The total cost for the management and repairs is \$5,002.22 less than last year. Of the repairs \$3,585.50 have been levied against vessels for damaging the works of the canal *Schedule* No. 4 shews the water powers and other property leased on this canal, with the erections, &c.

The annual rent for property and water-power leased is .....	\$9,039.10
	<hr/>
The amount collected in 1863 is .....	\$9,014.79
	<hr/>
The arrears remaining due to 1st December, 1863, are.....	\$5,441.74

Of the amount shewn as collected—\$8,253.17 (*not printed*)—were received by the paymaster. The residue was received by the Department, viz: \$309.12 from Oldfield, and \$452.50 from Hendershot. A portion of the amount shewn as arrears cannot be enforced, from the reasons shewn in my last report (*not printed*).

*Schedule* No. 5 shews the land, &c., disposed of, not being required for canal purposes. Of the sales there have been paid \$516.33 this year, leaving in arrears \$28,940.58 for the sales of lands made to James R. Benson on behalf of the Welland Canal Loan Company and the municipality of the County of Welland. The lands belonging to these Corporations comprised valuable tracts, large portions of which have been disposed of by them, and from their sales there are annually falling due large amounts, no portion of which has been applied towards liquidating their debts; and as the arrears have been accumulating over a period of ten years, during which time no payments have been made, it seems as though no moneys will be collected from these sales, unless enforced.

*Schedule* No. 6 gives a list of the vessels, &c., upon which penalties have been enforced for committing breaches of the canal regulations. The several sums collected this year amount to \$4,664.50.

*Schedule* No. 7 gives an approximate estimate of the probable cost of making the ordinary canal repairs for the year 1864, amounting to \$17,500 (*not printed*).

Appended are statements shewing the revenue collected and the number of vessels passed through the canal for several years. These is a decrease of 905 vessels, and 165,865

tons, from last year ; but in the tonnage of each vessel there is an increase of 6 per cent, while there is a decrease in the number of 18 per cent, compared with last year. In the tolls there is an apparent decrease of a trifle over 16 per cent. in the amount collected last year. But of that collection on all shipments passing down the canal to Canadian ports, 90 per cent. was refunded. It is, therefore, quite probable that the revenue of this year will shew an increase over that of last.

I have the honor to be, sir,  
Your obedient servant,  
(Signed)

S. D. WOODRUFF,  
Superintendent.

T. Trudeau, Esq.,  
Secretary of Public Works, Quebec.

### WELLAND CANAL.

TABLE of its Revenue for the last four years.

PORT OF COLLECTION.	1860.	1861.	1862.	1863.
Colborne.....	\$116,033 55	\$174,474 27	\$205,061 81	\$146,368 62
Robinson.....	3,502 78	4,775 37	6,373 06	4,853 04
Maitland.....	1,685 31	6,912 37	1,756 17	871 77
Dunnville.....	5,261 40	5,918 93	5,337 81	3,323 90
St. Catharines.....	1,259 71	1,412 10	1,527 43	1,608 06
Dalhousie.....	37,477 90	36,276 45	51,327 99	68,417 63
	\$165,220 65	\$229,769 49	\$271,384 27	\$225,442 01
Collected on rents.....	7,686 97	8,667 20	7,363 90	9,014 79
Do on lands, &c., sold.....	1,737 07	25 00	.....	516 33
Do fines and damages.....	2,116 10	2,267 80	573 00	4,664 50
	\$176,760 79	\$241,029 49	\$279,321 17	\$239,637 63

### NUMBER OF SAILING VESSELS AND STEAMERS WHICH HAVE PASSED THROUGH THE CANAL DURING THE LAST TEN YEARS.

1854.....	3,890
1855.....	3,816
1856.....	3,885
1857.....	3,604
1858.....	3,726
1859.....	2,589
1860.....	3,744
1861.....	4,315
1862.....	4,899
1863.....	3,994

WELAND CANAL.

SCHEDULE No. 3.—Detailed Schedule of the gross amount of the monthly expenditure in the management and repairs of the Welland Canal, from 1st Dec., 1862, to 1st Dec., 1863, (inclusive).

		MANAGEMENT.					REPAIRS.				
		Office establishments, clerk, paymaster, &c.	Overseers, lock & bridge tenders, Harbor-mas- ters.	Lighting canal with gas, from Lock No. 3 to 25, (inclusive).	Oil used in lighting the other parts of the canal, not lighted with gas, and in working machi- nery.	Advertising lists of ves- sels passing through the canal, printing, postage, stationery, telegraph, communications, office- fuel, travelling expenses, engineers, contingencies, &c.	Total cost of manage- ment.	Carpenter's work, con- structing and making re- pairs upon lock-gate, bridges, &c., and making repairs of damages done to the works by vessels.	Castings and iron work for lock-gates, bridges, &c.	Labor maintaining em- bankments, ditching, set- ting, snubbing posts, re- moving out culverts, re- cleaning out culverts, re- moving bars from bottom of canal, &c.	
		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	
1862.	December.....	132 00	1,855 95	3,038 47	.....	646 53	5,702 95	303 42	57 95	295 26	
1863.	January.....	132 00	903 95	.....	.....	.....	1,035 95	.....	2 75	68 40	
	February.....	132 00	602 15	.....	.....	7 20	741 85	.....	225 10	137 75	
	March.....	132 00	884 90	.....	.....	120 64	1,137 54	178 25	152 47	399 79	
	April.....	132 00	2,988 69	.....	526 05	48 48	3,695 22	268 54	165 21	314 72	
	May.....	132 00	3,267 97	.....	.....	80 00	3,479 97	265 01	134 94	375 37	
	June.....	132 00	3,303 44	.....	.....	165 97	3,601 41	329 75	562 12	439 62	
	July.....	132 00	3,247 87	.....	260 05	17 72	3,666 64	561 00	112 71	330 74	
	August.....	132 00	3,241 12	.....	.....	.....	6,959 92	354 45	70 83	531 12	
	September.....	132 00	3,288 81	(a) 3,586 80	.....	270 03	3,690 84	203 50	412 05	418 42	
	October.....	132 00	3,271 19	.....	22 00	3 00	3,428 19	230 98	140 00	200 11	
	November.....	132 00	3,273 90	.....	265 10	45 00	3,716 00	406 50	309 93	.....	
		\$1,584 00	\$30,159 94	\$6,625 27.	\$1,082 20	\$1,404 57	\$40,855 98	3,101 40	\$2,292 15	\$3,661 30	

(a) Paid by transmission from Department to Gas Company.

REPAIRS.

	Lumber and timber furnished for constructing lock-gates, and for repairs of lock-gates, bridges, &c.	Putting down sill and repairs of Port Robinson lock, removing dams, &c.	Repairs light-house at Port Dalhousie, damaged by fire.	Repairs at Sulphur Creek, waste-weir, lumber, &c.	Repairs old mill at Al-lanburgh.	Repairs of saw used in breaking ice.	Repairs of outer end of West pier at Port Dalhousie.	Sundry materials furnished, consisting of spikes, nails, ropes, paint-oil, paints, shovels, &c.	Total amounts of repairs.	Total for management and repairs.
1862.	\$ cts. 158 91	\$ cts. 71 00	\$ cts. 50 00	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts. 52 81	\$ cts. 989 35	\$ cts. 6,692 30
1863.										
January.....	.....	.....	.....	.....	.....	.....	.....	.....	493 51	1,529 46
February.....	.....	422 27	.....	.....	.....	.....	.....	.....	1,098 63	1,839 98
March.....	.....	873 53	.....	.....	.....	.....	.....	.....	654 03	1,771 57
April.....	166 56	.....	.....	.....	.....	.....	.....	.....	2,232 34	5,917 56
May.....	214 59	1,950 00	.....	.....	.....	.....	.....	124 21	1,012 34	4,492 31
June.....	193 55	.....	.....	.....	.....	.....	.....	104 12	1,857 72	5,269 13
July.....	280 06	.....	.....	.....	.....	.....	.....	170 42	1,819 79	4,986 43
August.....	103 68	.....	.....	.....	.....	.....	.....	102 78	1,066 09	8,016 01
September.....	147 04	.....	.....	.....	.....	.....	.....	93 03	1,768 52	5,459 56
October.....	101 35	.....	.....	420 50	.....	.....	.....	.....	1,215 03	4,643 22
November.....	.....	.....	.....	.....	75 00	.....	.....	.....	1,924 67	5,640 87
	\$2,064 95	\$2,416 80	\$50 00	\$420 50	\$75 00	\$71 95	\$349 00	\$888 88	\$15,392 02	\$56,248 09

(Signed) S. D. WOODRUFF,  
Superintendent Welland Canal.

WELLAND CANAL OFFICE, }  
St. Catharines, 19th December, 1863.



WELLAND CANAL.

SCHEDULE No. 5.—Schedule of Lands on the Welland Canal sold to sundry persons, with the amount of Sales and Interest to 1st December, 1863, amount paid to 1st December, 1863, and the balance remaining due on the 1st December, 1863.

PURCHASERS.	Number of Lot.	Where situated.	Quantity.	Amount of Sale.	Amount of Interest to 1st Dec., 1863.		Amount paid to 1st Dec., 1859.	Amount paid in 1863 to 1st Dec.	Balance due 1st Dec., 1863.	Remarks.
					\$	cts.				
James R. Benson, on behalf of Hydraulic Co. Municipality of the County of Welland.....		Lots below Thorold.....	211 acres 17 per..	8,454 25	6,912 59	14,366 84	2,010 85	.....	112,355 99	
Alexander Lattimore.....	Part of lot No. 27	Lands in Wainfleet..	10,796 acres	12,912 00	6,982 15	19,894 15	3,309 56	.....	16,684 59	In fall.
	Parts of lots 34, 35 & 36 South.....	do Humberstone	2,048 do							
Wm. J. McCall.....	3rd Con. Wainfleet..	do	68 do	976 00	130 89	1,106 89	1,080 56	.....	.....	
Do	Lot A marked on plan.....	Village, Pt Robinson	.....	75 00	.....	75 00	.....	.....	.....	Do
Do	Lot B do do	do	.....	56 00	.....	56 00	.....	.....	.....	Do
Do	Do C do do	do	.....	46 00	.....	46 00	.....	.....	.....	Do
Do	Do D do do	do	.....	63 00	.....	63 00	.....	.....	.....	Do
William Bell.....	Do E do do	do	.....	60 00	.....	60 00	.....	.....	.....	Do
James Mirner.....	Do F do do	do	.....	45 00	.....	45 00	.....	.....	.....	Do
James McCoppen.....	Do G do do	do	.....	41 00	.....	41 00	.....	.....	.....	Do
John Hill.....	Part of lot No. 205, 10 acres.	Township of Thorold.....	10 acres.	104 00	.....	104 00	.....	104 00	.....	Do
				22,832 25	13,025 63	35,857 88	6,400 97	516 33	28,940 58	

(Signed) S. D. WOODRUFF, Superintendent Welland Canal.  
 (Signed) THOMAS ADAMS, Paymaster and Clerk.

WELLAND CANAL OFFICE, }  
 St. Catharines 19th December, 1863.

## WELLAND CANAL.

SCHEDULE No. 6.—Statement shewing the amount of Fines and Damages levied, the amount paid to the 1st December, 1868, and the balance remaining due on the 1st December, 1863.

Year.	Date.	Description of Vessel, &c.	Name of Vessel, &c.	Amount of Fines levied.	Amount of Damages levied.	Amount paid from 1st Dec., 1862, to 1st Dec., 1863,	Amount remaining unpaid to 1st Dec., 1863.	Remarks
				\$ cts.	\$ cts.	\$ cts.	\$ cts.	
1857...	April 22	Schooner	'S. H. Lathrop'		1000 00	1000 00		
"	" 30	Steamer	'St. Nicholas'	80 00	4800 00		4880 00	
1859...	" 30	Schooner	'Mohegan'		1953 00		1953 00	
1860...	May 30	do	'Amelia'		1246 00		1246 00	
1860...	" 16	do	'Cuba'		10 00		10 00	
1861...	" 14	do	'Henry Hagar'		22 00	22 00		
"	June 26	do	'Hyphen'		15 00	15 00		
1862...	May 29	do	'Mary Morton'	10 00			10 00	
"	June 26	Propeller	'Kentucky'		10 00		10 00	
"	Aug. 20	Schooner	'Bridget'		5 00		5 00	
"	Oct. 20	do	'Theresa'		76 00	76 00		
"	" 20	do	'J. A. McDonald'		25 00	25 00		
"	Nov. 20	Propeller	'West'		20 00	20 00		
"	" 30	Schooner	'T. Y. Avery'		30 00	30 00		
"	Dec. 11	do	'General Burnside'		250 00	250 00		
1863...	April 11	do	'Lewis Wells'		50 00	50 00		
"	" 13	do	'Antelope'		2 00	2 00		
"	" 13	do	'Miami Belle'		15 00	15 00		
"	" 16	do	'Miniehaha'		5 00	5 00		
"	" 16	do	'Persian'		4 00	4 00		
"	" 22	do	'Jenny Lind'	40 00		40 00		
"	" 22	do	'John Breden'		5 00	5 00		
"	May 2	do	'E. P. Ryanse'		1 00	1 00		
"	" 5	do	'Prince of Wales'		1 50	1 50		
"	" 11	do	'James Coleman'		1 50	1 50		
"	" 12	do	'Patk. Henry'		5 00	5 00		
"	" 13	Propeller	'Ogdensburgh'		7 00	7 00		
"	" 13	Schooner	'W. S. Wallbridge'		10 00		10 00	
"	" 19	Bark	'Gibraltar'	5 00		5 00		
"	" 20	Schooner	'Nucleus'		1 50	1 50		
"	" 21	Bark	'Cleifton'		50 00	50 00		
"	" 22	Schooner	'Kate Morton'	10 00		10 00		
"	June 1	do	'W. B. Hibbert'		20 00		20 00	
"	" 11	Propeller	'City of Boston'		25 00	25 00		
"	" 22	Schooner	'May Queen'		5 00	5 00		
"	July 8	Propeller	'Bristol'		365 00	365 00		
"	" 16	do	'Akron'		210 00	210 00		
"	" 27	do	do		3 00		3 00	
"	" 30	Bark	'George Thurston'	20 00			20 00	
"	" 31	Scow	'London'	10 00		10 00		
"	Aug. 8	Propeller	'Buckeye'		6 00	6 00		
"	Sept. 11	Schooner	'Gilbert'		25 00	25 00		
"	" 16	Propeller	'Vermont'		1511 00	1511 00		
"	" 21	do	'Wisconsin'	60 00		60 00		
"	" 28	Schooner	'Denmark'	10 00		10 00		
"	Oct. 16	Propeller	'Akron'		2 00	2 00		
"	" 16	do	do		2 00	2 00		
"	" 17	Schooner	'J. F. Warner'		2 00	2 00		
"	" 20	do	'S. Robinson'		10 00	10 00		
"	" 20	do	'Mary Ree'		9 00	9 00		
"	" 21	Propeller	'Bristol'		60 00	60 00		
"	" 29	Schooner	'James Coleman'		10 00		10 00	
<i>Carried forward...</i>				\$245 00	\$11,885 50	\$3953 50	\$8177 00	

## WELLAND CANAL.

SCHEDULE No. 6.—Statement shewing the amount of Fines levied, &c.—*Continued.*

Year.	Date.	Description of Vessel, &c.	Name of vessel, &c.	Amount of Fines levied.	Amount of Damages levied.	Amount paid from 1st Dec., 1862, to 1st Dec., 1863.	Amount remaining unpaid on 1st Dec., 1863.	Remarks
				\$ cts.	\$ cts.	\$ cts.	\$ cts.	
			<i>Brought forward...</i>	245 00	11,885 50	3953 50	8177 00	
1863...	Oct. 31.....	Schoener ..	'W. G. Grant'.....	.....	6 00	6 00	.....	
"	Nov. 14....	do	'Wm. Sanderson'.....	.....	50 00	.....	50 00	
"	" 14....	do	'Wm. Case'.....	.....	15 00	.....	15 00	
"	" 14....	do	'Paragon'.....	.....	10 00	.....	10 00	
"	" 14....	do	'Raleigh'.....	.....	16 00	.....	16 00	
"	Oct. 30.....	do	'A. Boody'.....	.....	15 00	15 00	.....	
"	Nov. 15.....	do	'Sol Kirk'.....	.....	645 00	645 00	.....	
"	" 16.....	Propeller ..	'Ogdensburgh'.....	10 00	.....	.....	10 00	
"	" 23.....	do	'Michigan'.....	.....	25 00	.....	25 00	
"	" 24.....	Bark ..	'Sovereign of the Lakes'.....	.....	40 00	40 00	.....	
"	" 24.....	Propeller ..	'Buckeye'.....	.....	10 00	.....	10 00	
"	" 24.....	Schoener ..	'Athenian'.....	5 00	.....	5 00	.....	
"	" 27.....	do	'Tecumseh'.....	.....	15 00	.....	15 00	
"	" 30.....	do	'Frontier City'.....	.....	15 00	.....	15 00	
				\$260 00	\$12747 50	\$4664 50	\$8,343 00	

(Signed)

S. D. WOODRUFF,  
*Superintendent Welland Canal.*

(Signed)

THOMAS ADAMS,  
*Paymaster and Clerk.*WELLAND CANAL OFFICE, }  
St. Catharines, Dec. 19th, 1863. }

## APPENDIX C.

LACHINE CANAL OFFICE,  
Montreal, 31st December, 1863.

SIR,—In compliance with instructions of the 4th inst., I beg herewith to submit my Annual Report for 1863 :—

### BEAUHARNOIS CANAL.

The water was shut out of this canal on the 15th day of April, and such examinations and repairs made as the limited time would admit of, preparatory to its being opened for the season, when the main canal and structures connected therewith were generally placed in good order. The water was again let in the canal on the 29th day of April, and opened to the trade on the 2nd day of May, after which the navigation was maintained with nine feet depth of water on the sills, until the 4th day of December, when it was closed by ice.

During the time the trade was only interrupted eighteen hours, when replacing the lower gates at lock No. 10, which were carried away by the propeller "Colonist," on the 16th day of May.

The banks, ditches, dykes, dams and all other works have been kept in an efficient state throughout the season.

The dyke through Hungry Bay continues to settle at several points, and about 4,000 lineal feet of the dyke has been raised twenty inches, and it is considered that a like extent will require raising next year.

The season was so unfavorable that the lock walls were not pointed last April, as intended; but, if the weather prove at all favorable, this must be attended to next spring.

Three pairs of new lock-gates, built by contract at Morrisburg, were delivered in September. The set for lock No. 8 was immediately brought into use, and gates substituted at other places, as became necessary.

There are at present three pairs of spare lower lock-gates on hand, and one pair for the Guard Lock, with but two pairs of upper gates; one pair of these must be hauled out and repaired; the other pair are old framed gates that have been repaired, and should not be used except in case of emergency. At least two new pairs of upper gates should be provided for this canal.

All the swing bridges, except at lock No. 14, have been well painted and are in good order. The bridge at lock No. 14 must be thoroughly overhauled during the winter. New timber has been provided for that purpose. Several other bridges have been replanked and repaired.

The regulating weirs are generally in good order.

The breast-wall of the by-wash, at St. Timothy, was partially rebuilt last spring; but later in the season a leakage was discovered in a portion of the foundation, which was effectually stopped without drawing down the water. A further examination will be necessary before opening the canal next spring.

The work of extending the south pier, at the lower entrance of the canal, referred to in last year's report, should be proceeded with as early as possible. Much delay and confusion has been experienced during the busy season, caused by the present limited accommodation for mooring vessels—the entrance to the lock being at times entirely blocked up.

The difficulty in obtaining timber for repairing the superstructure of the pier at the head of the canal, has prevented the work from being done. It is desirable that authority should be granted to obtain suitable timber during the present winter, and the repairs made as early as possible next season.

A statement of the fines and damages, collected by order of the local superintendent, amounting to \$608.38, will be found enclosed.

The cost of repairs and maintenance for 1863 amount to \$5,942.13, and \$8,902.91 for working expenses. The ordinary repairs for 1864 are estimated to cost \$7,165.

#### LACHINE CANAL.

The various works connected with this canal have been efficiently maintained throughout the year. The expenditure for repairs and maintenance is necessarily much larger than for any other division of the St. Lawrence canals, caused by the strong current created in supplying water for the mills, the additional trade of the entire Ottawa route and the maintenance of the dock walls, wharves, sheds and basins at Montreal and Lachine. A large portion of this expenditure is, however, caused by the inordinate current produced in supplying mill power, which tends to render vessels unmanageable, washes the banks, fills up and forms bars in the channel and basins.

The delays experienced last year below lock No. 1 have, to a great extent, been remedied by the action of the Harbor Master.

The construction of the regulating weir and bridge at lock No. 3, referred to in report for 1862, should be proceeded with as early as practicable.

The limited dock and basin accommodation afforded by the canal at Montreal, no doubt operates unfavorably towards the natural development of the trade; a large increase in trade cannot be expected until suitable accommodations are provided.

Accommodation for the wood and lumber trade deserve special attention.

The Montreal, or bridge No. 1, was thoroughly overhauled, and the largest portion of the wood work renewed last winter. Timber has been prepared for repairing bridges Nos. 3 and 4, at Brewster's and at Cote St. Paul. These repairs have of necessity to be done in winter, when a temporary bridge is formed by the ice. The water wheel and machinery for working the Montreal bridge must also be repaired.

The new pair of lower gates for locks Nos. 1 and 2, that were under contract at the date of last year's report, were delivered early in the season. The spare lower gates for locks 3 and 4 have been put in good order. One new pair of gates should be built for the guard lock. Any accident of a serious nature occurring at this lock would be attended with disastrous results. The gates now in use should be taken out and repaired, but this cannot be done until others are provided. A new pair of gates have been built for the old lock used as a graving dock at Montreal, and a new bulk head, with large sluice gates, placed in the old lock at Lachine, used as a regulating weir. The flow of water from this lock checks the cross current from the regular weir, and enables vessels to enter or leave the lock with greater ease and safety.

The walls of locks Nos. 3 and 4 have for years been bad—temporary repairs prove to be of little service, beyond barely keeping them in working order; the faced stones are frequently forced out of place by the pressure of water from the rear. The entire walls of the locks must of necessity be rebuilt in cement mortar before they can be considered safe.

The bridge and decayed portion of the wood work above surface water in the large waste weir at basin No. 2 must be renewed, and special attention given to grouting and pointing the dock walls in front of the mills.

The steam dredge and scows were put in good order last spring, and have been employed the entire season in basins 2, 3 and 4.

The canal was fully opened on the 4th day of May, and finally closed on the 10th day of December; very little business, however, was done after the 1st.

A statement of the estimated cost for the ordinary repairs and maintenance, for 1864, amounting to \$10,090 will be found herewith, also a statement of the amount collected for fines and damages, by order of the local superintendent.

There has been expended for repairs and maintenance.....	\$ 8,879.11
In connection with the steam dredge.....	4,453.31
Making a total of.....	<u>13,332.42</u>

There has been \$11,806.91 collected, besides permanent rents and regular tolls, viz :

For fines and damages, by order of the superintendent .....	\$ 289.00
" dues on firewood at Lachine .....	\$ 271.65
" dues on lumber in basin at Lachine .....	1,075.45
	1,347.10
" use of old lock at Montreal, used as a graving dock .....	684.25
" vessels wintering in canal .....	584.75
" storage in flour sheds .....	3,181.11
" wharfage on vessels entering canal from Lower Ports, and on firewood .....	5,530.70
" temporary use of canal lands for repairing vessels during winter 1863 and '64 .....	190.00
<b>Total.....</b>	<b>\$11,806.91</b>

Propellers and other large vessels engaged in the through trade between the West and Montreal, suffer much inconvenience and loss in consequence of being obliged to break bulk by the discharge of a portion of their cargo before entering the St. Lawrence canals, which must necessarily increase the cost of transportation, and is an inducement on their part to force their way through the St. Lawrence canals, drawing more than nine feet of water—the depth of water being 10 feet in the Welland Canal and 9 feet in the St. Lawrence canals. This difficulty can only be overcome by establishing a uniform scale of navigation throughout. The small locks on the Welland Canal are 150 feet in length by 26 in width, with 10 feet water, while the locks on the St. Lawrence canals are 200 feet in length by 45 in width, with 9 feet water. Still vessels pass through the Welland Canal with nearly one-third more cargo than through the St. Lawrence canals. It is, therefore, of great importance to the trade of the Province, and especially with the West, that the depth of water in the St. Lawrence canals should be increased to 10 feet, as in the Welland Canal. Until this is accomplished, this great inland scheme of navigation must remain imperfect, and to a certain extent unsatisfactory.

#### CARILLON AND GRENVILLE CANALS.

The water in the Ottawa river was unusually low during a large portion of the months of August and September, causing serious inconvenience to vessels at the upper entrance to the Grenville Canal. This portion of the canal is subject to the fluctuations of the Ottawa river, and is annually filling up with earth, stone and gravel washed from the banks by the surge in high water, which interferes with the passage of large square bottomed heavy laden vessels at low water. The temporary dredging which has kept this channel comparatively free for the past three or four years, is found to be insufficient for the requirements of the trade, which is rapidly increasing. The maintenance of these canals in an efficient state for its accommodation is now a matter of absolute necessity. The channel above the guard lock at Grenville should therefore, be enlarged and deepened during medium high water, in the early part of next season, by one of the steam dredges recently employed on the St. Lawrence canals. After this is done there will be little difficulty in keeping the full draft of water for which these canals were originally constructed.

Four pairs of new lock-gates have been built by contract; they were completed late in November, and will be brought into use early next season. One pair of lower gates for lock No. 2, and a full set for lock No. 3, should be constructed this winter. The old gates are so rotten that no dependence can be placed upon their stability. One of the lower gates at lock No. 3 gave way in August, but was soon repaired. This caused a delay of about two and a half days; fortunately but few vessels were detained.

The walls of lock No. 2 leak badly. The water appears to find its way through the north wall, and is washing away the bank in rear, and is discharged into the river below lock No. 1. These walls of the lock must be thoroughly overhauled, and pointed on both sides, and well puddled up in rear before the opening of navigation. The breast wall and mitre sill at lock No. 10 has been crumbling away for some years. A portion of it gave way in September, and was temporarily repaired with timber without much interruption to the trade. This wall must be rebuilt in April next.

The superstructure of the pier head at Greenville has been rebuilt from surface of low water, and the general repairs, as in former years, confined to such works as were absolutely necessary for keeping the canal in a passable state. Nearly all the structures being in a dilapidated condition, the cost of keeping them in repair must of necessity increase from year to year, as the structures deteriorate. The maintenance of the North River dams and feeder form a large item in the expenditure.

There has been expended for repairs.....	\$5,178.70
Expended for working expenses .....	3,644.81

Amounting for the year to .....	\$8,823.51
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and \$8,547.20 collected, viz :—

For tolls .....		\$8,403.86
“ fines and damages .....	\$26.00	
“ wintering vessels in the canal .....	20.00	
“ warfage, ground rent and firewood .....	97.34	
		143.34
		\$8,547.20

Statement in detail of the estimated cost for repairs for 1864, amounting to \$6,460, together with a statement of the amounts collected for fines and damages, and for ground rents, &c., will be forwarded herewith.

These canals were opened on the 1st day of May, and closed for the season on the 2nd day of December.

#### ST. ANNE'S LOCK AND DAM.

The expenditure at this place for the past year has been confined strictly to working expenses; but, at the same time, in works of this description, where such large quantities of timber have been employed in their construction, there must of necessity be more or less repairs required. The timber in the superstructure, of fully 200 feet of the wing dam above the lock, is now quite rotten, and must be renewed next season, and about 500 feet of the face, or inside, sheeted with tamarac, or elm plank.

The mooring posts in the north, or land pier, below the lock, must also be renewed; and the docking on the river side of the lock repaired and sheeted with plank, to secure it from damage caused by rafts and ice during high water.

The trade through this lock has been much larger than in 1862, but the revenue less, owing to the diminished rate of tolls, which collectively amount to \$5,013.64. The estimated cost of repairs for 1864 amounts to \$1,200, details of which will be forwarded herewith, with a statement of the trade furnished by the collector.

The navigation was opened on the 28th day of April, and closed on the 5th day of December.

#### ST. OURS LOCK AND DAM.

The water in the River Richelieu was again unusually high during the early part of the season, which inundated a large portion of the works, and caused considerable damage. The coping on the west abutment of the dam and east wing wall of the lock was much shaken and displaced by the ice, and the bank between the lock and main shore, near the mill, injured. These damages have been made good—the bank raised and the surface paved with field stone, to secure it from further injury by high water. For the past two years the water has risen above the protection walls, at each end of the dam, cutting into the banks and causing slides. These walls should be raised, so as to protect the banks against the action of the water.

About 128 toises of stone have been used in connection with the works, viz :—

80 toises placed in the apron cribs below the dam.

10 “ “ “ sink holes above the dam.

38 “ “ “ repairs to protection walls, banks and piers at locks.

The scows have been repaired, and a new scow built for breaking the water on the dam. The lock-gates above the surface water have been painted, and new chains furnished for working them.

The segment plates, on which the toe rollers of the lower gates work, appear to be out of order, and will probably have to be repaired before the end of next season.

There has been \$1,961.95 expended in repairs, leaving \$838.15 of the amount authorized unexpended, which, it is thought, will be sufficient for ordinary repairs for 1864.

There has been \$9.25 collected for fines and damages, by order of the superintendent, a detailed statement of which will be forwarded herewith.

The dam has been thoroughly examined, and the top part for about 300 feet was laid dry, where the cribs were found in good order.

Heavy-laden vessels experienced some difficulty a short distance below the lock, at the season of low water, where the remains of an old dam still exist. This obstruction should be removed.

This lock was opened for the passing of vessels on the 29th day of April, and closed on the 3rd day of December. The delays during the season amount to be about 30 hours, while adjusting the rollers on the lower gates and removing one of the collars.

#### CHAMBLY CANAL.

This canal was opened on the first day of May, and closed on the 8th day of December. The only detentions were caused by vessels grounding when overloaded; this only occurred to large flat-bottomed vessels, which are always liable to strike the toe of the inside slopes, especially at the curves, and where banks have been formed by the small creeks and ditches discharging into the canal. The large number of steamboats used for towing on this route wash and destroy the banks, which also increases the deposit and expenditure for repairs. The high water in the river during the months of May and June softened the banks between the Island of St. Thérèse and St. Johns, causing slides and damaging the slope walls, especially on the outside or river slope; repairs from this cause have added largely to the cost of maintenance.

There was one pair of lower gates for lock No. 4, and a new bridge built by the lock and bridge tenders last winter, and the gates and bridges on the entire canal put in working order.

A large amount of silt and mud was removed from the bottom of the canal last spring. This deposit is annually accumulating, which, to a great extent, is the cause of detention to vessels, especially on the long level between locks Nos. 1 and 2. The removal of this deposit is very expensive and difficult. The steam dredge could be employed here during the entire season to good advantage.

The banks between locks Nos. 3 and 6 have been raised, and about 150 toises of stone used on such portions as required protecting and strengthening.

The walls of locks Nos. 1 and 7 leak badly, and will require special attention before opening the canal. Portions of the breast and upper recess walls at lock No. 7 may have to be rebuilt; but an effort will be made to put them in working order for another season without incurring much expense.

The planks in the bottoms of locks Nos. 4, 5 and 6 have been raised at different times during the season. The entire bottom between the walls of the locks must be replanked; the upper gates at locks Nos. 2 and 4 rebuilt during the winter, and the gates at locks Nos. 5 and 7 repaired.

The bridges are generally in very good order. The wood work of No. 8 should be renewed, and others replanked.

The superstructure of the upper, or south portion of the wharf at St. Johns is in a very dilapidated condition, and should be repaired.

The by-washes are in good order.

The trade over this route has been very active throughout the entire season, which has, undoubtedly, been one of the most prosperous on record.

The cost of repairs and maintenance for the past year amounts to the sum of .....	\$ 7,631.00
and the working expenses to .....	6,357.08

The total expenditure .....	\$13,988.08
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and the total revenue \$25,262.53, viz :—

For fines and damages .....	\$ 134.00
For wharfage dues .....	57.87
For tolls .....	25,070.69
<b>Total amount collected .....</b>	<b>\$25,262.53</b>

The repairs and maintenance for 1864 are estimated to cost \$7,560 00.

#### ROADS.

A new road has been built from the centre of lot No. 11 to the centre of lot No. 28, in the front concession of Lancaster, County of Glengary, as a substitute for the old road, rendered impassable for a large portion of the year by the high water in Lake St. Francis. This work was commenced in June and fully completed in August.

The worst portions of the roads on the Indian Reserve, leading from Canghnewaga to St. Martin, and to Chateaugay, have been repaired and made passable. The season was well advanced when the work was commenced; the repairs were therefore confined to such portions as were considered impassable. The work should be resumed in May or June next.

I am, sir,  
Your obedient servant,  
(Signed) JOHN G. SIPPPELL,  
Superintendent Engineer.

### BEAUHARNOIS CANAL.

**DETAILED Statement of the Estimated Cost for Ordinary Repairs and Maintenance for 1864.**

Structures.	ITEMS.	Quantities.	Price.		Amounts.		Totals.	
			\$	cts.	\$	cts.	\$	cts.
Main Canal and Banks.....	General repairs.....say				1000 00			
	Stone for protecting banks.....toise	80	6 00		480 00			
	Mooring posts.....	50	2 00		100 00			
	Raising banks.....lin. yds.	300	1 00		300 00			1380 00
Ditches and Culverts.....	Cleaning ditches.....apts.	350	2 00		700 00			
	“ culverts..... say				150 00			350 00
Bridges .....	General repairs.....	8	40 00		320 00			
	Bridge at lock No. 14.....say				250 00			
	Plank for farm bridges.....F. B. M.	10000	12 00		120 00			690 00
Locks .....	Painting walls.....	8	30 00		240 00			
	General repairs to gates, &c.....	9	75 00		675 00			
	Wing walls.....c. yds.	300	1 00		300 00			
	Oak timber for gates, &c.....c. feet	300	1 00		300 00			
	Pine “ “ “ “ “ “	500	20		100 00			1615 00
Lock Houses.....	Ordinary repairs.....	18	20 00					360 00
Pier at Head Canal.....	Pine timber.....lin. feet	4000	18					720 00
Dykes and Dams .....	Dyke through Hungry Bay.....lin. yds.	2000	30		600 00			
	Dams.....say				450 00			1050 00
	Total estimated cost.....							\$7165 0

### BEAUHARNOIS CANAL.

STATEMENT of the amount of Fines and Damages collected by order of the Superintendent, for the year 1863.

Date.	Names of Vessels.	Master or Owner.	Amount.	Remarks.
			\$ cts.	
Last fall...	Barge Onward.....	Berry & Co.....	3 00	Damage to lock No. 13.
Feb. 22.....	E. Deschamps.....	Carter.....	1 50	Chopping a snubbing post.
May 11.....	Propeller West.....	Cowan & Co.....	10 72	Damage to gates, lock No. 11.
" 16.....	" Colonist.....	Jacques & Co.....	500 00	Carrying away lower gates, lock 10.
" 19.....	" Indian.....	do.....	5 36	Damage to gates, lock No. 12.
" 23.....	Steamer Ranger.....	Black & Co.....	20 00	Violation of canal regulations.
" 23.....	Schooner Admiral.....	Henry.....	12 00	Damage to lock No. 11.
June 15.....	Propeller St. Lawrence.....	Jacques & Co.....	8 20	" upper wing wall, lock 12.
" 16.....	Steamer Gem.....	Smith.....	10 00	Violation of canal regulations.
" 25.....	Barge Valorous.....	Berry & Co.....	1 50	Damage to lock No. 8.
" 29.....	Steamer Champion.....	Inld. Stm. Nav. Co.....	3 50	" to lock gate, lock No. 10.
July 20.....	Propeller America.....	Norris & Co.....	20 00	Fine and damage to bridge over lock 12
Oct. 15.....	Steamer Osprey.....	Henderson.....	8 60	Damage to upper wing wall, lock 8.
Nov. 6.....	Barge Kate.....	Robertson.....	4 00	Violation of canal regulations.
		Total.....	\$608 38	

(Signed)

PIERRE LAURENCEL,

*Superintendent.*

BEAUHARNOIS CANAL,  
December, 1863. }

### LACHINE CANAL.

DETAILED ESTIMATE of the cost of Repairs and Maintenance for 1864.

Structures.	I T E M S .	Quantities.	Prices.	Amounts.	Totals.
			\$ cts.	\$ cts.	\$ cts.
Locks .....	General repairs to walls.....	5	100 00	500 00	1000 00
	Gates, mitre sills, &c.....	5	100 00	500 00	
Bridges .....	Overhauling bridges 3 and 4.....say	2	300 00	600 00	1650 00
	Water wheel for opening No. 1.....say		50 00	50 00	
	Pine Plank.....feet B. M.	40000	20 00	800 00	
	Spikes for do.....lbs	1000	00 10	100 00	
	Pine timber.....lineal feet	500	00 20	100 00	
Regulating Weirs.....	General repairs.....	6	50 00	300 00	590 00
	Pine timber.....lineal feet	450	00 20	90 00	
	do plank.....feet B. M.	10000	20 00	200 00	
Piers & Booms at Lachine. Flour Sheds and Wharves.	General repairs.....say				50000
	Pine plank.....pieces	3000	30 00	900 00	2700 00
	Spikes.....lbs	2500	00 10	250 00	
	Timber.....lineal feet	1500	00 20	300 00	
	Water conductors to Sheds.....say			75 00	
	Roof to do....."			125 00	
	Dock Walls....."			500 00	
	Wood and Lumber basins....."			550 00	
				400 00	
Buildings .....	General repairs.....say	8	50 00		400 00
	General repairs.....say			3000 00	3200 00
Prism and Banks of Canal.	Mooring posts.....say	100	2 50	250 00	3200 00
	Total estimated cost.....				\$10,090 00

## STEAM DREDGE.

## DETAILED ESTIMATE of Working Expenses and Repairs for 1864.

Structures.	ITEMS.	Quantities.	Price.	Amounts.	Totals.
				\$ cts.	\$ cts.
Repairs.....	Deck and hull of dredge .....		say	200 00	
	Scows.....		"	100 00	300 00
Engine.....	Blacksmith's work.....		"	100 00	
	Engineer and assistant.....			85 00	185 00
Working Dredge.....	Six months' working expenses.....		\$650 00		3900 00
	Total estimated cost.....				\$4385 00

## LACHINE CANAL.

## STATEMENT of the amount of Fines and Damages collected by order of the Superintendent, for 1863.

Date.	Name of Vessel.	Master or Owner.	Amount.	Remarks.
			\$ cts.	
May 22...	Steamer Empress.....	I. S. N. Co.....	20 00	Damage to dock wall, basin No. 3.
do 30...	Barge Saguenay.....	McLennan.....	10 00	Fined for being abandoned in canal.
June 6...	do Maud.....	Robertson.....	50 00	Damage to lock No. 3.
do 16...	do Stadacona.....	Glassford & Co.....	30 00	do steam dredge.
do 25...	Schooner Peerless.....	Cook & Co.....	12 00	do upper gates, lock 4.
July 9...	2 rafts cedar.....	Leaperance & Co.....	10 00	Fined for being abandoned in canal.
August 3...	Steamer Bowmanville.....	Black & Co.....	35 00	Damage to bumping post & masonry, l. 3
Sept. 2...	Barge Lyre.....	Cowan & Co.....	10 00	do stone pillar, centre pier, W. bridge.
do 7...	2 piles of planks.....	Henderson.....	5 00	Fined for obstructing canal bank.
do 10...	1 double crib lumber.....	Corporation.....	5 00	do for being abandoned in canal.
do 21...	Barge Lily.....	Robertson.....	5 00	Damage to railing, Brewster's bridge.
October 1...	Schooner Caroline.....	Petit.....	6 00	do bumping post, lock No. 3
do 13...	Steamer Regas Ferreos.....	Clark & Co.....	40 00	do lower gates, lock No. 1.
do 22...	Schooner Adelaide.....	Thibaudeau.....	6 00	Breaking lamp, lock No. 3.
Nov. 5...	do City.....	Langlois.....	25 00	Damage to b. post & masonry, lock 4
do 21...	do Christine.....	Hamelin.....	10 00	Fined for violation of canal regulations
do 26...	do Philimen.....	Perrault.....	10 00	do do do do.
	Total.....		\$289 00	

(Signed)

ALEX. BISSETT,  
Superintendent.LACHINE CANAL OFFICE,  
Montreal, 18th December, 1863

## CHAMBLY CANAL.

DETAILED ESTIMATE of the cost of Repairs and Maintenance for 1864.

Structures.	ITEMS.	Quantity.	Price.	Amounts.	Totals.
			\$ cts.	\$ cts.	\$ cts.
Locks .....	General repairs.....	9	100 00	900 00	
	Oak timber for repairs to gates and for new gates.....cubic feet.	1000	1 00	1000 00	
	Pine timber..... do	500	0 20	100 00	
	Iron work.....say			150 00	2150 00
Bridges .....	General repairs.....	9	25 00	225 00	
	Pine timber.....cubic feet	1000	0 20	200 00	
	Pine plank.....feet B. M.	10000	20 00	200 00	
	Iron work.....say			75 00	
	Repairs to abutment. ....	4	25 00	100 00	800 00
Wharves.....	Pine timber.....cubic feet	3000	0 20	600 00	
	Stone filling.....toise	20	8 00	160 00	760 00
Cleaning out Canal and repairing banks.....	Cleaning bottom of canal.....say			1600 00	
	Protecting banks, &c.....lin. yards	6000	0 25	1500 00	
	Stone for do .....toise	150	5 00	750 00	3850 00
	Total estimated cost.....				\$7560 00

## CHAMBLY CANAL.

STATEMENT of the amount collected for Fines, Damages, &c., by order of the Superintendent, for 1863.

Date.	Names of Vessels.	Amounts.	REMARKS.
1863		\$ cts.	
June 8.....	Barge Holecomb.....	12 00	Damage to upper gates, lock No. 5.
do 15.....	do J. M. Carrier.....	1 00	do lock No. 3.
do 22.....	do St. Joseph.....	2 50	do bridge No. 7.
July 24.....	do Providence.....	4 00	do do No. 2.
August 19.....	do Jeannette.....	2 50	do do No. 7.
do 27.....	Steamer Erie.....	3 00	do lock No. 4.
Sept. 16.....	Barge Emu.....	1 50	do and fine.
do 18.....	do Providence.....	3 50	do lock No. 2.
do 21.....	Bateau (no name).....	1 50	do lock No. 3.
do 24.....	Barge Matilda.....	10 00	do fender, lock No. 4.
Oct. 2.....	Steamer Erie.....	4 00	do lock No. 4.
do 2.....	Barge Boule D'or.....	12 00	do lock gate No. 2.
do 2.....	Steamer John Redpath.....	1 00	do lock No. 6.
do 29.....	Barge Mary Mack.....	3 00	do lock gate No. 5.
do 30.....	Bateau Pride.....	4 00	do do No. 8.
Nov. 2.....	Barge Amy Hart.....	15 00	do bridge No. 6.
do 2.....	Barge of steamer Ida.....	2 50	do lock gate No. 3.
do 2.....	Steamer Erie.....	15 00	do bridge No. 7, and lock No. 3.
do 2.....	Barge of steamer Hope.....	2 00	do do No. 7.
do 5.....	Barge Liffey.....	1 50	do do do.
do 6.....	Barge Hubbard.....	6 00	do lock No. 5.
do 8.....	do No. 27.....	1 00	do lock gate No. 2.
do 9.....	Steamer Whitehall.....	2 50	do do No. 3.
do 12.....	Barge of steamer Gem.....	2 50	do do No. 7.
do 12.....	do do.....	4 00	Fined for abusive language used by captain
do 13.....	Barge St. Antoine.....	5 00	Damage to lock gate No. 6.
do 15.....	do St. Louis.....	1 50	do fender, lock No. 5.
do 20.....	do St. Michel.....	2 00	do lock gate No. 8.
do 21.....	do do.....	1 00	do bridge No. 6.
do 21.....	do Mary.....	0 50	do lock No. 9.
do 27.....	do St. Jean Baptiste.....	1 00	do do.
do 27.....	do Wertall.....	4 00	do lock gate No. 2.
Amount collected for wharfage.....		134 00	
		57 87	
Total.....		\$191 87	

(Signed)

C. PRÉFONTAINE,

Superintendent.

CHAMBLY, December, 1863.

## ST. OURS LOCK AND DAM.

STATEMENT of the Amount of Fines and Damages Collected by Order of the Superintendent, for the year 1863.

Date.	Names of Vessels.	Master or Owner.	Amount.	Remarks.
1863.			\$ cts.	
May 24.....	Barge "Orb".....	Shelton .....	1 00	Damage to upper pier.
June 9.....	do "Martin".....	Wasburn.....	2 00	Fine, and damage to pier.
do 27.....	do "Fame".....	Veile.....	2 00	do do do
July 17.....	do "Corsaire".....	Robillard .....	1 00	do d' to upper gate.
Aug. 2.....	do "Emu".....	Leroux.....	1 00	Damage to pier.
do 28.....	do "Martha".....	Rook .....	6 75	One list broken.
Sept. 12.....	do "Jane".....	Louis .....	0 50	One old list broken.
Nov. 25.....	Stmr. "Chambly".....	Lamoureux.....	1 00.	Damage to bumping post.
		Total .....	\$9 25	

(Signed) LÉVI LARUE,  
Superintendent.

ST. OURS LOCK, December, 1863.

## STE. ANNE'S LOCK AND DAM.

ESTIMATED COST in detail of the necessary Repairs and Maintenance for 1864.

Structures.	ITEMS.	Quantities.	Price.	Amounts.	Totals.
			\$ cts.	\$ cts.	\$ cts.
Wing Dam above Lock.....	Pine timber.....lineal feet	2500	00 20	500 00	970 00
	Pine plank .....feet B. M.	12000	20 00	240 00	
	Tamarac or Elm do.....do...	10000	20 00	200 00	
	Spikes for do.....lbs.	300	00 10	30 00	
Land Pier below Lock.....	Mooring posts.....	25	2 00	50 00	135 00
	Pine plank for footpath...feet B. M.	4000	20 00	80 00	
	Spikes .....	50	00 10	5 00	
Docking on river side of Lock.	Pine timber....lineal feet	250	00 20	50 00	95 00
	Tamarac or Elm sheeting...feet B. M.	2600	20 00	40 00	
	Spikes for do.....lbs.	50	00 10	5 00	
	Total estimated cost.....				\$1200 00

### STE. ANNE'S LOCK AND DAM.

COMPARATIVE Statement of the number of Steamers and other Craft that passed through the Ste. Anne's Lock during the seasons of 1862 and 1863, and the amount of Tolls collected.

VESSELS.	1862.			1863.		
	Number.	Tons.	Amount of Tolls.	Number.	Tons.	Amount of Tolls.
			\$ cts.			\$ cts.
British Steamers.....	923	49906	} 6944 68	1081	55497	} 5013 64
Sailing and other Craft.....	2991	186437		3860	255978	
American Vessels.....	86	5386		100	6798	
	4000	241729	5013 64	5041	318273	\$5013 64
Decrease in Tolls for 1863.....			\$1931 04	4000	241729	
Increase in Vessels and Tonnage for 1863.....				1041	76544	

(Signed)

**JOHN BARRETT,**  
*Collector of Tolls.*

STE. ANNE'S LOCK, }  
December, 1863. }

### CARRILLON AND GRENVILLE CANAL.

DETAILED Estimate of the Cost for Ordinary Repairs for 1864.

Structures.	ITEMS.	Quantities.	Price.	Amount.	Totals.
			\$ cts.	\$ cts.	\$ cts.
Locks .....	Excavating behind lock No. 1.....c. yds.	650	0 30	195 00	485 00
	Puddle behind wall..... " "	380	6 50	190 00	
	Painting, grouting, &c.....say			100 00	
	Rebuilding breast wall at lock No. 10 .....	50	8 00	400 00	450 00
	Unwatering work.....say			50 00	
	General repairs to lock walls, gates, sluices, &c.....say	11	100 00		1100 00
Feeder for Carillon Canal..	Repairing dams on North River....say			250 00	500 00
	Cleaning feeder, &c.....say			250 00	
General repairs to Canal ...	Cleaning bottom Carillon Canal.....say			150 00	2450 00
	do do Grenville do.....say			500 00	
	Protecting and raising banks.....say			1500 00	
	Repairs to fences and roads.....			300 00	
Lock Houses, &c.....	General repairs.....	11	25 00		275 00
	Total cost for ordinary repairs.....				\$5280 00
	Dredging channel above guard lock, say.....				1200 00
	Total estimated cost.....				\$6480 00

**CARILLON AND GRENVILLE CANAL.**

**STATEMENT** of the amount of Fines and Damages collected by Order of the Superintendent :—Also the amount collected for Ground-rent and Firewood, and for Vessels wintering in Canal, for the year 1863.

Date.	Name of Vessels, &c.	Amounts.	Totals.	Remarks.
		\$ cts.	\$ cts.	
1863.				
May 20.....	Steamers "Buckingham" .....	5 00		Displacing coping stone, lock 9.
do .....	"Sandford" .. .....	5 00		Striking wing wall, lock No. 3.
July 24.....	"Renfrew" .....	5 00		Removing stone, lock No. 9.
Aug. 26.....	"Conroy" .....	5 00		Breaking stone lower pier, lock No. 9.
do .....	"Peel" .....	2 00		Removing stone in wing wall, lock No. 9.
Nov. 22.....	"Morning Star" .....	2 00		Violation of canal regulations.
do .....	"Excelsior" .. .....	2 00		do do do
			26 00	
For 5 vessels wintering in canal..\$4 00			20 00	
	60 Cords wood at locks 1 and 2.....	1 00		
	112 do do 3.....	1 86		
	232 do do 4.....	3 88		
	\$110 do do 5, 6, 7 and 8.....	51 83		
	1176 do do 9.....	19 62		
	92 do do 10.....	1 52		
	1060 do do 11.....	17 63		
			97 34	
Total.....			\$143 34	

(Signed)

JOHN THOMSON,

*Superintendent.*

CARILLON, December, 1863.



## APPENDIX D.

### RIDEAU CANAL.

SIR,—In compliance with instructions conveyed to me in your letter dated 4th inst. No. 47,919, I beg respectfully to submit the following report on the state of the works under my charge.

The navigation of the Rideau Canal has been maintained during the past season, viz: from the 1st of May to the end of the month of November, without any interruption.

A sudden rise of the water occurred on the 14th of April, causing a flood, which lasted about ten days, which was almost as high as the one of 1862, that did so much damage to the canal. Additional provision had, however, been made in the works recently constructed to pass such floods, and the water now can easily be passed; the chief difficulty consists in managing the ice and drift wood. A waste weir, or overflow, of ample dimensions, should be constructed, if possible, at each station on the Rideau river, to pass these. The want of this provision has been a fruitful source of expense and trouble.

Appended is a comparative statement of the expenditure on the canal, for several years past; also a statement shewing in detail all the works and repairs required during the next season, amounting to \$16,317.93, as shewn in the schedule. Some of these, however, may last another season with some slight repairs, but they cannot be depended upon with certainty. It would, however, be advisable to have the timber provided for the lock-gates, and have them framed, as there are no spare ones on hand, in case an accident or breakage should occur. This canal is now in a better state than formerly, when it was transferred to the Provincial Government. A reference to the Hon. the Commissioner's report for 1858 will shew the state of the works at that time that were dangerous. Most of these which required reconstruction have since been rebuilt. They were chiefly wooden structures, or depending upon wooden structures for support. They had served their time, and were decayed and dilapidated.

The following is a brief description of the different works on the canals, and their condition at present.

### OTTAWA STATION.

The masonry of the combined locks, eight in number, is in good order. Two pairs of lock-gates are old and much decayed. They may last another year by care and some small repairs, but are not to be depended upon.

The old dry dock might be made useful at a moderate cost; vessels have now to be repaired in the locks. The lower lock and entrance to the canal is gradually being filled up with refuse from the saw mills at the Chaudière, as has frequently been reported.

The embankment at Dow's Swamp, which is 25 to 30 feet high, is subject to slips in the spring, on account of not having sufficient slope on the outside. The inner slope is, however, good and faced with gravel; the top is low and narrow and has been somewhat worn by the action of the water. It requires a quantity of gravel to make it quite secure.

### HARTWELLS.

At this station there are two locks combined; connected therewith is a cut stone waste weir, with a small opening in the centre to run off the water. The masonry of the locks is in tolerable good order, having been well grouted during the stoppage of the navigation last year. The masonry of the waste-weir is bad; the stones have been displaced by the frost.

A new pair of gates are required here; the present ones are old and have had the posts spliced, and have been patched as much they will bear.

From this station to Hogsback, a distance of a mile, the canal is located partly on side hill cutting; the bottom is about 30 feet above the Rideau River. Slips have occurred here which have been expensive to repair, and particular attention has to be paid to these banks.

**HOGSBACK.**

At this station the side cut from Ottawa, 5½ miles long, enters the Rideau river. The works are two locks combined, a retaining dam 45 feet high and 200 feet long, a bulk head with five openings or sluice gates, 20 feet wide by 15 feet deep each, and a by-wash or waste-weir over a rocky ledge about 100 feet wide. The chamber wall of the lower lock on the westerly side, is bulged in very considerably, and looks dangerous. It has been in this condition ten or twelve years or more. It may do duty in its present condition for some time to come, but it is uncertain.

The dam has been raised and faced with stone this fall. The other works are in good order. While the canal was lowered in 1862, a large quantity of sunken timber got dry, and when the water was let in; it floated. This increased the ordinary quantity of drift-wood very much. During the flood last spring an unusual collection, several acres in extent, accumulated in the bay above this station, and came down in a body against the bulk-head. No damage occurred beyond the expense of the removal of the jam. Something more will have to be done here to keep back the flood wood and ice from the sluices.

**BLACK RAPIDS.**

At this station, which is four miles above Hogsback, there is one lock, one cut stone sluice, retaining dam, a wooden waste weir dam 300 feet long across the river, with a 20 feet sluice gate in it for drawing down the water. The masonry of the stone sluice is very shaky and out of repair. It is prevented from falling by timber work. The wooden dam was lately built in place of a stone one, which had become unservicable. There is a leak under the lower lock gate, which will necessitate the pumping of the lock. This, however, will not be expensive.

**LONG ISLAND.**

The principal works at this station are three locks combined, a curved stone retaining dam, 340 long and 30 feet high, a long earth retaining dam, crib work retaining dam at the foot of the island through this there are two sluice gates each 15 feet wide. One and a half miles above, at the White Horse Shoal, there is a guard dam, opposite to which, in the westerly channel, there is a bulk head with five 20 feet openings or sluice gates. There is no waste weir dam at this station. Considerable expense and danger are incurred every spring in passing the ice and flood wood through the sluices.

The reach above is 27 miles in length. Every precaution should, therefore, be used to prevent accidents. Several minor works have lately been constructed to prevent damage, viz: ice-breakers, piers, a boom, guard dam and an apron at the dam at the foot of the island.

The repairs required at this station are very considerable. The stones composing the two centre sills of the locks are very much broken, and should be rebuilt, the cost of which will perhaps be \$2,600. The upper stones have been bolted down so often, that they are all split to pieces. These sills might perhaps be repaired in a temporary manner by fastening timber over them to make them last a while longer; it will, however, be running some risk of failure.

**BURBITT'S RAPIDS.**

There is a side cut here upwards of a mile in length, one lock, one swing bridge, long retaining dams of earth, wooden waste weir, dam 200 feet long across the river, with sluice gate. The sheeting of the dam requires renewal; some gravel is also required.

**NICHOLSON'S.**

Two locks detached, stone waste weir, dam across the river, two sluice gates; the side cut is partly through rock, and the canal formed by a dry stone retaining wall, a portion of which, about 800 feet in length, is overhanging, and some of it will probably fall in the spring. It ought to be taken down and rebuilt, but it may possibly last a short time longer.

**CLOWES.**

One lock; cut stone sluice, curved stone waste weir, dam across the river 480 feet long; several small repairs are required, amongst which is a new bridge over the by-wash or sluice, and machinery for raising the stop logs.

## MERRICKVILLE.

There are three locks at this station detached, but connected by masonry walls, enclosing small basins, one swing bridge, retaining embankments and a wooden waste weir dam 130 feet long across the river, with small sluice gates at each end of it. One of these sluice gates is unservicable and will have to be rebuilt. Some other repairs are required.

## MAITLAND'S.

One lock of small variable lift, one swing bridge, embankments and low wooden dam lately built across the river.

During low water, trouble was formerly experienced here. A considerable quantity of water finds its way through some low lands called the break grounds, on the easterly side of the station, and about one and a half mile distant. The late Ordnance built dams here, but the inhabitants cut them down, as they flooded a large quantity of valuable meadow land, and was an obstruction to their fishing boats. Since the dam at the lock was rebuilt and made water-tight, there has been sufficient water for navigation.

## EDMONDS.

One lock, cut stone sluice and waste weir, dam about 500 feet long, across the river! Some gravel and sundry small repairs are required here.

## OLD SLY'S.

Two locks combined, one draw bridge, curved stone retaining dam, and wooden sluice. The masonry of the upper wing wall of the lock is in very bad order, and must be rebuilt the first opportunity that occurs.

The reach above this station has been much injured by the saw mill people and manufacturers of wood at Smith's Falls, allowing the saw-dust and other refuse from their mills to fall into the canal until the navigation is almost destroyed.

## SMITH'S FALLS.

At this station there are three locks combined, one swing bridge, long retaining embankments and wooden flat pressure dam with sluice gate. The basin above these locks has been made by raising the water upon a lime stone rock full of seams, and it is very leaky. Many ineffectual efforts were made by the late Ordnance to stop these leaks. In very dry seasons the water partially drains off; in this case a supply is let down from the station above to pass vessels. A quantity of gravel and sundry repairs are required here.

## SMITH'S FALLS DETACHED.

One lock; retaining embankment and waste weir dam, composed of posts and struts with stop logs in front. The dam is very old, and portions of it break away occasionally, but it is easily patched up again. The lower gates require two new rails and the heel posts to be spliced.

## POONAMALIE.

This is the outlet of Rideau Lake. The works here are a side cut over a mile in length, one lock, a retaining embankment, long low dam of posts and struts, with stop logs in front. A sluice gate for regulating the water was constructed here last summer, and a boom about 500 feet long for retaining the drift wood; this boom is old and decayed, and requires renewing.

The lower Rideau Lake, above this station, is 19½ miles long, and in one place seven or eight miles wide. It is the principal reservoir for supplying the navigation during dry weather, so that much depends upon the proper management of the water at this station. During the winter the water is drawn down as low as possible, and as much retained of the spring floods as the works will allow. The River Tay enters the lake at Pike Falls, about five miles above Poonamalie. There are quite a number of dams on this stream, constructed in a very poor and cheap manner—these dams retain in the aggregate a large quantity of water, and are frequently carried away during floods, thereby increasing the trouble on the canal.

## NARROWS.

The station is at the outlet of the Upper Rideau Lake, which is the summit level of the Rideau Canal; it is reckoned to be 402 feet above the level of the sea, 292 feet above the level of the River Ottawa at this city, and 165 feet above the level of Lake Ontario. The works here are one lock, one long retaining dam and a small wooden sluice gate. The masonry of this lock is very shaky; one upper wing wall will have to be taken down and rebuilt. The gates also require some repairs. Piers are necessary here for vessels to fasten to, while waiting for the lock; one above the lock must be rebuilt, and the one below repaired. The supply of water to the summit level is of importance. There are several lakes connected together by creeks, upon which mills are built, extending from Bedford to the upper Rideau Lake, viz: Sand Lake, West Rideau Lake and Clear Lake. West Rideau Lake is about 25 miles area, and pondage could be got here to the depth of four feet, it is believed, without doing much injury to private property, as the banks are high. The Ordnance did once construct for the purpose a dam at the outlet of West Rideau Lake, but the lumberers cut it down, and it has not been rebuilt since.

The water was lost at this level about seven years ago; the trade was then continued by transporting the goods and merchandise across the isthmus with waggons for about six weeks. This subject of additional pondage has been mooted, and the mill owners on the Rideau have memorialized the Department respecting it; the greatest trouble will be to avoid infringing private rights, as people keep a sharp look out for claims upon Government for damages either real or imaginary. It is intended to make some further examination during this winter on the ice in relation to this subject.

## ISTHMUS.

This is the first lock downwards towards Kingston. There is one lock, a high wooden Queen post truss bridge with stone abutments lately built, and the rock cut through the dividing ridge about one and a half mile in length. This lock will require to be pumped to repair the gates and sills; it is proposed to make the dam at the entrance of the cut, so as to clear it from stones that have fallen into it from the banks.

## CHAFFEY'S.

From Newboro', or Isthmus, the canal passes through Mud, Clear and Indian, or Opinocan Lakes, to Chaffey's Station.

The works are one lock, a cut-stone sluice connected therewith. New machinery for raising stop logs is required.

## DAVIS.

From Chaffey's the canal passes through Davis Lake to Davis Station. There is one lock, retaining embankment, and wooden sluice gate built last winter. Repairs are required to the gates, which must be lifted; some of the posts have to be spliced.

## JONES' FALLS.

From Davis the canal passes through Sand Lake, three miles to this station. The works here are extensive, and cost upwards of £80,000 sterling. There are four locks in all (overcoming a fall of 60 feet), three combined, and one detached, but connected by a basin; a dressed-stone curved retaining dam 60 feet high and 300 feet long; the waste water runs through an extensive cut in the rock, and is regulated by stop logs.

The repairs required are the renewal of two pairs of lock-gates, one for the lower gates of the lower lock, and one for the lower gates of the upper combined lock; a retaining wall at the basin connected with the wing wall of the combined locks, is overhanging, and should be taken down and re-built.

These lakes are not the Clear and Sand Lakes mentioned before; they had their outlet formerly down Whitefish Creek to Gananoque, but the water was raised by building a dam in the Whitefish Creek, in which there are two sluice gates, through which a portion of the surplus water passes, and the canal lowered when required.

## BREWER'S UPPER MILLS.

This station is 11 miles from Jones' Falls, passing through Cranberry Lake. This was formerly an extensive swamp, but by raising the water it was converted into a lake

which connected the waters of the Ganaragus and Catarqui. The works here are two locks combined, retaining dam, small sluice gate, and swing bridge; the latter will soon require renewing.

#### BREWER'S LOWER MILLS.

One and three-quarter miles below; one lock; retaining dam; wooden sluice: Sundry repairs required.

#### KINGSTON MILLS.

Ten and a half miles below Brewer's Mills, the canal passes through the channel of Catarqui Creek and lakes of drowned lands, to Kingston Mills Station. There are four locks (overcoming a fall of 45 feet), three combined and one detached, but connected together by a basin, a very long retaining dam on each side of the locks, a out-stone sluice gate, a swing-bridge, and a wooden bridge over the old channel 250 feet long on the public road.

The repairs required here are the renewal of a pair of gates for lower lock; facing portions of the long dam with stone, (this has to be done more or less every season; and will be until the whole is faced); repairs to swing-bridge, and sundry repairs to the locks and machinery. A sum of \$120 will have to be laid out for sheeting one-half of the long bridge and renewing the hand rail.

A macadamized road has lately been made to intersect the Whitefish macadamized road, which has brought a large amount of travel over this bridge, for which the road company received tolls. The road company ought to do something to keep the bridge in repair, or take it altogether; if an accident should occur the Government will, I suppose, now be responsible.

The tolls received during the past season amount to \$8,242.38. The number of lockages at Kingston Mills has been 3120—being 2928 for vessels, and 192 for rafts. At Ottawa, the number of lockages were 744 for vessels, and 396 for rafts—total 1140.

I have the honor to be, sir,  
Your obedient servant,

(Signed) JAMES D. SLATER,  
Supt.

Ottawa, 9th January, 1864.

# BIDEAU CANAL.

STATEMENT showing cost of Maintaining Navigation from 1858 to 1868 inclusive.

	1858	1859	1860.	1861.	1862.	1863.
	\$ bta.	\$ eta.	\$ bta.	\$ eta.	\$ eta.	\$ eta.
Lockmasters and lock laborers .....	14658 36	13550 90	11887 50	11976 10	12087 70	12264 30
Office establishment and management.....	3649 20	4984 78	4418 34	4378 24	4382 06	4297 88
Ordinary repairs and incidental expenses.....	3681 74	4180 52	4498 80	2832 40	5010 04	4431 37
<i>Permanent Works and Construction</i>						
Long Island dam and bulkhead.....	20044 15	2132 41				
Smith's Falls do do .....			1768 02			
Newboro'—bridge re-built.....			1410 58			
Black Rapids—sill of lock re-built.....				742 05		
Long Island—new apron below dam.....				592 05		
do guard dam White Horse Shoals.....				500 25		
Burrill's Rapids—breach in embankment .....				8351 41	29842 91	
Brewer's lower mill—eastwall of lock re-built, and new floor.....					6143 97	
Hogback—dam and bulkhead re-built.....					1886 02	
Black Rapids—new dam .....						1202 94
Hogback—Hartwell's & Edwards, 3 pairs lock gates.....						656 00
Kingson Mills—Brewer's Upper Mills, 2 do do .....						400 00
Old Sly's—new bulkhead.....						
Peonamalie—new bulkhead .....						
<b>Totals.....</b>	<b>\$44021 45</b>	<b>24848 64</b>	<b>23962 04</b>	<b>29324 43</b>	<b>57852 00</b>	<b>22251 99</b>

**RIDEAU CANAL.**  
**SUMMARY OF REPAIRS FOR 1864.**

STATIONS.	Amount.	Remarks.
	\$      cts.	
Ottawa, first eight Locks.....	528 60	
Hartwell's .....	78 40	
Hogsback .....	178 77	
Black Rapids .....	312 52	
Long Island .....	2,980 30	Includes two new sills.
Burritt's Rapids.....	178 60	
Nicholson's.....	1,125 15	Includes rebuilding dry stone wall.
Clowes Quarry .....	444 62	
Merrickville .....	308 70	Includes new bulk head.
Do. ....	170 58	
Maitland's .....	91 00	
Edmond's.....	202 60	
Old Sly's .....	277 20	Re-building wing wall.
Smith's Falls, combined .....	327 16	
Do do., detached .....	153 97	
Poonamalie .....	136 40	New boom.
Narrows .....	795 80	
Isthmus .....	877 50	
Chaffey's .....	224 49	
Davis'.....	165 99	
Jones' Falls.....	981 62	Re-building retaining wall.
Brewer's Upper Mills .....	90 52	
Do Lower Mills .....	406 66	
Kingston Mills.....	585 78	
	<b>\$11,117 93</b>	
Six pairs new Lock Gates.....	4,800 00	
Contingencies.....	400 00	
Total.....	<b>\$16,317 93</b>	

*Repairs alluded to in Report which may possibly last another season, viz :*

	\$      cts.		
Ottawa, two pairs Lock Gates.....	1,600 00	Summary of repairs and works brought forward.....	\$16,317 93
Hartwell's, one " " .....	800 00		
Long Island, two new Sills.....	2,598 50		
Nicholson's, re-building dry Stone Wall	932 00		
Old Sly's, " Wing Wall....	215 00		
Jones' Falls, " " " .....	400 00		
Kingston Mills, one pair Lock Gates...	800 00		
Contingencies .....	200 00		
			7,540 50
Bal. nce required to put the Canal in navigable order .....			<b>\$8,777 43</b>

## APPENDIX B.

OTTAWA WORKS, SUPERINTENDENT'S OFFICE,  
OTTAWA, 26th December, 1863.

SIR,—I have the honor to acknowledge the receipt of your communication, No 47,920, of the 4th inst., requesting me to send to the Department, as early as possible, my annual report on the state of the works under my charge.

For the information of the Hon. the Commissioner, I would state that the river works on the Ottawa and its tributaries were little damaged by either the shoving of the ice or the spring floods; one of the support-piers of the Gatineau boom and a snubbing-pier in the Chats Lake, immediately above the rapids, were somewhat damaged, but not so much as to render them altogether useless for the purposes of the lumbermen. I should also add that certain portions of two dams on the north branch of the Petewawa River were destroyed by fire. In reporting on the works in detail, I will commence with those at the upper station on the main river, viz :—

JOACHIM.

The improvements at this station are nearly worn out and will require the following repairs:—

500 feet of 5-inch plank for dam on the south side of slide, say 2,500 feet B.M. of pine plank, say \$14 per M.....	\$ 35.00
Four new timbers 40 feet long, 16" × 16" —284 cubic feet, for repairing guide-boom leading from the foot of the upper slide to the head of long slide, @ 15c. per foot.....	42.60
The bulk head of the long slide will have to be renewed. I have estimated the cost of removing the old materials and substituting new posts, caps, platform, railing and stairs, and of mounting the crab machinery, @	186.00
Four new stop logs for bulkhead, 28 feet long, 14" × 14"—152 cubic feet @ 16c.....	24.32
	\$287.92

### CALUMET STATION.

The repairs required will consist of the renewal of the windlass and some of the oak binders for the large guide-boom, at a cost of about.....	8.00
New roadway planking for the bridge over the canal, 51 ft × 18 ft × 4 in: and a few outside braces, requiring in all 4,000 feet B.M. of white pine, @ \$12 per M.....	48.00
Two new stop logs, 78 feet, @ 12c . . . . .	9.36
Removing a quantity of loose stones from the bed of the canal.....	5.00
Two new stop logs for 2nd bulkhead, 78 feet, @ 12.....	9.36
300 cubic feet of white pine timber to replace bulkhead posts and caps decayed, @ 12c.....	36.00
Planking for bulkhead 32 ft. × 12 ft. × 3 in.—1,152 feet B.M., @ \$12 per M.....	13.82
Two new stop logs for head of long slide, 78 feet, @ 12c.....	9.36
Pine planking for bottom of slide, 1,500 feet B.M., @ \$12.....	18.00
Oak " " " 45 ft. × 6 ft. × 4 in.—1,080 feet B.M., @ \$24 per M. ....	25.92
Oak planking apron at foot of long slide—1,400 feet B.M., @ \$24 per M .....	33.60
Repairs for platform and stairs of lower slide.....	2.50
	\$218.92



## MOUNTAIN STATION.

The works there are in comparatively good order. A short stay-boom 50 feet long, made of double timber, will be required for the head of the slide, say 100 feet, @ 15c..... 15.00

One chain hook for upper bulkhead..... 1.50

Four white pine stop logs 28 ft. x 14 ft. x 14 in—152 feet @ 15c... 22.80

1,444 feet B. M. oak plank, @ \$30 per M..... 43.32

300 cubic feet of red pine for side of long slide, @ 15c..... 45.00

Filling guard-pier with stone where the stone filling has settled, 300 cubic yards, @ 60c..... 180.00

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**\$307.62**

## PORTAGE-DU-FORT STATION.

The outlay at this place will be small; some facing plank for the slide at the bulkhead, repairing stairs and platform, furnishing new stop log and patching the slide floor, will cost..... **\$30.00**

## CHENEAUX STATION.

The retaining booms and works in connection therewith are in good order, with the exception of the platform, which has become water-logged, and a crab that was broken last summer. I would recommend that a cheap flat-bottomed scow be substituted for the platform; it would be very useful for stretching and taking in the booms, besides supporting the crab required to open the "trip" boom to admit of the passage of steamers and rafts of square timber.

I have estimated the cost of a scow, 30 feet long 12 feet wide and 24 inches deep at..... \$100.00

Strong crab to be placed in scow..... 40.00

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**\$140.00**

## HEAD OF CHATS RAPIDS.

One of the piers at that station was considerably damaged by the moving of the ice from Chats Lake last spring; and as the lumbermen snub their rafts at this point, preparatory to running small bands of cribs through the rapids, it is very desirable that the pier referred to, should be repaired and strengthened. I propose to put an addition to it of 21 ft x 20 ft. x 20 ft., which will require of timber 1,800 cubic feet (white pine), @ 12½c..... \$225.00

Stone filling 18 ft. x 18 ft. x 21 ft—252 cubic yards, less space occupied by ties, 11 yards, say 241 cubic yards @ 60c..... 144.60

Iron spikes, 450 lbs, @ 8c..... 36.00

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**\$405.60**

## CHATS STATION.

The slide at this place passes more timber than any other on the Ottawa, as in addition to the rafts from above the Calumet, those from the Bonnechère, Madawaska and Mississippi rivers are taken through the Chats slide, there being no other opportunity of dividing the traffic between the north and south sides of the river, as at the Chaudière Falls. The fall is about 40 feet, so that the friction of the cribs on the bottom planking is very great; and as the floor of the slide is worn thin, I propose that it should be renewed. For this purpose 6,000 feet of pine plank 5 inches thick will be required—30,000 feet B. M., @ \$15 per M..... \$450.00

White pine timber for apron, say 1,000 cubic feet, @ 15c..... 150.00

Two pieces boom timber, 200 cubic feet, @ 15c..... 30.00

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**\$630.00**

LITTLE CHAUDIÈRE STATION.

The works at this station, consisting of a slide, long pier dam, from head of slide to the island, long wing flat dam, from the head of the island to the head of the rapids, and the guide boom and piers are all in good order and require no repairs. The same remarks are applicable to the Remous boom and piers in the immediate neighborhood.

HULL (NORTH CHAUDIÈRE) STATION.

The main slide (which was reconstructed two years ago) the wing dam at the head, the slide from the lower basin and the guide booms and piers leading to the slides, will be available for next year's business without repairs.

OTTAWA (SOUTH CHAUDIÈRE) STATION.

Having been authorized by the Hon. the Commissioner to execute certain repairs on the four slides at this station and the toll house at the Union Suspension Bridge, at an expense of about \$450, I would state that the work has been well advanced by the slide employees, and when completed everything will be ready for use in the spring.

The long line of booms and support-piers at the head of the slides, the dam and bulk-head extending from the head of Chaudière Island to Russell Island, the bulk-head in Buchanan channel and the dams connected with the water privileges at this station require no repairs.

UNION SUSPENSION BRIDGE.

Both courses of road-way planking are worn out; the lower tier is white pine three inches thick, and the upper one oak, two inches thick. The latter is exposed to the great tear and wear caused by the Upper Ottawa traffic, while the pine or lower sheeting rots speedily from the effects of the spray from the Chaudière Falls. I would, therefore, recommend that cedar planking be substituted for pine, as being lighter and more durable, and that black ash be laid on the surface instead of oak, which is scarce and expensive in this part of the country; but, before the change is made, I would suggest that the Deputy Commissioner or Chief Engineer of the Department should be consulted on the subject. The following is an estimate of the cost of the repairs:—

Cedar plank 246 ft. × 18 ft. × 3 in.—1,3284 feet B.M., @ \$15 per	
M.....	\$199.26
Ash plank 246 ft. × 18 ft. × 2 in.—8,856 feet @ \$13.....	115.13
Expense of stripping the bridge and laying both courses of planking...	50.00
“ “ spikes for planking.....	16.00
	\$380.39

These repairs should be executed during the winter months, so that the traffic may be accommodated at a crossing on the ice opposite this city.

THE LINE OF WOODEN BRIDGES,

Forming the southern approach to the Union Suspension Bridge, having been repaired lately, may be used another year. The wooden bridge over the Hull side channel requires no repairs. Pooley's bridge is in good order. In former reports—for reasons therein set forth—I recommended that this bridge be handed over to the corporation of this city. I would now respectfully repeat that recommendation.

CARILLON DAMS.

The water in the Ottawa River was lower last season than it has been since 1846, and the consequence was, at this station, that several boulders were found to be in the way of the timber. In winter the channel between the long dam and the shore is generally blocked up with ice to the exclusion of water. Should such be the case this winter, I would recommend that these boulders be removed, as the work can be done without going to the expense of constructing a coffer-dam, I have estimated the cost at... \$50.00.

TRIBUTARIES OF THE OTTAWA.—I. DU MOINE RIVER.

A detailed list of the works on this stream will be found under the head of new works. These improvements were completed last spring, and have given general satisfaction to the lumbermen on the river. A mooring chain should be provided for the boom at the mouth of the river, to take the place of one now in use, belonging to a firm connected with the Du Moine. The cost of a suitable  $\frac{3}{4}$  inch chain laid down at the works will be about..... \$50.00.

II.—PETEWAWA RIVER.

On the north branch of this stream improvements have been extended to a point about six miles above Lake Traverse. In this section of the country, which is very rough, the works consist of a dam and slide at High Falls, twelve dams and glance piers within a distance of six miles, and a retaining boom at Lake Traverse. These improvements were carried out two years ago and are in good order, with the exception of two dams that were partially destroyed by fire last summer. One of these dams, a very necessary work, is situated at McDonald's Chute. The following is an estimate of the cost of the repairs :—

White pine timber, 1,728 cubic feet, @ 14c (for upper dam).....	\$241.92
“ “ “ 564 “ “ “ “ (“ lower”).....	78.96
Planking for both dams, 18,520 feet B.M., @ \$13 per M.....	240.76
Spikes, 600 lb, @ 9c.....	54.00
	<hr/>
	\$615.64

The improvements at *Crooked Chute* and *Half Mile Rapids* require no repairs. On the south branch of the river the improvements consist of six single stick slides. The slide at Brigham's Chute is now old and dilapidated ; its lower end for a distance of 150 feet will have to be renewed at a cost of \$1.50 per lineal foot.....

225.00

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\$840.64

On the *Main River* the large retaining boom, support piers, dam and slide at the *Bois-dure station* are in good order and require no repairs ; this may also be said of the long slide, dam and boom at the *Third Chute* ; the long dam, slide, booms and support-piers at the *Second Chute* ; the dam, slide, boom and support-piers at the *First Chute* ; and also the long retaining boom and support-piers at the mouth of the river.

III.—MADAWASKA RIVER.

The following works on this important tributary of the Ottawa require no repairs that would render an appropriation for that purpose necessary, viz :—The slide, retaining booms and piers at *Chain Rapids* ; dams at *Bailey's Ducks* and *Boniface Rapids* ; dams and piers at *Ragged Chute* ; main dam, guide boom, support-piers and long slide at *High Falls* ; large retaining boom and support-piers in *Calabogie Lake* ; the glance-pier at *Balmer's Island* ; and the two dams at *Long* and *Flat Rapids*.

The boom at Burnstown was broken last spring and a portion of it displaced. As there is a swift current to be contended with, I have estimated the cost of placing the boom at..... \$ 20.00

At *Arnprior station*, one end of the retaining boom has hitherto been moored to the stump of a pine tree. This mode of fastening is not reliable, the more especially as the tree is decaying. I would, therefore, suggest that a mooring pier 12 ft. x 12 ft. + 7 ft. high should be built ; the materials required will be 432 cubic feet of white pine, @ 12c..... 51.84

Stone filling 23 cubic yards, @ 65c..... 14.95

The guide block that holds themooring oak picket, and three courses of crib-work must be renewed at a cost of, say..... 40.00

At the foot of the *Arnprior Slide* there is a reef which causes the timber to jam ; 25 cubic yards of rock should be blasted off, at \$1.50 per yard 37.50

Repairing facing plank of support-piers in lake.....	10.50
Renewing 50 feet of (double) spur boom at the head of slide, say 100 lineal feet of white pine timber, 15 in. × 15 in.—156 cubic feet, @ 14c...	21.84
	\$196.63

## IV.—GATINEAU RIVER.

As the quantity of timber taken from this river is annually on the increase, a due regard to the interest of the lumber trade renders it imperative that the upper portion of the large retaining boom, where it is single, should be strengthened. About two years ago the lower section was converted into six ply boom for a distance of 1,510 feet, and it is probably stronger than any similar structure in the country. It is now proposed to remove the decayed single timbers from the upper end of the boom for a distance of 710 feet, and substitute new double timbers 15 in. × 15 in. for them. For this purpose 2,219 cubic feet of white pine timber will be required, which will cost, when laid in the boom and prepared to receive the chains and necessary fastenings, 20c per foot.....

54 screw bolts 34 inches long, 1½ inch. round iron, 880 lbs, @ 10c...	83.00
108 cast iron washers, 3 lbs each—324 lbs, @ 5c.....	16.20
18 strong iron clevises for skein chains, @ \$1.50.....	27.00
There is in the storehouse at this station a chain cable from which the skein chains can be made, but the cost of cutting them off, and putting larger end links in, will be, say 18 skein chain, with two links each, 36 links @ 50c. ....	18.00
The upper mooring pier was damaged by the ice last spring; that por- tion of it commencing at the top, for a depth of 14 feet, must be removed and reconstructed. 1,120 cubic feet of white pine timber should be provid- ed, @ 12½c.....	140.00
101 cubic yards of stone filling, @ 50c.....	50.50
	\$778.50

The *wooden bridge* over the canal, leading from the river to the pond, was built two years ago and requires no repairs.

## NEW WORKS COMPLETED AND IN PROGRESS IN 1863.

The *Du Moine improvements* were completed last spring, and consist of a flat dam at the head of *Long Rapids*, 45 miles from the mouth of the river; a flat dam, two wing piers, three support-piers, guide-boom and reconstruction of the "Moffat" slide at "High Falls," 15 miles from the mouth; a flat dam *half a mile below High Falls*; a flat dam *one mile below do*; two flat dams and extension of Moffat pier *one mile and 60 rods below do*; a side flat dam at the outlet of *Robinson's Lake*; a flat dam at *Patton's Chute*; a side dam and certain rock excavation at *Trois Roches*; a flat dam at *Ryan's Chute No. 1*; two flat dams at *Ryan's Chute No. 2*; a flat dam at *Ryan's Chute No. 3*; two slide dams *near mouth of river*, and support-pier and retaining boom *at mouth of river*.

At a short distance below Portage-du-Fort station, an obstruction known as "Black Rock" was removed from the crib channel. The excavation was done last winter, and it has had a good effect on the running of timber.

The rock excavation, in connection with the deepening of the channel leading to the Little Chaudière slide, was put under contract at the season of low water, but the contractor failed to complete the work within the time specified. The sureties were then called upon in terms of their bond, and they prosecuted the work vigorously, until their workmen were compelled to leave the reef by the flood in the river, occasioned by the heavy fall rains. The work is well advanced, however, and it is hoped that it will be completed in March  
NEXT.

In asking for an appropriation for the repairs of the works under my charge, I would state that the estimates have been kept as low as possible, and it cannot fail to be satisfactory to the Hon. the Commissioner to know that so small an amount as that shown by the annexed recapitulation will cover the cost of the necessary repairs. An idea may be formed of the importance of these works to the Ottawa lumber trade, by a glance at the following figures:—

Year 1863—Square timber passed Chaudière slides, 16,821 cribs,  
equal to..... 351,255 pieces.  
Saw-logs from the Upper Ottawa arrived at Chaudière, about.... 120,000 "  
" " " " " Gatineau River..... 222,184 "

The tolls payable to the Government for the use of the Public Works in passing the above timber, amounted to over (\$50,000) *fifty thousand dollars*.

In respectfully submitting the above,

I have the honor to be, sir,

Your most obedient servant,

(Signed) HORACE MERRILL,

Supt. of Ottawa Works.

#### RECAPITULATION.

Estimated cost of repairs at Joachim....	.....	\$287.92
" " " Calumet.....	.....	218.92
" " " Mountain.....	.....	307.62
" " " Portage-du-Fort.....	.....	30.00
" " " Cheneaux.....	.....	140.00
" " " Head of Chats Rapids.....	.....	405.60
" " " Chats.....	.....	630.00
" " " Union Suspension Bridge.....	.....	380.39
" " " Carillon Dams.....	.....	50.00
" " " Du Moine River .....	.....	50.00
" " " Petewawa River.....	.....	840.64
" " " Madawaska River.....	.....	196.63
" " " Gatineau River.....	.....	778.50

\$4,316.22

Add for cost of inspection, as the works are hundreds of miles apart 600.00

Total cost of repairs..... \$4,916.22

#### OTTAWA WORKS.—PERMANENT STAFF.

1. Horace Merrill, Superintendent of Ottawa Works.
2. David Scott, Clerk of Ottawa Works.
3. Duncan Graham (Collector of Customs, Ottawa), Paymaster.
4. George Johnson, Messenger, Superintendent's office.
5. Hiram Crosby, Dy. Slide Master, River du Moine.
6. Moses Holt, senr., " " Joachim Station.
7. James Rowan, " " " Petewawa River.
8. Duncan Carmichael, " " " Calumet Station.

9. Walter Thomson, Slide Master, Mountain Station.
10. James McLaren, " " Portage-du-Fort Station.
11. James Barry, " " High Falls Station (Madawaska).
12. Duncan Macfarlane, " " Chats Station.
13. John Macdonald, " " Chaudière Station.

II.

Men occasionally employed on the Ottawa Works during the running season, in addition to the regular staff:—

		DAYS' WORK.
Petewawa River.....	8 laborers employed on slides about 3 months.....	624
Calumet Station.. ...	1 laborer " " " 4 " .....	104
Cheneaux Boom.....	1 boom-keeper " " 4 " .....	104
High Falls Station...	6 slide laborers " " 3 " .....	468
Arnprior Station...	1 acting deputy slide master about 4½ " .....	117
" " .....	1 slide laborer " 2½ " .....	65
Chats " .....	1 " " " 4½ " .....	117
Chaudière " .....	2 assistants on slide " 6 " .....	312
Hull " .....	1 acting dep'y slide master " 5 " .....	130
Gatineau Boom.....	2 men " 7 " .....	864
" " .....	2 men " 3 " .....	156
Carillon Dams.....	1 acting dep'y slide master " 5 " .....	130
Ottawa Works.....	1 foreman on beams " 7 " .....	182
28. Total days' work of men.....		2,873

OTTAWA, 25th Jan., 1864.

The above is a true statement, to the best of my knowledge and belief.

(Signed) D. SCOTT,  
Clerk of the Ottawa Works.

**APPENDIX F.**

SUPERINTENDENT'S OFFICE, ST. MAURICE WORKS,  
THREE RIVERS, 14th December, 1863.

SIR,—In compliance with your instructions of the 4th instant, I beg to submit my annual report on the state of the St. Maurice River Works for 1863.

During the season now closed the St. Maurice works have been carried on with much success, giving, I believe, entire satisfaction, so far as the management of the works were concerned, to every lumber merchant upon the river. With the exception of one piece of boom, which was broken at Shawenegan, but which occasioned no loss of lumber, no accident has occurred during the year.

About the usual amount of business has been done upon the river during the past season. There will, however, probably be a material increase during the coming year, in consequence of the American mills at this place, which have been idle for the past six years, going again into operation.

The repairs recommended by me on the 27th July, 1863, and authorised by the department on the 15th September, have been made within the amount named in my approximate estimate.

It may be seen by reference to my letter of the 27th July, above mentioned, that two small anchor piers and a scow for LaTuque, and one anchor pier and a scow for Shawenegan will be required before the opening of navigation next spring. Probable cost, \$400.

It will be noticed that the cost of repairs increases from year to year. This will occasion no surprise when it is considered that there are 43,181 lineal feet of expensive booms, 131 piers, 2,841 feet of side dams and 1,000 feet of slides, most of which are now about 12 years old.

The cost of repairs for the last four years has been as follows:—

Repairs, 1860.....	\$ 837.91
Do. 1861.....	850.44
Do. 1862.....	1,432.48
Do. 1863.....	1,511.50

The cost of maintenance for several years past has varied but little. The following statement shows the expenditure for the past seven years:—

Maintenance, 1857.....	\$11,870.00
Do. 1858.....	7,648.07
Do. 1859.....	7,234.54
Do. 1860.....	6,868.53
Do. 1861.....	6,608.05
Do. 1862.....	7,328.56
Do. 1863.....	6,888.40

In my annual report for 1861 I represented to the department the necessity of building a small stone house (hangard) on the island lately purchased from Lambert, for the purpose of securing our ropes, chains and other material. The one now in use is situated nearly a mile from the main booms, in an out-of-the-way place. It was broken open last winter and some articles stolen therefrom. It is covered only with boards, and leaks so badly as to injure the ropes, &c., very much. A new one can be made for £50; I would strongly recommend the expenditure.

The amounts asked for in this report are, therefore, as follows:—

Anchor piers and scows.....	\$400.00
Stone house at mouth.....	200.00
	\$600.00

The lumber trade on the St. Maurice is retarded to a very great extent in consequence of the inaccessibility of the timber. Those limits bordering upon the main river have been worked so long that they begin to show signs of exhaustion; while to penetrate the interior by the way of the tributaries so many obstacles present themselves as nearly to amount to a prohibition. I am of the opinion that were some of the larger tributaries, such as the Mattawa, Vermillon and Bostonais improved, it would be a great boon to the trade, and ultimately be a source of revenue to the Province.

I have the honor to be, sir,

Your obedient servant,

(Signed),

HENRY R. SYMMES,

Supt.

T. TRUDEAU, Esq.,  
Secy. Dept. Public Works, Quebec.

STATEMENT OF THE NUMBER OF MEN

Employed occasionally on the St. Maurice Works during the Running Season, taking in Booms, &c., with amount of Wages paid for 1863  
Men boarding themselves.

STATIONS.	No. of days' work. Jan. '63.	No. of days' work. Feb. '63.	No. of days' work. Mar. '63.	No. of days' work. Apl. '63.	No. of days' work. May '63.	No. of days' work. June '63.	No. of days' work. July '63.	No. of days' work. Aug. '63.	No. of days' work. Sep. '63.	No. of days' work. Oct. '63.	No. of days' work. Nov. '63.	No. of days' work. Dec. '63.	Total days' work. 1863.	Total Wages, 1863.	Average price per day.
Mouth of River.....	2	.....	23	72½	363½	196	121½	52	52	82½	.....	.....	965½	\$ 706 05	
Grés Falls, .....	.....	.....	.....	.....	58½	23	.....	.....	.....	.....	.....	.....	76½	74 85	
Shawonagan .....	7	.....	.....	117½	469½	252½	82½	3	161	.....	.....	11	1094½	1086 81	
Grande Meré.....	.....	.....	.....	29	225	50	.....	13½	23	.....	.....	.....	346½	326 06	
La Tuque.....	.....	.....	.....	.....	260	74½	.....	.....	.....	.....	.....	.....	334½	311 96	89 cents.
	9	.....	23	218½	1861½	596½	204½	68½	226	82½	.....	11	2811	2506 63	89 cents.

The number of days' work above given is equal to nine (9) men permanently employed, or about 14 men to each Station.

(Signed) HENRY R. SYMMES,  
Superintendent.

THREE RIVERS,  
January 26th, 1863.



**LIST OF PERMANENT OFFICERS**

Employed on the Saint Maurice Works, and the amount of their Salaries for the year 1863.

Stations.	Names.	Occupations.	Salaries.	Remarks.
Office .....	H. R. Symmes.....	Superintendent.....	\$1400 per year..	
Do .....	F. Hughes.....	Messenger.....	\$15 per month..	Left.
Mouth of River.....	J. B. Normand.....	Deputy Boom Master.....	\$2 per day.....	
Grès Falls.....	Francis Rousseau...	Deputy Boom and Slide Master..	\$2 per day.....	
Shawenegan Hétras.....	Arthur Rousseau....	Assistant do do	\$432 per year...	
Grande Mere.....	Alexis Lattreille...	Boom Keeper.....	\$1 per day.....	
La Tuque.....	Joseph Blondin.....	Do do .....	\$1 per day.....	

(Signed)

**HENRY R. SYMMES,**  
*Superintendent.*

THREE RIVERS,  
January 25th, 1864.

**APPENDIX G.**

**REPORT OF THE SUPERINTENDENT OF THE METAPEDIAC ROAD.**

(*Translation.*)

QUEBEC, 22nd Jan., 1864.

T. TRUDEAU, Esq, Secretary,  
Department of Public Works, Quebec.

SIR,—In answer to your letter of the 20th instant, in which you request me to report on the possibility of making use of the Kempt road for the central division of the Metapediac road, instead of constructing a new road, as proposed.

I have the honor to report that by making improvements on the Kempt road it might be adopted for the central division of the Metapediac road, but the portion thus used will always be inferior to the north and south divisions of the road, especially as regards level, owing to the fact that many of the numerous hills which are found on it have a grade of one in four; the others generally of one in six or eight, whereas on the north and south divisions the steepest grade is one in ten.

If the Kempt road be adopted for the central division the improvements to be made will cost \$17,252, as follows:—

27½ miles at \$450 per mile.....	\$12,262
One bridge in the St. Pierre River.....	1,500
One “ “ Metapediac River.....	3,500

**Total .....** \$17,262

In my humble opinion it would be more advantageous for the Department to have the central division made similar to the north and south divisions, adopting the new line proposed; because, after the expenditure of the above mentioned sums on this portion of the road, it will, owing to its position, require repairs almost every season, and after some years will have cost as much as the other portions of the road, and will be much inferior to them in every respect.

I think it my duty to add that the Kempt road appears never to have been formed like an ordinary road. The timber was only cleared 12 to 16 feet wide, and the ground levelled, hence the centre of the road, being 12 to 15 inches lower than the sides, acts as a ditch.

Humbly submitted.

I have the honor to be, sir,  
Your very humble servant,  
(Signed) JOSEPH ROSA,  
Supt. Metapedia Road.

## APPENDIX H.

St. FLAVIE, 30th December, 1863.

T. TRUDEAU, Esq, Secretary,  
Department of Public Works, Quebec.

SIR,—In compliance with your letter of instructions of the 4th instant, I have the honor to submit the following annual report on the works under my charge for the year ending the 31st Dec., 1863.

### METAPEDIAC ROAD.

The works accomplished on the northern, central and southern divisions of this road during the year 1863, are as follows:—

#### NORTHERN DIVISION.

Five miles of road, under contract, completed. A truss bridge 271 feet long, 18½ feet wide, comprising three spans of 50 feet each, constructed over the River Metis.

Some portions of the road repaired.

All the work given out by contract on this division has been completed, with the exception of two sections of about seven arpents each, which only require more crowning, and for which a sufficient drawback has been retained to ensure their completion next spring, within the contract price.

The total length of new road now completed in this division is about 25½ miles.

There still remains 7½ miles of road to be made through forest and a bridge to be constructed over the "Rivière Blanche," to complete the last link unfinished between the River St. Lawrence and Lake Metapedia. The construction of these 7½ miles will be a great boon to the travelling public, as this part of the old Kempt road which they are now obliged to use, is very hilly and rough.

#### CENTRAL DIVISION.

The two bridges of round cedar timber which were given out by contract last year have been completed. No other work can be done on this division until the line is located.

#### SOUTHERN DIVISION.

This division of the road is passable throughout, and has been used this year by the mail courriers and all travellers to and from Ristigouche.

A truss bridge over the River Assetmetquagan, a bridge of round cedar timber over the "Tree Islands Gulch," and 57 sections, making in all about 15½ miles of road under contract, have been completed this year.

There still remains 34 sections, forming an aggregate length of about 9½ miles unfinished; 16 of these lots have been abandoned by their respective contractors, of which seven lots have been given out by private contract, and the remaining nine will also have to be completed next year at an advance on the original contract price.

The total length of road comprised in this division from the forks of the River Metapediac to the residence of James Sillars, Esq., on the River Ristigouche, is about 38½ miles; of this distance 13½ miles were commenced and nearly completed under Mr. Lefebvre's superintendence, and the remaining 25 miles were given out by contract last year

#### KEMPT ROAD.

The temporary repairs of the Kempt road, which were commenced last year, have been completed, and the flooring of the bridges over the Rivers Metapediac and Causapsal repaired.

The following statement of the amount expended during this year does not include the amount expended on the southern division of the road last spring, while under Mr. Lefebvre's superintendence.

Total amount expended on the Metapediac road during the year 1863 :

#### NORTHERN DIVISION.

Cost of repairing portions of the road, including the replacing of a burnt bridge, by a large culvert and embankment.....	\$84.87	
Amount paid on contracts given out last year.....	6,074.52	
Amount paid to contractors for extra work.....	8.50	
		\$6,167.39

#### CENTRAL DIVISION.

Paid balance due on contracts for two bridges completed this year.....	\$140.07	
		140.07

#### SOUTHERN DIVISION.

Cost of repairing portions of the road.....	\$48.00	
Amount paid on the contracts given out.....	20,032.60	
Amount paid contractors for extra work.....	723.14	
		20,803.74

#### KEMPT ROAD.

Paid balance due on contracts for repairing portions of road, and for building a pier under the Causapsal Bridge	\$181.71	
Paid for repairing bridges over the Rivers Metapediac and Causapsal.....	81.50	
		263.21

#### METAPEDIAC AND KEMPT ROAD.

Cost of superintendence, general and incidental expenses, &c., up to 31st December, 1863.....	\$3,646.66	
Cost of outfit for the survey of the road.....	66.55	
		3,713.21
<b>Total expenditure.....</b>		<b>\$31,087.62</b>

Estimate of the probable amount required to complete the *Metapediac Road*, and to pay the balances due on existing contracts :—

## NORTHERN DIVISION.

Balance due on existing contracts.....	\$70.39	
Making 7½ miles of road through forest @ \$1,100 per mile.....	8,525.00	
A bridge over the "River Blanche".....	2,200.00	
Repairing portions of road made in 1860-'61, and completing portions made by day's labor last year.....	500.00	
		<u>11,295.39</u>

## CENTRAL DIVISION.

Constructing 27½ miles of road @ \$1,000 per mile	\$27,250.00	
A truss bridge over the "River St. Pierre".....	2,000.00	
" " " Metapediac.....	3,500.00	
		<u>32,750.00</u>

## SOUTHERN DIVISION.

Balance due on existing contracts.....	\$3,305.05	
Probable amounts required to complete the remaining lots abandoned by the original contractors.....	816.00	
A truss bridge over the River Causapscal.....	3,000.00	
Making hand-railing, culverts, widening and repairing the road made in 1858-'59-'60-'61....	6,000.00	
		<u>13,121.05</u>

Total amount required to complete the road, including superintendence, &c.....	<u>\$57,166.44</u>
--	--------------------

I beg leave to refer you to my letter to your Department, dated the 20th November, 1863, enclosing a statement showing the number of persons employed on the works this year, the salary paid to each, and the nature of their duties; and to inform you that the cost of superintendence would have been much less, and the service would have been more efficiently performed had I been allowed to choose my own assistants; as, when employes are appointed directly by the department, or through the influence of the member for the county, they generally feel quite independent of the superintendent, and do not pay a due regard to his orders.

## MATANE AND CAP CHATTE ROAD.

In accordance with a letter of instructions from the Department, dated the 21st October, 1863, authorizing me to expend one thousand dollars in repairing the Matane and Cap Chatte road; the work of securing the pier supporting the bridge over the Rivière du "Grand Mechin" was commenced on the 26th of October, and completed in November, but owing to the lateness of the season only a few of the worst portions of the road were repaired:

In the beginning of this month (December) I set men at work to get out the necessary timber for the construction of a bridge over the "Ruisseau à Sem;" this bridge will be about 200 feet long and 38 feet high, and, when finished, will avoid two very dangerous hills.

There still remains about ten miles of road to be repaired, and a bridge to be constructed over the "Ruisseau à la Wapper." The banks of this stream are steep and dangerous, and a bridge is very much wanted.

The amount required to build this bridge and to repair the ten miles of road next summer will be about \$1,725.

## TEMISCOUATA ROAD.

No work has been done on this road to my knowledge during the year 1863.

There still remains 1½ miles of road to be completed, and serious repairs are necessary in a great many places.

I have the honor to be, sir,  
Your most obedient servant,  
(Signed)

JOSEPH ROSA,  
Supt.

APPENDIX I.

STATEMENT showing the result of the proceedings before the Official Arbitrators in 1863.

Claims awarded on	Subject of Claim.	When referred.	Amount claimed.	Amount awarded.	With or without costs.	Date of award.
Benj'm. Brewster.....	Land taken for a slide on the Ottawa.....	1861	\$ cts.	\$ cts.		1863
Ignace G. Gagnon.....	Extra work, &c.—Contract for Saguenay Works.....	Jan. 21...	6000 00	520 00	without	Nov. 16...
Edward Slevin.....	Do Jail and Court House, Magdalen Islands.....	Oct. 19... March 16...	10855 90	3078 00	with	do 12...
Quebec Gas Co.....	Do Gas used in Legislative Council building during the period of its occupation by H. E. the Governor General.....	March 16... Oct. 15...	2694 00	1885 00	do	do 8...
CLAIMS STILL PENDING.						
Charles Peters .....	Extra work—Jail and Court House, St. Hyacinthe.....	1863 Feb. 20...	13473 60			
Wm. P. Bartley.....	Offset against rent—Hydraulic Lots Leebine canal.....	March 17... .....	.....			
Ira Gould.....	Compensation—Water withheld and land taken, &c, Leebine Canal.....	April 20... .....	39982 00			
CLAIMS STRUCK OFF THE ROLL.						
Denis Maguire.....	Supplies to Government Steamers.....	1861 Oct. 19...	138 30	claim	withdrawn.	

G. TUDOR PEMBERTON,  
Secretary Official Arbitrators.

QUEBEC, 31st December, 1863.

APPENDIX K.

PROVINCE OF CANADA for Provincial Steamers, in account current with Department of Public Works.

1862	Dr.	\$ cts.	1862	Cr.	\$ cts.
Dec. 31.....	To Stock of coals, &c., on hand used in 1862.....	5543 50	December 31.....	By Balance.....	21970 96
	To balance.....	16427 46			
		<u>21970 96</u>			<u>21970 96</u>
1863			1863		
Dec. 31.....	To amount expended in 1863, for outfit, fuel, running expenses and repairs.....	59365 39	January 1. ....	By Balance.....	16427 46
	" amount expended rebuilding "Advance".....	12132 93	October 31.....	" appropriation for 1863, 27 Vict., ch. 1.....	20000 00
	" do do "La Canadienne".....	7273 83	December 31.....	" Revenue for 1863 paid Receiver General.....	86631 87
	" amount paid for advertising sale of steamers.....	94 94		" proceeds of old iron and masts belonging to "La Canadienne," paid Receiver General.....	242 20
	" Stock of coals, &c., on hand in 1862, used in 1863.....	5000 00		" this amount, placed to the debit in 1861 to meet extraordinary repairs not proceeded with until 1863.....	7000 00
				" balance.....	4565 56
		<u>\$53867 09</u>			<u>\$53867 09</u>
1863			1863		
Dec. 31.....	To balance at debit of Steamers.....	4565 56	December 31.....	By stock of coals, &c. on hand, available for 1864.....	6887 80
	To balance.....	2302 24			
		<u>\$6867 80</u>			<u>\$6867 80</u>
			1863		
			December 31.....	By balance.....	\$2302 24

DEPARTMENT OF PUBLIC WORKS, }  
 February, 1864. }  
 J. BAINE, }  
 Book-keeper. }

## APPENDIX L.

CEDARS, 21st October, 1863.

T. TRUDEAU, Esq.,  
Secretary of Public Works, Quebec.

SIR,—I beg to transmit you herewith the detailed estimates, shewing the probable cost of repairing the landing piers on the north and south shores of the St. Lawrence, below Quebec. (*Not printed.*)

They would have been furnished a fortnight ago had I not been sent off unexpectedly to Lindsay.

The amount required to put each pier in a proper state of repair, or to restore each to its proper condition, has been estimated thus, viz:—

At Éboulements, on north shore. ....	\$ 345.50
Malbaie, " " Part of iron required is in Malbaie Jail. ....	281.08
At Berthier, on south shore. (I am not aware that any repairs have been done to this pier hitherto) . . . . .	403.20
At L'Islet, on south shore. (More traffic at this pier, apparently, than at any of the others. Some plank and timber on the spot) . . . . .	583.05
At Rivière Ouelle, on the south shore . . . . .	151.66
At Rivière du Loup, on the south shore . . . . .	572.24
At Rimouski, " " " (Exclusive of new work done) . . . . .	674.12

Total probable cost of repairs . . . . . \$3,010.80

The repairs to be done consist chiefly in the replacing of the iron straps, fenders, sheeting and planking torn off from the ends and sides of the piers, and from the slips thereof, by the ice or the vessels frequenting the same.

In other respects all the piers are generally in good order. This, I believe, is the ninth or tenth year since they were constructed. Their present condition shows that nothing has been expended on them hitherto, but what was essential to render them substantial and durable, and that the work formerly done has been well done in its most important parts.

## IRON STRAPPING AND BOLTS.

In repairing the iron work it is advisable that the heads of all the bolts for the straps to be put on, should be countersink and the bolts should be ragged, as they will then be less liable to be drawn out, not only by the ice but especially by those, who I am told, make it a practice to tear off the iron straps and to dispose of them afterwards; when the straps are torn off by ice, or vessels, they fall generally into the rivers, where several of them have been already found, and might still be found if a slight remuneration was offered to the boatmen at each locality. Some of the angle straps are fastened partly with copper bolts; although these resist the action of the salt water better than the iron bolts, because the heads last longer, their use is not advisable; because, the first place, they are too expensive; and, in the second place, they offer too much temptation to draw them out.

## FENDERS.

\*Many of the fenders have been torn off for the want of proper heads to the bolts; this should be provided against hereafter. The L'Islet and Rimouski piers are those that have suffered the most in this respect; there and elsewhere several of the fenders have been either split in two, or almost worn away by the ice; the new fenders should be of tamarack, red pine or black birch.

#### ZINC COVERS FOR SNUBBING POSTS.

At most of the piers the zinc covers put on the heads of the snubbing posts have been cut through purposely with axes, or pierced with musket shot, nails, walking canes and otherwise, against which cast iron covers alone would be secure; but these, of course, would be too expensive, owing to the great number required and the price of each, say \$4. I have, therefore, estimated new zinc covers, of No. 15 zinc, to restore the damaged, or missing ones, to preserve the posts against rot. With the exception of Berthier, where nearly all the posts are decayed, the posts elsewhere appear to be generally sound; those at Berthier are of elm, which seems to account for their rapid decay.

#### FLOORING AND SIDEWALKS.

At Berthier all the planking at the outer end of the pier and part of that on the sidewalks is decayed and requires renewal, together with the kerb-pieces or binders. At L'Islet a portion of the planking and kerb-pieces on the top of the pier is worn out, owing to the cartage and piling of large quantities of firewood, of which there were upwards of 40 cords ready for loading at the time of my inspection. Any replanking done hereafter on the tops of the piers should be fastened with 6-inch nails of about 14 to the pound, instead of spikes, which would save a considerable quantity of iron; the planking of some of the greatest thoroughfares of Quebec is fastened with such nails, which are found to be quite sufficient, after an experience of several years.

#### PAVING OF SLIPS.

The slips at Malbaie and l'Islet are those that have suffered the most, and where repaving is the most, urgently required; they should be repaired this fall if possible.

#### SIDE TIMBERS.

The slide timbers at the ends of the piers at L'Islet and Rivière du Loup, at or near the line of low water of spring tides, require to be repaired to prevent the escape of the stone filling; a few pieces of timber, if put in immediately, would secure such portions of the works against further damages during the coming winter.

At l'Islet part of the plank and timber required is already on the spot.

The first three piers to be attended to, therefore, are those of L'Islet and Rivière du Loup and Malbaie.

If the season was not so far advanced it would have been desirable to do all the repairs this fall, in order to secure the piers against still further damage during the winter.

If, with the exception just noted, the repairs are postponed until next spring, I do not, however, anticipate any material damage, excepting the loss of some of the iron strapping—several straps on the angles and sides of the piers being partly loose for the want of proper bolting; but these might be secured at once, during one tide or two, by a couple of men provided with 6 and 9-inch spikes at each of the piers.

Apart from the item of repairs enumerated in the estimates, it is possible that there may be others required near the line of extreme low water of spring tides, especially at the outer ends of the piers, when the ice appears to do the greatest damage, and which I could not see, the water not being at its lowest level.

The tolls that might be levied, and the regulations necessary for the future maintenance of various landing piers, will form the subject of another letter, so soon as other important matters now being attended to, will be disposed of.

I have the honor to be, sir,

Your most obedient servant,

(Signed) G. F. BAILLARGÉ.



APPENDIX M.

No. 1.—STATEMENT shewing the opening and closing of navigation at the Ports of QUEBEC, MONTREAL, and KINGSTON; (furnished by the Collectors of Customs of the respective places.)

Year.	PORT OF QUEBEC.			PORT OF MONTREAL.			PORT OF KINGSTON.				
	ARRIVALS.			No. of days from first arrival to sailing of last vessel.	Sailed for sea.	First Steamer for Quebec.	Last Steamer for Quebec.	Days of Navigation.	Open.	Closed.	Number of days.
	From Montreal Steamer.	From sea Ship.									
1830	April 17	April 26	December 4	232	December 4				April 27	December 19	222
1831	" 21	" 16	November 30	229	" 30				" 7	" 4	222
1832	" 29	May 4	" "	216	" 25				March 19	Jan. (1844) 1	370
1833	" 18	" 10	" "	222	" 24				" "	December 22	279
1834	" 18	" 6	" "	231	" 23				April 6	" 31	270
1835	May 4	" 2	" "	209	" 26				" 23	" 26	348
1836	" 11	" 11	" "	199	" 25				" 11	Jan. (1838) 16	281
1837	" 1	April 29	" "	204	" 18				" 6	December 18	257
1838	April 28	May 2	" "	204	" 20				" 8	" 26	255
1839	" 21	" 8	" "	217	" 23				March 19	" 23	280
1840	" 19	April 25	" "	225	" 29				March 19	" 23	280
1841	May 1	" 39	" "	214	" 28				April 23	" 31	253
1842	April 21	May 8	" "	222	" 28				March 24	" 31	283
1843	May 5	April 18	" "	225	" 28				April 25	Jan. (1844) 3	254
1844	April 23	May 3	" "	215	" 23				March 9	" (1848) 12	310
1845	" 25	" 1	" "	216	" 26				April 2	" (1846) 9	274
1846	" 17	April 24	" "	205	" 27				March 31	Jan. (1848) 6	271
1847	May 8	May 8	" "	223	" 26				April 11	December 30	272
1848	April 6	" 1	" "	230	" 31				" 8	" 31	273
1849	April 25	April 28	" "	215	" 25				" 5	" 26	266
1850	" 25	" 28	" "	218	" 28				" 2	" 22	265
1851	" 22	" 20	" "	222	" 29	April 21	November 30	224	" 19	Jan. 14, 1853	271
1852	" 26	" 16	December 4	219	December 4	April 21	December 19	250	" 19		

APPENDIX M.

No. 1.—STATEMENT shewing the opening and closing of navigation at the Ports of QUEBEC, MONTREAL, and KINGSTON; (furnished by the Collectors of Customs of the respective places.)—Continued.

Year.	PORT OF QUEBEC.			PORT OF MONTREAL.			PORT OF KINGSTON.			
	ARRIVALS.		Sailed for sea.	No. of days from first arrival to sailing of last vessel.	First Steamer for Quebec.	Last Steamer for Quebec.	Days of Navigation.	Open.	Closed.	Number of days.
	From Montreal Steamer.	From sea Ship.								
1853	April 23	April 24	November 26	218	April 29	December 1	226	April 4	Jan. 5, 1854	277
1854	May 5	" 9	" 20	208	May 1	" 2	216	" 10	" 18, 1855	279
1855	" 6	May 6	" 22	200	" 5	November 23	201	" 17	" 1, 1856	260
1856	April 27	April 28	" 23	211	April 29	" 25	211	" 8	December 31	268
1857	" 17	" 20	" 24	222	" 29	December 6	215	" 2	Feb. 2, 1858	307
1858	" 18	" 28	" 25	222	" 16	November 30	229	" 26	Jan. 8, 1859	258
1859	" 22	" 29	" 28	221	" 13	" 26	239	" 15	December 25	265
1860	" 26	" 28	" 26	215	" 16	December 2	231	" 12	Jan. 10, 1861	274
1861	" 26	" 22	December 2	221	" 26	" 2	221	" 8	" 4, 1862	272
1862	" 30	" 16	November 29	214	" 29	November 29	215	" 14	" 17, 1863	279
1863	May 3	May 4	" 27	209	May 2	" 30	213	" 16	" 1, 1864	261

No. 2.—STATEMENT shewing the opening and closing of the Welland, Burlington Bay, Williamsburg, Cornwall, Beauharnois, and Lachine Canals, St. Anne's Lock, Ottawa River, St. Ours' Lock, and Chambly Canal.

Year.	WELLAND CANAL.		WILLIAMSBURG CANALS.		CORNWALL CANAL.		BEAUHARNOIS CANAL.	
	Opened.	Closed.	Opened.	Closed.	Opened.	Closed.	Opened.	Closed.
1831	April 8							
1832	May 15							
1833	do 20							
1834	April 10	November 15						
1835	May 1							
1836	April 28							
1837	May 5							
1838	April 5							
1839	April 5							
1840	April 2	December 1						
1841	May 4	do 6						
1842								
1843	April 1	December 4						
1844	May 7	November 29						
1845	April 3	December 16						
1846	do 14	do 9						
1847	do 10	do 19						
1848	do 8	do 7						
1849	do 1	do 12						
1850	do 1	do 1						
1851	March 25	do 12						
1852	April 13	do 14						
1853	do 8	do 17						
1854	do 16	do 4						
1855	do 26	do 12						
1856	do 26	do 13						
1857	May 1	do 18						
1858	April 7	do 7						
1859	do 1	do 8						
1860	do 1	do 10						
1861	do 8	do 12						
1862	do 15	do 19						
1863	do 18	do 13						
1831			April 10	November 28	233			
1832			do 24	December 2	271			
1833			do 28	November 29	216			
1834			do 20	December 2	227			
1835			May 1	do 4	218			
1836			April 7	do 9	247			
1837			do 20	do 6	244			
1838			do 20	do 7	232			
1839			do 25	do 12	232			
1840			May 1	do 16	230			
1841			April 29	do 14	230			
1842			do 30	do 10	225			
1843			do 30	do 18	233			
1844			do 28	do 6	223			
1845			May 1	do 12	226			
1846			April 26	do 7	226			
1847			do 21	do 7	232			
1848			do 24	do 10	234			
1849			do 21	do 12	233			
1850			May 1	do 8	222			
1851			do 2	do 12	225			
1852			do 2	do 13	225			
1853			do 2	do 13	225			
1854			do 2	do 13	225			
1855			do 2	do 13	225			
1856			do 2	do 13	225			
1857			do 2	do 13	225			
1858			do 2	do 13	225			
1859			do 2	do 13	225			
1860			do 2	do 13	225			
1861			do 2	do 13	225			
1862			do 2	do 13	225			
1863			do 2	do 13	225			



No. 3.—The following table, taken from the report of the Canal Commissioners of the State of New York, shows the date of opening and closing of the Hudson river; also the time of opening and closing the Erie Canal, from 1824 to 1862, and the opening of lake Erie, from 1827 to 1862.

OPENING AND CLOSING OF THE HUDSON RIVER.		COMMENCEMENT AND CLOSE OF NAVIGATION OF ERIE CANAL.				
River open.	River closed.	Open days.	Canal open.	Canal closed.	Navigable days.	Opening of the Lake.
Mar. 3, 1824.....	January 5, 1825.....	309.....	April 30, 1824.....	December 4.....	219.....	
do 6, 1825.....	December 13, 1825.....	263.....	do 12, 1825.....	do 5.....	238.....	
Feb. 20, 1826.....	do 24, 1826.....	302.....	do 20, 1826.....	do 18.....	243.....	
Mar. 20, 1827.....	November 25, 1827.....	281.....	do 22, 1827.....	do 18.....	241.....	April 21, 1827.....
April 8, 1828.....	December 23, 1828.....	220.....	Mar. 27, 1828.....	do 20.....	269.....	do 1, 1828.....
May 1, 1829.....	January 11, 1830.....	246.....	do 2, 1829.....	do 17.....	280.....	May 10, 1829.....
Mar. 15, 1830.....	December 25, 1830.....	263.....	April 20, 1830.....	do 17.....	242.....	do 5, 1830.....
do 15, 1831.....	do 6, 1831.....	263.....	do 16, 1831.....	do 1.....	230.....	do 8, 1831.....
do 25, 1832.....	do 21, 1832.....	289.....	do 26, 1832.....	do 21.....	241.....	April 27, 1832.....
do 21, 1833.....	do 13, 1833.....	277.....	do 19, 1833.....	do 12.....	238.....	do 23, 1833.....
February 29, 1834.....	do 15, 1834.....	291.....	do 17, 1834.....	do 12.....	240.....	do 6, 1834.....
Mar. 25, 1835.....	November 30, 1835.....	268.....	do 15, 1835.....	November 30.....	230.....	May 8, 1835.....
April 4, 1836.....	December 7, 1836.....	243.....	do 25, 1836.....	do 26.....	216.....	May 16, 1837.....
Mar. 27, 1837.....	do 14, 1837.....	261.....	do 20, 1837.....	December 9.....	234.....	May 16, 1837.....
do 19, 1838.....	November 25, 1838.....	257.....	do 12, 1838.....	November 26.....	228.....	Mar. 31, 1838.....
do 25, 1839.....	December 18, 1839.....	256.....	do 20, 1839.....	December 16.....	241.....	April 11, 1839.....
February 25, 1840.....	do 5, 1840.....	265.....	do 20, 1840.....	do 8.....	228.....	do 27, 1840.....
Mar. 24, 1841.....	do 19, 1841.....	266.....	do 24, 1841.....	November 30.....	221.....	do 14, 1841.....
February 4, 1842.....	November 26, 1842.....	308.....	do 20, 1842.....	do 28.....	222.....	Mar. 7, 1842.....
April 13, 1843.....	December 10, 1843.....	242.....	May 1, 1843.....	do 30.....	314.....	May 6, 1843.....
Mar. 18, 1844.....	do 17, 1844.....	278.....	April 18, 1844.....	do 26.....	232.....	Mar. 14, 1844.....
February 24, 1845.....	do 3, 1845.....	263.....	do 15, 1845.....	do 29.....	228.....	April 3, 1845.....
Mar. 18, 1846.....	do 14, 1846.....	275.....	do 18, 1846.....	do 24.....	224.....	do 11, 1846.....

April 7, 1847	283	May 1, 1847	November 29	214	April 22, 1847
March 22, 1848	292	do 1, 1848	December 9	235	do 9, 1848
do 19, 1849	286	do 1, 1849	do 5	219	March 25, 1849
do 10, 1850	282	April 22, 1850	do 11	234	do 25, 1850
February 25, 1851	293	do 15, 1851	do 5	235	April 2, 1851
March 28, 1852	270	do 20, 1852	do 15	239	do 30, 1852
do 23, 1853	274	do 20, 1853	do 20	245	do 14, 1853
do 17, 1854	266	May 1, 1854	do 3	217	do 29, 1854
do 27, 1855	268	do 1, 1855	do 10	224	do 21, 1855
April 11, 1856	248	do 5, 1856	do 4	214	May 2, 1856
February 27, 1857	303	do 6, 1857	do 15	223	April 27, 1857
March 20, 1858	273	April 26, 1858	do 3	225	do 15, 1858
do 13, 1859	273	do 15, 1859	do 12	243	do 7, 1859
do 6, 1860	283	do 21, 1860	do 12	232	do 17, 1860
do 5, 1861	294	May 1, 1861	do 10	224	do 13, 1861
April 4, 1862	269	do 1, 1862	do 19	224	

APPENDIX N.

STATEMENT of the amount of produce received at Port of Montreal by Steamers and all other Vessels, and all other Vessels, via the St. Lawrence Canals, during the navigable season of 1861.

	Flour.	Wheat.	Indian Corn.	R e.	Peas.	Oats.	Barley.	Ashes.	Pork.	Beef.	Butter.	Apples.
	Barrels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Barrels.	Barrels.	Barrels.	Barrels.	Barrels.
By steam vessels, 1861.....	577,197	763956	128268	10996	190674	16857	14952	.....	8440	.....	.....	.....
Sailing Vessels.....	190,922	5885138	142741	14220	1190805	88424	111636	.....	1584	.....	.....	.....
	768,119	6589094	1555686	24516	1381479	105281	126588	11553	10024	245	39380	45549
By steam vessels, 1862.....	696,092	394499	92904	4536	68129	20608	26103	10079	18316	.....	13083	64912
Sailing vessels.....	74,903	7418662	2591436	76690	449443	63644	201643	617	5305	497	864	8551
	770,994	7808361	2684340	81126	517572	84252	277705	10896	23621	497	18947	68463
By steam vessels, 1863.....	603,819	416460	11376	.....	109081	5712	31416	12000	18380	512	7675	73532
Sailing vessels.....	94,036	4576902	790398	32256	591377	318432	261286	1100	6730	622	298	4738
	697,855	4993862	801774	32256	700459	319144	282702	13500	25550	1184	7973	78250

(Signed) ALFRED GOUGH, Collector.

LACHINE CANAL OFFICE,  
Montreal, 25th January, 1864.





APPENDIX O. (2.)

LACHINE CANAL.

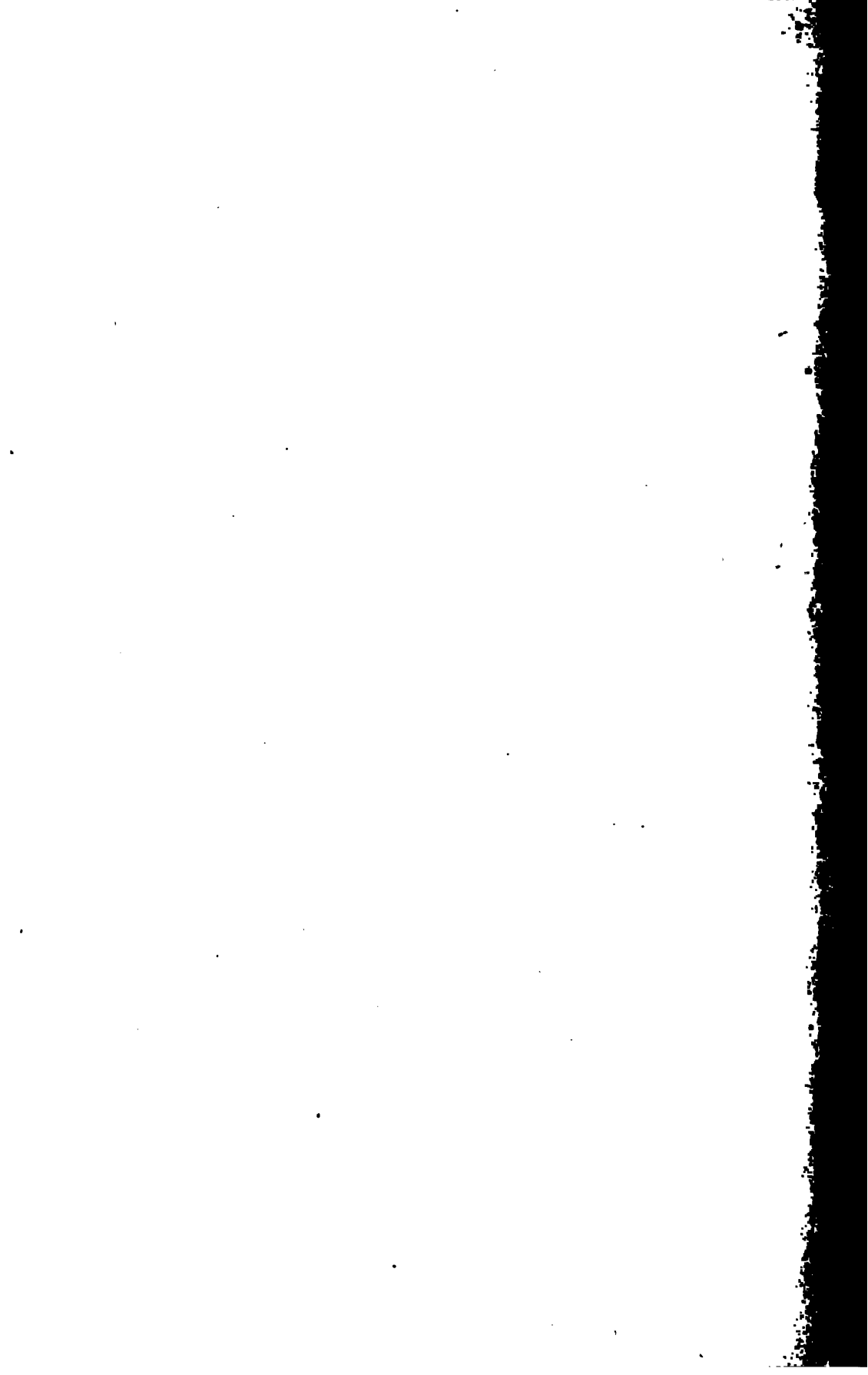
No 2—STATEMENT showing the number and class of vessels and freight which passed upwards through the Lachine Canal during the following mentioned years.

Years.	200 Tons and under. (Trips.)			200 to 300 Tons. (Trips.)			300 to 400 Tons. (Trips.)			Vessels passed through Lock No. 1.						Total number of Trips.			
										200 Tons and under. (Trips.)		200 to 300 Tons.		300 to 400 Tons.		Sailing Vessels.	Propellers.	Steamers.	
	Steamers.	Propellers.	Sailing Vessels.	Steamers.	Propellers.	Sailing Vessels.	Steamers.	Propellers.	Sailing Vessels.	Steamers.	Propellers.	Sailing Vessels.	Steamers.	Propellers.	Sailing Vessels.				
1858...	594	194	3046	77	36	159	54	230	3259	452	44	1766	8	63	90	7	460	107	1863
1859...	606	262	3182	79	40	220	33	302	3435	417	50	2102	11	9	216	35	428	59	2353
1860...	63	302	3218	67	34	228	47	706	3491	498	33	2169	5	34	182	25	503	67	2346
1861...	755	285	4081	56	73	262	56	812	4399	498	33	2169	2	21	101	20	546	43	2771
1862...	553	40	4299	78	53	171	32	956	4502	544	31	2670	2	21	101	20	546	43	2771
1863...	955	27	4237	56	40	106	21	1000	4364	112454	117697	11766	8	63	90	7	460	107	1863
										136780	117697	11766	8	63	90	7	460	107	1863
										121060	123784	113189	544	31	2670	20	546	43	2771
										113189	113189	113189	544	31	2670	20	546	43	2771

(Signed) ALFRED GOUGH.

MONTREAL, 25th January, 1864.





Commissioners of the

HALF-YEAR ENDING J

in accordance with the provisions of the  
of the  
of the

Printed by order  
of the



Printed by order



**GENERAL REPORT**

OF THE

*Canada - Dept.*

**COMMISSIONER OF PUBLIC WORKS,**

FOR THE

**HALF-YEAR ENDING JUNE 30, 1864:**

FURNISHED

In compliance with the provisions of the 28th chapter of the Consolidated Statutes of Canada, section 24.

Printed by order of the Legislative Assembly.



QUEBEC:

PRINTED BY HUNTER, ROSE & CO., ST. URSULE STREET.

1864.

1868, Sept. 14.  
By exch. of dupls.

...

C. W. McSengal  
July 15 1865

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# REPORT

OF THE

## COMMISSIONER OF PUBLIC WORKS,

FOR THE HALF-YEAR ENDING 30TH JUNE, 1864.

---

*To His Excellency The Right Honorable CHARLES STANLEY, Viscount  
MONCK, Governor General of British North America, &c.,  
&c., &c.*

MAY IT PLEASE YOUR EXCELLENCY:—

The annual reports hitherto laid before Your Excellency, from this Department, have embraced a full account of its transactions from the 1st of January to the 31st of December of each year.

The 6th chap. of the 27th and 28th Vic. has, however, provided that in future, the financial year of the Public Accounts of the Province shall extend from the 1st of July of one year, to the 30th of June of the next year.

The present report, therefore, embraces only the short period which has elapsed since the close of the report of 1863, namely: from January to July, 1864. The last Session having closed at the end of June, the works of 1864 could not be commenced before the month of July. This report is therefore necessarily brief.

The details of the expenditure during this period, arranged under their proper heads, in the usual tabular forms, are given in the Statements Nos. 1, 2, 3, 4, 5, 6 and 7, appended to this report.

No. 1. Statement of the several works under the charge of this Department, which are in use and yield revenue; shewing, under different heads, the expenditure on construction and the amount paid for land damages during the half-year ending 30th June 1864; the total cost of construction under this Department to the 1st July 1864, and the cost of repairs and management during the half-year ending 30th June 1864.

No. 2. Statement of the Public Works under the charge of this Department, not yet completed, and unproductive, but on which tolls are to be levied as soon as they are available; shewing the expenditure thereon during the half-year ending 30th June 1864,

on construction, and on repairs and management, and the total expenditure up to the 1st July 1864.

No. 3. Statement of the several Public Works and Buildings in charge of this Department, or in course of construction under it, yielding no direct revenue, but in use for the public service, and authorized by legislative appropriations; shewing the amount expended thereon during the half-year ending 30th June 1864, and the total outlay upon them up to the 1st July 1864; also the amount expended for repairs and maintenance during the half-year ending 30th June 1864.

No. 4. Statement of expenditure on certain miscellaneous services under this Department, during the half-year ending 30th June 1864.

No. 5. Statement of the expenditure incurred under this Department for the repairs, management and survey of the Ordnance Canals, for the half-year ending 30th June 1864.

No. 6. A detailed statement of the expenditure incurred in the repairs and maintenance of the Provincial Light-houses under the charge of this Department, for the half-year ending 30th June 1864.

No. 7. Abstract statement shewing the total amount expended under the Department of Public Works during the half-year ending 30th June 1864, as detailed in the foregoing statements numbered 1, 2, 3, 4, 5 and 6.

## CANALS.

The Provincial Canals were opened in the spring of 1864 at the following dates:

Welland Canal,.....	April 13
Williamsburgh Canals.....	“ 25
Cornwall Canal.....	“ 27
Beauharnois Canal.....	“ 24
Lachine Canal.....	“ 29
Chambly Canal .....	“ 25
St. Ours Lock.....	“ 7
Ste. Anne's Lock .....	“ 23
Carrillon and Grenville Canals.....	May 2
Rideau Canal .....	“ 1

### WELLAND CANAL.

Up to the 30th of June there had been no interruption in the navigation.

The annual repairs were completed in due time, and in a satisfactory manner.

The deepening of the summit reach, so as to bring it down to the level of Lake Erie, is progressing, and will, probably, be completed during the summer of 1865.

The piers at Port Colborne and Port Maitland were damaged by a storm on the 1st of January 1864.

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## WILLIAMSBURG CANALS.

These canals were kept in good working order up to the 30th of June, without any accident or case of detention.

A Steam-dredge was employed for one month, cleansing a portion of the Rapide Plat section of the canal.

The north pier at the entrance of the Rapide Plat Canal, for a distance of one hundred and fifty feet in length has been completed.

The lining of the inner banks of the canals with stone is in progress : a work highly necessary for the protection of the banks.

The wharves at Farran's Point and the lower entrance of the Rapide Plat Canal have also been repaired.

---

## CORNWALL CANAL.

General repairs to slope walls, embankments and ditches.

The Superintendent reports, that the temporary manner in which the Lessees of water-power from the canal have repaired the head-gates of their mills, last spring, has left them still in a leaky and unsafe state.

By an Order in Council, dated the 27th February, 1864, authority was obtained for the payment of \$1,000 to the inhabitants of Sheik's Island, in full compensation for the damage they had sustained by the destruction of a bridge connecting that island with the main land at Moulinette, and which had been swept away in October 1850, by a rush of water, caused by a break in this Canal.

---

## BEAUHARNOIS CANAL.

The swing-bridge at Lock No. 14 was rebuilt in the spring, and the gates, bridges, and walls repaired where necessary.

On the 31st of May a break occurred in the south bank, at a culvert near St. Timothy Bridge, but was effectually closed in the space of 32 hours.

---

## LACHINE CANAL.

Repairs of ordinary character. \*

Forwarders are still complaining of the impediment to the canal navigation, arising from the strong current which is created by the withdrawal of such a large body of water as is required by the manufactories situated on the banks of the canal, for the propulsion of their machinery.

---

Certain works having been lately commenced by the Montreal Harbor Commissioners near the the entrance of the Lachine Canal, at Montreal, some few remarks are required

thereon. The works alluded to consist of a line of crib-work, commencing at the lower end of the first lock, extending 610 feet on a line at right angles to the general direction of the canal, and then on a line parallel to the canal, for a distance of some 1300 feet.

The space between the crib-work and the bank of the canal is being filled with earth, dredged from the bottom of the river immediately outside of the cribs.

This new wharf, together with the basin formed by the dredging, appears to be designed in connection with the plan of a large dock, which is to form a new entrance to the Canal. The wharf, however, is available without reference to the proposed dock.

The scheme is on a large scale, embracing berths for ocean shipping and lake craft, railway dépôts, warehouses, and general wharfage.

These new works are of the greatest interest to the Department, not only because they occupy precisely the ground where it had been already proposed to build new locks, on the enlargement of the canal, but because the question of a proper terminus to our inland navigation is one of the highest importance to the commerce of the country.

It is not proposed to discuss here, whether the time has arrived either for the Government or for private companies, to enter at once upon the construction of a grand terminus for our canal system; but it is necessary, absolutely, to recognize that the time has fully arrived for the preparation and adoption of such a well-matured design, and on such a scale, as the development of our commerce has shewn to be imperatively demanded.

The great consideration of such a terminus is, that ocean vessels, lake boats, railway carriages, elevating warehouses, flouring mills, and general wharfage should all be in convenient communication with each other. To the proprietors of vessels, facilities for loading and unloading, insuring celerity and dispatch, are even of greater importance than the mere reduction, or the entire removal of tolls.

The disadvantages to the commerce of the country from the want of some well-digested scheme of this description are very serious. Railway companies are requesting, from the Government, permission to cross the canal or to occupy lands; private companies are applying for sites for warehouses, elevators and mills, or for permission to excavate basins; while the ship-builder is, year by year, demanding dry-docks. But, in the absence of some systematized plan, many of these applications are refused, under the vague apprehension that such works may interfere with future enlargements, and structures are allowed to be erected, which may ultimately become obstructions, to be removed only at a great expense.

The design, therefore, of a terminus should embrace a revision of the whole plan of the Lachine Canal and the Montreal Harbor, with its connexions, and the greatest facility should be given to the railways to have access everywhere. It does not follow that the proposed works should be executed at once, or that the Government should go into the building of harbors, or railways, or warehouses, or mills; but the adoption of such a plan as has been alluded to, would give a unity to the operations of the various commissions and companies, as well as to individual citizens, and would insure great economy in the whole conduct of our commerce.

In order to avoid useless expenditure, the question arises whether it would not be expedient to cause the Montreal Harbor Commissioners to submit to Your Excellency their designs for any large works in the vicinity of the canal, and to obtain Your Excellency's approval before proceeding with their execution.

---



---

## CHAMBLY CANAL.

Two pairs of lock-gates were built during the winter, and the bridges and gates were generally repaired.

A new foot-bridge was attached to the upper gates of Lock No. 1 at St. John's, and a ferry-scow was placed between the main land and the upper end of St. Thérèse Island.

The Superintendent remarks that the lock-walls and other structures are too light to resist the concussions caused by the large class of vessels now engaged on the route, and that this defect adds to the cost of maintenance.

---

## ST. OURS' LOCK AND DAM.

The claim of A. E. Kierzkowski for damages alleged to have been sustained by the water-power on his property, from the overflow at St. Ours' Dam, was referred to the Provincial Arbitrators in March.

No repairs have been necessary during the last half-year.

---

## ST. ANN'S LOCK

No repairs have been required here.

---

## CARILLON AND GRENVILLE CANALS.

Navigation was interrupted for a few hours, during high water, by the failure of the sluice-gates on the guard-lock at Grenville.

The breast-wall and mitre-sill at Lock No. 10 were rebuilt last April, and the walls of this and the other locks pointed and repaired. The lock-gates and sluice-frames were generally repaired, and a dredge was brought to the upper entrance of the Grenville Canal which commenced operations on the 21st of June.

Commercial men continue to complain of the smallness of the dimensions of these canals.

---

## RIDEAU CANAL.

Up to the 30th of June last, the principal repairs performed have been the sheeting of some of the lock-gates, the renewal of certain sluices and stop-logs, and the strengthening of some of the dams and culverts, the rebuilding of wing-walls of the locks and of certain bridges over the waste-weirs.

Several accidents having taken place within the last few years on this canal, the details of which have been given in previous reports, it was deemed advisable to have its mechanical structures examined by a civil engineer.

On the 14th of July 1863, Mr. G. H. Perry was instructed to carry out this object, and his report was received on the 20th of January last.

The River Ottawa, from Grenville to the mouth of the Rideau Canal, at Ottawa City, offers an easy and safe navigation for vessels drawing under six feet. It is, however, much to be regretted that these advantages are seriously interfered with by large accumulations of the refuse of the numerous saw-mills on the main river and its tributaries.

Great quantities of slabs and saw-dust have been thrown into the river, year after year, and most of them, becoming water-logged, sink to the bottom.

At several parts of the river extensive shoals have thus been formed, and if means are not adopted to abate the evil, it may increase to such an extent as to render its removal both difficult and expensive.

Complaints have been made to the Department of similar nuisances on other rivers.

---

### BURLINGTON BAY CANAL.

No accident has happened at this canal up to the 30th June last.

A new scow has been provided, and a few trifling repairs executed.

---

### NAVIGATION—NEWCASTLE DISTRICT.

No accident had occurred on these works up to the 30th of June.

The repairs of the year had not been commenced at that date.

---

## LAKE ST. PETER AND RIVER ST. LAWRENCE, BETWEEN MONTREAL AND QUEBEC.

The deepening of the navigable channel through Lake St. Peter, and other portions of the St. Lawrence between Montreal and Quebec, under the direction of the Montreal Harbor Commissioners, is progressing.

The Harbor Commissioners report that during the half-year ending on the 30th June, 246,837 cubic yards of earth were removed, and that the expenditure during the same period, was :—

For repairs to dredges, &c.....	\$12,047 62
Working expenses.....	18,450 44
	<hr/>
	\$30,498 06

---

## LAKE AND RIVER LIGHT-HOUSES, BUOYS, &c.

### ABOVE MONTREAL.

The various works connected with the lake and river lights above Montreal, which are under the immediate control of this Department, have been maintained in an efficient state during the past half-year.

The following is a list of the repairs, additions, improvements, &c. :—

*Lake St. Louis.*—The three light-ships repaired.

*Ottawa River.*—The light-ship repaired and new iron lantern furnished.

*Pointe Claire.*—The apron of the pier repaired.

*Jack Straw Shoal.*—The pier raised and strengthened, and the beacon renewed.

\* *Snake Island.*—Light-house and keeper's dwelling repaired.

*Nine-Mile Point.*—Light-house repaired.

*Range Light at Presqu'isle.*—Additional stone put into the piers of range and main light.

*Scotch Bonnet.*—Light-house and boat-slide repaired.

*Gull Island.*—Light-house repaired.

*Port Dover.*—Light-house repaired.

*Point Pelée Reef.*—Water-tank and boat-cranes fitted.

#### NEW WORKS.

A new pier has been constructed at Coles' Shoal, and the light-house repaired. At Pelée Island light-house, a new pier has been made, and additional stone work—placed in the old pier.

The lamps at the following places have been adapted to the use of coal oil, in addition to those previously reported :

False Ducks,	Scotch Bonnet,
Gull Island,	Mohawk Island,
Long Point,	Lake Erie,
Pelée Island,	and Bois Blanc.

The Superintendent reports that land should be obtained for the light-houses at the following places, viz :—Nine Mile Point ; Scotch Bonnet ; Pelée Island ; Christian Island ; Nicholson's Island, and the False Duck's Island. The last-named island is Indian property, and the Superintendent recommends the purchase of the whole of it.

The following are the amounts expended on the various items named for the past six months :

Repairs, .....	\$2,236 85
Supplies, .....	186 00
Coal Oil.....	249 88
Salary and travelling expenses of Superintendent.....	1,722 00
Light-house keepers' salaries.....	9,448 62
Placing light-ships and buoys.....	275 50
Advertising and printing .....	279 25
Storage of materials.....	173 17

\$14,571 27



### LIGHT-HOUSES BELOW QUEBEC.

The Trinity House at Quebec is about to establish beacons to enable navigators to avoid the N. W. reef of Biquet and the Alcide Rock.

A petition having been addressed to this Department for the establishment of light-houses at "Ile au Reau" and "La Montée du Lac," the matter was referred to the Trinity House, who have reported in favor of the establishment of these two lights.

The work of making an addition to the light-house pier at Crane Island, which was commenced in September of last year, had not been completed on the 30th of June.

Arrangements are being made for the construction by this Department, of a pier and light-house at Point St. Laurent, Island of Orléans.

No further action than that previously reported has been taken in reference to the construction of light-houses at the Bird Rocks or Cape Ray, so frequently and urgently recommended by the Quebec and Montreal Boards of Trade, and others interested in the navigation of the River St. Lawrence.

### TUG SERVICE, UPPER ST. LAWRENCE.

To secure an efficient tug service, from one canal to the other, on that portion of the St. Lawrence which lies between Montreal and Kingston, a subsidy has of late years been granted by the Government.

The service of this year, up to the 30th of June, was performed in a satisfactory manner by Messrs. Calvin & Breck, on the conditions stated in last year's report, viz. :—A bonus of \$12,000 for the season of navigation of 1864, and a tariff of towage, payable by the parties whose vessels are towed, ten per cent lower than the tariff of previous years.

The following statement shows the number of towages and the amounts received from ship-owners by Messrs. Calvin & Breck, from the opening of navigation this season, up to June the 30th :—

UPWARDS.	Towages.	\$ cts.	Towages.	\$ cts.
Lachine to foot of Beauharnois Canal.....	674	4,493 24		
Head of Beauharnois Canal to foot of Cornwall Canal.....	523	6,453 63		
Head of Cornwall Canal to Kingston.....	365	10,027 32	1,562	20,974 19
DOWNWARDS.				
Kingston to head of Cornwall Canal.....	266	5,877 17		
Foot of Cornwall Canal to head of Beauharnois Canal.....	380	3,559 38		
Foot of Beauharnois Canal to Lachine.....	542	2,754 73	1,188	12,191 23
Total .....			2,750	\$33,165 47

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## RIVER WORKS.

### OTTAWA RIVER.

The slides and booms under the charge of the Department, on this river, were thoroughly repaired during the winter and spring; and navigation was opened at the usual period for the passage of timber.

The waters of the Ottawa were unusually high last spring.

At the Chenaux Station, some difficulty has been experienced of late years in preventing saw-logs from being carried away under the booms by the current. To remedy this evil, the position of some 3000 feet of this boom has been changed; the necessary piers were built by the Lumbermen of Ottawa.

A Government land reserve at "Pooley's Bridge," Ottawa, was fenced in.

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### RIVER DU MOINE.

It having been ascertained that further improvements on the River du Moine were necessary, in order to bring into more extended use the works already constructed on this river, it was resolved that the works should be undertaken; and in view of the economy likely to result from the collection and preparation, during the winter, of the timber and other materials necessary for the proposed work, a contract was entered into for the supply of these materials, under the authority of an Order in Council passed on the 27th February, 1864.

The contractor, Mr. James Goodwin, not only provided the material, as required by his contract, but, encouraged by those interested in the lumber trade, actually constructed the additional work in anticipation of any authority or appropriation for the purpose.

The cost of these improvements, including a balance due on a former contract for work on this river, was \$8,165.72.

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### PETEWAWA RIVER.

It was submitted in last year's report, that if the Government works on the Petewawa River were extended as far as Cedar Lake, it would be a great advantage both to the Government and to the Lumbermen. The cost of the proposed works was estimated at \$13,847.89.

After further enquiry, Your Excellency's authority was obtained, on the 27th February 1864, to place this sum in the Estimates to be laid before Parliament at its next session, but, in the meantime, it was permitted that advantage should be taken of the winter months to obtain the materials necessary for the proposed works.

A contract was, therefore, entered into with Mr. David Moor, in March, for the supply of the necessary material, which was delivered in due time.

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### COULONGE RIVER.

In last year's report it was stated that the estimated cost of certain improvements on the Coulonge River, intended to facilitate the passage of timber, would be \$15,000.

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### MADAWASKA RIVER.

On the 4th of June 1864, the water being very high at the time, the boom at the mouth of the Madawaska parted, and a number of the logs that had been enclosed therein were carried away into the main river.

The break was promptly repaired.

It has been suggested that some of the works (which are now old, having been erected in 1845) should be renewed, and that additional boom accommodation with supporting piers, should be provided.

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### GATINEAU RIVER.

The Government boom at the mouth of the Gatineau was designed more for a guide-boom, than a retaining-boom, and was intended to conduct the logs to the entrance of a short artificial canal which leads from the Gatineau to a natural pond of some seventy acres in area, and which communicates with the main river.

Early in the spring a large quantity of saw-logs and square timber, which had been left by the Lumbermen within range of high water, descended the river; and, as the ice had not yet floated out of the pond, the logs accumulated outside against the boom to such an extent, that, on the 2nd of May, the boom gave way.

It was immediately restored. A design was then prepared which contemplated the entire reconstruction of the piers and booms at this station, and also the opening of a new canal from the Gatineau to the pond, which would have the effect of forcing a current through it, so as to float the ice away earlier in the spring, leaving the pond clear for the logs to lie in safety.

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### ST. MAURICE RIVER.

There is little information of importance to notice in regard to these works.

The booms were all laid out in working order on the 3rd of May last, and the operations of the season have been performed with much success, and with less than the ordinary amount of casualties.

The works, however, are getting old, and the sums required for annual repairs must necessarily be expected to increase.

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### SAGUENAY RIVER.

These slides have not required any repairs during the present half-year. Fifty thousand saw-logs were passed through them in June.

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## ROADS AND BRIDGES.

On the 30th of June 1864, the works on most of the roads had not commenced.

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### HAMILTON AND PORT DOVER ROAD.

The repairs made between the 1st of January and the 30th June last, were slight.

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### TORONTO ROADS.

The repairs on these roads consist principally in renewing the surface material. The outlay from the 1st of January to the 30th of June was \$9,773.46. For details, see Appendix —.

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### WINDSOR AND SCUGOG ROAD.

See "Port Whitby Harbor, and Windsor and Scugog Road," page 15.

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### METAPEDIA ROAD.

Very little had been done on this road up to the 30th June.

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### MATANE AND CAP CHATTE ROAD.

The Engineer in charge here reports that the construction of this road is progressing.

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### GASPÉ AND ST. LAWRENCE ROAD.

Progressing.

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### LINDSAY BRIDGE.

On the 30th June 1864, the construction of this bridge was progressing.

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### BATISCAN BRIDGE.

An Order in Council, passed on the 11th March 1864, authorized the leasing of this bridge at a nominal rate.

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### UNION SUSPENSION BRIDGE, AT OTTAWA.

Some slight repairs.

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## PROVINCIAL VESSELS.

The department has charge of four steam vessels, viz. :—The *Napoleon*, *Victoria*, *Lady Head*, and the *Advance*.

These vessels are maintained by the Government for the performance of the following services :—

To convey the mail from Quebec to the Lower Provinces.

To convey supplies to the light-houses and provision dépôts in the Gulf of St. Lawrence.

To place the buoys on the River St. Lawrence in their proper position, to maintain them there during the season of navigation, and to take them up again at its close.

To carry the pilots and their apprentices on their annual inspection of the channels of the river.

To relieve vessels in distress, and to tow vessels, for hire, when called upon by the trade.

These steamers were put into good repair in the spring. Their duties were performed, up to the 30th June last, without accident:

For details, see Appendix —.

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### “LA CANADIENNE.”

The schooner *La Canadienne* was repaired last winter, and strengthened in her hull, by the addition of iron knees. Her spars and rigging were also overhauled, and she was made ready for service at the opening of navigation.

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## HARBORS AND PIERS.

No repairs of importance have been made to the harbors and piers from the beginning of the year to the 30th of June.

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### PORT WHITBY HARBOR, AND WINDSOR AND SCUGOG ROAD.

The Port Whitby Harbor and the Windsor and Scugog Road were, on the 15th of October, 1850, under authority of the Acts 12 Vic., cap. 5, and 13 and 14 Vic., cap. 14, sold to the Port Whitby and Lakes Scugog, Simcoe and Huron Road Company for £20,000, payable by instalments, as set forth in an Order in Council of the 3rd July, 1852.

The said Company having made default in the payment, and having petitioned, in 1858, for a remission of the interest then due, an Order in Council was passed on the 10th September 1858, authorizing a remission of three years' interest, on condition of completing certain new works at the Harbor, which repairs or works the said Company do not appear to have made.

A Writ of Extent was issued at the instance of the Law Officers of the Crown in

December 1862, and the moneys then in the hands of the secretary, and deposited in a Bank to the credit of the Company, were, with other assets of the Company, seized for the benefit of the Crown, and a Receiver appointed to collect the tolls and other profits of the works. Authority was also granted by Order in Council of the 19th May 1863, for an immediate resumption of the works by the Crown.

On the 21st March, 1864, this harbor and road were declared, by proclamation of His Excellency, to be no longer under the control and management of the Department of Public Works.

On the same day, viz. : the 21st March 1864, an Order in Council was passed granting to the Port Whitby Harbor Company the piers, break-waters, approaches and other works, together with the tolls derived therefrom. The grant was made on condition that the Company should pay to the Government the sum of \$35,150, and that any lands covered with water, lying between the easterly pier and the shore, should be reserved by the Government.

By another Order in Council of the same date, viz. : 21st March 1864, the Windsor and Scugog Road, with the tolls thereon, was granted to the Whitby and Scugog Gravel Road Company for \$10,000, on condition of keeping the same at all times in thorough repair.

A water lot, adjoining Whitby Harbor, situate between the easterly pier and the shore, was granted to Chester Draper, by deed dated 18th March 1864, for \$1000.

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## OFFICIAL ARBITRATORS.

On the 19th March last the Arbitrators came to a decision in the case of Augustin Trépanier, contractor for the erection of a court-house and jail at Beauce, allowing him no damages or costs.

On the 30th of June there were still five claims pending before the Arbitrators.

The details of these claims will be found in the Appendix H.

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## PUBLIC BUILDINGS.

Very little expense has been incurred, during the six months ending the 30th of June, upon the public buildings in charge of the Department.

The following is a list of those upon which small amounts have been expended, either for repairs or otherwise, viz :—

Hamilton Custom House.

London Post Office.

Montreal Jail.

Montreal Normal School.

“ Post Office.

“ House, Jacques Cartier Square.

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Quebec Court House.	Quebec Old Custom House.
“ Gates for old Chateau, Garden.	Aylmer Court House.
Montmagny Court House.	Arthabaska Court House.
Spencer Wood House.	Parliament Buildings, Quebec.
Kingston Custom House.	Seven Islands Custom House.

At the Marine Hospital, Quebec, the inside wood-work has been painted, and an addition made to the heating apparatus.

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### QUEBEC DRILL-SHED.

On the 15th December 1863, a contract was entered into for the erection of a wooden building in St. Lewis Ward, 220 feet long by 84 feet broad, to be used as a drill-shed. The building was not completed on the 30th of June last.

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### COURT HOUSES AND JAILS.

There are still some works necessary for the completion of the several District Court Houses and Jails, constructed by the Department, at the following *chef lieux*, viz:

Ste. Scholastique, Industry, Sorel, Malbaie, Rimouski, Montmagny, Beauce, Arthabaska, Nelsonville, St. Hyacinthe, St. Johns, Beauharnois, Chicoutimi.

These require jail-yards, enclosed either with a stone-wall or a strong wooden fence, wood-sheds, outside water-closets, porches, stove-pans, &c.

*Malbaie Jail.* No appropriation having been made for this jail during the last session, the works referred to in last year's report, as having been commenced, were countermanded.

*Kamouraska Jail.* The reconstruction of this building is progressing, and will be completed in the autumn of 1864.

*Quebec New Jail.* From January to April 1864, the contractors suspended operations. From April up to the 30th of June, the works were progressing at such a rate as to ensure their completion by the autumn, and everything was being done in a substantial and workmanlike manner.

That portion of the central wing which is to contain the dining-room and infirmaries has not yet been commenced; but as the jail contains other rooms which can be temporarily devoted to these purposes, the occupation of the prison need not be delayed on that account.

There are still some works necessary to the completion of this jail, viz :

To introduce gas and water into the building, from the road.

To put up double windows.

To build out-door water-closets, with cess-pools.

To point the stone-work with cement, and to change the form of the gutters.

A jail-yard, with a stone wall, is also necessary.

*Montreal Jail.* The continued complaints of the want of proper jail accommodation here, lead to the conclusion that the present jail is quite inadequate to the increasing population of the district.

*Sherbrooke Jail.* Plans will shortly be prepared for this building.

*Court House and Jail at Sault Ste. Marie.*—An architect will be sent to this place, in the spring, for the purpose of gaining the information necessary for the preparation of a plan.

### PUBLIC BUILDINGS, OTTAWA.

From the date of the last report to the 30th of June of this year, the works in connection with these buildings were carried on with great diligence.

After a very full discussion as to whether the legislative halls should be lighted with ordinary gas chandeliers, or by means of gas-jets placed in the attics over the halls—the light descending through glass panels in the ceiling, it was decided to adopt the ordinary suspended gas chandeliers.

The chief reasons which led to this decision were, first, the greater cost of original construction if the attic light was adopted; and secondly, the much greater quantity of gas required to give the same amount of light.

The question of supplying the gas to these buildings, has also been before the Department.

The relative merits of coal and petroleum gas have been discussed, and from a report called for by the Department from Professor Hunt, of Montreal, it appears that coal gas should be adopted.

The total amount expended in connection with these buildings, up to the 30th June 1864, was \$1,513,412.36.

A property known as the Rideau Hall Domain, and lying in the immediate vicinity of Ottawa, has been leased by the Department, at the rate of \$4,000 a year, for the purpose of converting it into a temporary residence for Your Excellency.

The lot leased contains some 70 acres of land, with a house, pleasure-grounds and several outbuildings.

### INTERCOLONIAL RAILWAY.

The survey of this proposed line of Railway was authorized in 1863, and on the 22nd of August of that year Mr. Sanford Fleming was appointed Engineer in charge. On the 11th of March, 1864, he was instructed by the Provincial Secretary of the late government to examine the various practicable routes for a railway between Canada and the Lower Provinces. He was also requested to report on the comparative merits of each of the lines, and the probable cost of their construction.

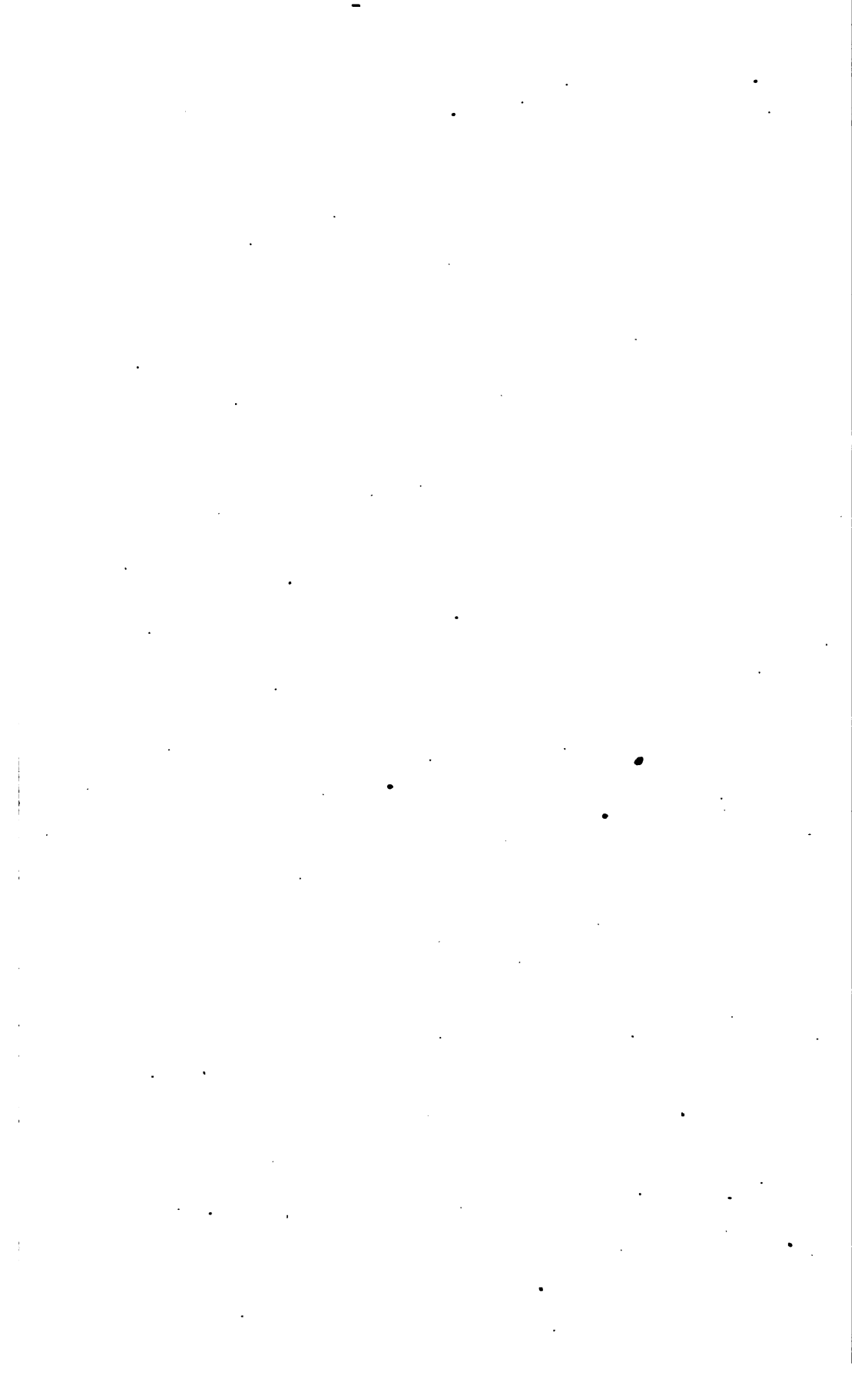
On the 30th of June the Survey was being proceeded with.

All of which is respectfully submitted.

J. C. CHAPAIS,  
*Commissioner of Public Works.*

DEPARTMENT OF PUBLIC WORKS,  
Quebec.





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APPENDIX TO REPORT  
OF THE  
COMMISSIONER OF PUBLIC WORKS.

FOR THE HALF-YEAR ENDING 30<sup>TH</sup> JUNE, 1864.

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## APPENDIX A.

## No. 1.

STATEMENT of the several Works, under the charge of this Department, which are in use and yield revenue; shewing, under different heads, the expenditure on construction and the amount paid for land damages during the half-year ending 30th June, 1864, the total cost of construction under this Department to the 1st July, 1864, and the cost of repairs and management during the half-year ending 30th June, 1864.

WORKS.	Expenditure on construction for half-year ending 30th June, 1864.	Amount paid for damages during the half-year ending 30th June, 1864.	Total expenditure on construction to 1st July, 1864.	Cost of repairs and management for half-year ending 30th June, 1864.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Welland Canal.....	16648 00		4783108 70	22639 51
<i>St. Lawrence Canals, vis :</i>				
Lachine.....	1496 05		2118398 63	9206 38
Beauharnois.....		462 96	1597866 77	5710 90
Cornwall.....			467150 70	4564 06
Williamsburg.....			1039739 93	3211 83
Junction.....			230796 11	
New Lock Gates.....			39830 22	
General expenditure.....	148 32		74983 52	68 40
Chambly Canal.....			69774 51	7308 24
St. Ours' Lock.....			123137 65	672 99
St. Ann's Lock.....			114596 49	100 17
Burlington Bay Canal.....			291044 49	547 96
<i>Slides, Dams, &amp;c.</i>				
Ottawa.....	2252 52		701434 03	8813 38
St. Maurice.....	2662 00		260542 48	3330 83
Trent, securing dams.....			2380 34	100 00
Saguenay.....			44470 41	278 63
Port Stanley Harbour.....			230531 88	
Union Suspension Bridge, reconstruction.....			5266 60	380 39
Total.....	23206 89	462 96	12,245,053 46	67463 66

DEPARTMENT OF PUBLIC WORKS,  
July, 1864

J. BAINE,  
*Book-keeper.*

## No. 2.

STATEMENT of Public Works, under the charge of this Department, incomplete and, as yet, unproductive, but on which tolls are to be levied as soon as they are available; shewing the expenditure thereon during the half-year ending 30th June, 1864, on construction, the total expenditure on construction up to 1st July, 1864, and the cost of repairs and management during the half-year ending 30th June, 1864.

WORKS.	Expenditure on construction for half-year ending 30th June, 1864.	Total expenditure on construction to 1st July, 1864.	Cost of repairs and management for half-year ending 30th June, 1864.
	\$ cts.	\$ cts.	\$ cts.
Chate Canal.....		373191 98	
Seougo Inland Navigation.....	1652 53	485776 14	197 50
Total.....	1652 53	858968 12	197 50

DEPARTMENT OF PUBLIC WORKS,  
July, 1864.

J. BAINE,  
*Book-keeper.*

## No. 3.

STATEMENT of the several Public Works and Buildings in course of construction under the charge of this Department, yielding no direct revenue, but in use for the public service and authorized by legislative appropriations; shewing the amount expended thereon during the half-year ending 30th June, 1864, and the total outlay upon them up to the 1st July, 1864; also the amount expended in repairs and maintenance for the same period.

WORKS.	Total outlay up to 1st Jan., 1864.		Expenditure for half-year ending 30th June, 1864.		Total outlay up to 1st July, 1864.	
	\$	cts.	\$	cts.	\$	cts.
Parliament Buildings, repairs..... Toronto }						
Government House ..... do }					274815	08
Custom House..... do .....					5104	18
Post Office..... do .....					28066	07
Observatory..... do .....					13884	65
Female Lunatic Asylum..... do .....					9966	83
Osgoode Hall..... do .....					159	30
Gun Sheds..... do .....					8679	28
Barracks, repairs..... do .....					657	69
Railway Inspectors' Office..... do .....					525	62
Mechanics' Institute, completing building do .....					16000	00
Custom House ..... Hamilton.....	46587	61	440	21	47027	82
Post Office..... do .....					52625	42
Gun Sheds..... do .....					5566	87
Post Office..... London.....	39812	51	128	00	39940	51
Custom House ..... Kingston.....					45010	24
Post Office..... do .....					39647	12
Lunatic Asylum and Gaol..... do .....					4293	92
Court House and Gaol..... Algoma.....					769	79
Public Buildings..... Ottawa.....	1854431	41	158980	95	1513412	56
Court House ..... Montreal.....	307433	42	650	16	308083	57
do extraordinary repairs..... do .....					26378	98
Custom House, repairs..... do .....					1257	08
Gaol, repairs..... do .....	2067	45	101	55	2168	80
Post Office..... do .....					3037	97
Normal School..... do .....	9104	49	200	00	9304	49
Armoury..... do .....					856	68
Marine Hospital..... Quebec.....	97136	00	1587	99	98723	99
Custom House..... do .....					268008	50
Gun Sheds..... do .....					4545	42
Court House..... do .....	1391	69	10	08	1401	77
Post Office, Parliamentary Buildings.. do .....					59891	18
do do additions thereto... do .....					1623	59
Spencer Wood, repairs..... do .....					4299	35
do reconstruction..... do .....					28016	71
Governor General's residence, in consequence of fire at Spencer Wood in 1861..... do .....					9991	67
Observatory, repairs..... do .....					318	77
Normal School..... do .....					7181	06
Gaol, repairs..... do .....					864	25
New Gaol..... do .....	86567	93	6943	55	92511	48
New Drill Shed..... do .....			3610	86	3610	86
Gaols and Court Houses, C. E..... do .....					35441	44
Gaols and Court Houses, C. E., 20 Vic., ch. 44..... do .....	488924	24	566	51	439490	75
Court Houses and Gaols, C. E., repairs, viz.:						
St. Johns..... do .....					158	00
Aylmer..... do .....	528	65	700	00	1228	65
Sherbrooke..... do .....					3614	90
Three Rivers..... do .....					4096	62
St. Hyacinthe..... do .....					541	42
Kamouraska..... do .....	12619	20	2071	74	14690	94
Perce..... do .....					343	85
New Carlisle..... do .....					118	12
Carried over.....					175091	39

## No. 3—STATEMENT of Public Works, &amp;c.—Continued.

WORKS.	Total outlay up to 1st Jan., 1864.		Expenditure for half-year ending 30th June, 1864.		Total outlay up to 1st July, 1864.	
	\$	cts.	\$	cts.	\$	cts.
<i>Brought over</i> .....						
Montmagny .....			175991	39		
Arthabaska .....			423	05	423	06
Dépôt at Anticosti .....					46	00
Governor General's residence, St. Lewis Street .....					47	82
Rents, repairs and maintenance of Public Buildings .....	400943	38	13587	94	48855	82
					414531	32
<i>Light Houses.</i>						
Light Houses below Quebec .....					396503	56
Light House apparatus, Quebec .....					54602	16
Light Houses (new) below Quebec .....	48453	22	372	71	48325	93
Pointe Pelée Light House .....	68968	77	191	53	69160	30
Snake Island Light House .....					10430	04
Bay of Quinté Light House .....					108	16
Light House, Lake Huron .....					147614	75
Light House apparatus, Lake Huron .....					74949	16
Floating Lights above Lachine .....					26397	93
Gaspé Bay and Harbor Buoys .....	499	82	146	22	646	04
Inland Lake and River Lights .....	8313	87	581	78	8895	65
Father Point Light House .....					1453	61
Ottawa River Navigation .....					3642	54
<i>Roads.</i>						
Canada and New Brunswick, by the Temiscouata .....	193012	76	60	00	193072	76
Metapedia, South .....					29505	44
do North .....					16362	59
Eastern Canada and New Brunswick, by the Metapedia .....	63505	57	2007	80	66513	37
Mal Baie and Grande Baie .....					11956	73
Matane and Cap Chats .....	23382	48	868	98	24251	46
Escoumains .....					4569	50
Marmora .....					4000	00
Garrison Road, Toronto .....					1600	00
Gaspé Road .....					16295	68
Côteau and Province Line Road .....					1482	01
Côteau and Cornwall Road .....					8284	00
Cornwall Road .....					510	22
Caughnawaga Road .....	767	51	11	70	779	21
Hamilton and Port Dover Road .....	16000	00	780	01	16780	01
York Roads .....					9773	46
Batican Bridge, repairs .....					642	00
<i>Harbors and Piers.</i>						
Port Bruce .....					6287	47
Lake Huron .....					97448	82
L'Original .....					2000	00
Pier at St. Anicet .....					2007	97
Landing Piers .....					763971	02
Repairs to Piers .....	21013	54	605	56	21619	10
Pier at Port aux Quilles .....					103	45
Dredging Narrows, and new bridge, Lake Simcoe .....					10138	30
Dredging at Piéton and Presqu'île .....					9050	04
Dredging operations .....	6030	70	1069	73	7100	43
Dredging Vessels, Steam Pumps, &c. ....					3218	39
Dredging at St. Clair Flats .....					19984	45
Richelieu Rapids improvements (Ste. Anne de la Pêrade) .....					13713	96
North River and Petite Nation Bridge improvements .....	4254	11	2	90	4257	01
River Thames Navigation improvements .....					3821	42
Deepening Lake St. Peter .....	18189	39	12051	11	30240	50
Pier at Chantry Island .....					442	50
Total .....			218571	87		

## No. 4.

STATEMENT of Expenditure on certain Miscellaneous Services under this Department, during the half-year ending 30th June, 1864.

	\$	cts.
Provincial Steamers.....	15475	45
Advertising Sale of Provincial Steamers.....	642	01
Tug Service, Upper St. Lawrence.....	17	00
Surveys generally.....	462	13
Arbitrations, Awards, &c.....	5319	31
Contingencies of Department, Engineering Branch.....	1946	35
Militia Expenses.....	232	85
Emigration Service.....	625	46
Purchase and Sale of Catarqui.....	\$20959	18
Less—Paid Receiver General on account of purchase in 1863 and 1864.....	5420	80
	15583	38
Survey of Intercolonial Railway.....	10502	00
Removal to Quebec in 1859.....	2	00
Gaspé and Amherst Harbours, maintenance.....	100	00
Total.....	\$50862	94

J. BAINE,  
*Book-keeper.*

DEPARTMENT OF PUBLIC WORKS,  
July, 1864.

## No. 5.

STATEMENT of the expenditure incurred under this Department for the repairs, management and survey, of the Ordnance Canals, for the half-year ending 30th June, 1864.

NAME.	Extraordinary Repairs.		Ordinary Repairs and Management.		Total Expenditure.
	\$	cts.	\$	cts.	\$ cts.
Rideau Canal.....			11752	76	11752 76
do Survey.....					2546 58
do Repairs at Hogsback.....	2	80			2 80
Carillon and Grenville Canal.....			5302	28	5302 28
Total.....	2	80	17055	04	19604 42

J. BAINE,  
*Book-keeper.*

DEPARTMENT OF PUBLIC WORKS,  
July, 1864.

## No. 6.

A DETAILED STATEMENT of the expenditure incurred in repairs and maintenance of Provincial Light Houses, for the half-year ending 30th June, 1864, under this Department.

Name of Light.	Name of Keeper.	Amount of Salary Paid.	Supplies and Repairs.	Total.
		\$ cts.	\$ cts.	\$ cts.
Lachine Pier.....	John Norton .....	192 25	35 20	227 45
Light Ship No. 1.....	Pierre Landré.....	125 00	36 00	161 00
do No. 2.....	Benjamin Picard .....	125 00	36 00	161 00
do No. 3.....	Joseph Meloche.....	112 50	.....	112 50
Beauharnois.....	Peter Shannon .....	217 50	.....	217 50
Grosse Pointe.....	Wm. Shannon, Assistant.....	343 85	.....	343 85
Mackie's Point.....	A. McDonald.....	87 50	.....	87 50
Cherry Island.....	E. S. Johnson .....	217 50	12 00	229 50
do Light Ship .....	G. H. Johnson .....	125 00	55 25	180 25
Lancaster Pier.....	Thomas Hill .....	167 50	38 00	205 50
Cole Shoal.....	Richard Elliott.....	70 00	935 28	1005 28
Grenadier Island .....	Joseph Austin.....	6 52	.....	6 52
.....	Albert Root.....	66 85	.....	66 85
Lindoe Island .....	J. Wallace .....	70 00	.....	70 00
Gananoque Narrows .....	James McDonald.....	130 00	37 50	167 50
Jack Straw Shoals.....	.....	.....	.....	.....
Spectacle Shoal .....	John Buck.....	273 91	.....	273 91
Red Horse Rock.....	.....	.....	.....	.....
Burnt Island.....	Joseph Mervin .....	60 00	.....	60 00
Wolfe Island .....	Robert Gillespie.....	125 00	12 50	137 50
Snake Island .....	L. Herchmer.....	217 50	96 12	313 62
Nine Mile Point.....	John Dunlop.....	217 50	90 82	308 32
False Ducks.....	Frederick Swetman.....	108 75	33 50	142 25
Point Peter.....	W. A. Palin .....	217 50	63 18	280 68
Scotch Bonnet .....	Samuel Wilson .....	16 55	86 55	304 05
.....	Henry Vandusen .....	200 95	.....	.....
Presqu'Isle.....	Wm. Swetman, Senr.....	162 50	11 00	173 50
do Range Lights.....	James Cummins.....	125 00	86 83	211 83
Gull Island.....	George Roddick .....	217 50	124 95	651 06
.....	Robert Roddick, Assistant.....	289 21	.....	.....
Gibraltar Point .....	George Durnan .....	217 50	19 93	237 43
Burlington Bay.....	George Thomson .....	150 00	.....	150 00
Port Dalhousie.....	Jonathan Woodall .....	200 00	.....	200 00
Port Colborne .....	James Fortier.....	200 00	35 25	235 25
Mohawk Island.....	John Burgess.....	217 50	90 40	307 90
Port Maitland .....	Peter Baikie.....	217 50	20 00	237 50
Port Dover.....	Wm. Carlisle.....	130 00	25 44	155 44
Long Point.....	H. H. Clarke.....	217 50	.....	217 50
Port Burwell .....	Alexander Sutherland .....	160 00	.....	160 00
Port Stanley.....	Richard Ead .....	144 00	.....	144 00
Pointe Pelée .....	P. McIntyre .....	217 50	73 25	453 25
.....	James Edwards, Assistant .....	162 50	.....	.....
Pelée Island .....	Wm. Swetman, Junr.....	108 75	231 50	340 25
Bois Blanc .....	James Hackett.....	108 75	100 50	318 00
.....	And. Hackett .....	108 75	.....	.....
River Thames .....	Thomas Cartier.....	217 50	.....	217 50
Goderich .....	Humphrey Fidler.....	162 50	.....	162 50
Point Clark.....	John Young.....	217 50	.....	217 50
Chantry Island .....	D. McG. Lambert.....	217 50	.....	217 50
.....	Wm. McG. Lambert, Assistant.....	303 12	.....	303 12
Isle of Coves .....	D. McBeath.....	108 75	.....	108 75
.....	Wm. McBeath, Assistant.....	75 00	.....	75 00
Griffith Island .....	Vesey C. Hill.....	217 50	.....	217 50
Nottawasaga Island.....	George Collins .....	217 50	.....	217 50
.....	C. Collins, Assistant.....	268 75	.....	268 75
Christian Island .....	Wm. Hoare .....	217 50	.....	217 50
Carried over .....	.....	9072 21	2384 95	11459 16

No. 6.—A DETAILED STATEMENT of the expenditure incurred in repairs and maintenance of Provincial Light Houses, &c.—*Continued.*

Name of Light.	Name of Keeper.	Amount of Salary Paid.	Supplies and Repairs.	Total.
		\$ cts.	\$ cts.	\$ cts.
	<i>Brought forward</i> .....	9072 21	2386 95	11459 16
Pointe Claire, No. 1.....	Arsène Glode.....	125 00	68 33	193 33
do No. 2.....	Moïse Leclerc.....	126 41		126 41
Green Shoal.....	D. Thomas.....	125 00	144 00	269 00
		\$0448 62	2599 28	12047 90
Management, salary and travelling expenses of Superintendent, advertizing, &c.....				2043 87
Placing buoys and light ships.....				275 50
Supplies on hand in store.....				204 00
<b>Total</b> .....				<b>\$14571 27</b>

J. BAINE,  
*Book-keeper.*

DEPARTMENT OF PUBLIC WORKS,  
July, 1864.

No. 7.

STATEMENT showing the total amount expended under the Department of Public Works, during the half-year ending 30th June, 1864, as detailed in the foregoing Statements numbered 1, 2, 3, 4, 5 and 6.

STATEMENT	Repairs and Management.	Construction.	Miscellaneous.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
No. 1.....	67463 66	23669 85		91133 51
2.....	197 50	1652 53		1850 03
3.....	27485 41	191086 46		218571 87
4.....			50862 94	50862 94
5.....	17055 04		2549 38	19604 42
6.....	14571 27			14571 27
<b>Totals</b> .....	<b>126772 88</b>	<b>216408 84</b>	<b>53412 32</b>	<b>396594 04</b>

J. BAINE,  
*Book-keeper.*

DEPARTMENT OF PUBLIC WORKS,  
July, 1864.



APPENDIX B.—WELLAND CANAL.

SCHEDULE No. 3.—Detailed Statement of the gross amounts of the Monthly Expenditure in the Management and Repairs of the Welland Canal, from the 1st December, 1863, to the 1st June, 1864.

	Office Establishment, Clerks, Pay-master, &c.	Overseers, Lock and Bridge Tenders, and Harbor Masters.	Lighting Canal with Gas from Lock No. 2 to 25, inclusive.	Oil used in lighting other parts of the Canal not lighted with gas, and in working machinery.	Advertising list of vessels passing through the Canal, Printing, Post-ages, Stationery, Telegraph communications, Office Fuel and Con- tinencies.	Total cost of Management.	Carpenters' work, Construction, making repairs upon Lock Gates, Bridges, &c., and making repairs of damages done the works by vessel.	Castings and Iron Work for Lock Gates, Bridges, &c.	Labor, Maintenance, Embankments, Ditching, setting Snubbing Posts, cleaning out Culverts and removing bars from bottom of Canal, Slides, &c.	Lumber and Timber furnished for constructing Lock Gates and for repairs of Lock Gates, Bridges, &c.	Repairs at Port Welland Pier.	Repairs of Pier at Port Colborne.	Sundry materials furnished, consisting of Spikes, Nails, Rope, Paint, Oil, Shovels, &c., &c.	Total Amount of Repairs.	Total for Management and Repairs.	
1863.																
December	\$ cts. 132 00 1935 95	\$ cts. 791 35	\$ cts. 3452 22	\$ cts. 221 42	\$ cts. 5741 59	\$ cts. 342 30	\$ cts. 428 80	\$ cts. 266 97	\$ cts. 83 63	\$ cts. 121 86	\$ cts. 121 86	\$ cts. 121 86	\$ cts. 18 12	\$ cts. 1243 06	\$ cts. 6984 65	
1864.																
January	132 00	692 75			923 35	175 87	285 59	76 01	60 91				50 00	270 00	1193 95	
February	132 00	1630 05			829 80	246 87	422 90	134 12	60 91				200 00	820 70	1650 50	
March	132 00	2847 01			1915 66	341 08	180 47	396 24	17 68				51 37	1435 68	3351 34	
April	132 00	3342 83			2993 01	376 17	98 76	488 29	440 21				185 64	1423 45	4416 46	
May	132 00	11239 94			3671 53	1877 64	1416 02	1801 84	358 59				487 01	1371 68	5043 21	
Totals	792 00	11239 94	3452 22	210 70	16074 94	1877 64	1416 02	1801 84	358 59	121 86	121 86	487 01	506 71	6564 57	22639 51	

(Signed) S. D. WOODRUFF,  
Superintendent, &c., Welland Canal.

WELLAND CANAL OFFICE,  
St. Catharines, 14th Dec., 1864.

WELLAND CANAL.

SCHEDULE No. 5.—Schedule of Lands on the Welland Canal sold to sundry persons, with the Amount of Sale and Interest to the 1st June, 1864, Amount Paid to the 1st June, 1864, and the Balance remaining due on the 1st June, 1864.

Purchasers.	Where situated.	Quantity.	Amount of Sales.	Amount of Interest to 1st June, 1864.	Amount of Sales and Interest to 1st June, 1864.	Amount paid to the 1st Dec., 1859.	Amount paid in 1864 to 1st June.	Balance due, 1st June, 1864.	Remarks.
			\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	
James R. Benson, on behalf of Hydraulic Company .....	Lots below Thorold .....	211 acres, 1 rood, 17 per....	8454 25	6283 26	14737 51	2010 85		12726 66	
Municipality of the County of Welland .....	Lands in Wainfleet .....	10796 acres } 2948 " } 68 " }	12912 00	7479 68	20891 68	3309 56		17082 12	
Michael Graybiel.....	Lot in the Village of Marshville .....	One-fifth of an acre.....	20 00		20 00		20 00		In full.
Total.....			21386 25	13762 94	35149 19	5320 41	20 00	29808 78	

(Signed) S. D. WOODRUFF,  
*Superintendent, &c.*  
(Signed) THOMAS ADAMS,  
*Paymaster and Clerk.*

WELLAND CANAL OFFICE,  
St. Catharines, 14th Dec., 1864.

## WELLAND CANAL.

SCHEDULE, No. 6.—STATEMENT showing the amount of Fines and Damages levied, the Amount Paid to the 30th June, 1864, and the Balance remaining due on the 30th June, 1864.

Year.	Date.	Description of Vessel, &c.	Name of Vessel, &c.	Amount of Fine levied.	Amount of Damages levied.	Amount paid to 30th June, 1864.	Amount remaining unpaid on 30th June, 1864.	Remarks
				\$ cts.	\$ cts.	\$ cts.	\$ cts.	
1857...	April 30...	Steamer ...	'St. Nicholas'.....	80 00	4800 00		4880 00	
1859...	" 30...	Schooner ...	'Mohegan'.....		1953 00		1953 00	
1860...	" 30...	"	'Amelia'.....		1246 00		1246 00	
	May 16...	"	'Cuba'.....		10 00	10 00		
1862...	" 29...	"	'Mary Morton'.....	10 00			10 00	
	June 26...	Propeller ...	'Kentucky'.....		10 00		10 00	
	Aug. 20...	Schooner ...	'Bridget'.....		5 00		5 00	
1863...	May 13...	"	'H. S. Walbridge'.....		10 00	10 00		
	June 1...	"	'W. B. Hibbert'.....		20 00		20 00	
	July 16...	Propeller ...	'Akron'.....		3 00	3 00		
	" 30...	Schooner ...	'Geo. Thurston'.....	20 00		20 00		
	Oct. 29...	"	'James Coleman'.....		10 00		10 00	
	Nov. 14...	"	'Wm. Sanderson'.....		50 00	50 00		
	" 14...	"	'Wm. Case'.....		15 00	15 00		
	" 14...	"	'Paragon'.....		10 00	10 00		
	" 14...	"	'Raleigh'.....		16 00		16 00	
	" 16...	Propeller ...	'Ogdensburgh'.....	10 00		10 00		
	" 23...	"	'Michigan'.....		25 00	25 00		
	" 24...	"	'Buckeye'.....		10 00	10 00		
	" 27...	Schooner ...	'Tecumseh'.....		15 00	15 00		
	" 30...	"	'Frontier City'.....		15 00	15 00		
1864...	April 26...	Bark .....	'Cleveland'.....	10 00		10 00		
	" 23...	Schooner ...	'Summit'.....		20 00		20 00	
	" 23...	Propeller ...	'Cleveland'.....		51 00	51 00		
	May 2...	Schooner ...	'New London'.....		12 00	12 00		
	" 7...	"	'Advances'.....		10 00	10 00		
	" 7...	"	'Servia Walls'.....	10 00		10 00		
	" 7...	Propeller ...	'Norman'.....	10 00		10 00		
	" 12...	Schooner ...	'Melrose'.....		15 00		15 00	
	May 11...	"	'A. Bradley'.....		6 00		6 00	
	" 17...	"	'Dispatch'.....		30 00	30 00		
	" 19...	Propeller ...	'Cleveland'.....		20 00	20 00		
	June 2...	Schooner ...	'City of Toronto'.....		10 00		10 00	
	" 7...	"	'Jessie'.....	40 00			40 00	
	" 7...	Propeller ...	'Norman'.....	20 00		20 00		
	" 8...	Bark .....	'S. D. Woodruff'.....	20 00		20 00		
	" 11...	Schooner ...	'S. Robinson'.....		10 00		10 00	
				\$230 00	8407 00	386 00	8251 00	

(Signed)

S. D. WOODRUFF,  
*Superintendent.*

(Signed)

THOMAS ADAMS,  
*Paymaster.*WELLAND CANAL OFFICE,  
St. Catharines, 14th December, 1864.

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 APPENDIX C.
 

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## REPORT OF SUPERINTENDING ENGINEER.

## LACHINE CANAL OFFICE,

Montreal, 2nd Dec., 1864.

SIR,—The period for closing the fiscal year having been changed, by Act of Parliament, from the 31st of December to the 30th day of June in each year, I have prepared and beg to submit the following Report on the works under my charge, from the first day of January to the 30th day of June 1864, as called for by your letter No. 51967, dated 3rd November 1864.

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## BEAUHARNOIS CANAL.

This canal forms a navigable channel past the Coteau, Cedars and Cascade Rapids between Lake St. Francis and Lake St. Louis, and is  $11\frac{1}{4}$  miles in length, with nine locks 200 feet long by 45 feet in width, with 9 feet depth of water on the sills. The canal is from 60 to 80 feet in width on bottom, and from 100 to 120 at surface-water. At each lock there is a regulating-weir built of stone masonry for passing and regulating the flow of water, which affords a large amount of water-power available for milling and manufacturing purposes. There are also nine swing-bridges, two ferries, twenty permanent bridges over the regulating-weirs and races at the locks, one by-wash, ten culverts, two dams, half a mile of dyke on Grand Isle,  $4\frac{88}{100}$  miles of dyke through Hungry Bay, a pier and breakwater at Gross-point, a house for the local Superintendent, one for the Collector and Paymaster, ten for the lock and bridge-masters, and eighteen for their assistants. There is also a head-race and regulating-weir at each end of the lower dam, built for milling and manufacturing purposes. In addition to the above there are about 350 arpents of ditches, all of which have been effectively maintained, and special care taken to keep the culverts and ditches open for the free discharge of surface-water during the spring freshets.

There is a large Paper-manufactory and a Grist and flouring-mill at the east end of the lower dam, and a saw and Grist-mill and Furniture-manufactory at the west, and propelled by water supplied through the head-races.

The Swing-bridge at Lock No. 14 was rebuilt during the month of March, and timber purchased for rebuilding the superstructure of the pier-head at the upper entrance of the canal. The bridges at Lock No. 7 and at St. Timothy must be thoroughly overhauled during the winter, when temporary bridges are formed by the ice. Locks Nos. 9, 10, 11, 12 and 13 were well pointed when the water was drawn out for repairs in April. Locks Nos. 6, 7, 8 and 14 should be pointed before opening the canal next spring. Portions of the vertical and slope-walls above and below the locks were rebuilt, and such repairs made to the lock-gates, bridges, &c., as appeared necessary. The by-wash at St. Timothy was also thoroughly examined and repaired, and the bank in race above weir at Lock No. 10, which gave way in January, rebuilt.

The water was let into the canal on the 21st, and fully opened for the passage of vessels on the 24th day of April. The only interruption to the trade, previous to the close of the fiscal year, occurred on the 31st day of May, caused by a break in the south bank at a culvert a short distance above St. Timothy Bridge, when navigation was interrupted for about 32 hours.

The spare Lock-gates on hand with those asked for in last year's report (now under contract), it is thought, will be sufficient to replace any that may require renewal or be broken by accident.

The necessity for increased accommodation for mooring vessels at the lower entrance of the canal, referred to in former reports, still exists. The south pier should be extended for that purpose without further loss of time.

A building for the safe keeping of tools, materials, supplies, &c., and for a work-shop for repairs, is much needed.

The probable amount required for ordinary repairs from the first day of January to the 30th June 1865, is estimated at \$4,360.

The amount expended during the same period in 1864, amounted to \$3,075.

### LACHINE CANAL.

This canal is 8½ miles in length, and forms a navigable channel past the Lachine Rapids, connecting Lake St. Louis with the head of ocean navigation at Montreal. There are five locks 100 feet long by 45 feet in width, with 9 feet water on the sills of the three upper; and 16 feet on the sills of the two lower or Montreal Locks, which connect the principal basin with the harbour. There are four weirs and races for regulating the flow of water at the locks, viz.: two at Lachine, one at Côte St. Paul and one at St. Gabriel. There are also four waste-weirs, five swing-bridges, sixteen stationary bridges over the weirs and races and portions of the old canal, three culverts, four lock-houses, an office for the Collecting, Superintending and Engineering Departments, a long range of dock-walls and wharves at Montreal, with Flour sheds covering an area of 49,960 square feet. On the channel side of the timber basin at Lachine there are 3039 lineal feet of boom with 19 retaining and guide-piers, and 4870 lineal feet of pier, with a stone superstructure which forms a wing-dam on the south side of the channel at the Lachine entrance.

The wood-work of the swing-bridges at Côte St. Paul and Brewster's road were renewed last February and March, and such repairs made to other structures as could be advantageously performed during winter. The water was shut off on the 9th day of April for the usual spring repairs, which were completed on the 28th, and the canal opened for the passage of vessels on the morning of the 29th, after which the full draft of water was uninterruptedly maintained.

The regulating-weir at St. Gabriel Lock is formed by the lower wing-walls of the old lock, which are very defective: they have not been considered safe for years. Should these walls give way, which they may do at any moment, the carrying trade of the entire country must necessarily suffer great inconvenience. The trade of the St. Lawrence and Ottawa routes depends upon the stability of the structures on this canal. A new regulating-weir at this lock has therefore become indispensable. Plans and specifications were prepared for letting the work in 1860.

There is a great want of basin and wharfage accommodation on the canal at Montreal. The completion of the St. Gabriel and wood basins, and construction of others on the south side of the canal, in connection with Basin No. 2, may be considered of vital importance to the commercial interests of the country.

Parties in the wood, timber and lumber trade suffer much inconvenience in consequence of the limited space at the wharves and basins set apart for their accommodation. This branch of the trade is yearly increasing, and forms one of the most important branches of our commerce, and really deserves special attention.

The manufactories established within the last few years at the locks on the line of this canal, contribute largely to the industry and trade of the country; at the same time, the navigation of the canal has been rendered difficult by the draft of water required for propelling the machinery connected with them—so much so that great complaints are made by the forwarding interests. It is, therefore, evidently for the interest of all parties, that the canal should be improved in such a manner as not to interfere, if possible, with either interest, and at the same time improve both; which it is thought can be done by giving a greater sectional area to the prism of the canal, without increasing the supply of water. This, to a certain extent, can be accomplished by removing the inside bank-slopes, or rather by changing them from two to one, to half to one, and walling them from canal bottom instead of from four to five feet below surface-water, as at present. This would increase the sectional area, and consequently reduce the current; vessels would pass free without grounding on the slopes, and the Berme-bank made available for discharging wood

and lumber for transhipment, &c., without interfering with the passage of vessels or flow of water.

Some idea of the manufacturing interest connected with this canal may be formed by the following statement, commencing—

At Côte St. Paul Lock, where there are two Flouring-mills capable of grinding 460 barrels of flour per day, with stores and elevators having storage capacity for 105,000 bushels of grain and 6000 barrels of flour. Also one Axe-factory, one Shovel-factory, one Soythe-factory, one Nail-factory, an Anger-factory, one Door and Sleigh-bell factory, one large Saw-mill, and one Cooperage with Saw-mill attached. These establishments are situated on the south side of the canal, below the lock, where there is only about six feet depth of water—that being a portion of the old canal that it was not considered necessary to improve when the canal was enlarged; but the time has come when it should be deepened to correspond with the enlarged canal, and suitable wharfage accommodation provided for these manufacturers.

At St. Gabriel Lock there are two Flouring-mills and stones capable of grinding 310 barrels of flour per day, with storage capacity for 114,000 bushels of grain and 5500 barrels of flour. There are also three Saw-mills, one dry-dock, two Foundries and finishing-shops, one Cotton-factory, one Machine-shop, Bolt and nut-factory, one Nail-factory, one Rubber-factory, one Woollen factory, one Agricultural implement and two Furniture-factories, one Saw-factory, one Axe-factory, one Cordage-factory and Plaster-mill, one Tannery and glove-factory, and two Door and sash-factories.

At Basin No. 2 there are three Flouring-mills capable of grinding 1250 barrels of flour per day, and four elevators with storage capacity for 540,000 bushels of grain and 34,000 barrels of flour; besides a grain-drying establishment and elevator with storage capacity for 60,000 bushels of grain. There is also one dry-dock, two graving-docks, three nail and spike-factories, two rolling-mills, one saw-mill, one oil, drug and plaster-mill, and one machine-shop.

Houses should be provided for the accommodation of persons employed in working the locks and bridges; they are obliged to be in constant attendance day and night, and experience much hardship for the want of proper lodgings in the immediate vicinity of their work.

A suitable building should be erected for the storage and safe-keeping of public property, which annually collects here for the service of the canals and light-houses.

The facilities for managing timber in the basin at Lachine, as well as its capacity, would be greatly increased by dividing it with cross-booms into five compartments. This arrangement would reduce the cost of placing the timber in the basin, and accommodate a large quantity by keeping it more compact. It would also be less liable to break up and get scattered throughout the entire basin. These booms are estimated to cost \$3025.

The gallows-frame, with other portions of the wood work and suspension-cables at Côte St. Paul, Wellington Street and Montreal bridges, have been broken by vessels, and only temporarily fixed. They must all be permanently repaired during the winter.

It will be necessary to shut off the water in April for building the new bridge at St. Gabriel Lock and for the necessary Spring repairs, which will consist mainly in grouting and pointing the lock and dock-walls, cleaning deposits collected in the bottoms of the locks and canals, refitting and repairing lock-gates, repairing the slope-walls, retaining-walls, wharves, bumping-posts, &c.

The supply of spare lock-gates, including those asked for in last year's report (now under contract), it is thought, will be sufficient to meet ordinary demands.

The following amounts were collected previous to the 30th day of June, besides regular tolls and rents, viz. :—

For Fines and Damages by order of the Superintendent..\$	81 00
For dues on firewood at Lachine.....\$	48 99
“ on timber in basin at Lachine .....	291 90
	—————
	340 89
“ on graving-dock at Montreal.....	103 50
For vessels wintering in canal.....	512 25

For storage in flour-sheds.....	645 58
Dues on vessels entering canal from lower ports, and on firewood.....	1,018 62

Total .....\$2,701 84

There was \$4,975.57 expended for repairs between the 1st January and 30th June 1864. The probable amount required for the same period in 1865 is estimated at \$5,357.50.

### CHAMBLY CANAL.

This canal is twelve miles in length, and forms a navigable channel past the rapids in the Richelieu River, between the Chambly Basin and St. John's; it has nine locks 122 feet long by 23½ feet in width, with seven feet of water on the sills, but owing to the large amount of deposit annually brought into the canal from the surface, ditches and creeks, the navigation is practically reduced to from six to six and a half feet. A large amount of this deposit was removed before opening the canal, but the heavy rains of May and June always bring in large quantities, especially at Wood's Creek, where it must be removed by temporary dredges during the season of navigation. The bottom of the canal is generally too narrow for the class of vessels trading on this route. Portions of the inside bank-slopes should therefore be removed, and the canal deepened to accommodate this class of vessels. The most economical and expeditious mode of accomplishing it would be by dredging, but the dredges in use on the other canals are too wide to pass the locks on this canal; it would therefore be necessary to reduce the width of one of them about two feet before it could be made available for this work. The benefit to be derived from the change would well repay the extra cost.

During the winter two pairs of new lock-gates were built, the wood work of bridges 7, 8 and 9 renewed, and the gates, bridges, sluice-frames and gates generally repaired by the men employed on the permanent staff.

A large amount of work was done before opening the canal in the spring, which consisted principally in rebuilding a portion of the recess and breast-walls at Lock No. 7 and the east abutment at Bridge No. 6, pointing lock-walls and bridge abutments, rebuilding and repairing the slope-walls, cleaning out the canal, etc., etc.

The canal was opened for the passage of vessels on the 25th day of April, and successfully maintained, without any serious interruption, until the close of the year.

A new foot-bridge, four feet in width, was attached to the upper gates of Lock No. 1 at St. John's, to form a safe crossing for parties going to the river for water.

A new ferry-scow has also been placed between the main land and upper end of Ste. Thérèse Island, for the accommodation of the inhabitants on the island.

Fifty-six toise of stone were used in strengthening and protecting the banks weakened by the heavy and continuous rains of May and June.

The lock-walls, bridge-abutments, and other structures on this canal are light, and not calculated to resist the concussion caused by coming in contact with the large class of vessels now trading on this route. This defect adds largely to the cost of maintenance.

The lock and bridge-tenders will be employed during the winter in repairing and rebuilding such of the lock-gates, bridges, etc., etc., as may be found necessary.

Preparations should be made for repairing the upper end of the wharf at St. John's, as early in the season as practicable.

The cost of ordinary repairs and maintenance from January to July, 1865, will be about the same as in former years, and is estimated at \$4,550.

### ST. OURS' LOCK AND DAM.

These works are situated on the River Richelieu, about one and a half mile above the Village of St. Ours. They raise the water four feet and improve the navigation of the river to the Chambly Basin, a distance of about 30 miles.

The ice in the river broke up early and passed off without doing any material injury to these works. The first vessel passed through the lock on the seventh day of April, when the navigation was fully opened for the season.

These works are now in good order, and under ordinary circumstances, the expenditure for repairs previous to the 30th of June next will be very small, say \$150. Preparations should, however, be made for the delivery of stone for strengthening the dam during season of low water.

### ST. ANN'S LOCK AND DAM.

These works are situated in the St. Ann's Rapids, at the foot of Lake of Two Mountains, and consist principally of a lock 190 feet in length, by 45 feet in width, a wing-dam and guide-piers above, with guide and protection-piers below the lock.

The ice passed out of the river about the 20th of April, without doing material damage to any of the structures, and navigation was opened on the 23rd.

The water in the Ottawa River was unusually high during the month of May, creating a strong current and eddy at the foot of the lock; but the delays and difficulties of approaching and leaving the lock, so much complained of in former years, were avoided by vessels taking the channel outside of the long pier which was opened in 1861.

The probable amount required for repairs to 30th June, 1865, is estimated at \$125.

### CARILLON AND GRENVILLE CANALS.

These canals pass the rapids in the Ottawa River, between Grenville and Carillon, a distance of about  $12\frac{1}{2}$  miles. They consist of three sections, viz.:—The Carillon Canal, which is 2.09 miles in length, with three locks and a feeder from the North River  $\frac{1}{4}$  of a mile in length:

The Chute aux Blondeaux is 0.16 miles in length, with one lock, and the Grenville Canal 5.78 miles in length, with seven locks. These canals are generally in bad condition for transacting the large business now done through them. The prism between locks 9 and 11 is too narrow for the class of boats in use. These large vessels fill up the entire cut and stop the flow of water, causing serious delays to vessels below them. The banks and locks are also too low for the present draught of water, and it is not an uncommon occurrence to see them both overflowed. Some plan should, therefore, be devised for increasing the capacity of these canals, especially the narrow portion of the Grenville section. This can be done by enlarging the sectional area of the prism, and raising the banks and locks, so as to increase the depth of water, which could be made available in the spring and fall; but at season of low water the increased depth could not be obtained at the guard-lock. Greater width of canal must, therefore, be given to make the improvement available at all seasons.

The cut at the Chute aux Blondeaux is through solid rock, portions of which, it appears, were never excavated to the proper depth. At extreme low water, there is only about 4 feet at these points; but the down freight passes outside of the cut, so that the obstruction only interferes with upward-bound vessels, which are generally light.

The principal difficulty in the Carillon Canal consists in keeping up the supply of water in the dry season. This, to a great extent, could be remedied by enlarging the feeder to about double its present capacity.

There is also a great waste of water by leakage through the walls of Locks Nos. 2 and 3. An effort was made to stop the leakage at Lock No. 2 before opening the canal last spring, by grouting and pointing the walls, and puddling in rear; but the result was not altogether satisfactory. The defects appear to be at the counterforts, where the wall is broken. Rebuilding the walls is, therefore, the only sure remedy; but it is thought that by filling in concrete at the angles, the leakage would be checked, if not entirely stopped. It will, however, be necessary to rebuild a portion of the upper recess-wall, on the east side of Lock No. 3. The principal defect is in the culverts, which cannot be remedied except by rebuilding.



The breast-wall and mitre-sill at Lock No. 10 were rebuilt last April, and the walls of this and the other locks pointed and grouted. The lock-gates and sluice-frames were generally overhauled and repaired, and the bottom of the canals cleared. Special attention was given to the narrow portion of the Grenville Canal. The banks and slope-walls were also repaired, and the canal opened for the passage of vessels on the 2nd day of May. The navigation was afterwards interrupted for a few hours, at season of extreme high water, caused by the failure of the sluice-gates in the guard-lock at Grenville. Any other detention was caused by overloaded boats grounding in the canal.

The work of deepening the upper entrance of the Grenville Canal, by dredging, was commenced on the 21st day of June.

The lock-gates delivered in the fall of 1863 were not brought into use, but held in reserve to replace any that might give way or be accidentally broken; but the old gates are so much decayed, that it will be necessary to insert them next spring, together with those for Locks Nos. 2 and 3, asked for in last year's report. A full set of new gates must also be built for the guard-lock at Grenville. Portions of the breast-wall and mitre-sill, at Lock No. 10, must be rebuilt before opening the canal next spring.

The importance of maintaining these canals in an efficient state is yearly becoming more apparent. There was \$3,863.85 expended in ordinary repairs, between the 1st January and the 30th day of June 1864. The repairs for the same period in 1865 are estimated to cost \$3,930.

I am, sir,

Your obedient servant,

(Signed)

JOHN G. SIPPILL,

Superintending Engineer.

## BEAUHARNOIS CANAL.

### STATEMENT of the Estimated Cost of Ordinary Repairs from 1st January to 30th June 1865.

Structures.	I T E M S .	Quantities.	Prices.	Amounts.	Totals.
Locks .....	General repairs.....	9	\$ cts. 100 00	\$ cts. 900 00	1100 00
	Painting Nos. 7, 8, 9 and 14.....	4	50 00	200 00	
Bridges .....	General repairs .....	7	50 00	350 00	850 00
	Rebuilding wood-work at Lock No. 7 and St. Timothy.....	2	250 00	500 00	
Prism of Canal and Banks	General repairs.....	say	.....	1000 00	1300 00
	Mooring-posts .....	50	2 00	100 00	
	Stone .....toise	50	4 00	200 00	
Ditches and Culverts.....	Cleaning ditches and culverts.....	say	.....	.....	300 00
Lock-Houses.....	General repairs .....	28	20 00	.....	560 00
Dykes and Dams.....	General repairs .....	say	.....	.....	250 00
	Total.....	.....	.....	.....	\$4360 00

## LACHINE CANAL.

STATEMENT of the Estimated Cost of Ordinary Repairs from 1st January to 30th June 1865.

Structures.	ITEMS.	Quantities.	Price.	Amounts.	Totals.
			\$ cts.	\$ cts.	\$ cts.
Canal Banks and Prism...	General repairs.....	say		1500 00	1562 50
	Mooring-posts.....	25	2 50	62 50	
Locks .....	Pointing walls, etc.....	5	100 00	500 00	960 00
	Gates, mitre-sills, etc.....	5	50 00	250 00	
	New chains for gates.....lbs.	3500	0 06	210 00	
Wharves.....	Pine plank.....pieces	3500	0 30	1050 00	1670 00
	Cedar sleepers.....lin. feet	2000	0 06	120 00	
	Pine timber....."	2000	0 20	400 00	
	Spikes.....	7000	0 10	100 00	
Flour-Sheds.....	Water-conductors.....	say		50 00	150 00
	Roofs.....			100 00	
Dock-Walls.....	Pointing and grouting .....	say			300 00
Bridges.....	Pine plank.....F. B. M.	10000	20 00	200 00	715 00
	Spikes.....lbs.	250	0 10	25 00	
	Oak timber.....cub. feet	300	1 00	300 00	
	Wire cables.....lbs.	1500	0 06	90 00	
	Pine sleepers.....lin. feet	500	0 20	100 00	
	Total.....				\$5357 50

## CHAMBLY CANAL.

STATEMENT of the Estimated Cost of Ordinary Repairs from 1st January to 30th June 1865.

Structures.	ITEMS.	Quantities.	Prices.	Amounts.	Totals.
			\$ cts.	\$ cts.	\$ cts.
Prism of Canal and Banks	Cleaning bottom.....	say		1500 00	2000 00
	Protecting banks.....	"		500 00	
Locks .....	Oak timber for gates.....cub. feet	600	1 00	600 00	1750 00
	Pine timber....."	500	0 20	100 00	
	Iron-work.....	say		150 00	
	General repairs, painting, &c. ....	9	100 00	900 00	
Bridges .....	Pine timber.....cub. feet	1000	0 20	200 00	650 00
	Pine plank.....F. B. M.	5000	20 00	100 00	
	Iron-work.....	say		100 00	
	Repairs to abutments .....	5	50 00	250 00	
By-Washes .....	General repairs.....	3	50 00		150 00
	Total.....				\$4550 00

## ST. OURS LOCK AND DAM.

STATEMENT of the Estimated Cost of Ordinary Repairs from 1st January to 30th June 1865.

Structures.	I T E M S .	Quantities.	Prices.	Amounts.	Totals.
Lock .....	General repairs.....	say	\$ cts.	\$ cts.	\$ cts.
	Fitting up gates.....			50 00	
				50 00	
Piers .....	Cutting ice.....	say			100 00
					50 00
	Total.....				\$150 00

## ST. ANN'S LOCK AND DAM.

STATEMENT of the Estimated Cost of Ordinary Repairs from 1st January to 30th June 1865.

Structures.	I T E M S .	Quantities.	Price.	Amounts.	Total.
	General repairs.....	say		\$ cts.	\$ cts.
					125 00

## CARILLON AND GRENVILLE CANALS.

STATEMENT of the Estimated Cost of Ordinary Repairs from 1st January to 30th June 1865.

Structures.	I T E M S .	Quantities.	Prices.	Amounts.	Totals.
Locks .....	General spring repairs.....	11	\$ cts.	\$ cts.	\$ cts.
	Removing old and inserting new gates.	7	100 00	1100 00	
	Concrete behind walls at Lock No. 2.....	50	5 00	350 00	
	2.....cub. yds.			250 00	
	Taking down and rebuilding portions of Lock No. 3.....	75	6 00	450 00	
	Rebuilding breast-wall and mitre-sill, Lock No. 10.....	25	6 00	150 00	
	25.....cub. yds.				2300 00
Bridges .....	Repairs.....	2	15 00	30 00	
					30 00
General repairs to Prism of Canal.....	Cleaning bottom, Carillon Canal.....	say		250 00	
	“ North River feeder.....	“		250 00	
	“ bottom of Grenville Canal.....	“		450 00	
Banks, &c.....	Repairs to banks, roads, &c.....	say			950 00
					650 00
	Total.....				\$3930 00

## STEAM DREDGE.

STATEMENT of Estimated Cost of Repairs from 1st January to 30th June 1865.

Structures.	I T E M S .	Quantities.	Prices.	Amounts.	Totals.
			\$ cts.	\$ cts.	\$ cts.
Vessel .....	Docking and repairing.....	say		400 00	500 00
	Scows.....	2	50 00	100 00	
Engine.....	Blacksmiths' work.....	say		150 00	250 00
	Engineer and assistant.....	"		100 00	
Working Dredge.....	Working expenses.....months.	2	650 00		1300 00
	Total.....				\$2050 00

## APPENDIX D.

### REPORT OF THE SUPERINTENDENT OF THE RIDEAU CANAL.

OTTAWA., 3rd December, 1864.

SIR,—I have the honor to acknowledge the receipt of your letter dated 3rd November, (No. 51,970), requesting me to prepare and submit a report of the works under my charge, during the period embraced between the 1st January and 30th June 1864.

There is nothing of importance to report during this period. The most pressing of the repairs were performed in due time, and the canal was opened for navigation at the Kingston end on the 28th of April, and throughout on the 1st of May.

The water in the Ottawa River, at the foot of the combined locks, was unusually high this season. A statement of the highest and lowest water, as measured on the lower sill and registered, is appended. The spring floods in the Rideau River passed without doing material damage to the canal.

I beg respectfully to draw your attention again to the trouble experienced at the entrance to the canal at Ottawa, on account of the saw-dust, slabs, edgings and other refuse that is thrown or allowed to fall into the Ottawa River from the saw-mills at the Chaudière. An extra man has been required to assist the lock laborers in clearing away the rubbish from the gates,—and barges and other vessels have frequently to be warped, through the accumulation floating on the surface of the water, and detention to steamers has often occurred; but the most serious damage is, that the navigable channel is fast filling up.

Additional wharfage accommodation will soon be called for by the fire-wood people and others, as the land adjoining the basin, set apart for landing fire-wood and shipping lumber, has lately been leased to private individuals. The basin will have to be deepened, and wharves made. There is no other alternative that I am aware of to accommodate the increasing traffic.

The by-wash from the canal at Ottawa traverses a portion of Lower Town through streets and building lots; it has become a nuisance in the more thickly populated portions of the city, and the inhabitants are desirous of having it covered over, so that the streets can be properly formed.

The canal is now in a tolerable state of repair; nearly all the waste-weirs have been rebuilt lately, and furnished with new crabs and improved machinery, and conveniences

for hoisting the stop-logs. A pair of gates at Merrickville, and also at Upper Brewers will have to be rebuilt. It will not be safe to trust the present ones another season; they are too much decayed for patching.

Nothing has been expended on the canal for some time past, except what has been absolutely necessary to maintain navigation. Its appearance would be much improved by a little paint and repairs to the fences, outbuildings, and general trimming up. It would take about \$2,000 for this purpose.

A statement of the repairs made to the canal during the past winter will be found appended; also, a statement of the total cost of management and repairs from 1st January to 30th June of this year.

Bridges have been petitioned for over the canal at different places; they are not required for the service of the canal, but are rather an obstruction to the free navigation thereof. They are solely necessary for the accommodation of the public, and it is somewhat difficult to decide where they would do the most good, or to satisfy so many claimants for bridges.

The lockages at Kingston Mills, in May and June 1864, were 1,242 against 987 during the same period of last year. The tolls collected during the same period of 1864 are \$1,857, against \$1,820 during the same period of last year.

The lockages at Ottawa were 882 in May and June 1864, against 411 during the same period of last year. The tolls received during the same period of 1864 are \$921.07, against \$819.50 during the same period of last year.

I have the honor to be, sir,

Your obedient servant,

(Signed)

JAMES D. SLATER,

Superintendent, R. C.

F. Braün, Esq.,

Secretary, Department of Public Works,  
Quebec.

#### RIDEAU CANAL.

STATEMENT shewing the highest and lowest water in the Ottawa River at the Entrance Lock, as measured on the Lower Sill by the Lock Master, and registered in this Office, since the year 1844.

Year.	Date.	Highest water.	Date.	Lowest water.	
		ft. in.		ft. in.	
1844.....	May 1.....	21 9.....	Oct. 1.....	7 7	
1845.....	" 1.....	24 0.....	Sept. 1.....	7 7	
1846.....	" 25.....	28 6.....	" 22.....	4 6.....	Highest and lowest.
to					
1850.....	" 15.....	20 10.....	" 1.....	7 0	
1851.....	" 15.....	20 6.....	Oct. 1.....	7 3	
1852.....	" 15.....	22 9.....	Sept. 15.....	7 9	
1853.....	June 1.....	18 0.....	" 1.....	7 2	
1854.....	May 15.....	19 9.....	" 15.....	6 7	
1855.....	" 15.....	21 8.....	" 1.....	7 6	
1856.....	" 1.....	15 6.....	Aug. 15.....	7 2	
1857.....	June 1.....	21 9.....	Nov. 1.....	9 5	
1858.....	" 1.....	18 0.....	Sept. 1.....	8 7	
1859.....	May 15.....	20 1.....	" 1.....	7 6	
1860.....	" 15.....	19 9.....	" 15.....	7 4	
1861.....	" 15.....	24 10.....	" 15.....	8 0	
1862.....	" 15.....	19 11.....	" 1.....	6 5	
1863.....	" 1.....	17 10.....	" 15.....	5 11	
1864.....	" 15.....	24 11.....	Aug. 20.....	5 6	

## APPENDIX E.

## REPORT OF THE SUPERINTENDENT OF THE OTTAWA WORKS.

OTTAWA WORKS,  
Ottawa, 7th December, 1864.

SIR,—I have the honor to acknowledge the receipt of your circulars No. 8 <sup>51971</sup><sub>523 03</sub>, of the 3rd and 29th ultimo, requesting me to prepare and transmit to the Department a report on the works under my charge, during the period embraced between the 1st of January and 30th day of June 1864.

Having been authorised by the Honorable the Commissioner of Public Works, in communication No. 48625, dated 27th January 1864, to proceed with certain repairs enumerated and estimated by me in my annual report on the Ottawa Works for 1863, I have to state that repairs were executed at :

Boom at mouth of Du Moine River.  
Joachim Slide, Ottawa River.  
Two dams on north branch of Petewawa River.  
Dams on south do do  
Calumet Slide, Ottawa River.  
Mountain do do  
Cheneaux Boom, do  
Burnstown Boom, Madawaska River.  
Arnprior Slide, do  
Piers at head of Chats Rapids, Ottawa River.  
Chats Slide, do  
Ottawa and Hull Slides, do  
Roadway of Union Suspension Bridge.  
Gatineau Booms and Carillon Dams, Ottawa River.

These repairs were completed in due time, and at all the stations the works were ready for the passage of timber on the opening of navigation.

Last spring the waters of the Ottawa River, and certain of its tributaries, rose to an almost unprecedented height; and as large quantities of timber went adrift on the Madawaska and Gatineau Rivers, considerable damage was done, through breakages, to the works on these streams.

Early on Monday morning, the 2nd of May last, the Government boom near the mouth of the Gatineau River, which for some time previously had been subjected to a great strain from the accumulation of a vast number of saw-logs and pieces of square timber, gave way; but the damage was repaired as speedily as possible. I reported this occurrence to the Department on the 4th of May.

From a similar cause, the retaining-boom at the mouth of the Madawaska river broke on the morning of the 4th of June. The interruption to the running of timber was of short duration, however, as, through the exertions of the Acting Deputy Slide Master, his assistants and the raftsmen, the boom was temporarily repaired the same day. Further up the Madawaska, the works were a good deal shattered, as already reported to the Department.

In a future report, I will advert to the steps to be taken with the view of guarding against such accidents in future.

The works at other stations on the Ottawa and its tributaries were but little damaged by the spring floods.

## NEW WORKS.

On the 14th day of January last I was instructed by the Honorable the Commissioner of Public Works to fence in the Government Reserve at the west end of Pooley's Bridge, in this city; after the snow left the ground, I caused the Reserve to be surveyed, and the fence was erected immediately thereafter.

Having been authorized by communications Nos. 48992 and 48993, dated 3rd March last, to procure materials for the Petewawa and Du Moine improvements, I arranged with M. David Moor, of this city, for the timber, and as much of the iron spikes and rock-bolts as would be necessary for the foundation of the proposed dams, &c., on the north branch of the Petewawa River, between Cedar Lake and Thomson's Rapids.

The contract was signed on the 23rd of March, and Mr. Moor at once set about preparing the materials.

The improvements at Long Rapids, on the Upper Du Moine, were undertaken by Mr. James Goodwin, at the request of certain lumber merchants connected with that river, and the dams were completed by the opening of navigation, and in successful operation last running season.

I have the honor to be, sir,

Your most obedient servant,

(Signed) HORACE MERRILL,  
*Supt. of Ottawa Works.*

## APPENDIX F.

### REPORT OF THE SUPERINTENDENT OF THE ST. MAURICE WORKS.

SUPERINTENDENT'S OFFICE, ST. MAURICE WORKS,  
Three Rivers, Nov. 24th, 1864.

SIR,—I have the honor to acknowledge the receipt of your letter of the 3rd instant, informing me that the period of closing the fiscal year has been changed, and is now fixed for the 30th June; and also requiring me to submit to the Department a report on the state of the works during the period between the 1st January and the 30th of June 1864.

There is little information of importance, within the time mentioned, that has not already been communicated. All the works have been operated the past year with much success, and with somewhat less than the usual casualties.

The works are now getting old, and, as a natural consequence, the amounts of money that will be required for repairs from year to year will increase.

On the 2nd of August last I submitted to the Department an estimate of the repairs required for the fall of 1864 and the winter and spring of 1865, amounting to \$4,913.04. This estimate being approved, and the expenditure authorised, repairs were immediately commenced, and such portions of the work as could be most advantageously done during the fall are now complete. When the remainder are finished, the works will be in excellent order.

The cost of maintenance from the 1st of January to the 30th of June 1864, is about the same as for the corresponding period of last year, although wages this season have been somewhat higher.

Expenditure from 1st January to 30th June 1864.....	\$4,361.26
do do do 1863.....	4,309.52

As it appears to be necessary to obtain the sanction of the Provincial Parliament before any monies can be expended upon the works, and as it will be quite impossible before the freshets are over, next spring, for me to say what amount will be required for repairs, or to make any detailed estimate whatever, I would beg to suggest to the Department the necessity of asking for a sum of money, for such probable repairs, of not less than \$8,000.

I have noticed several times, in my annual reports, the necessity that exists for improving some of the principal tributaries of the River St. Maurice. I am now still more strongly of the opinion that were such tributaries as the Matawa and Vermillion improved upon the same principle that the Madawaska, Petawawa, Dumoine, Coulonge and other tributaries of the River Ottawa have been improved, that the result would be profitable, alike to the Government, to the Lumberman, and to the country generally.

All of which being respectfully submitted,

I have the honor to be, sir,

Your most obedient servant,

(Signed) HENRY R. SYMMES,  
*Superintendent.*

F. Bratın, Esq.,  
Secretary, Dept. Public Works, Quebec.

## APPENDIX G.

REPORT OF G. F. BAILLARGÉ, C. E., ON PUBLIC ROADS, HARBORS, PIERS AND BRIDGES.

DEPARTMENT OF PUBLIC WORKS,  
Quebec, 27th December, 1864.

F. BRAUN, Esq., Secretary of Public Works, Quebec.

SIR,—I have the honor to report as follows, respecting the progress, condition, and outlay on the various roads under the management of the Department of Public Works :—

This report is up to the 30th of last June, such being the limit for the last fiscal year which my instructions refer to.

During the first half of the present year, little progress has been made with the various roads under consideration, for the reason that the end of June is generally the time when such works are commenced in the country parishes. Most of the contractors belong to the class of agriculturists, whose custom it is to complete their farming operations in the spring of the year, before attending to any other work.

A breadth of at least 66 feet should be required for all Government roads, especially across Crown lands, and the Agents of Colonization should be instructed to prevent settlers from encroaching with their fences on such road reserve.

Encroachments have been made, from year to year, on several of the roads. The fence posts are driven into the road-bed, or close to the ditches. In some cases the fences, on either side of the roadway, are only from 15 to 20 feet apart; in most cases they are seldom more than 30 or 36 feet apart, instead of 66. The ditches are obstructed in summer, snow accumulates in winter, and the public are put to the greatest inconvenience by those who enjoy the greatest benefit from the roads.

A clearing of at least 100 feet around bridges, and from 30 to 50 feet along side-wharfing, should be required wherever a road passes through the forest; otherwise they will be constantly exposed to damage or destruction by fire. The Colonization Agents should compel the settlers to use all due precautions when setting fire to their clearings, in such cases. Owing to the danger from fire, the construction of side-wharfing should be avoided as much as possible.

Whenever a road, or any portion of the same, is constructed in an unsettled part of the country, it should be sown immediately with grass-seed. The quantity per superficial arpent should be about  $\frac{1}{2}$  a gallon of timothy, 1½lb of red, and 1½lb of white clover, mixed together. This is the only means of preventing the road-bed from being obstructed and eventually destroyed by a second growth of timber, as is generally the case on most of the roads below. On good soil, three years suffice for the second growth to attain a height of from 4 to 6 feet, and a diameter of from 1 to 2 inches.

After the completion of any road, some means should be adopted for its future maintenance. The portions within the bounds of a municipality should be left to its charge, as already provided for by law. Those across the free grant settlements should be left to the charge of the settlers, under the supervision of the Agent of Colonization, as also provided by law, but not enforced; otherwise, the item of repairs will become a permanent charge on the funds of the Province, and the best constructed roads will become impassable in the course of a few years.

In the granting of timber licenses, a reserve should be made of all the timber required for Government works. A reserve of the right of taking timber, gravel, or other materials requisite for such works should also be made in all land grants, together with a reserve of 66 feet breadth of land for the right of way. Some of these provisions may exist already on paper, but they are seldom enforced for want of proper authority.

The smallness of legislative grants made each year for the construction of several of the roads is such, that only a few miles can be finished yearly. This adds greatly, not only to the cost of superintendence, but also to the cost of construction. It costs little more to superintend 10, or even 20 miles, than what it does to superintend 3 or 6 miles. On roads of considerable length, which can only be used when opened throughout, if one portion is completed several years before the remainder, it grows over with brush and has to be made a second time. This applies particularly to the Malbaie and Grande Baie Road.



ROADS BELOW QUEBEC, ON NORTH SHORE OF ST. LAWRENCE.

MALBAIE AND GRANDE BAIE ROAD.

Total length from main road on the St. Lawrence to Baie of Ha! Ha! Church Saguenay, 76 miles, 10½ of which, at the Malbaie terminus, made by inhabitants.

Work done or in progress by Government, under Paschal Bouchard, Local Superintendent:—

- 8 miles—near Grande Baie or Baie of Ha! Ha! 18 feet wide, finished as a summer road.
- 15 “ opened as a summer road 12 feet wide, including the clearing at the Passe de Monts and at the River St. Jean, not yet completed, although passable.
- 42 “ opened only as a winter road, eight feet wide, require to be completed as a summer road.

Total 65½ “ which are being made by the Department.

Work commenced in 1856 and continued in 1859, 1860-'1-'2.

No work done from 1862 to 30th June, 1864.

ROAD OF THE MARSHES, OR CARTIER ROAD.

*This is a branch road, about 25 miles in length, from the intersection of the Grande Baie and Anse St. Jean Roads, to the settlements on the opposite or north-east side of the Malbaie River.*

In a former report I recommended the opening of this road as a winter route, it being several miles shorter and much more advantageous than the road just described, so far as grades are concerned.

Although no expenditure was incurred for this work up to the 30th of last June, measures were taken to proceed with it subsequently, under the local superintendence of Mr. Lapointe.

CALLIÈRES ROAD.

From Rivière Noire to St. Catherine, at the mouth of the River Saguenay.—Total length about 19 miles.

*Work commenced in 1855.*

Finished ..... 7 miles.

Unfinished ..... 12 “

This is a continuation of the main North Shore Road, from the Seigniory of Mount Murray, thence across the Townships of Callières and Saguenay to the mouth of the Saguenay, opposite to Tadoussac.

According to the report of J. McLaren, the local superintendent, it is completed to within 2½ miles of the Baie des Rochers, and the lands along the finished portions of the road are being settled rapidly.

No expenditure has been incurred this year, up to the 30th June.

ESCOUMAINS ROAD.

An extension of main North Shore, from Tadoussac, at the mouth of the Saguenay, to the village of the River Escoumains.

*Work commenced in 1856.*

F. TÉTU, Local Superintendent since 1857.

*Work Done.*

Practicable as a winter road, from Tadoussac to Little Bergeronnes.

Distance not measured. Superintendent supposes it to be.....12 miles.

And as a summer road, from Little Bergeronnes to Escoumains.

Per Superintendent .....16 “

Total length—say.....28 “

Nothing expended from 1st January, to 30th June, 1864.

Previous expenditure, \$4,569.50.

The construction of the bridge, which it was proposed to construct across the Great Bergeronnes River, in the summer of 1864, has been postponed until the summer of 1865.

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**ROADS BELOW QUEBEC, ON SOUTH SHORE OF ST. LAWRENCE.**
**TEMISCOUATA (OR WESTERN CANADA AND NEW BRUNSWICK) ROAD.**

*From main South Shore at Rivière du Loup, to Madawaska Road at Provincial Boundary Line, leading to St. Andrew's, on the Bay of Fundy.*

Finished . . . . . 65.18 miles.  
 Half-finished, but passable in summer. . . . . 1.75 "

Total length.....66.93 "

No work done from 15th October, 1862, to 30th June, 1864.

This intercolonial thoroughfare, where new settlements and traffic are increasing, is in a very bad condition: between Lake Temiscouata and the St. Lawrence, where the traffic is the greatest and the settlements the most numerous, the road-bed, wherever clay soil occurs, is so cut up, and some of the culverts are so much damaged, that travelling has become absolutely dangerous on the route, especially at night.

Its present condition, however, is no matter of surprise, considering that the road has not been kept in repair from year to year.

The best-constructed road, under the same circumstances, would stand in the same urgent need of repairs.

The total distance from Quebec to Halifax by this route, according to official reports, is 110 miles.

**METAPEDIAE (OR EASTERN CANADA AND NEW BRUNSWICK) ROAD.**

*From Ste. Flavie on the St. Lawrence, to James Sillars' on the Ristigouche Road, which connects at Cross-Point with the Baie des Chaleurs Road and that of New Brunswick.*

The ferry between Cross-Point and Campbellton, across the Ristigouche, connects the Canada and New Brunswick roads.

Total length, 96.73, French—98.40 English miles; road breadth generally 22 feet, except alongside cuts, where it is reduced to 16 feet or less.

Work commenced in July, 1857, on south end, and in May, 1859, on north end, under Jean Lefebvre and J. B. Lamontagne, Local Superintendents. Joseph Rosa, successor to the former Superintendents since July, 1862.

	French miles.
Length of road finished.....	54.55
" partly finished and passable .....	6.75
" to be put under contract in summer of 1864, and to be completed in fall of 1865.....	35.43

Total, as above..... 96.73

Last March, Mr. Rosa was instructed by the Department to explore the country along the northern and southern divisions of the route, in order to ascertain whether or not the remaining 35.43 miles to be constructed could be located on the Crown Lands beyond the Seigniory of Metapediae.

It appears from his report that no favorable land could be found beyond those limits; he was, therefore, instructed to locate it on the best ground to be found on either side of the present Kempt Road, which was done accordingly; a portion of the line I traced in 1858 was shifted from dry to wet ground, in order to shorten the distance. The new road on the central division will be far superior, as to grade, than the old road.

Subsequently, in May, he was authorized to alter a portion of the road that had been abandoned by contractors on the southern division; this, also, was attended to.

Scarcely more than three-fourths of a mile of road have been completed during the period reported on.

On the northern division, the work done hitherto has stood well, but needs some repairs and improvements.

On the southern division, where the road has been constructed across deep ravines, on the slope or at the base of the mountains, and, in many places, on very rocky ground,

various repairs and improvements are wanting; these consist chiefly in side-railing, widening, ditching. The bridges and side-wharves, destroyed by fires last May and June, must be repaired with as little delay as possible. These fires were the result of absolute recklessness on the part of two or three persons, as previously reported.

The Metapediac Road is now settled for a distance of more than thirteen miles at each end. The intermediate settlements are from six to nine miles apart.

Its completion will, for the first time, supply an excellent carriage road to the inhabitants of the Baie des Chaleurs, which has been settled more than eighty years, without any proper outlet to the St. Lawrence. Its great importance as a military road is self-evident.

In order, however, that it may be available to the public at the time when it is most required, it is absolutely necessary that the mails should be carried over it, in winter, with horses.

A good road, at all seasons of the year, would ensure a speedy settlement of the entire route.

### METAPEDIAC AND KEMPT ROAD.

No. 1.—GENERAL STATEMENT shewing the length of Road made, in progress of construction and to be constructed, together with the expenditure incurred and to be incurred on each Division, and the probable cost of completion of the works, of the widening, &c., of the portions made as a Colonization Road, of the survey and plans and of the repairs of the Metapediac Road since the fires of 1864—and also the amount paid for repairs on the Kempt Road.

Description.	Length of Road in French miles.				Amount paid.	Amount payable on works in progress.	Probable cost of road not under contract, improvements, damages, &c.	Total cost of Completion.
	Finished	In progress.	Not yet contracted for.	Total Length.				
<i>Metapediac Road.</i>								
Northern division....	25-91	.....	6-18	32-09	\$ 34035 39	\$ 70 39	\$ 10000 00	\$ 44105 98
Central do .....	.....	.....	27-29	27-29	.....	.....	\$ 36500 00	\$ 36500 00
Southern do, &c....	28-64	6-75	1-96	37-35	72020 55	3305 05	2000 00	77325 60
<b>Totals.....</b>	<b>54-55</b>	<b>6-75</b>	<b>35-43</b>	<b>96-73</b>	<b>106056 14</b>	<b>3375 44</b>	<b>43500 00</b>	<b>157931 58</b>
Widening side-railing and improving portion of road constructed as colonization road, on southern division, &c., and sowing grass-seed on unsettled portions. }							6000 00	6000 00
Total probable cost of Metapediac Road, if finished as a military road on its whole length of 96-73 French miles—93-40 English miles. }								163931 58
Survey, plan of road, mile posts from Sta. Flavie to Cross-Point, about 109 miles—if done whilst road-work is progressing. }							3000 00	3000 00
<i>Kempt Road.</i> —Repairs made in 1860-'2-'3.....					1874 00			1874 00
<i>Metapediac Road.</i> —Repairs of damages caused by fires of May and June, 1864.....							3500 00	3500 00
<b>Grand Total.....</b> (Cost of Superintendence about 13 p. c. heretofore.)					<b>\$ 107930 14</b>	<b>3375 44</b>	<b>61000 00</b>	<b>172305 58</b>

## MATANE AND CAP DE CHATTE ROAD.

*A portion of the main South Shore Road, from lot 9, Township of St. Denis, to chapel near Cap de Chatte River, 285 miles below Quebec.*

*Total length, 36 miles 6¼ perches—French measure.*

This road was commenced in 1857, and opened to the public in 1860, at which time it had not been properly completed.

Although it was improved subsequently, many improvements are still required.

These, according to the estimate furnished after my examination of the works last summer, will amount to nearly \$5,000.

If this sum is judiciously expended, the road will be quite practicable, and more serviceable to the public than hitherto.

The only outlay on this work, from the 1st of January to the 30th June of the present year, was \$869.00.

This sum, which is to be deducted from the amount estimated above, was chiefly towards the construction of a bridge about 50 feet in height across the ravine formed by the Ruisseau à Sem.

This bridge, which has been constructed in a very creditable manner, was not completed at the time of my inspection.

By means of this structure and that which I authorized to be constructed across the Ruisseau de la Wapper, four of the steepest hills on the road will be avoided.

The repairs on the above road are under the local and judicious management of Mr. Ross.

The total outlay on construction and repairs up to the 1st July, 1864, amounts to \$24,251.46.

## GASPÉ AND ST. LAWRENCE ROAD.

The road under the above name is that which connects Gaspé Basin with Grande Grève, Griffin's Cove and Fox River.

Work commenced in 1859.

The following sections of it were completed in 1862, at a cost of about \$17,700.00, inclusive of repairs.

From Watering Brook to Grande Grève, on north side of Gaspé Bay.....	miles	10
“ Gaspé Bay to Griffin's Cove, on the South Shore of the St. Lawrence.....		7
“ Griffin's Cove to Great Fox River, up the St. Lawrence.....		6

Total.....	23.00
------------	-------

The only outlay incurred from 1st January to 30th June this year, was for the construction of two breakwaters at the Watering Brook Bridge, and for sundry road repairs, amounting altogether to the sum of \$250.00. Mr. Antoine Painchaud, the Local Superintendent, was authorized to expend this amount for the purpose stated, last February.

The total outlay up to the 1st July this year amounts to \$16,295.68.

## SOUTH SHORE.

### GULF ROAD.

A continuation of the main South Shore Road from Cap de Chatte to Cap Rosier, connecting at Griffin's Cove with the new Government road leading from the St. Lawrence to the Bay of Gaspé.

Total length of road from Cap de Chatte to Cap Rosier, 143 miles, of which I located 115 from Ste. Anne des Monts to Great Fox River, in 1861.

The portions constructed, and to be constructed, are as follows, viz :

	Length—Miles.
Cap de Chatte to lower end of Ste. Anne des Monts, or to Township Tourelle—made by inhabitants, excepting two bridges required on the Chatte and Ste. Anne Rivers .....	13.20
Ste. Anne des Monts to Great Magdalen River, termed the Western Division, which has been placed under the local superintendence of Mr. Charles Roy, the Agent of Colonization in that quarter, to be constructed .....	64.22
Great Magdalen River down to Great Fox River, termed the Eastern Division, which has been placed under the local superintendence of Mr. Antoine Painchaud, P. L. S., to be constructed.....	50.78
Great Fox River to Griffin's Cove,—finished under the name of Gaspé and St. Lawrence Road.....	6.00
Griffin's Cove to Cap Rosier—opened as a winter road. To be completed.....	9.00
Total length of road.....	143.20

of which 124 miles remain to be constructed.

Although nothing was done on the above unfinished portions up to the 30th of last June, steps were taken shortly afterwards to proceed with the work, from Ste. Anne des Monts downwards and from Fox River upwards.

It is highly desirable that this and the Cap Rosier section, which I have described fully in my reports of 1860 and 1862, should be constructed as speedily as possible.

The estimates shewing the cost of construction have been already furnished with the reports referred to.

#### CAUGHNAWAGA ROADS.

*Across the Indian Reserve, between Caughnawaga, St. Martin and Chateauguay.*

According to the report of Mr. J. G. Sippell, C. E., No. 69869, on 9th of last June, the following sums were still required for the repairs of the above, to be distributed in the following manner:

Bruneau Road.....	\$1660
Chateauguay .....	1693
Concession Road.....	800
Total .....	\$4153
Expenditure for $\frac{1}{4}$ year ending 30th June, 1864.....	\$11 70
Previous expenditure up to 1st January, 1864.....	767 51
Total outlay up to 30th June, 1864. ....	\$779 21

#### ST. ZOTIQUE ROAD.

*Between Coteau Landing and Province Line, on north shore of Lake St. Francis.*

Amongst the various roads I have examined from Port Dover down to Gaspé, there is not one in a worse condition than this.

It forms a portion of the main road between Montreal and Cornwall, upon which the traffic is greater than on many other sections of the same thoroughfare.

At one time it was an excellent road, but it has been destroyed by the waters of Lake St. Francis since the construction of the Beauharnois Dams.

The quantity of water in the side ditches is so great that they are used for driving saw-logs, and can be navigated with canoes part of the way.

The repairs, commenced in 1859 and continued in 1860, are far from being completed. The condition of the repaired portion is such that you can scarcely travel over it, the cross-ties of the side-logging, and the fascines on the bed of the roadway are not even covered with earth; the small quantity of earth that was put on has been either worn or washed away during the last four years.

The longer the repairs are delayed on this road, the more they will cost hereafter. I cannot recommend their speedy completion too strongly.

It is as needless as it would be unfair to expect the municipalities to do this work at their own cost, as they derive little, if any, revenue from the lands laying waste on both sides of the road, owing to inundation; besides this, the traffic from the western part of the Province is as great, if not greater, than in the eastern section.

The outlay already incurred for the repairs in question is thus:—

In 1859.....	\$898 24
“ 1860.....	588 77

Total expenditure..... \$1,482 01

The amount still required for completion, according to estimate No. 68,955, furnished by Mr. J. G. Sippell, C.E., is \$4,020.

He states that the Municipal Council of Soulanges has asked for a sum of \$2,000 to assist them in repairing the road.

The repairs, however, cannot be done for that sum, nor could the local council supply the balance requisite to complete them in a permanent manner.

## ROADS—CANADA WEST.

### TORONTO OR YORK ROADS.

*Total length, 73½ miles.—Completed in 1847 and 1848.*

The roads known under the above title are as follows, viz:—

	LENGTH—MILES.
Lake Shore Road, from Toronto westward to River Humber.....	4
West York or Dundas Road, from Toronto westward to Springfield.....	19
East York or Kingston Road, from Toronto eastward to Rouge Hill.....	17
Yonge Road, from Toronto northward to Holland's Landing.....	33½
Total.....	<u>73½</u>

I made a careful examination of these roads last February and March. I afterwards furnished you with a report on the condition of each section, together with an estimate of the cost of the repairs required, and other matters, the whole in detail.

The outlay from the 1st January to 30th June, 1864, was as follows, viz:—

Dundas Road ..	\$2,404 77
Yonge Road.....	5,135 90
Kingston Road ..	2,089 42
General account.....	143 37

Total..... \$9,773 46

All the outlay on the Lake Shore Road consisted in the preparation and delivery of broken stone which are available for the repairs.

### HAMILTON AND PORT DOVER ROAD.

*From Lake Ontario to Lake Erie.—Length, 37 miles.*

This road, with the exception of the Mountain Section, near Hamilton, was completed

and in use in 1844; the Mountain Section was made available for public use in the spring of 1846. On the 15th October, 1850, it was sold to Rykman & Co., for \$30,800. It was afterwards assumed by the Government in June, 1863, since which time it has remained under the management of the Department.

At the time of my last inspection little work had been done beyond the repairs of the 24 miles between Hamilton and Hagaraville.

The amount expended from 1st January to 30th June, 1861, was \$780.

All of which is respectfully submitted by

Your very obedient servant,

(Signed)

G. F. BAILLAIRGE.

## HARBOURS AND PIERS BELOW QUEBEC.

### LANDING PIERS.

*On North Shore* :—At Eboulements, Malbaie.

*On South Shore* :—At Berthier, L'Islet, Rivière Ouelle, Rimouski, Rivière du Loup.

From the date of my last report in October, 1863, up to the 30th June this year, no repairs were done on either of the above piers.

The position and nature of these works are such that any damage done to them by ice or otherwise should be repaired immediately afterwards.

Every year more or less damage is done, to repair which would cost but a small sum if attended to immediately, and a much greater sum if the repairs are delayed, even for a few months or less.

Hitherto it has been customary to lay the iron straps flat upon the outside sheeting, on the most exposed portions of the crib-work, at the outer end and upon the corners; these straps are placed from six to twelve inches apart; the exposed portion of the sheeting between the straps is eaten away in a short time by the ice, which afterwards tears the straps off, however well they may have been bolted.

Mr. Gauvreau now proposes, whenever new sheeting is required, to use rock-elm, six inches wide, and to place the iron straps vertically and edgewise between each joint of the sheeting.

By the new mode proposed, it is expected that when the elm sheeting is partly worn down between the vertical bars, the edges of these will cut any ice that may come in contact, and prevent any further damage.

### GROSSE ISLE PIER.—(Completed in 1848.)

There has been no outlay on this work during the six months reported on.

## HARBOURS AND PIERS ABOVE QUEBEC.

Port Dover, Lake Erie.

Chantry Island " Port of Southampton.

Rondeau Harbour, "

Port Stanley, "

Nothing has been expended for repairs or improvements at either of the above-named works.

Whitby Harbour—Lake Windsor.

" —Lake Ontario.

This harbour and its appurtenances were ordered to be delivered to the Port Whitby Harbour Company.

There has been no outlay on the works of this harbour from 1st January to 30th June, 1864, by the Department.

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**LINDSAY BRIDGE.**

*Across the River Scugog, at the foot of the Government Timber Slide, in the Town of Lindsay.*

This is a new bridge that has been built in lieu of the old one across the former lock, now converted into a slide, the old bridge having been destroyed by fire.

The new structure, which consists of framed wood-work resting on two cut-stone piers and two abutments of the same material, is very substantial.

It was ready for public use on the 16th of last December, although not then fully completed.

I examined this work last February and June, at which time the removal of the coffer-dams, the repointing of the masonry, and the last coat of painting on the wood-work had not been finished.

Owing to some misunderstanding on the part of the contractor, the bridge was closed to the public from the 16th of December until the 6th of last February, when it was finally opened to the public.

The expenditure during the half-year ending 30th of last June amounts to.....\$1652 50  
 Previous expenditure..... 2600 50

Total outlay up to 1st July, 1864.....\$4253 00

have the honor to be, sir,

Your most obedient servant,

(Signed)

G. F. BAILLIARD.





APPENDIX H

STATEMENT shewing the result of the proceedings before the Provincial Arbitrators, from 1st January to 30th June, 1864.

Names of Claimants.	Subject of claim.	When referred.	Amount claimed.	Amount awarded.	With or without costs.	Date of award.
<i>Claims Awarded.</i>						
Augustin Trépanier.....	Extra work to Jail and Court House at St. Joseph de la Beauce .....	1864. January 23 .....	\$ cts. 1436 09	Nothing.....	Without .....	March 19, 1864.
<i>Claims still pending.</i>						
Charles Peters.....	Extra work to Jail and Court House at St. Hyacinthe.....	February 20.....	18473 00			
Wm. P. Bartley .....	Offset against rent. Hydraulic lots, Lachine Canal .....	March 17. ....	.....			
Ira Gould.....	Compensation—Water withheld and land taken, Lachine Canal .....	April 20.....	39962 00			
Hon. A. E. Kierzkowski .....	Damages to water-powers, occasioned by the St. Ours' Dam, Richelieu River.....	1864. March 28 .....	6000 00			
J. Bte. Derome .....	Extra work to Landing Pier at Rimouski .....	June 6.....	3276 95			

F. H. ENNIS,  
Secretary, Provincial Arbitrators.

QUEBEC, 30th June, 1864.

## APPENDIX I.

STATEMENT OF SPECIAL SERVICES PERFORMED BY THE PROVINCIAL STEAMERS, FROM  
THE OPENING OF NAVIGATION TO THE 30TH JUNE, 1864.

*Lady Head*.—In May and June the steamer *Lady Head* made three trips to Pictou, Nova Scotia, with the mail, passengers and freight, calling at the intermediate ports. Started on the fourth trip of the season on the 25th June.

*Queen Victoria*.—On the 17th May, the steamer *Queen Victoria* left on the 2nd trip of the season, replacing the steamer *Lady Head* which was detained over her time in the Gulf of St. Lawrence by ice; and during the month of June, was employed in towing.

*Napoleon III*.—The 21st of June, the steamer *Napoleon III*. left for Belle Isle in the service of the Trinity House of Quebec, to supply all the light-houses and provision depôts in the Gulf of St. Lawrence and also with several passengers and freight for the salmon fisheries of Mingan and other places on the North Shore.

*Advance*.—On the 21st April the steamer *Advance*, in the service of the Trinity House of Quebec, left to place buoys, and light-house in the traverse and was for the most part engaged until 30th June in supplying the light-houses, replacing buoys lost, or out of position, in the River St. Lawrence, the balance of time being employed in towing.

J. U. GREGORY,  
*Book-keeper.*

[Signed]

E. BUTEAU,  
*Manager.*

OFFICE OF PROVINCIAL STEAMERS,  
Quebec, 7th December, 1864.

APPENDIX I.—Continued.

PROVINCE OF CANADA, for Provincial Steamers, in account current with Department of Public Works.

1864.	Dr.	\$ cts.	1864.	Cr.	\$ cts.
Jan. 1...	To Balance at debit of steamers.....		June 30..	By Revenue from 1st January to date, paid Receiver General .....	3,072 09
"	" stock of coals, &c., on hand at this date.....	4,565 56	"	" " stock of coals, &c., on hand at this date, and outstanding debts.....	7,048 78
June 30..	" amount expended from 1st January to date, for outfit, running expenses and repairs.....	6,897 80	"	" Appropriation 27 & 28 Vic., chap. 1, to 30th June, 1864.	18,000 00
" 30..	" do do for fitting out "La Canadienne".....	16,888 81	"	" do do unprovided items, 1863.	4,565 56
" 30..	" do do for advertising sale of steamers.....	1,658 78			
" 30..	" Balance.....	642 01			
		2,063 52			
		\$32,086 43			\$32,086 43
			June 30..	By Balance.....	\$2,063 52

DEPARTMENT OF PUBLIC WORKS,  
July, 1864.

J. BAINE,  
*Book-keeper.*

Can Doc 10, 77,  
27

# GENERAL REPORT

OF THE

## COMMISSIONER OF PUBLIC WORKS

FOR THE YEAR ENDING 30th JUNE, 1865:

FURNISHED

IN COMPLIANCE WITH THE PROVISIONS OF THE 25th CHAPTER OF THE CONSOLIDATED STATUTES OF CANADA, SECTION 2

.....  
Printed by Order of the Legislative Assembly.  
.....



OTTAWA:

PRINTED BY HUNTER, ROSE & CO., SALLY STREET.

1866.



# GENERAL REPORT

OF THE

*Canada - Dept.*  
COMMISSIONER OF PUBLIC WORKS,

FOR THE YEAR ENDING 30TH JUNE, 1865 :

FURNISHED

IN COMPLIANCE WITH THE PROVISIONS OF THE 23rd CHAPTER OF THE CONSOLIDATED STATUTES OF CANADA, SECTION 24.

.....  
Printed by Order of the Legislative Assembly.  
.....



OTTAWA:  
PRINTED BY HUNTER, ROSE & CO., SALLY STREET.  
1866.

1855, June 26.

Dear Mother

I received your kind letter  
of the 21st and was glad to hear  
from you.

I am well.

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**R E P O R T**  
OF THE  
**COMMISSIONER OF PUBLIC WORKS,**  
FOR THE YEAR ENDING 30TH JUNE, 1865.

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*To His Excellency the Right Honorable CHARLES STANLEY, Viscount  
MONCK, Governor General of British North America, &c.,  
&c., &c.*

**MAY IT PLEASE YOUR EXCELLENCY:—**

The report now presented is a record of the transactions of this Department during the period comprised between the 1st of July, 1864, and the 30th of June, 1865—being the new fiscal year—provided by the 27th and 28th Vic., chap. 6th.

The details of the expenditure during this period, arranged under their proper heads, in the usual tabular forms, are given in the Statements Nos. 1, 2, 3, 4, 5, 6 and 7, appended to this report.

No. 1. Statement of the several works under the charge of this Department, which are in use and yield revenue; showing, under different heads, the expenditure on construction, and the amount paid for land damages during the year ending 30th June, 1865; the total cost of construction under this Department to the 1st July, 1865, and the cost of repairs and management during the year ending 30th June, 1865.

No. 2. Statement of the Public Works under the charge of this Department, not yet completed, and unproductive, but on which tolls are to be levied as soon as they are available; shewing the expenditure thereon during the year ending 30th June, 1865, on construction, and on repairs and management, and the total expenditure up to the 1st July, 1865.

No. 3. Statement of the several Public Works and Buildings in charge of this Department, or in course of construction under it, yielding no direct revenue, but in use for the public service, and authorized by legislative appropriations; shewing the amount expended thereon during the year ending 30th June, 1865, and the total outlay upon them up to the

1st July, 1865; also the amount expended for repairs and maintenance during the year ending 30th June, 1865.

No. 4. Statement of expenditure on certain miscellaneous services under this Department, during the year ending 30th June, 1865.

No. 5. Statement of the expenditure incurred under this Department for the repair, management and survey of the Ordnance Canals, for the year ending 30th June, 1865.

No. 6. A detailed statement of the expenditure incurred in the repairs and maintenance of the Provincial Light-houses under the charge of this Department, for the year ending 30th June, 1865.

No. 7. Abstract Statement shewing the total amount expended under the Department of Public Works, during the year ending 30th June, 1865, as detailed in the foregoing statements numbered 1, 2, 3, 4, 5 and 6.

The Public Works of Canada, placed under the control of this Department, may be classified under the following heads :—

- 1.—Canals.
- 2.—Works on Navigable Rivers.
- 3.—Harbours and Piers.
- 4.—Light-houses, Beacons and Buoys.
- 5.—Slides and Booms.
- 6.—Roads and Bridges.
- 7.—Public Buildings.
- 8.—Provincial Vessels.

## C A N A L S.

The Provincial Canals were designed for the purpose of overcoming the natural obstructions which were found on the routes of the following lines of Canadian inland navigation, viz. :—

- 1.—The St. Lawrence navigation.
- 2.—The Montreal and Kingston, *viâ* Ottawa.
- 3.—The Richelieu and Lake Champlain navigation.

### ST. LAWRENCE NAVIGATION.

The St. Lawrence navigation extends from the Straits of Belle-Isle to Fond du Lac, at the head of Lake Superior, a distance of 2,385 statute miles.

The Canadian Canals on this route are the Lachine, the Beauharnois, the Cornwall,

the Farran's Point, the Rapide Plat, the Galops and the Welland. Their united length is 71½ miles, and the total lockage is 536½ feet.

The St. Mary Canal, 1½ mile in length, and 18 feet lockage, avoiding the Sault Ste. Marie, and uniting Lake Huron and Lake Superior, is an American work. Lake Superior is about 600 feet above the highest tidal flow of the St. Lawrence, at Three Rivers.

TABLE OF DISTANCES.

	Statute Miles.	
	Intermediate Distances.	Total Distance from Belle-Isle.
From the Straits of Belle-Isle to the head of tide water (Three Rivers)..	900	.....
From head of tide water (Three Rivers) to the Lachine Canal.....	86	986
The Lachine Canal .....	8½	994½
From Lachine Canal to Beauharnois Canal.....	15½	1009½
The Beauharnois Canal.. ..	11½	1021
From the Beauharnois Canal to the Cornwall Canal .....	32½	1053½
The Cornwall Canal.....	11½	1065½
From the Cornwall Canal to Farran's Point Canal.....	5	1070½
The Farran's Point Canal.....	½	1071
From Farran's Point Canal to Rapide Plat Canal.....	10½	1081½
The Rapide Plat Canal .....	4	1085½
From Rapide Plat Canal to the Iroquois and Galops Canal.....	4½	1090
The Iroquois and Galops Canal .....	7½	1097½
From Iroquois and Galops Canal to the Welland Canal.....	236½	1334
The Welland Canal .....	28	1362
From the Welland Canal to Sault Ste. Marie Canal.....	625	1987
The Sault Ste. Marie Canal.....	1	1988
From Sault Ste. Marie Canal to Fond du Lac, head of Lake Superior.....	397	2385

For details of intermediate distances between places on this route, see Appendix No. 2, page 8.

DATE of the opening and closing of navigation on the St. Lawrence line, for the year ending 30th June, 1865.

	Closed.	Opened.
Lachine Canal .....	10th Dec., 1864.	1st May, 1865.
Ecauharnois Canal .....	3rd " "	25th April, "
Cornwall Canal.....	10th " "	26th " "
Farran's Point Canal.....	10th " "	28th " "
Rapide Plat Canal.....	10th " "	28th " "
Galops Canal .....	10th " "	28th " "
Welland Canal .....	11th " "	17th " "

#### LACHINE CANAL.

Length of Canal.....	8½ statute miles.
Number of locks.....	5.
Dimensions of locks.....	200 feet × 45 feet.
Total rise of lockage.....	41½ feet.
Depth of water on sills.....	{ at 2 locks... 16 "
	{ at 3 " ... 9 "

The Lachine Canal carries navigation round the St. Louis Rapids.

No works chargeable to construction have been executed on this canal during the past year, excepting the erection of a flour shed, 289 feet long, at the Montreal terminus. Only one accident occurred on this canal during the season of navigation, caused by a steamer breaking through one of the gates at the guard-lock at Lachine. The gate was replaced and navigation again resumed in eighteen hours.

The repairs on this canal have been of a general character : such as are annually necessary to keep in good order the locks, basin walls, the gates, the banks, the slope walls, the bridges and roads.

One pair of spare gates are under construction.

The construction of the proposed swing bridge at St. Gabriel's Lock has been postponed.

A dredge has been employed on this canal, deepening certain parts of it.

A lot of land, 169 feet long by a breadth averaging between 134 feet 9 inches and 135 feet 11 inches, has been acquired by the Department, from the estate of the Honorable John Young, on the north side of Basin No. 4, Lachine Canal.

The Montreal Harbour Commissioners are progressing with the construction of the wharf and basin at Montreal, near the entrance into the canal, referred to in my last year's report.

For further details. See Lachine Canal in Appendix No. 8, page 11.

**BEAUHARNOIS CANAL.**

Length of Canal.....	11½ statute miles.
Number of locks.....	9.
Dimensions of locks.....	200 feet × 45 feet.
Total rise of lockage.....	82½ “
Depth of water on sills.....	9 “

The Beauharnois Canal avoids the rapids at Cascades, Cedars and Coteau du Lac. No works of construction were performed on the Beauharnois this year.

Navigation not interrupted by any accident.

The Engineer of this canal reports that the repairs were of a general nature:—to piers, lock gates, bridges, slope walls, embankments and buildings.

Two pairs of spare lock gates are being made.

For further details. See Beauharnois Canal in Appendix No. 3, at page 10.

**CORNWALL CANAL.**

Length of Canal.....	11½ statute miles.
Number of locks.....	7.
Dimensions of locks.....	200 feet × 55 feet.
Total rise of lockage.....	48 “
Depth of water on sills.....	9 “

The Cornwall Canal overcomes the Long Sault rapids.

No new construction undertaken here this year.

Navigation uninterrupted by any accident. General repairs were performed on the locks, lock-gates and weirs, raising and repairing of embankments and slope walls, and clearing culverts, ditches, &c. Certain portions of the banks require further protection.

The wharf at the upper entrance requires extensive repairs.

The upper parts of the piers at the lower entrance should also be rebuilt.

For further details. See Appendix No. 4, at page 20.

**THE FARRAN'S POINT CANAL.**

Length of Canal.....	¼ mile.
Number of locks.....	1.
Dimensions of locks.....	200 feet × 45 feet.
Total rise of lockage.....	4 “
Depth of water on sills.....	9 “

The Farran's Point Canal clears the Farran's Point rapids.

Navigation has not been interrupted by any accident.

General repairs.

Arrangements are being made for the repair of the pier at the lower entrance of this canal.



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**THE "RAPIDE PLAT" CANAL.**

Length of Canal.....	4 miles.
Number of locks.....	2.
Dimensions of locks.....	200 feet × 45 feet.
Total rise of lockage.....	11½ "
Depth of water on sills.....	9 "

This canal overcomes the "Rapide Plat" rapids.

Navigation not interrupted by any accident.

Repairs of a general character.

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**THE GALOPS CANAL.**

Length of Canal.....	7½ miles.
Number of locks.....	5.
Dimensions of locks.....	200 feet × 45 feet.
Total rise of lockage.....	15½ "
Depth of water on sills.....	9 "

The Galops Canal avoids the Iroquois, the Cardinal and the Galops rapids.

The only work of construction performed on this canal during the past year has been the continuation of the work of lining the inside of the banks with stone.

Navigation uninterrupted by any accident.

The repairs were of a general character:—to the wharves, bridges, lock gates, sluices, ditches, and guard booms.

Arrangements are being made for the repair of the North Pier at the upper entrance of this canal.

The Farran's Point, Rapide Plat and Galops Canals are rarely used by vessels descending the river.

For further details of these three Canals. See Appendix, No. 5, at page 21.

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**WELLAND CANAL.**

Length of Canal, main line.....	28 miles.
Length of feeders.....	21 "
Number of locks on main line.....	27.
Dimensions of locks.....	{ 24 locks of 150 feet × 26½ feet. 3 " " 200 " " 45 "
Total rise of lockage.....	330 "
Depth of water on sills.....	10½ "

This canal opens a passage between the Lakes Ontario and Erie, separated by the Falls of Niagara.

The principal works of construction in progress on this canal, are those connected with the deepening of the summit reach to bring it to the level of Lake Erie.

The excavation and dredging of this reach has been well advanced.

The resident Engineer reports that the only works remaining to be done in addition to the excavating, before the water in the summit reach can be lowered are the following:

1. Deepening the channel from lock at Port Robinson to main canal.
2. A waste-weir and channel at the junction, to regulate the water at the feeder.
3. Strengthening the embankment along the old canal from the Aqueduct to the junction.
4. New boom timbers in rock cut.
5. Facing the slopes of the banks with stone.
6. Improving tow-path.
7. The removal of loose stone from rock cut.
8. Removal of piles.

The channel from the lock at Port Robinson to the Welland River has been deepened.

*Repairs.*—The piers at Port Colborne and Port Maitland, reported last year as having been damaged by a storm, on the 1st of January, 1864, have been repaired. General repairs also—to locks, gates, bridges and canal banks.

The water of the Grand River rose to an unusual height in the spring of 1864, and caused some damage to the works.

An Order in Council was passed on the 17th October, 1864, and published in the *Canada Gazette* of the 22nd of the same month, establishing certain regulations with reference to timber lying in the canal.

For further details. See Appendix No. 6, at page 22.

TABLE shewing the size of the smallest locks on the Canals of the St. Lawrence line of navigation, also the dimensions of the largest vessel which may pass through them.

Name of Canal.	Dimensions of Locks.			Dimensions of Vessel.			
	Length.	Breadth.	Depth of water on sill.	Length.	Breadth.	Draught of water when loaded.	Tonnage.
St. Lawrence Canals.....	200	45	9	186	44½	9	600
Welland Canal.....	150	26½	10½	142½	26½	10	400
Sault Ste. Marie Canal.....	350	{ 70 top 61 bottom }	12	.....	.....	.....	.....

#### BURLINGTON BAY CANAL.

Length of canal..... ¼ mile.

No locks on this canal.

Average breadth between piers..... 188 feet.

This canal may be considered a branch of the main line of the St. Lawrence navigation, and is simply a cutting through a piece of low land which separates Lake Ontario from a large sheet of water called Burlington Bay.

By this canal shipping are enabled to reach the City of Hamilton and the Desjardins Canal—a work belonging to a private company and leading to the Town of Dundas.

This work has not required any repairs during the past year.  
A rope, chain and anchor, are required for the use of the ferry scow.

## TUG SERVICE, CONNECTING THE ST. LAWRENCE CANALS.

The Government has of late years granted a subsidy to encourage and maintain an efficient line of tug steamers on those intervening navigable reaches, which connect one canal with the other, between Montreal and Kingston, on the River St. Lawrence.

Tenders were received for the performance of this service, and a contract was entered into with Messrs. Calvin & Breck.

This firm undertake to tow such vessels as may require their services on the navigable portions of the river between these canals—at certain fixed rates—for an annual bonus of \$12,000.

The contract with Messrs. Calvin & Breck was granted for three years, and will end with the season of navigation of 1866.

The following statement shews the number of towages and the amounts received from ship-owners by Messrs. Calvin & Breck, from the 1st July, 1864, to the close of navigation in that year, also from the opening of navigation in 1865 to the 1st of July instant:—

	1st of July to end of Navigation, 1864.		Opening of Navigation to 30th June, 1865.		Towages	\$ cts.
	Towages.	Amount received.	Towages.	Amount received.		
<i>Upwards.</i>						
Lachine to foot of Beauharnois Canal.....	445	\$ cts. 2960.05	207	\$ cts. 1325.56		
Head of Beauharnois Canal to foot of Cornwall Canal.....	345	4007.88	187	2103.39		
Head of Cornwall Canal to Kingston.....	209	5419.58	95	2685.46		
<b>Total.....</b>	<b>999</b>	<b>12387.51</b>	<b>489</b>	<b>6114.41</b>	<b>1488</b>	<b>18501.92</b>
<i>Downwards.</i>						
Kingston to head of Cornwall Canal.....	146	3165.54	85	2904.69		
Foot of Cornwall Canal to head of Beau- harnois Canal .....	239	2148.21	115	1021.41		
Foot of Beauharnois Canal to Lachine....	375	1938.34	174	903.20		
<b>Total.....</b>	<b>760</b>	<b>7252.09</b>	<b>374</b>	<b>3929.31</b>	<b>1134</b>	<b>11181.39</b>
					<b>2622</b>	<b>29683.22</b>

## MONTREAL AND KINGSTON *via* OTTAWA.

This second line of navigation extends from Montreal to Kingston, passing up the Ottawa River as far as Ottawa City. The distance between Montreal and Kingston by this line is 249½ miles.

The canals on this route, after leaving the Lachine Canal, are:—

The St. Anne's,—(known as the St. Anne's Lock);  
 The Carillon;  
 The Chûte à Blondeau;  
 The Grenville; and  
 The Rideau.

Their united length is 143½ miles; and in going from Montreal to Kingston, the total lockage is 578½ feet, viz.:—401½ rise and 177 feet fall, the difference between the two (224½ feet) being the absolute difference of level between Montreal and Kingston.

The Carillon, the Chute à Blondeau, the Grenville, and Rideau Canals; were designed as military works.

TABLE OF DISTANCES IN STATUTE MILES.

	Intermediate Distances.	Total Distances from Montreal.
The Lachine Canal.....	8½	.....
From the Lachine Canal to St. Anne's Lock.....	13½	22
St. Anne's Lock and Piers.....	½	22½
From St. Anne's Lock to Carillon Canal.....	25	47½
The Carillon Canal.....	2½	49½
From the Carillon Canal to Chute à Blondeau.....	4	53½
Chute à Blondeau Canal.....	½	53¾
From Chute à Blondeau Canal to Grenville Canal.....	1¾	54¾
The Grenville Canal.....	5¾	60¾
From the Grenville Canal to the Rideau Canal.....	56	116¾
Rideau Canal.....	126¾	243½
From Rideau Canal to Kingston.....	6	249½

DATE of opening and closing navigation on this line for the year ending 30th June, 1865.

	Closed.	Opened.
St. Anne's Lock.....	1st December, 1864	12th April, 1865.
Carillon Canal.....	30th Novem., "	1st May, "
Chute à Blondeau Canal.....	" "	" "
Grenville Canal.....	" "	" "
Rideau Canal.....	" "	24th April, "

### ST. ANNE'S LOCK.

Length of Canal.....	$\frac{1}{2}$ mile.
Number of locks.....	1.
Dimensions of locks.....	190 feet $\times$ 45 feet.
Total rise of lockage.....	3 "
Depth of water on the sills.....	6 "

The St. Anne's Lock overcomes the St. Anne's Rapids.

No works of construction have been performed here during the past year.

Navigation has not been interrupted by any accident.

General repairs—renewing portion of wing dams above the lock—and guide pier below the lock—mooring posts renewed, &c.

For further details, see St. Anne's Lock in Appendix No. 3, at page 14.

### THE CARILLON CANAL.

Length of Canal.....	$2\frac{1}{2}$ miles.
Number of locks.....	3 (two rising—one falling).
Dimensions of locks.....	128 feet $\times$ $32\frac{1}{2}$ feet.
Total lockage.....	$34\frac{1}{2}$ " $\left\{ \begin{array}{l} 21\frac{1}{2} \text{ upwards.} \\ 13 \text{ downwards.} \end{array} \right.$
Depth of water on sill.....	$5\frac{1}{2}$ "

The Carillon Canal overcomes the Carillon Rapids.

The summit level of this canal is supplied with water, by a feeder, from the North River.

No works of construction have been performed here during the past year.

Navigation has not been interrupted by any accident.

General repairs were made to the locks and gates, and the prism of the canal was

cleaned out. The entrance to the feeder was also widened. Lock No. 3 has been partly repaired, and its north wall should be rebuilt above water line next spring.

Two new pairs of lock gates have been made during the past year.

For further details, see Carillon Canal, in Appendix No. 3, at page 15.

#### THE CHUTE À BLONDEAU CANAL.

Length of Canal.....	1/4 of a mile.
Number of locks.....	1.
Dimensions of locks.....	128 feet × 32 1/2 feet.
Total rise of lockage.....	3 1/2 "
Depth of water on sills.....	6 "

This canal carries navigation round the rapids called "Chute à Blondeau."

No works of construction have been performed here during the past year.

Navigation has not been interrupted by any accident.

General repairs to locks, gates, sluices and fencing.

The upper and lower entrances of the canal have been cleaned.

The unevenness of the bottom of the canal, through some of the rock cuttings, reduces the depth of this canal practically to five feet, although there is still five and one-half feet water on the mitre sills.

For further details, see Chute à Blondeau Canal, in Appendix No. 3, at page 15.

#### THE GRENVILLE CANAL.

Length of Canal.....	5 1/2 miles.
Number of locks.....	7.
Dimensions of locks.....	{ largest lock...131 1/2 feet × 32 1/2 feet. smallest " ...106 1/2 " 19 1/2 "
Total rise of lockage.....	45 1/2 feet.
Depth of water on sills.....	5 1/2 "

The Grenville Canal overcomes the Long Sault Rapids.

No works of construction have been performed here during the past year.

The upper entrance into this canal has been deepened.

General repairs to the locks, gates and banks.

Navigation has not been interrupted by any accident.

For further details, see the Grenville Canal, in Appendix No. 3, at page 16.

#### RIDEAU CANAL.

Length of Canal.....	126 1/2 miles.
Number of locks.....	47 { In going from Ottawa to Kingston, 33 rising, 14 falling.
Dimensions of locks.....	134 feet × 32 feet.
Total lockage.....	446 1/2 " { 282 1/2 upwards, and 164 downwards.
Depth of water on sills.....	5 1/2 "

This Canal extends from Ottawa City to within six miles of Kingston, connecting the Ottawa River with the lower end of Lake Ontario, at a point above the rapids of the St. Lawrence.

The season of navigation was interrupted on this canal for three days, to allow of the repairing of one of the locks.

*Construction.*—Two piers and a retaining boom were constructed at Hogsback Station. The outlet of Rideau Lake has been deepened, and a mud bank below Brewer's Lock has been removed.

General repairs :—to locks, gates, sluices, canal banks and dams.

Two of the swing bridges must be rebuilt and three repaired.

The refuse from the saw mills floating down the Ottawa, continues to form a serious impediment to the entrance of vessels into this canal.

The resident Engineer reports that the accommodation in the Canal Basin at Ottawa, for the landing of firewood, and the shipment of lumber, is not sufficient.

For further details, see Appendix No. 7, at page 24.

TABLE shewing the size of the smallest locks on the Canals of the Montreal and Kingston, *viâ* Ottawa line of navigation, also the dimensions of the largest vessel which may pass through them.

Name of Canal.	Dimensions of Lock.			Dimensions of Vessel.			
	Length.	Breadth.	Depth of water on sill.	Length.	Breadth.	Draught of water when loaded.	Tonnage.
Carillon and Grenville.....	106½	19½	5½	95	18½	5	100
Rideau.....	134	32	5½	127	31½	5	250

## THE RICHELIEU & LAKE CHAMPLAIN NAVIGATION.

This third line of navigation extends from Sorel, at the mouth of the Richelieu River, a point 46 miles below Montreal and 114 above Quebec, and extends to Lake Champlain; thence through American Canals and the Hudson River. to New York.

The Canadian Canals on this route are the St. Ours and the Chambly; the American Canals between Lake Champlain and the Hudson are the Champlain and a portion of the Erie.

The total length of canal navigation between Montreal and New York, on this route, is 85 miles, and the total lockage upwards and downwards is 283 feet.

TABLE OF DISTANCES IN STATUTE MILES.

	Intermediate Distances.	Total Distances from Montreal.
Montreal to Sorel.....	46	.....
Sorel to St. Ours' Lock .....	14	60
St. Ours' Lock.....	.....	60
St. Ours' Lock to Chambly Canal.....	32	92
Chambly Canal.....	12	104
Chambly Canal to Province Line.....	23	127
Boundry Line to Champlain Canal.....	111	238
Champlain Canal to Junction with Erie Canal.....	64	302
Erie Canal from Junction to Albany.....	9	311
Albany to New York.....	145	456

DATE of opening and closing of navigation on the Richelieu and Lake Champlain navigation, for year ending 30th June, 1865.

	Closed.	Opened.
St. Ours' Lock.....	9th Dec., 1864.	16th April, 1865.
Chambly Canal .....	7th do	25th do.

## ST. OURS' LOCK AND DAM.

Length of Canal.....	0.
Number of locks.....	1.
Dimensions of locks.....	200 feet × 45 feet.
Total rise of lockage.....	5 "
Depth of water on sills.....	7 "

The lock and dam at St. Ours' retain the water of the Richelieu River, and give an increased depth, as far as the lower entrance into the Chambly Canal.

No works of construction have been performed here during the past year.

Navigation was interrupted for a few hours in July, 1864, during the time necessary for placing new rollers and bed plates under the lower gates.

One of the protecting cribs was damaged by the ice in April.

The repairs have been of a general nature, such as laying stone in cribs and repairs to gates.



A shoal below the lock, of some 180 feet in length, has been removed by dredging. For further details, see St. Ours' Lock and Dam in Appendix, No. 3, at page 14.

### CHAMBLY CANAL.

Length of Canal .....	12 miles.
Number of locks.....	9.
Dimensions of locks.....	122 feet $\times$ 23 $\frac{1}{2}$ feet.
Total rise of lockage.....	74 "
Depth of water on sills.....	7 "

The Chambly Canal overcomes a succession of rapids on the Richelieu River.

No works of construction were performed here during the past year.

Navigation not interrupted by any serious accident. It was, however, suspended during the time necessary for emptying the level above lock No. 7 :—repairing a mitre sill and removing a few stones.

No works of any importance, beyond ordinary repairs, such as lining portions of the banks with stone, cleaning the bottom of the canal, and repairing bridges, locks and gates.

The wharf at St. John's requires some repairs.

Although it has been stated that the depth of the water on the mitre sill is seven feet, yet, owing to the accumulation of silt at the foot of the slopes, the depth of this canal has been practically reduced to six and one-half feet.

For further details, see Chambly Canal in Appendix No. 3, page 13.

TABLE shewing the size of the smallest locks on the canals of the Richelieu and Lake Champlain line of navigation to New York, also the dimensions of the largest vessel which may pass through them.

Name of Canal.	Dimensions of Lock.			Dimensions of Vessel.			
	Length.	Breadth.	Depth of water on sill.	Length.	Breadth.	Draught of water when loaded.	Tonnage.
U. S.—Erie Canal .....	110	18	7	102	17 $\frac{1}{2}$	7	210
U. S.—Champlain Canal.	97	14	4	89	13 $\frac{1}{2}$	4	70
Chambly Canal.....	122	23 $\frac{1}{2}$	7	114	23	6 $\frac{1}{2}$	230

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## THE RIVER TRENT NAVIGATION.

For a description of the works connected with the River Trent navigation—See slides and booms, River Trent District, page 38.

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## WORKS ON NAVIGABLE RIVERS.

### RIVER ST. LAWRENCE.

The River St. Lawrence between Quebec and Montreal is being dredged to a depth of 20 feet at low water, under the direction of the Montreal Harbour Commissioners.

The most important work now in course of execution, in connection with the improvement of this part of the river, is the cutting of a channel, 300 feet wide at the bottom, with 20 feet of water, through the flats of Lake St. Peter, over which there is only eleven feet of water.

The length of this cutting will be  $11\frac{1}{2}$  miles. It is anticipated that the channel from Quebec to Montreal, with 20 feet of water throughout, will be completed during the present summer.

The Harbour Commissioners report that during the year ending the 30th of June, 1865, 844,201 cubic yards were removed, the expenditure during the same period being \$79,277 96.

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### PETITE NATION RIVER.

An Engineer has been instructed to report on the practicability of turning a portion of the waters of the St. Lawrence into Petite Nation, with the view of increasing the volume of water that flows through it.

The head of the Petite Nation River is very near to, and is lower than the St. Lawrence.

It discharges into the Ottawa.

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### OTTAWA RIVER.

Nothing has yet been attempted on this river, towards the removal of the obstructions caused by the accumulations of the refuse of the saw-mills, as mentioned in last year's report.

Some stringent Legislative enactments properly enforced, can alone prevent this growing nuisance from attaining formidable dimensions.

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## HARBOURS AND PIERS.

Most of the harbours and ports of refuge which had been improved by the Government have either been sold to private companies, or have been turned over to the Municipal Authorities of the Counties in which they were situated. But upon those harbours still left in the charge of this Department, very little has been done during the past year.

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### PIER AT RIMOUSKI.

Further repairs are required.

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### PIER AT RIVIERE DU LOUP.

This pier is reported to have suffered very much from the ice, and it is farther urged that unless immediate repairs are performed, the effect of next winter's storms upon it will be very serious.

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### PIER AT RIVIERE OUELLE.

Repaired in the autumn of 1864.

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### PIER AT MALBAIE.

Repaired and in good order.

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### PIER AT LES EBOULEMENS.

Slight repairs required.

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### PIER AT L'ISLET.

Repaired :—and now in good order.

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### PIER AT BERTHIER.

Wants repairing.

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### GASPÉ BAY HARBOUR.

The large buoy on the south side of this harbour having been washed away and lost in the autumn of 1863, a new one, was provided and placed in position in June, 1864. The heavy sinker and chain belonging to the old buoy has since been recovered and are in reserve by the harbour master. An Order in Council, passed on the 8th of August, 1864, places the buoys in this harbour under the control of the Trinity House of Quebec.

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### PORT WHITBY HARBOUR.

An Engineer has been sent from the Department to visit this harbour and to make a survey of a portion of it.

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### PORT DOVER HARBOUR.

The works at Port Dover, Lake Erie, consist principally of two long piers stretching out into the Lake. A breach has been made in one of the piers, and the sand of the lake is now being washed in and is filling the harbour.

An Engineer was sent to report what repairs were necessary, but their being no funds appropriated for this work, the repairs have not been made.

A swing bridge at this port had become so much decayed as to be dangerous to life. It has been removed and a temporary bridge has been built in its stead.

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### PORT STANLEY HARBOUR.

A bridge was built by the Government at this harbour in 1843, which was supplied with a draw for the purpose of admitting vessels into a creek which it was proposed should be deepened.

The deepening however, having never been made the draw is not necessary, and should be abandoned as a public work by proclamation.

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### HARBOURS OF REFUGE (LAKE HURON).

An Engineer has been requested to visit the harbours in the County of Bruce on Lake Huron, with a view of reporting on the probable cost of a survey of some of the principal harbours in that county.

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## LIGHT-HOUSES, BEACONS AND BUOYS.

The light houses, beacons and buoys of the province are divided under three heads.

1. The light-houses, beacons and buoys from the mouth of the St. Lawrence to Quebec, built by the Department, and placed under the management of the Quebec Trinity House.

2. The light-houses, beacons and buoys, between Quebec and Montreal, built and managed by the Montreal Trinity House.

3. The light-houses, beacons and buoys on the upper St. Lawrence above Montreal, on the Ottawa River and on the Canadian shores of the upper lakes, built and retained, under the immediate direction of the Department.

There are at present throughout the whole course of Canadian Inland Navigation 116 provincial light-houses, thus distributed :—

Between the Straits of Belle-Isle and Quebec.....	20
“ Quebec and Montreal.....	32
West of Montreal on the St. Lawrence, the Lakes, and the Ottawa River in charge of this Department.....	52
In charge of private individuals and Companies.....	12
Total .....	116

### LIGHT HOUSES BETWEEN THE STRAITS OF BELLE-ISLE AND QUEBEC.

LIST of the light-houses between Belle-isle and Quebec.

No.	No. on Admiralty List.	Name of Light.	Place.
<i>Labrador.</i>			
1	1	Belle-Isle (Straits of Belle-Isle) .....	Extreme South point of Island.
2	2	Amour Point.....	South-East side of Forteau Bay.
<i>Gulf and River St. Lawrence (between Straits of Belle-Isle and Quebec).</i>			
3	22	} St. Paul Island .....	On a rock 26 feet from the Island.
4	23		On the South-West point.
5	25	Cap Rosier.....	On the Cape.
6	26	} Anticosti Island.....	Heath Point.
7	27		South-West point.
8	28		Extreme West point.

LIST of the Light-houses between Belle-Isle and Quebec.—*Continued.*

No.	No. on Admiralty List.	Name of Light.	Place.
9	29	Pointe des Monts .....	About one and a quarter mile N.-E. of the Point.
10	30	Father Point (Rimouski) .....	On the point.
11	31	Bicquette Island.....	Centre nearly.
12	32	Red Islet.....	Centre.
13	33	Green Island.....	On the North point.
14	34	Brandy Pots .....	Forty-two fathoms from South-East end of Islet.
15	35	Long Pilgrims .....	Twenty fathoms West of the centre of the Island, and 54 fathoms South from waters edge.
16	36	South Traverse Light Vessel.....	North-East part of St. Roch Shoals.
17	37	Stone Pillar.....	Fifty fathoms from South point of the Islet.
18	38	Grosse Isle (Kamouraska).....	One hundred and twenty fathoms from North-East end of Island; 80 fathoms from water's edge.
19	39	Crane Island.....	Eighty fathoms from West point of Island.
20	40	Bellechasse .....	East end of Island.

The following repairs have been executed at

ANTICOSTI.

A building has been provided near the light house on the west point of this island for the shelter of persons escaping shipwreck.

The light tower on the S.W. point of the island has been clapboarded and painted white. Kerosene is now used at the light on Heath Point, instead of fish oil.

BICQUETTE ISLAND.

The light house here is now supplied with Kerosene oil, instead of fish oil.

GREEN ISLAND.

A new powder magazine has been erected here for the service of the signal gun. Kerosene has also been substituted here for fish oil.

CRANE ISLAND.

The works connected with the enlargement of the light house pier have been completed. (This work was executed by the Department of Public Works).

POINTE ST. LAURENT.—ISLE D'ORLÉANS.

A pier and light-house is in course of construction by the Department at Pointe St. Laurent, which it is expected will be completed before winter.

At the following places, beacons have been erected by the Trinity House of Quebec:—

#### CAP ORIGNAL.

Two white beacons have been erected in the Parish of St. Fabien, about five miles west of the cape.

#### BIC ISLAND.

Three beacons (one red and two white) have been erected on the west end of this island.

#### GOOSE ISLAND.

A red beacon has been erected on the S.E. side of N.E. end of the island.

#### WOOD PILLAR.

A white beacon has been erected at this place.

### LIGHT-HOUSES BETWEEN QUEBEC AND MONTREAL.

List of light-houses, between Quebec and Montreal, on the River St. Lawrence.

No.	No. on Admiralty List.	Name of Light.	Place.
1	41	St. Antoine.....	On South Shore.
2	42	Ste. Croix .....	On South Shore, near high water mark, and one quarter of a mile north of the church.
3	43	Portneuf.....	On North Shore, three quarters of a mile off the river
4	44	Platon Point.....	On South side, 1½ miles below Richelieu Island.
5	45	Richelieu .....	On centre of the Island.
6	46	Langlais Point .....	On South Shore, half a mile below Great Chêne River.
7	47	Cape Charles.....	On the Cape.
8	48	Grondines.....	On North Shore.
9	49	St. Pierre les Boquets.....	On South Shore, summit of St. Pierre Point.
10	50	Batiscan.....	On North Shore, one and a quarter miles below Batiscan Church.
11	51	Champlain .....	North Shore, near Champlain Church.
12	52	Bigot Island .....	
13	53	Cape de la Madeleine (lower lights).....	North Shore, three miles below the Cape.
14	54	Cape de la Madeleine (upper lights).....	North Shore, two miles below the Cape.

LIST of Light-houses between Quebec and Montreal.—*Continued.*

No.	No. on Admiralty List.	Name of Light.	Place.
15	55	Port St. Francis .....	South Shore.
16	56	Pointe du Lac.....	North Shore.
17	57	{ East Light Vessel.....	In Lake.
18	58	{ Centre Light Vessel.....	South-South-East, 2½ miles from Rivière du Loup.
19	59	{ Western Light Vessel.....	N. side Channel, N.-E. by N, 3 m's from Flat Isl'd.
20	60	} Raisin .....	On the Island.
21	61		South part of Island.
22	62	Stone.....	On the East part of Island.
23	.....	} Sorel .....	{ On Wharf.
24	.....		{ On Wharf.
25	63	Valtrie .....	East side of Island.
26	64	Traverse.....	Three and a half miles above Contrecoeur.
27	65	Plum Island.....	
28	66	Repentigny.....	Three quarters of a mile below Repentigny.
29	67	Bague .....	On the Islet.
30	68	St. Thérèse.....	On the Island.
31	69	Point aux Trembles.....	West Shore.
32	70	Montreal.....	On the Wharf.

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**SOREL.**

Nothing has been added by the Montreal Trinity House to the light-houses on this line of navigation, during the past year, except placing two lights on the wharf at Sorel.

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**BUOYS.**

Fifteen iron buoys attached to scow moorings have been placed along the line of the improved channel in Lake St. Peter.

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## LIGHT-HOUSES ABOVE MONTREAL.

LIST of Light-houses on the St. Lawrence, the Lakes and the Ottawa River, in charge of this Department :—

No.	No. on Admiralty List.	Name of Light.	Place.		
1	71	Lachine .....	On the Pier at the entrance of Canal, South Shore.		
2	72	Lake St. Louis, Light-vessels .....	{ Four-fifths of a mile above Lachine.		
3	73			{ Three miles above Lachine.	
4	74	Chateaugay Light Vessels.....	Four and a half miles above Lachine.		
5	75	Beauharnois.....	Lower entrance of Canal, South Shore.		
6	76	Grosse Point.....	Upper entrance of Beauharnois Canal.		
7	77	Off Grosse Point.....	On Piers in the River.		
8	79	Lake St. Francis. { Mackie's Point.....	North Shore.		
9	80			Cherry Island .....	South Side of North Channel.
10	81			Cherry Light Vessel.....	Above the Island.
11	82			Lancaster Pier.....	North side of the Channel.
12	.....	Ottawa River. { Light Ship near Point Claire.....	South side of Channel, 63 chains above Isle Duval, from Light No. 3, on St. Lawrence.		
13	.....			Point Claire Pier Light.....	On Shoal, North side of Channel, about one and a half miles below Point Claire, one hundred and twenty chains westerly from Light Ship near Point Claire.
14	.....			Green Shoal.....	On a Pier, South side of Channel, seven miles below Ottawa City.
15	83	Between Lake St. Francis and Lake Ontario. { Cole's Shoal .....	On Pier, North side of Channel, five miles from Brockville.		
16	84			Grenadier Island.....	On South Point of Island, North of Channel.
17	85			Lindoe Island.....	North-West point of Island, South side of Channel.
18	86			Gananoque Narrows.....	East end of Little Slave Island.
19	87			Jack Straw Shoal .....	On Pier, North side of Channel, three miles below Gananoque.
20	88			Spectacle Shoal.....	On Pier, North side of Channel, two miles west of Gananoque.
21	89			Red Horse Rock.....	On Pier, side of Channel, two and a half miles west of Gananoque.
22	90	Burnt Island.....	South-East point of Island.		
23	91	Hemlock Point, Wolfe Island.....	North-East extreme point of Island.		

## LIST of Light-houses on the St. Lawrence, &amp;c.—Continued.

No.	No. on Admiralty List.	Name of Light.	Place.
24	93	Snake Island .....	
25	94	Point Yeo, formerly Nine Mile Point.	South-West point of Gage Island.
26	95	Outer Drake or False Ducks .....	East point of Island.
27	96	Peter Point.....	On the point.
28	97	Scotch Bonnet or Egg Island.....	
29	98	Presqu'isle .....	East point.
30	99		On a hill on shore.
31	101	Peter Rock or Gulf Island.....	West by South four miles from Cobourg.
32	107	Gibraltar Point.....	Toronto.
23	111	Burlington Bay.....	South Pier of entrance.
34	112	Dalhousie Harbor.....	East Pier-head.
35	113	Port Colborne.....	West Pier-head.
36	114	Mohawk Island.....	
37	115	Port Maitland .....	West Pier.
38	116	Port Dover.....	West Pier.
39	117	Long Point.....	Eastern extremity.
40	118	Big Otter Creek or Port Burwell.....	Three hundred and thirty-three yards in shore.
41	120	Port Stanley .....	Extreme of West pier.
42	121	Pelée Island.....	North-East point.
43	122	Point Pelée .....	
44	123	Amherstburg.....	S. Point of Bois Blanc Island.
45	124	River Thames .....	Mouth of River, South Shore.
46	125	Goderich.....	On high bank, South-East of North Pier of the Harbor; one on the pier.
47	126	Point Clarke.....	On the point.
48	127	Chantry Island.....	On the Island.
49	128	Ile of Coves.....	Gig Point.
50	129	Griffith Island.....	On the Island.
51	130	Nottawasaga Island .....	On the Island.
52	131	Christian Island.....	On the Island.

The various works connected with the lake and river lights above Montreal, which are under the control of this Department, have been maintained in an efficient state during the past year.

In addition to the painting and other ordinary repairs required to keep the works in good order ; putting light-ships, buoys, &c., into winter quarters and placing them again at their moorings in the spring, the following new works have been constructed :—

#### GROSSE POINT.

New range light constructed and pier of main light raised.

#### MACKIE'S POINT.

A new iron lantern put up to replace a decayed wooden one—a store-house built.

#### CHERRY ISLAND.

A new iron lantern in lieu of old wooden one.

#### JACK STRAW SHOAL.

Pier raised and secured with iron. New mast, cross bar, &c., to beacon.

#### HEMLOCK POINT, WOLFE ISLAND.

Store-house erected and land purchased for the use of light-house.

#### POINT YEO, FORMERLY NINE MILE POINT.

Store-house erected.

#### FALSE DUCKS.

Store-house erected.

#### GULL ISLAND.

Framing pier and preparing stone to protect foundation of light-house. This work is still in progress.

#### PORT COLBORNE.

Store-house erected.

#### LONG POINT (LAKE ERIE.)

A break-water erected.

#### PELÉE ISLAND.

The new piers have been completed, and the old pier raised to the proper height.

#### POINTE PELÉE.

A force pump and hose have been fitted up here.

#### ISLE OF COVES.

The store-house at this place has been completed.

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**NOTTAWASAGA ISLAND.**

Store-house erected.

The following sums were expended on the various items named, for the past year :—

Repairs.....	\$3248 21
Supplies .....	2620 60
Kerosene oil.....	3472 43
Sperm oil*.....	0 00
Charter of steamer delivering supplies.....	700 00
Salary and travelling expenses of Superintendent.....	2295 00
Light-house keepers' salaries.....	17959 39
Mooring light ships and buoys.....	385 62
Advertising and printing.....	486 98
Total.....	<u>\$31163 23</u>

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**POINT PLEASANT, BAY OF QUINTÉ.**

Arrangements have been made for the erection of a light-house at Point Pleasant, Bay of Quinté.

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**INSTRUCTIONS TO LIGHT-HOUSE KEEPERS.**

A circular was received by this Department during the past year from the Colonial Secretary, accompanied by a report drawn up by an Admiralty Commission of Inquiry, into light-houses on the coast of England, and entitled, "Heads of enquiry into the state and condition of light-houses." This report was forwarded at the request of the Imperial Board of Trade, and recommended the adoption in the Province of a uniform system of light-house inspection. A sufficient number of copies of it were therefore obtained and distributed to the Provincial light-house keepers, and also a printed letter of instructions directing them to make themselves familiar with its contents, so that they might be prepared to give all the information in their power when visited by authorized Inspectors.

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**ON THE LATITUDE AND LONGITUDE OF CERTAIN LIGHT-HOUSES.**

The latitude and longitude of those light-houses which have been erected since the publication of the last Admiralty Survey has not yet been determined. The Department therefore called upon Commander Ashe, in charge of the Observatory at Quebec, to report on the probable cost of performing that service.

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\* The stock of sperm oil on hand at those light-houses which have been fitted for the use of Kerosene, has been transferred to those which still continue its use; and has rendered any additional supply of this article unnecessary during the past year,

Commander Ashe reports the probable cost of the service at \$4,940, and that the time required to perform it would be two years.

For Commander Ashe's report, See Appendix No. 8, at page 27.

LIST of Light-houses confided to the care of Harbor Companies, etc. :—

No.	No. on Admiralty List.	Name of Light.	Place.
<i>In Charge of Private Individuals or Companies.</i>			
1	78	Coteau du Lac.....	N. shore at head of the rapids in the village.
2	100	Cobourg.....	Pier-head.
3	102	Port Hope .....	Pier-head, East side.
4	103	Darlington .....	Pier-head.
5	104	Oshawa Port .....	Pier-head.
6	105	Whitby Harbor.....	West Pier.
7	106	Pickering or Liverpool.....	East Pier-head.
8	108	Toronto .....	Queen's Wharf, Western part, the other on arm of pier.
9	109	Port Credit.....	On the Pier.
10	110	Oakville .....	Pier-head.
11	119	Catfish Creek or Port Bruce .....	
12	132	Collingwood .....	On Break-water Pier.

## SLIDES AND BOOMS.

The slides and booms are works designed for the passage of timber to the sea-ports, and may be divided into four districts, as follows :—

- 1.—The Saguenay District.
- 2.—The St. Maurice District.
- 3.—The Ottawa District.
- 4.—The River Trent District.

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## THE SAGUENAY DISTRICT.

The Saguenay River flows from the north into the St. Lawrence, 122 miles below Quebec.

The Government improvements are situated on one of its branches called the "Little Discharge." These works are situated about 140 miles above the mouth of the Saguenay, and were constructed for the purpose of passing timber from Lake St. John to the Saguenay River.

The works consist of:—

7 flat dams of an aggregate length of.....	919 feet.
1 pier dam.....	40 "
2 glance piers.....	0
1 bulkhead.....	0
1 slide.....	5750 "
1 boom.....	1344 "

A store-house is in course of construction.

There has been no accident to the works.

Slight repairs have been performed.

The works are reported in good order.

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## THE ST. MAURICE DISTRICT.

In this district the Government works connected with the descent of timber, are all located on the St. Maurice River itself, none of the tributaries having yet received any improvements from the Government.

The St. Maurice flows from the north, and discharges itself into the St. Lawrence at "Three Rivers," a point 90 miles above Quebec.

LIST of the names of Slide and Boom Stations on the St. Maurice River, in the order in which they occur on ascending the river:—

	Distance from mouth of River.
1. Mouth of river.....	0
2. Grès Falls.....	17
3. Shawenegan Falls.....	22
4. Grand Mère Falls.....	30
5. Little Piles Falls....	33
6. La Tuque Falls.....	100

The works consist of:—

At Station No 1, at the mouth of the river.....12,181 lineal feet of booms.

" " ..... 50 piers.

At Station No. 2, Grès Falls..... 6,000 lineal feet of booms.

" " ..... 200 " dams.

" " ..... 7 piers.

At Station No 3, Shawenegan Falls .....	600	lineal feet of slides.
“ “ .....	18,000	“ booms.
“ “ .....	1,075	“ dams.
“ “ .....	51	piers.
At Station No. 4, Grand Mère Falls.....	400	lineal feet of slides.
“ “ .....	3,500	“ booms.
“ “ .....	500	“ dams.
“ “ .....	12	piers.
At Station No. 5, Little Piles Falls .....	250	lineal feet of dams.
At Station No. 6, La Tuque Falls.....	3,500	“ booms.
“ “ .....	1,291	“ dams.
“ “ .....	15	piers.

No works chargeable to construction have been executed by the Department in this river during the past year.

The works were kept in thorough repair. No accident occurred.

Permission was granted to Mr. George Baptist to stretch across, and maintain certain booms at the mouth of the river.

The resident Engineer recommends that a dam be built at Iroquois Falls, on the Vermilion river, and that a boom be laid across Plamondon Bay.

For further details—See Appendix No. 9, at page 28.

## THE OTTAWA DISTRICT.

In this district the works connected with the descent of timber are on the following rivers:—

On the Ottawa main river.....	11	Stations.
“ Gatineau.....	1	“
“ Madawaska.....	13	“
“ Coulonge.....	1	“
“ Petewawa.....	30	“
“ Du Moine (boom, slide, and a series of flat dams.)		

The Ottawa partly discharges into the St. Lawrence at St. Anne's, a point 22 miles above Montreal.

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**OTTAWA RIVER.**

LIST of Slide and Boom Stations on the Ottawa main river.

Name of Stations.	Distance from mouth of Ottawa at St. Anne's.
1. Carillon.....	21 Miles.
2. Chaudière { north side, Hull. } { south side, Ottawa. }	89
3. Chaudière (little).....	91
4. Remous .....	93
5. Chats Station.....	122
6. Head of Chats.....	122
7. Chenaux.....	141
8. Portage du Fort.....	144
9. Mountain... ..	151
10. Calumet.....	154
11. Joachim Rapids.....	229

The works at these eleven stations consist of:—

2000	lineal feet of canal;
4014	“ slides;
29245	“ booms;
8523	“ dams;
327	“ bulkheads;
1587	“ bridges; and
52	piers.

The passage of timber down this river has not been interrupted by any accident during this year.

No works chargeable to construction have been executed on this river within the year.

General repairs to the Chaudière, Chats, Portage du Fort, Mountain and Calumet slides.

The height of water on this river in the spring of 1865 was not excessive, and was favorable to the descent of timber.

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**GATINEAU RIVER.**

In ascending the Ottawa, the first tributary having Government works, is the Gatineau.

The Gatineau flows from the north, and discharges into the Ottawa at a point about 87 miles from the mouth of the Ottawa at St. Anne's.

The Government works are clustered in one station at about one mile from the mouth of the river. These works consist of:—

3071	lineal feet of canal;
4138	“ boom;
52	“ bridges; and
9	piers.



Close to the mouth of the Gatineau there is a natural pond of some seventy acres in area, which communicates with the Ottawa River.

Previous to last year the Government works at this station, consisted of an artificial canal leading from the Gatineau into the pond, and of a boom to collect the timber floating down the river, and guide it into the canal and into the pond, from which it was taken by lumbermen and bound together in rafts.

As stated in last year's report, the boom was carried away in 1864 by a large quantity of timber which had accumulated against the boom before the ice had floated out of the pond.

To diminish the liability of such accidents a new canal has been cut, by means of which a current is forced through the pond in order to carry out the ice.

The boom and piers to which they are attached have been renewed.

### MADAWASKA RIVER.

This is the second tributary, in ascending the Ottawa, on which Government have placed slides and booms.

The Madawaska flows from the south and discharges into the Ottawa at a point 169 miles from the mouth of the Ottawa at St. Anne's.

LIST of the names of Slide and Boom Stations on the Madawaska, numbered from the mouth of the river upwards :—

- |                      |                       |
|----------------------|-----------------------|
| 1. Mouth of River ;  | 8. High Falls ;       |
| 2. Arnprior ;        | 9. Ragged Chute ;     |
| 3. Flat Rapids ;     | 10. Boniface Rapids ; |
| 4. Balmer's Island ; | 11. Duck's Islands ;  |
| 5. Barnstown ;       | 12. Bailey's Chute ;  |
| 6. Springtown ;      | 13. Chain Rapids.     |
| 7. Calabogie Lakes.  |                       |

The works at these stations consist of :—

1630	lineal feet of slides ;
18179	“ booms ;
3753	“ dams ;
266	“ bridges ; and
42	piers.

No accident on these works.

No new works chargeable to construction have been executed on this river during the past year.

The works having been seriously damaged by the high floods of the spring of 1864, it has been found necessary to make extensive repairs to the works at all the stations on this river.

### THE COULONGE RIVER.

The third tributary in ascending the Ottawa on which there are Government improvements is the Coulonge.

This river flows from the north and discharges into the Ottawa, at about 200 miles from the mouth of the Ottawa at St. Anne's.

The only Government work on this river is a slide of three thousand feet in length at High Falls, about five miles from the mouth of the river.

This long slide was constructed within the past year. The river at this place falls about 125 feet in the short distance of half a mile, and the shores on each side are high, rocky and almost perpendicular. In several places the slide is supported at a height of from 50 to 60 feet above the river.

The slide is made to pass only one piece of timber at a time. It was completed in May, 1865.

### THE PETEWAWA.

The fourth tributary in ascending the Ottawa upon which Government slides and booms have been made, is the Petewawa River.

This river flows from the south into the Ottawa, 245 miles from the mouth of the latter, at St. Anne's.

At about one mile from its mouth the Petewawa divides into two branches. On this mile there are five stations, on the north branch seventeen, and on the south branch eight.

LIST of the names of the slides and booms on this river, in the order in which they occur counting from the mouth upwards :—

- |                        |                 |
|------------------------|-----------------|
| 1. Mouth of the river, | 4. Third Chute, |
| 2. First Chute,        | 5. Bois dur.    |
| 3. Second Chute,       |                 |

#### NORTH BRANCH.

- |                            |                                |
|----------------------------|--------------------------------|
| 1. Half-mile Rapid ;       | 10. Devil's Chute ;            |
| 2. Crooked Chute ;         | 11. Elbow of Rapids ;          |
| 3. Thompson's Rapids ;     | 12. Foot of Long Sault ;       |
| 4. Sawyer's Rapids ;       | 13. Middle of Long Sault ;     |
| 5. Meno Rapids ;           | 14. Head of Long Sault ;       |
| 6. Below Trout Lake ;      | 15. Cedar Lake (south shore) ; |
| 7. Strong Eddy ;           | 16. Cedar Lake (north shore) ; |
| 8. Cedar Island ;          | 17. Cedar Lake.                |
| 9. Foot of Devil's Chute ; |                                |

#### SOUTH BRANCH.

- |                   |                    |
|-------------------|--------------------|
| 1. First slide ;  | 5. Fifth slide ;   |
| 2. Second slide ; | 6. Sixth slide ;   |
| 3. Third slide ;  | 7. Seventh slide ; |
| 4. Fourth slide ; | 8. Eighth slide ;  |

The works at these 30 stations are as follows (on the main river):—

2713 lineal feet of slides ;  
 8069 “ booms ;  
 1567 “ dams ; and  
 7 piers.

ON THE NORTH BRANCH.

730 lineal feet of slides ;  
 3071 “ booms ;  
 1114 “ dams ;  
 100 “ bulkheads ; and  
 22 piers.

ON THE SOUTH BRANCH.

2052 lineal feet of slides ;  
 470 “ dams.

The improvement of the North Branch between Thompson's Rapids and Cedar Lake, for which materials were purchased in 1864, as stated in last year's report, has been completed during the past year.

The new works consist principally of flat dams, booms, piers and bulkheads, and were completed in April, 1865.

General repairs to the older works.

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## DU MOINE RIVER.

The fifth and last tributary, ascending the Ottawa, with government improvements, is the Du Moine River.

The Du Moine River enters the Ottawa from the north, about 283 miles from its mouth at St. Anne's.

The works on this river consist of a pier and retaining boom at its mouth, a single stick slide, and of a series of flat dams.

The resident Engineer reports that the works on this river have been fairly tested and work satisfactorily.

For further details in reference to the works connected with the descent of timber on the Ottawa River and its tributaries.—See Appendix, No. 10, at page 31.

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## THE RIVER TRENT DISTRICT.

The mouth of the River Trent is 67 miles from Kingston ; and in ascending from Lake Ontario to Scugog Lake, the chain of rivers and lakes which communicate with each other, occur in the following order.

The Bay of Quinté, River Trent, Rice Lake, Otanabee River, Clear Lake, Buckhorn Lake, Pigeon Lake, Sturgeon Lake, the Scugog River and Lake Scugog.

The distance from the mouth of the Trent to the head of Lake Scugog is 190 miles.

The works on these rivers are principally, if not wholly, connected with the descent of timber. The difference of level between Lake Ontario at the mouth of the Trent, and the head of Lake Scugog is 570½ feet; and of the whole distance between the two points, only 151½ miles are navigable, while 38½ miles are not practicable for boats.

Government has works at the following places:—

	Distance in miles above the mouth of River Trent.
On the River Trent, at Widow Harris' Rapids.....	9
"    Chisholm's Rapids.....	15½
"    Ranney's Falls.....	33½
"    Campbellford .....	34½
"    Fiddler's Island.....	36
"    Middle Falls.....	37½
"    Crow Bay.....	38
"    Heely's Falls.....	42½
"    Crook's Rapids.....	54½
On the River Otonabee—Whitlas Rapids .....	93
"    Little Lake.....	94
At the foot of Buckhorn Lake—Buckhorn Rapids .....	125
At the foot of Sturgeon Lake—Babcaygeon Rapids.....	140½
On the River Scugog—Lindsay .....	161½

For intermediate distances, levels and other details. See Appendix No. 11, page 40.

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**WIDOW HARRIS'S.**

At Widow Harris's the works consist of a dam 1265 feet in length.

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**CHISHOLM'S RAPIDS.**

At Chisholm's rapids the works are a short canal, a dam, a slide and a lock 133½ feet long by 32½ feet broad and 4½ feet of water on the sill. †

The dam and slide are in good order, but the gates of the lock are decayed.

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**RANNEY'S FALLS.**

At Ranney's Falls the works are two slides, a dam and guide boom.

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**CAMPBELLFORD.**

At Campbellford there are guide booms.

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**FIDLER'S ISLAND.**

At Fidler's Island there is a cross dam and a wing dam.

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**MIDDLE FALLS.**

At Middle Falls the works consist of two slides and a wing dam.

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**CROW BAY.**

At Crow Bay there is a retaining boom.

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**HEELY'S FALLS.**

At Heely's Falls there are two slides and a dam.

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**CROOK'S RAPIDS.**

At Crook's Rapids the works consist of a dam, a slide, a lock (134 feet long by 33 feet broad and 6 feet of water on the sill) and a swing bridge. The dam and slide are in good order, but the lock is so much out of repair that it cannot be used.

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**WHITLAS RAPIDS.**

At Whitlas Rapids the works are a dam and a lock (133½ feet long by 33 feet broad with 4 feet water on the sill) but so dilapidated that they would require extensive repairs before they could be rendered available for navigation.

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**LITTLE LAKE.**

At Little Lake there are three piers and a boom.

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**BUCKHORN RAPIDS.**

At Buckhorn the works are a dam, a slide and booms. They are in good order, but require certain light repairs.

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**BOBCAYGEON RAPIDS.**

At Bobcaygeon the works consist of a dam, slide, lock (134 feet long by 33 feet broad and with 4½ feet of water on the sill) and swing bridge.

The dam and slide only can be reported in good order.

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**LINDSAY.**

At Lindsay the works are a dam and slide, both in good order, and a new bridge, completed last year. The lock originally constructed at this place has been converted into a slide.

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## ROADS AND BRIDGES.

The roads and bridges made by the Department are usually transferred to the municipalities through which the roads pass, shortly after their completion, or they are sold to companies with the privilege of levying tolls on vehicles travelling over them, and on condition of their being maintained in good order.

The following is a list of the roads and bridges with which the Department has had any transaction during the past year, either by way of construction, repairs, or by sale, effected to municipalities or companies:—

<p>The South Shore Gulf Road ;          “ Temiscouata Road ;          “ Metapedia Road ;          “ Ristigoucho Road ;          “ Gaspé and St. Lawrence Road ;          “ North Shore Gulf Road ;</p>	<p>The Malbaie and Grand Baie Road ;          “ Cartier Road ;          “ Caughnawaga Road ;          “ Hamilton and Port Dover Road ;          “ Toronto Roads ; and          “ Lindsay Bridge.</p>
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### THE SOUTH SHORE GULF ROAD.

The distance from Quebec to Cap Rosier, at the mouth of the St. Lawrence, by the overland route on the south shore of the river is 427½ miles.

Of these 427½ miles, 306½ miles are over ordinary roads, and the remainder, viz., 121 miles, are without any made road. The traveller must, therefore, either go through the forest or follow the edge of the river where practicable.

Every year the Department opens up a few miles of the main road, as far as the funds voted will permit.

During the past year only three and one-quarter miles of the main road have been opened, and two bridges have been made.

For further details, see South Shore Gulf Road, in Appendix No. 12, page 49.

**TABLE of Distances, showing what portions of the South Shore Gulf Road, from Quebec to Cape Rosier, are opened, and what portions are not yet made:—**

	Miles of Road made.	Miles of Road not made.
From Quebec or Point Lévi to Latourelle. ....	300½	
From Latourelle to Great Fox River .....		112
From Great Fox River to Anse au Griffon .....	6	
From Anse au Griffon to Cap Rosier .....		9
	306½	121

The Department has constructed three important roads, which run at right angles to the main road just described, from Quebec or Point Lévi to Cape Rosier.

These three roads are :—

- The Temiscouata ;
- “ Metapedia ;
- “ Gaspé and St. Lawrence.

The first, viz., the Temiscouata, leaves the St. Lawrence at River du Loup, a place 114 miles below Quebec.

The second, or Metapedia Road, leaves the St. Lawrence at Ste. Flavie, 201 miles below Quebec ; and

The third, or Gaspé and St. Lawrence, leaves the river at Anse aux Griffons, 425 miles below Quebec.

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### THE TEMISCOUATA ROAD

Is the main line of communication between Canada and New Brunswick. Its length from River du Loup to the boundary line between Canada and New Brunswick is 67 miles.

The present road was made in the same general direction as the old road, but with many improvements in its location.

The new road was commenced in 1856, and, though not yet finished, was opened in September, 1861.

It is still unfinished.

For details as to construction of the road, and also for information in reference to distances from Quebec to Halifax by this route, see Appendix No. 12, page 52.

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### THE METAPEDIA ROAD.

The Metapedia road extends from Ste. Flavie to Sillars, a point on the Ristigouche River, 10½ miles above its mouth.

Its length is 100½ miles.

It was commenced in 1857, and at this moment 64½ miles are opened, and 36 more are under contract.

In the spring of 1864 several fires occurred in the woods and destroyed a number of bridges, wooden retaining walls and railing, the value of which is estimated at \$3,500, and in the spring of 1865 damages to the extent of \$2,800 were caused by the inundation of the river Metapedia.

For details of construction of this road, as well as for information in reference to distances from Quebec to Halifax, *viâ* the Metapedia Road, see Appendix No. 12, at page 50.

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### THE RISTIGOUCHE ROAD.

The Ristigouche Road may be considered as a continuation of the Metapedia ; it follows the North Shore of the Ristigouche from Sillars to Cross point, at the mouth of the river, a distance of 10½ miles.

This road was completed in 1843. Two of the main bridges on it require to be rebuilt.

For further particulars, see Appendix No. 12, at page 51.

### THE GASPÉ AND ST. LAWRENCE ROAD.

The Gaspé and St. Lawrence Road connects the main Gulf Road, on the St. Lawrence, with the Baie des Chaleurs.

Its length is 29 miles, 8½ of which are yet unfinished.

It was commenced in 1859.

During the past year 8½ miles of this road were made.

For further details. See Appendix No. 12, at page 49.

### THE NORTH SHORE GULF ROAD.

The north shore Gulf Road follows the north bank of the St. Lawrence, and is now almost completed as far as Portneuf, a point about 58 miles from the mouth of the Saguenay River, and about 181 miles below Quebec.

TABLE of Distances, shewing what portions of the North Shore Gulf Road from Quebec to Portneuf are now opened, and what portions are still unmade:—

	Miles of Road made.	Miles of Road not made.
From Quebec to Baie des Rochers .....	111½	.....
From Baie des Rochers to River Saguenay .....	.....	9½
Ferry across the mouth of the Saguenay to Tadoussac .....	.....	2
From Tadoussac to Petite Bergeronne River.....	.....	12
From Petite Bergeronne to 2½ miles below Escoumains .....	18½	.....
From 2½ miles below Escoumains to Portneuf.....	.....	27½
	130	51

During the fiscal year ending the 30th June, 1865, there were made of this road 2½ miles to the Baie des Rochers; and eight miles of the road lying between Petite Bergeronne River and Escoumains were also completed; the bridge over the Grand Bergeronne River has been commenced, and lastly there have been made 2½ miles of road between Escoumains and Portneuf.

For details—See North Shore Gulf Road, See Appendix No. 12, page 47.



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## MALBAIE AND GRAND BAIE ROAD, AND CARTIER ROAD.

The Department is opening two roads at right angles to the general direction of the North Shore Gulf Road on the St. Lawrence River.

The first, or Malbaie and Grand Baie Road, runs from Malbaie on the west side of the Malbaie River, and is designed to extend as far as Grande Baie on the Saguenay River, a point some 62 miles above its mouth. The length of this road will be 76 miles.

It has been commenced from both ends, and some 10½ miles of it are opened at the Malbaie end, and 25 miles at the Grande Baie end.

Of the last 25 miles, ten miles were made during the past year, 40½ miles remain unfinished.

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## THE CARTIER ROAD.

The second, or Cartier Road, leaves the St. Lawrence River also at Malbaie, but on the east side of Malbaie River, and extends northwards in a direction generally parallel with the Malbaie and Grande Baie Road, until it intersects the Anse St. Jean Road, a road which is being opened by the Bureau of Agriculture for Colonization purposes. The length of the Cartier Road is 39½ miles.

During the past year 31½ miles of road were opened, there remaining only eight miles unfinished.

\* This is a winter road and cannot be used in summer.

For details—See Malbaie and Grande Baie Road, and Cartier Road, in Appendix No. 12, pages 48, 49.

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## THE CAUGHNAWAGA ROADS.

The Caughnawaga Road across the Indian Reserve from Caughnawaga to St. Martin and Chateauguay, also the Primeau and St. Jean Baptiste Roads in this same locality, were repaired during the past year.

See Caughnawaga Roads, in Appendix No. 3, at page 16.

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## HAMILTON AND PORT DOVER ROAD.

This road extends from Hamilton to Port Dover; its length is 37 miles.

It was originally made by the Department, and completed in 1846.

On the 15th of October, 1850, it was sold by the Government to the Hamilton and Port Dover Road Company, for the sum of \$30,800.

In June, 1863, it was resumed by Government, and in the summers of 1863 and 1864 received extensive repairs.

On the 30th of January, 1865, this road was sold to Z. B. Choate and Samuel Kern, for the sum of \$17,000, payable with yearly instalments and interest, at the rate of seven per cent. on the unpaid portions of the purchase money.

The conditions of the sale are that the purchasers shall keep the road and bridges upon it in good repair, to the satisfaction of the Commissioner of Public Works; and that the purchasers be allowed to collect such tolls as may be authorized, from time to time, by His Excellency in Council.

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### TORONTO ROADS.

The Toronto Roads consist of:—

- |  |            |
|--|------------|
| 1. Lake Shore Road from Toronto Westward to River Humber...                | 4 miles.   |
| 2. West York or Dundas, from Toronto Westward to Springfield..             | 16½ “      |
| 3. East York or Kingston Road, from Toronto Eastward to<br>Rouge Mill..... | 17 “       |
| 4. Young Road, from Toronto Northward to Holland Landing...                | 33½ “      |
|  | 70¼ miles. |

These roads were made by the Department, and finished in 1848. On the 15th of October, 1850, they were sold by the Government to the Toronto Road Company, for the sum of \$300,400.

By an Order in Council they were resumed by Government on the 4th September, 1863.

During the latter part of 1863 and in 1864, they were repaired and maintained by the Government.

On the 4th of April, 1865, they were sold to the Municipal Corporation of the United Counties of York and Peel for the sum of \$72,500, collaterally secured by debentures payable in 20 years, with interest at the rate of 6 per cent., payable half-yearly.

The condition of the sale was that the roads and bridges should be maintained in thorough repair, to the satisfaction of the Commissioner of Public Works, and that the purchasers should have the right of collecting tolls, under the provisions of the Consolidated Statutes of Canada, cap. 28.

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### THE LINDSAY BRIDGE.

This bridge was opened to the public in the beginning of the winter of 1864.

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### PUBLIC BUILDINGS.

The Public Buildings of the Province are not all under the Supervision of the Department of Public Works. The following is a list of those Public Buildings connected with this Department.

#### HOUSES OF PARLIAMENT.

Quebec;

Ottawa;

Toronto.

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**GOVERNMENT HOUSES.**

Spencer Wood, Quebec;      Government House, Toronto;  
Rideau Hall, Ottawa;      Government House, Montreal.

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**OBSERVATORIES.**

Observatory, Quebec;      Observatory, Toronto.

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**CUSTOM HOUSES.**

Quebec;      Kingston;      Hamilton;      St. Regis;  
Montreal;      Toronto;      Dundee;      Seven Islands.

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**POST OFFICES.**

Quebec;      Kingston;      Hamilton;  
Montreal;      Toronto;      London.

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**HOSPITALS AND ASYLUMS.**

Marine Hospital, Quebec;      Grosse Isle.

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**COURT HOUSES.**

Three Rivers;      Quebec;      Montreal.

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**JAILS AND PRISONS.**

Three Rivers;      Montreal;  
Quebec (new jail);      St. Vincent de Paul.  
Quebec (old jail);

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**COURT HOUSE AND JAIL COMBINED.**

- |                      |                  |                    |
|----------------------|------------------|--------------------|
| 1. Magdalen Islands; | 8. Montmagny;    | 15. St. Hyacinthe; |
| 2. Gaspé;            | 9. Beauce;       | 16. Iberville;     |
| 3. New Carlisle;     | 10. Richelieu;   | 17. Bedford;       |
| 4. Rimouski;         | 11. Joliette;    | 18. Beauharnois;   |
| 5. Saguenay;         | 12. Terrebonne;  | 19. Aylmer;        |
| 6. Chicoutimi;       | 13. Arthabaska;  | 20. Algoma.        |
| 7. Kamouraska;       | 14. St. Francis; |                    |

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**MISCELLANEOUS BUILDINGS.**

Old Chateau, Quebec ;  
 Old Custom House, Quebec ;  
 Nautical School, Quebec ;  
 Houses adjoining Post-office, Montreal ;  
 Houses adjoining Government House, Montreal ;  
 Immigrant Sheds, Montreal ;  
 Immigrant Sheds, Quebec ;  
 Quebec Drill Shed.

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**QUEBEC PARLIAMENT HOUSE.**

New lightning rods have been furnished ; the rear walls of the central division and Legislative Council wing have been clapboarded ; a room for the sittings of the Provincial delegates to the Confederation conference was temporarily fitted up.

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**PARLIAMENT AND DEPARTMENTAL BUILDINGS, OTTAWA.**

It has been already reported to Your Excellency that on the 7th of December, 1859, a contract was entered into with Mr. Thomas McGreevy for the erection of the new Houses of Parliament at Ottawa ; and that on the same day another contract was signed with Messrs. Jones, Haycock & Co., for the construction of two blocks of Departmental Buildings in the same city ; and it has also been stated that Messrs. Fuller & Jones were appointed Architects of the Parliament Buildings, and Messrs. Stent & Laver, Architects for the Departmental Buildings.

For various reasons these contracts were departed from, and on the 27th of September, 1861, all the works under the two contracts were suspended.

On the 18th of April, 1863, a second contract was made with Mr. McGreevy to continue and complete the construction of the Parliament Buildings, at new prices ; and on the same day a second contract was also entered into with Messrs. Jones, Haycock & Co., to complete the Departmental Buildings on similar conditions.

The works are progressing under the second contracts, and the report of the Chief Engineer of the Department, which will be found in the Appendix, gives a detailed statement of what has been done during the past year.

The accounts with the architects and the contractors in reference to services performed and works executed under the first contracts signed in December, 1859, not having been settled, they have each of them presented claims to the Department for the following amounts :—

<b>Messrs. FULLER &amp; JONES.</b>	
Architects of Parliamentary Buildings.....	\$ 25,289 61
<b>Messrs. STENT &amp; LAVER.</b>	
Architects of Departmental Buildings.....	34,267 34

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**Mr. THOMAS MCGREEVY.**

Contractor for Parliamentary Buildings..... 244,055 84

**Messrs. JONES HAYCOCK & Co.**

Contractors for Departmental Buildings..... 320,067 55

The above claims not having been recognized by the Department, Your Excellency was pleased to grant to the claimants that their demands should be submitted to a special arbitration.

A board of arbitrators was therefore instituted, composed of the following gentlemen, viz. :—

Mr. John Page, Chief Engineer of the Department, representing the Government, Mr. F. W. Cumberland, Architect, of Toronto, selected by the contractors and architects, and James Robert Gowan, Judge of the County Court of the County of Simcoe, Barrie, who was selected by the two first as umpire.

On the 21st February, 1865, the claims of Messrs. Jones, Haycock & Co., Contractors for the Departmental Buildings, and those of Messrs. Fuller and Jones, Architects for the Parliament Buildings, and those of Messrs. Stent & Laver, Architects for the Departmental Buildings, were formally submitted to the arbitrators; and on the 21st March, 1865 the claims of Mr. Thomas McGreevy were also submitted to the same arbitrators, and the matter is still pending before them.

The steam machinery and iron work connected with the heating and ventilating apparatus of the buildings are being made by Mr. Charles Garth. From experiments made during last winter there is every reason to believe that the system adopted will give entire satisfaction.

On the 16th of June, 1865, a contract was entered into with the Bytown Consumers' Gas Company of Ottawa, for the supply of illuminating gas for the use of the Parliament and the Departmental Buildings.

Temporary works have been erected for the supply of water to the buildings. See report by Mr. Page, in Appendix No. 13, at page 58.

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#### RIDEAU HALL.

Plans and specifications have been made, and tenders received for the preparation of Rideau Hall, Ottawa, as a temporary residence for Your Excellency. See Appendix, No. 14, at page 60.

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#### PARLIAMENT BUILDINGS AND GOVERNMENT HOUSE, TORONTO.

The Parliament Buildings and Government House at Toronto are still occupied by, and are under the charge of the military authorities. The east wing of the Parliament Buildings, now occupied as a barracks, requires very extensive repairs.

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### GOVERNOR'S RESIDENCE, SPENCER WOOD, QUEBEC.

Light repairs to roof, new lightning rods, addition to guard house and other slight general repairs have been performed here.

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### GOVERNMENT HOUSE, MONTREAL.

The Government House at Montreal is now occupied by the Normal School.

The yard in rear of the Government building is some 18 feet higher than the adjoining lots on St. Paul Street, and is kept up by a retaining wall.

That portion of the retaining wall which lies next to the property of Mr. C. S. Rodier is completely destroyed. The Government yard drains through Mr. Rodier's property into St. Paul Street. Certain damages having been sustained by Mr. Rodier by the drainage and by the failure of the wall, compensation has been allowed him, and the right of sewerage through his lot and joint right in the wall have been purchased.

The wall will have to be rebuilt and other repairs are required. Certain buildings lying at the corner of Notre Dame Street and Jacques Cartier Square, which had been leased in March, 1864, were resumed and fitted up for the military engineers engaged on the fortifications of Montreal.

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### QUEBEC CUSTOM HOUSE.

On the 10th of September, 1864, the whole of the interior and wood-work of this building was destroyed by fire. The only injury sustained by the walls was the burning of a few stones round the doors and windows.

The building was insured for \$12,000 in the "Royal" Insurance Company and for a like sum with the "Quebec" Insurance Company, and these amounts were immediately paid by the companies.

The original plan upon which the building had first been constructed was revised. A new and improved design was made for the roof, and considerable reductions were effected in the interior work and ornamentation.

It was also decided to remove several chimneys (which collected snow and caused leaks in the roof), and to heat the whole building by steam.

On the 10th of October, tenders were received for the Carpenter's work, the iron and lead works for covering the roof and dome, and the necessary repairs to the stone work. The contract was awarded to Mr. John Pye, who has at this date nearly completed the work undertaken by him.

On the 28th of January, 1865, tenders were received for the construction of apparatus to heat the building. The tender from Mr. Thomas McKenna was accepted.

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On the 18th of February, 1865, tenders for the joiner work, plastering, and interior finishing were received, and the one sent in by Messrs. S. & C. Peters was accepted. The contractors are proceeding with the works.

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**MONTREAL CUSTOM HOUSE.**

Slight repairs have been performed here.

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**TORONTO CUSTOM HOUSE.**

Repairs to chimneys have been made.

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**HAMILTON CUSTOM HOUSE.**

Repairs have been done to furnace and to the yard gates.

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**DUNDEE CUSTOM HOUSE**

Requires a new roof.

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**SEVEN ISLANDS CUSTOM HOUSE.**

Slight repairs to roof, chimneys, floors and windows.

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**OLD CUSTOM HOUSE, QUEBEC**

Has been fitted up, for temporary occupation by the Collector of Customs and Staff, during the reconstruction of the New Custom House.

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**QUEBEC POST OFFICE**

Slight repairs done.

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**HAMILTON POST OFFICE**

Requires extensive repairs.

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**LONDON POST OFFICE**

Requires an alteration in the roof and considerable repairs in the interior.

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### QUEBEC MARINE HOSPITAL.

Lightning rods have been fixed to this building.

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### QUEBEC DRILLING SCHOOL.

Completed in December, 1864. This building is fitted with a lodging for the keeper, and an armory, and is supplied with gas and water.

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## PROVINCIAL VESSELS.

The four steam vessels in charge of the Department are the "Napoleon III," the "Victoria," the "Lady Head," and the "Advance."

They are maintained by Government for the following purposes:—

To convey the mail from Quebec to the Lower Provinces, calling each trip at the following places—Father Point, Gaspé Basin, Percé, Paspebiac, Dalkousie, Miramichi, Shediac and Pictou.

To convey supplies to the light-house and provision depôts in the Gulf of St. Lawrence.

To place the buoys on the River St. Lawrence in their proper position, to maintain them there during the season of navigation, and to take them up again at its close.

To carry the pilots and their apprentices on their annual inspection of the channels of the river.

To relieve vessels in distress; and to tow vessels when called upon.

These vessels were all overhauled previous to entering upon the duties required of them, at the opening of navigation. The three iron vessels had their bottoms scraped and their hulls newly painted; their sails and rigging were repaired, and they had new tubes to their boilers. The "Advance" had her hull caulked and painted, and underwent some general repairs, and had new tubes to her boilers.

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### "LA CANADIENNE"

Had her hull caulked and painted, and underwent some general repairs.

The vessels have experienced no accident up to the 30th June last.

For details in reference to the services performed by the vessels; also for a statement of the "Province of Canada in account current with the Department of Public Works for the steamers," see Appendix No. 15, at pages 63, 64.

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## OFFICIAL ARBITRATORS.

During the past year four cases were referred to the official arbitrators.

At the date of the last report by the Department there were five cases pending before the official arbitrators, and during the year ending the 30th of June, 1865, four other cases were referred to them.

Awards have been made in two cases, and a third (W. P. Bartley's) has been submitted to a special arbitration. Six cases are, therefore, still pending before the arbitrators.

For details, see Appendix No. 16, at page 65.

All of which is respectfully submitted.

J. C. CHAPAIS,

*Commissioner of Public Works.*

DEPARTMENT OF PUBLIC WORKS,  
Ottawa.

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Appendix to the Report  
OF THE  
COMMISSIONER OF PUBLIC WORKS,  
FOR THE YEAR ENDING 30<sup>TH</sup> JUNE, 1865.

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## APPENDIX No. 1.

### STATEMENT No. 1.

**STATEMENT of the several Works, under the charge of this Department, which are in use and yield Revenue; shewing, under different heads, the expenditure on construction and the amount paid for land damages during the year ending 30th June, 1865, the total cost of construction under this Department to the 1st July, 1865, and the cost of repairs and management during the year ending 30th June, 1865.**

WORKS.	Expenditure on construction for year ending 30th June, 1865.		Amount paid for damages during the year ending 30th June, 1865.		Total expenditure on construction to 1st July, 1865.		Cost of repairs and management for year ending 30th June, 1865.	
	\$	cts.	\$	cts.	\$	cts.	\$	cts.
Welland Canal.....	72032	60			4855141	30	60887	06
do extraordinary repairs to pier, Port Maitland.....	4863	77			4863	77		
<i>St. Lawrence Canals, vis.:</i>								
Lachine.....	7155	62			2125554	25	22024	30
Beauharnois.....			486	55	1598353	32	14697	90
Cornwall.....					467150	70	12542	20
Williamsburg.....					1089739	93	9966	40
Junction.....					230786	11		
New Lock Gates.....	359	57			40189	79		
General expenditure.....					74983	52	287	10
<i>Chambly Canal.....</i>								
St. Ann's Lock.....			16	50	69758	01	18167	97
St. Onrs Lock.....			1600	00	114596	49	1730	56
Burlington Bay Canal.....					121537	65	2102	75
					291044	49		
<i>Slides, Dams, etc.:</i>								
Ottawa.....	37344	78			738778	81	19957	74
do reconstruction.....	22520	85			22520	85		
St. Maurice.....					260542	48	12128	31
Trent, securing dams.....					2380	34	794	86
Saguenay.....	200	00			44670	41	721	45
Port Stanley Harbor..					230531	88		
Union Suspension Bridge, reconstruction.....					5266	60		
<b>Total .....</b>	<b>144477</b>	<b>19</b>	<b>2193</b>	<b>05</b>	<b>12384400</b>	<b>70</b>	<b>171008</b>	<b>60</b>

DEPARTMENT OF PUBLIC WORKS,  
July, 1865.

J. BAINE,  
*Book-keeper.*

### STATEMENT No. 2.

**STATEMENT of Public Works, under the charge of this Department, incomplete and as yet unproductive, but upon which tolls are to be levied as soon as they are available; shewing the expenditure thereon during the year ending 30th June, 1865, on construction, the total expenditure on construction up to 1st July, 1865, and the cost of repairs and management during the year ending 30th June, 1865.**

WORKS.	Expenditure on construction for year ending 30th June 1865.		Total expenditure on construction to 1st July, 1865.		Cost of repairs and management for year ending 1st July 1865.	
	\$	cts.	\$	cts.	\$	cts.
Chats Canal.....			373191	98		
Seugog Inland Navigation.....	4724	00	490500	14	1986	78
<b>Total.....</b>	<b>4724</b>	<b>00</b>	<b>863692</b>	<b>12</b>	<b>1986</b>	<b>76</b>

DEPARTMENT OF PUBLIC WORKS,  
July, 1865.

J. BAINE,  
*Book-keeper.*

## STATEMENT No. 3.

STATEMENT of the several Public Works and Buildings in course of construction, under the charge of this Department, yielding no direct revenue, but in use for the public service and authorized by legislative appropriations; shewing the amount expended thereon during the year ending 30th June, 1865, and the total outlay upon them up to the 1st of July, 1865; also the amount expended in repairs and maintenance for the same period.

WORKS.	Total outlay up to 1st July, 1864.		Expenditure for the year ending 30th June, 1865.		Total outlay up to 1st July, 1865.	
	\$	cts.	\$	cts.	\$	cts.
Parliament Buildings..... } Toronto.....					274815	05
Government House..... } do .....					5104	18
Custom House..... do .....					28066	07
Post Office..... do .....					13884	65
Observatory..... do .....					9966	83
Female Lunatic Asylum..... do .....					159	30
Osgoode Hall..... do .....					3679	23
Gun Sheds..... do .....					657	69
Barracks repairs..... do .....					625	62
Railway Inspector's Office..... do .....					10000	00
Mechanics' Institute, completing building, Toronto.....					47027	82
Custom House..... Hamilton.....					52626	42
Post Office..... do .....					5666	67
Gun Sheds..... do .....					48025	51
Post Office..... London.....	39940	51	85	00	45010	24
Custom House..... Kingston.....					39047	12
Post Office..... do .....					4293	92
Lunatic Asylum and Gaol..... do .....					875	27
Court House and Gaol..... Algoma.....	769	79	105	48	2071095	27
Public Buildings..... Ottawa.....	1513412	36	557682	91	3759	86
Rideau Hall..... do .....					308083	57
Court House..... Montreal.....					27227	93
do extraordinary repairs..... do .....	26378	93	849	00	1257	63
Custom House repairs..... do .....					2166	80
Gaol repairs..... do .....					3037	97
Post Office..... do .....					9469	96
Normal School..... do .....	9304	49	165	49	866	68
Armoury..... do .....					98728	99
Marine Hospital..... Quebec.....			1638	34	268008	30
Custom House..... do .....					10478	06
do reconstruction..... do .....			340	00	4880	42
Gun Sheds..... do .....	4545	42	1101	55	2508	32
Court House..... do .....	1401	77			50301	18
Post Office & Parliamentary build's do .....					1623	59
do do additions do .....					4299	35
Spencer Wood repairs..... do .....					28015	71
do reconstruction..... do .....					9991	67
Governor General's residence in consequence of fire at Spencer Wood in 1861..... Quebec.....					318	77
Observatory repairs..... do .....					7181	06
Normal School..... do .....					924	25
Gaol repairs..... do .....	884	25	12089	63	105601	11
New Gaol..... do .....	93511	48	4842	35	8458	21
New Drill Shed..... do .....	3610	86			35441	44
Gaols and Court Houses, C. E.....					440750	73
do do 20 Vic., c. 44.....	439490	75	1259	98		
<i>Court Houses and Gaols, C. E., Repairs, viz.:</i>						
St. Johns.....					158	00
Aylmer.....	1223	65	666	42	1890	07
Three Rivers.....	4096	62	12	00	4108	62
St Hyacinthe.....					541	42
Kamouraska.....	14690	94	3227	76	17918	70
Percé.....					343	85
New Carlisle.....					113	12
Montmagny.....	423	05	16	20	439	25
Carried over.....						

## STATEMENT No. 8.—Continued.

WORKS.	Total outlay up to 1st July, 1864.		Expenditure for the year ending 30th June, 1865.		Total outlay up to 1st July, 1865.	
	\$	cts.	\$	cts.	\$	cts.
<i>Brought over</i> .....						
Arthabaska.....	46	00	44	50	90	50
Beauce .....			5	50	5	50
Sherbrooke.....					3614	90
New Gaol, District of St. Francis.....			268	96	268	96
Court House and Gaol, St. Scholastique, reconstruction.....			10387	84	10387	84
Reformatory, St. Vincent de Paul, reconstruction .....			4144	67	4144	67
Dépôt at Anticosti.....					47	83
Governor General's residence, St. Lewis street.....					48355	83
Rents, repairs and maintenance of public buildings.....	414531	32	26274	49	440805	81
<i>Light Houses.</i>						
Light Houses below Quebec.....					396503	55
Light House apparatus, Quebec.....					54602	16
Light House, Pointe St. Laurent.....			2685	75	2586	75
Light Houses (New) below Quebec.....	48825	93	2072	32	50898	25
Pointe Pelée Light House.....					69160	39
Snake Island Light House.....					10430	04
Bay of Quinté Light Houses.....	108	16	59	07	167	23
Light Houses, Lake Huron.....					147614	75
Light House apparatus, Lake Huron.....					74949	16
Floating lights above Lachine.....					26397	93
Gaspé Bay and Harbor Buoys.....	646	04	141	07	787	11
Inland Lake and River Lights.....	8895	65	4566	08	13461	73
Father Point Light House.....					1453	61
Ottawa River Navigation.....					3642	54
<i>Roads.</i>						
Canada and New Brunswick by the Temiscouata .....	198072	76	249	59	193322	26
Metapedia, South.....					29565	44
do North.....					16382	59
Eastern Canada and New Brunswick by the Metapedia.....	65518	37	14574	26	80087	63
Malbaie and Grande Bale.....	13956	73	2000	00	15956	73
Matane and Cap Chatte.....	24251	46	2638	70	26890	16
Escoumains and Malbaie .....	4569	50	2000	00	6569	50
do Port Neuf.....			1360	99	1260	99
Marmora.....					4000	00
Garrison Road, Toronto.....					1000	00
Gaspé Road.....	16295	68	3894	30	20189	98
Coteau and Province Line Road.....					1482	01
Coteau and Cornwall Road.....					8284	00
Cornwall Road.....					510	22
Caughnawaga Road.....	779	21	1927	80	2707	01
Hamilton and Port Doyer Road.....	16780	01	935	03	17715	04
York Roads.....	9773	46	8982	75	18756	21
Batiscan Bridge repairs.....					642	00
<i>Harbors and Piers.</i>						
Port Bruce.....					6267	47
Lake Huron.....					97448	83
L'Original.....					2090	00
Pier at St. Anicet.....					2007	97
Landng Piers.....					768971	02
Repairs to piers.....	21619	10	5037	20	26656	30
Pier at Port aux Quilles.....					103	45
Dredging Narrows and New Bridge, Lake Simcoe.....					10136	30
Dredging at Picton and Presqu-Isle.....					9650	04
Dredging operations.....	7100	43	6683	34	13783	77
Dredging vessels, Steam pumps, &c.....					3218	39
Dredging at St. Clair Flats.....					19984	45
Richelieu Rapids improvements (Ste. Anne de la Pêrade).....					13713	96
North River and Petite Nation bridge improvements.....					4257	01
River Thames navigation improvements.....					3821	42
Deepening Lake St. Peter.....	30240	50	59000	00	89240	50
Pier at Chentry Island.....	442	50	2056	14	2498	64
Total.....			760260	27		

DEPARTMENT OF PUBLIC WORKS,  
July, 1865.

J. BAINE,  
Book-keeper.

## STATEMENT No. 4.

STATEMENT of Expenditure on certain Miscellaneous Services under this Department, during the year ending 30th June, 1865.

	--\$ cts.
Provincial Steamers .....	42183 21
Advertising Sale of Provincial Steamers.....	27 50
Tug Service, Upper St. Lawrence.....	12000 00
Surveys generally.....	2499 37
Arbitrations, Awards, &c.....	10397 68
Militia Expenses.....	18 57
Gaspé and Amherst Harbours, Maintenance .....	125 00
Removal to Toronto in 1855.....	160 00
Alterations to Parliament Buildings for Meeting of Delegates .....	984 57
Contingencies of the Department.....	60 00
	68455 90
Less—Included in No. 1 Statement, and also under the head of Arbitrations.....	1616 50
Total.....	66839 40

J. BAINE,  
*Book-keeper.*

DEPARTMENT OF PUBLIC WORKS,  
July, 1865.

## STATEMENT No. 5.

STATEMENT of the Expenditure incurred under this Department for the repairs and management of the Ordnance Canals, for the year ending 30th June, 1865..

NAME.	Extraordinary	Ordinary	Total
	Repairs.	Repairs and Management.	Expenditure.
	\$ cts.	\$ cts.	\$ cts.
Rideau Canal .....		26473 44	26473 44
do Repairs at Hogsback.....	341 44		341 44
do Bridges .....	135 75		135 75
do Lock Gates.....	6332 64		6332 64
Carillon and Grenville Canals .....		9476 47	9476 47
do do Improvements .....	1649 49		1649 49
do do Lock Gates.....	2966 02		2966 02
Total.....	11425 34	35949 91	47375 25

J. BAINE,  
*Book-keeper.*

DEPARTMENT OF PUBLIC WORKS,  
July, 1865.

## STATEMENT No. 6.

A DETAILED STATEMENT of the expenditure incurred in repairs and maintenance of Provincial Light Houses, for the year ending 30th June, 1865, under this Department.

Name of Light.	Name of Keeper.	Amount of Salary paid.	Supplies and Repairs.	Total.
		\$ cts.	\$ cts.	\$ cts.
Lachine Pier.....	John Norton.....	385 00	131 90	576 90
Light Ship No. 1.....	Pierre Landré.....	187 50	116 66	344 17
do No. 2.....	Olivier Madore.....	40 01		
do No. 3.....	Benjamin Picard.....	250 00		
Beauharnois.....	Joseph Meloche.....	225 00	82 53	307 53
Grosse Pointe.....	Peter Shannon.....	435 00	111 45	721 45
	Wm. Shannon, Assistant.....	175 00		
Mackie's Point.....	A. McDonald.....	175 00	81 05	256 05
Cherry Island.....	E. J. Johnson.....	435 00	79 40	514 40
do Light Ship.....	G. H. Johnson.....	250 00	167 06	417 06
Lancaster Pier.....	Thomas Hill.....	335 00	144 79	479 79
Cole Shoal.....	Richard Elliott.....	140 00	65 22	205 22
Granadier Island.....	Albert Root.....	150 00	65 68	215 68
Lindoe Island.....	J. Wallace.....	140 00	101 37	241 37
Gananaque Narrows.....	James McDonald.....	260 00	228 03	488 03
Jack Straw Shoals.....				
Spectacle Shoal.....	John Buck.....	560 00	111 08	671 08
Red Horse Rock.....				
Burnt Island.....	Joseph Mervin.....	120 00	84 45	204 45
Wolfe Island.....	Robert Gillespie.....	250 00	367 36	617 36
Snake Island.....	L. Herchmer.....	435 00	179 93	614 93
Nine Mile Point.....	John Dunlop.....	435 00	147 80	582 80
False Ducks.....	Frederick Swetman.....	435 00	375 35	810 35
Point Peter.....	W. A. Palin.....	435 00	146 54	581 54
Sootch Bonnet.....	Henry Vandusen.....	435 00	193 92	628 92
Presqu'Isle.....	Wm. Swetman, Senr.....	325 00	101 56	426 56
do Range Lights.....	James Cummins.....	250 00	87 30	337 30
Gull Island.....	George Roddick.....	435 00	132 91	742 91
	Robert Roddick, Assistant.....	175 00		
Gibraltar Point.....	George Darnas.....	425 40	100 66	525 65
Burlington Bay.....	George Thomson.....	300 00	106 50	406 50
Port Dalhousie.....	Jonathan Woodall.....	400 00	137 01	537 01
Port Colborne.....	James Fortier.....	300 00	151 17	540 05
	David Fortier.....	88 88		
Mohawk Island.....	John Burgess.....	435 00	137 36	572 36
Port Maitland.....	Peter Baikie.....	435 00	151 77	586 77
Port Dover.....	James Cruikshank.....	130 00	108 82	368 82
	Sutherland Simpson.....	23 31		
	Henry Morgan.....	106 69		
Long Point.....	H. H. Clarke.....	435 00	214 35	649 35
Port Burwell.....	Alexander Sutherland.....	320 00	94 93	414 93
Port Stanley.....	Richard Ead.....	268 00	116 10	404 10
Pointe Pelée.....	P. McIntyre.....	435 00	576 69	1336 69
	James Edwards, Assistant.....	325 00		
Pelée Island.....	Wm. Swetman, Junr.....	435 00	440 23	875 23
Bois Blanc.....	Andrew Hackett.....	435 00	224 22	659 22
River Thames.....	Thomas Cartier.....	435 00	139 47	574 47
Goderich.....	Humphrey Fidler.....	325 00	118 34	443 34
Point Clark.....	John Young.....	435 00	344 09	779 09
Chantry Island.....	D. McG. Lambert.....	435 00	462 99	1072 99
	Wm. McG. Lambert, Assistant.....	175 00		
Isle of Coves.....	D. McBeath.....	435 00	541 64	1276 64
	Wm. McBeath, Assistant.....	300 00		
Griffith Island.....	Vesey C. Hill.....	435 00	329 68	764 68
Nottawasaga Island.....	George Collins.....	435 00	416 64	1026 64
	C. Collins, Assistant.....	175 00		
Christian Island.....	Wm. Hoare.....	435 00	437 13	872 13
	Carried over.....	17219 39	8841 11	26060 50

STATEMENT No. 6.—*Continued.*

Name of Light.	Name of Keeper.	Amount of Salary paid.	Supplies and Repairs.	Total.
		\$ cts.	\$ cts.	\$ cts.
	<i>Brought forward.....</i>	17219 39	8841 11	26060 50
Pointe Claire, No. 1.....	Arsène Glode.....	250 00	98 37	348 37
do No. 2.....	Moïse Leclerc.....	240 00	73 66	313 66
Green Shoal.....	D. Thomas.....	250 00	32 45	282 45
		\$17959 39	9045 59	27004 98
Management, salary and travelling expenses of Superintendent, freight and charter of Steamer delivering supplies, advertising, &c.....				3573 68
Placing buoys and light ships.....				386 62
Supplies on hand in store.....				280 00
<b>Total.....</b>				<b>\$31163 28</b>

J. BAINE,  
*Book-keeper.*

DEPARTMENT OF PUBLIC WORKS,  
July, 1865.

## STATEMENT No. 7.

STATEMENT shewing the total amount expended under the Department of Public Works, during the year ending 30th June, 1865, as detailed in the foregoing Statements numbered 1, 2, 3, 4, 5 and 6.

STATEMENT.	Repairs and Management.	Construction.	Miscellaneous.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
No. 1.....	171008 60	144963 74		315972 34
2.....	1986 76	4724 00		6710 76
3.....	59535 17	700715 10		760250 27
4.....			66839 40	66839 40
5.....	47375 25			47375 25
6.....	31163 23			31163 23
<b>Total.....</b>	<b>311069 01</b>	<b>850402 84</b>	<b>66839 40</b>	<b>1228311 25</b>

J. BAINE,  
*Book-keeper*

DEPARTMENT OF PUBLIC WORKS,  
July, 1865.



## APPENDIX No. 2.

## ST. LAWRENCE NAVIGATION.

## TABLE OF DISTANCES

FROM STRAITS OF BELLE ISLE TO FOND DU LAC, AT HEAD OF LAKE SUPERIOR.

From	To	Sections of Navigation.	Statute miles.	
			Intermedi- diats.	Total to Straits of Belle-Isle.
Straits of Belle-Isle.....	Quebec .....	River & Gulf of St. Lawrence	826	826
Quebec.....	Three Rivers.....	Riv. St. Law'ce to Tide-water	74	900
Three Rivers.....	Montreal .....	do do	86	986
Montreal .....	Lachine .....	Lachine Canal .....	8½	994½
Lachine .....	Beauharnois .....	Lake St. Louis.....	15½	1009½
Beauharnois .....	Ste. Cécile .....	Beauharnois Canal .....	11½	1021
Ste. Cécile .....	Cornwall.....	Lake St. Francis .....	32½	1053½
Cornwall.....	Dickinson's Landing.....	Cornwall Canal .....	11½	1065½
Dickinson's Landing.....	Farran's Point .....	River St. Lawrence.....	5	1070½
Farran's Point .....	Upper end Croyle's Island...	Farran's Point Canal.....	½	1071
Upper end Croyle's Island...	Williamsb'gh or Morrisb'gh.	River St. Lawrence.....	10½	1081½
Williamsburgh .....	Rapide Plat.....	Rapide Plat Canal.....	4	1085½
Rapide Plat.....	Point Iroquois Village.....	R. ver St. Lawrence.....	44	1090
Point Iroquois Village.....	Upper end Presqu'Île .....	Point Iroquois Canal.....	3	1093
Presqu'Île.....	Point Cardinal, Edwardsb'gh	Junction Canal.....	2½	1095½
Point Cardinal .....	Head of Galops Rapids .....	Galops Canal.....	2	1097½
Galops Rapids .....	Prescott .....	River St. Lawrence.....	7½	1105
Prescott .....	Kingston .....	do do	59	1164
Kingston.....	Port Dalhousie .....	Lake Ontario.....	170	1334
Port Dalhousie.....	Port Colborne.....	Welland Canal .....	28	1362
Port Colborne .....	Amherstburgh .....	Lake Erie.....	232	1594
Amherstburgh .....	Windsor .....	Detroit River.....	18	1612
Windsor.....	Foot of Ste. Mary's Island ..	Lake St. Clair.....	25	1637
Lake St. Clair.....	Sarnia.....	St. Clair River.....	33	1670
Sarnia.....	Foot of St. Joseph's Island..	Lake Huron.....	270	1940
Foot of St. Joseph's Island..	do Sault Ste. Marie .....	St. Mary's River.....	47	1987
Sault Ste. Marie.....	Head of do .....	Sault St. Mary's Canal.....	1	1988
Head Sault Ste. Marie.....	Pointe aux Pins.....	St. Mary's River.....	7	1995
Pointe aux Pins .....	Fond du Lac.....	Lake Superior.....	390	2385

Out of the 2,385 miles, from the Straits of Belle-Isle to the Head of Lake Superior, 72½ miles are artificial navigation, and 2,312½ open navigation.

Straits of Belle-Isle to Liverpool, 1,942 geographical, or 2,234 statute miles.

The total ascent from Tide-water to Lake Superior is about 600 feet.

## QUEBEC TO LIVERPOOL, VIA STRAITS OF BELLE-ISLE, AND MALIN HEAD, NORTH OF IRELAND.

From	To	Sections of Navigation.	Geographical miles.	Statute miles.
Quebec .....	Saguenay.....	River St. Lawrence...	106	122
Saguenay.....	Father Point.....	do .....	53	61
Father Point.....	Light-house, west end Anticosti..	do .....	176	202
West End Anticosti.....	Cape Whittle, Labrador Coast...	Gulf of St. Lawrence..	175	201
Cape Whittle.....	Belle-Isle Light-house, east entrance of Straits.....	do ..	209	240
Belle-Isle .....	Malin Head, North of Ireland...	Atlantic Ocean.....	1750	2013
Malin Head.....	Liverpool.....	do and Irish Sea..	192	221
Total from Quebec to Liverpool, via Belle Isle, and Malin Head, North of Ireland ...			2661	3069

**HEAD OF LAKE SUPERIOR TO LIVERPOOL, VIA STRAITS OF BELLE-ISLE AND NORTH OF IRELAND.**

	Geographical miles.	Statute miles.
Head of Lake Superior, at Fond du Lac, to Quebec.....	1356	1659
Quebec to Liverpool, via Straits of Belle-Isle and North of Ireland.....	2661	3060
<b>Total from head of Lake Superior to Liverpool, via Belle-Isle, and Malin Head, North of Ireland.....</b>	<b>4017</b>	<b>4619</b>
N. B.—Route via Straits of Belle-Isle shorter than via Cape Race.....	158	182
Straits of Belle-Isle 80 miles long by 14 average breadth.		

**QUEBEC TO LIVERPOOL, VIA CAPE RACE, AND MALIN HEAD, NORTH OF IRELAND.**

From	To	Sections of Navigation.	Geographical miles.	Statute miles.
Quebec .....	Saguenay .....	River St. Lawrence...	106	122
Saguenay .....	Father Point.....	do .....	53	61
Father Point.....	Métis Point.....	do .....	22	25
Métis .....	Cape Ste. Anne des Monts.....	do .....	71	82
Cape Ste. Anne des Monts...	Cap de la Madeleine.....	do .....	46	53
Cap de la Madeleine .....	Fame Point .....	do .....	29	33
Fame Point.....	Cap des Rosiers.....	do .....	25	29
Cap des Rosiers.....	Cap St. Pierre de Miguelon.....	Gulf of St. Lawrence..	343	394
Cap St. Pierre de Miguelon...	Cape Race.....	Atlantic Ocean.....	132	152
Cape Race.....	Malin Head.....	do .....	1800	2070
Malin Head.....	Liverpool.....	do and Irish Sea..	192	221
<b>Total from Quebec to Liverpool, via Cape Race, and Malin Head, North of Ireland...</b>			<b>2819</b>	<b>3242</b>

**HEAD OF LAKE SUPERIOR TO LIVERPOOL, VIA CAPE RACE AND NORTH OF IRELAND.**

	Geographical miles.	Statute miles.
Head of Lake Superior, at Fond du Lac, to Quebec.....	1356	1659
Quebec to Liverpool, via Cape Race and North of Ireland.....	2819	3242
<b>Total from head of Lake Superior to Liverpool, via Cape Race, and Malin Head, North of Ireland.....</b>	<b>4175</b>	<b>4901</b>
N. B.—Route via Cape Race longer than via Straits of Belle-Isle.....	158	182

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## APPENDIX No. 3.

REPORT BY J. G. SUPPELL, RESIDENT ENGINEER,

ON THE BEAUHARNAIS, LACHINE, THE CHAMBLY, THE ST. OURS, THE STE. ANN'S,  
THE CARILLON, THE CHUTE A BLONDEAU, AND THE GRENVILLE CANALS.

F. BRAUN, Esquire,  
Secretary Public Works, Quebec.

LACHINE CANAL OFFICE,  
Montreal, 4th July, 1865.

SIR,—I beg to submit the following Report on the Canals under my charge for the fiscal year ending the 30th day of June, 1865, viz :—The Beauharnais, Lachine, Chambly and Carillon and Grenville Canals, and the St. Ours and Ste. Anne's Locks and Dams.

The Beauharnais and Lachine Canals form the two eastern sections of the St. Lawrence Canals terminating at Montreal, the head of ocean navigation.

### BEAUHARNAIS CANAL.

This canal is situated on the south side of the River St. Lawrence, at the foot of Lake St. Francis, the upper entrance being about thirty-two and three-quarter miles below the foot of the Cornwall Canal, and forms a navigable channel past the Coteau, Cedars and Cascade Rapids between Lake St. Francis and Lake St. Louis. This canal is eleven and a quarter miles in length with nine locks 200 feet between quoins and 45 feet in width with nine feet depth of water on the sills, which overcome a fall of 82½ feet.

The navigation was uninterruptedly maintained from the first day of July until the third day of December, when it was closed by ice. The repairs for the year were of a general character and may be classed as follows :—

Repairs to piers, lock gates, bridges, slope walls and banks, dykes and dams.

Cleaning ditches and culverts.

Repairs to buildings, &c.

The piers at the lower entrance that had been damaged and raised by ice during the previous winter were repaired, and 100 feet of the south pier sheeted with oak plank. The work of extending this pier to afford greater facilities for mooring vessels while waiting for the lock should not be longer delayed. Four hundred and seventy lineal feet of the superstructure of the pier at the upper entrance was rebuilt and well filled with stone.

Slight repairs were effected to mostly all the lock gates on the line. The upper gates at Locks Nos. 7 and 9 were taken out, repaired and replaced. A new quoin-knee was fitted on one of the lower gates at Lock No. 9, and a new oak binder on one of the lower gates at Lock No. 12. The upper gates at Lock No. 14 were removed, a new pier inserted, and the old ones hauled out for repairs. When these gates are repaired, and those contracted for in November last completed, the supply of spare gates should be sufficient to meet any ordinary demands for the coming year.

The repairs effected to the swing bridges last season were light. Several permanent bridges over the supply-weirs were replanked. The wood work of the bridges at Lock No. 7 and at St. Timothée has been renewed since the first of May last. The slope-walls having been thoroughly repaired when the water was out of the canal, in April, 1864, required very little afterwards, except filling sink holes in rear of the walls formed by the action of the water, raising the banks at several points, and strengthening them by placing stone on the outside slopes, and renewing about 60 snubbing posts, where required for mooring vessels.

The Dykes on Grand Ile were maintained in good order. Some portions of the Dyke through Hungry Bay were raised, and the inside lined with stone to protect it from the action of high water. Sink-holes continued to form in the dams, which required constant attention.

The ditches and culverts were thoroughly cleaned. This requires to be done twice a year, once before the snow melts in the spring and again in midsummer. The deep snow of last winter rendered this work very difficult, and serious damage was only avoided by the attention and exertions of the Local Superintendent.

The walls of several lock-houses were pointed, the roofs of four of them re-shingled and their windows renewed.

The repairs were generally suspended during the winter season. On the 30th day of March, the water was shut off for the usual spring repairs, which consist in examining and cleaning the locks, mitre-sills, valve-gates, replacing friction-rollers and pointing the lock walls; examining and repairing the regulating-weirs and sluices, removing any sediment from the prism of the canal, calculated to interfere with the free passage of vessels: repairing and rebuilding portions of the slope and protection walls below water surface, &c. On the 19th of April, the upper or long reach was filled, for the accommodation of the farmers who cross the canal on ferry scows, and the entire canal filled and opened for the passage of vessels on the 25th, and maintained without interruption until the close of the year.

The usual repairs to slope-walls, banks, dykes, dams, ditches and culverts; must be made during the present summer, and about 250 lineal yards of the dyke through Hungary Bay raised, and the inner or bay side protected with stone. The old gates taken from Lock No. 14 must be repaired, and new bumping-posts placed at several locks. The piers at the lower entrance have been again slightly damaged by ice and must be repaired.

The walls, roofs and sashes of four or five lock-houses, must also be repaired and a store-house built: all of which is estimated to cost \$3375.00.

There are 32 men employed on the permanent staff ranked as follows, viz:—

1 Superintendent,	} employed by the year.
9 Lock Masters,	
1 Bridge Master,	
19 Lock and Bridge Laborers,	} employed by the day during season of navigation.
2 Ferrymen,	

A statement of the fines and damages amounting to \$101 41, imposed and collected by order of the Superintendent during the year, will be forwarded herewith.

#### LACHINE CANAL.

After passing out of the Beauharnais Canal, vessels find a safe channel through Lake St. Louis, a distance of 15½ miles, to Lachine; the upper entrance to this canal, which is situated on the Island of Montreal, connecting Lake St. Louis with the Montreal Harbour, and forming a navigable channel past the Sault St. Louis, or what is now more generally known as the Lachine Rapids. This canal is eight and a half miles in length, with five locks 200 feet between quoins, and 45 feet in width, with nine feet water on the sills of the three upper, and 16 feet on the sills of the two lower locks, which overcome a fall of 44½ feet.

Locks Nos. 1 and 2 were built for 16 feet water, with a view of opening extensive basin accommodation on the level above them, for sea-going or other vessels, drawing 16 feet water; where they could be brought alongside of the mills, elevators and manufacturing establishments, and receive or discharge cargo, without the expense of cartage. A large tract of land was purchased for these basins in 1851 or 1852. Plans and estimates have since been prepared for their construction on the scale originally intended, and now so much required for commercial purposes. Forwarders and others interested in the carrying trade are almost daily complaining of the limited wharf and basin accommodation. The limited space set apart for the firewood, timber and lumber trade at Montreal, has been frequently laid before the Department, in former reports. Land for the construction of basins and wharves for the accommodation of this important branch of commerce was purchased, I think, in 1851. Plans and estimates for their construction have more recently been prepared and submitted to the Department.

These improvements are of vital importance to the commercial interests of the country, and are only second to that of forming a uniform scale of navigation between Lake Erie and Montreal. Until these improvements are accomplished, the great natural highway from the grain fields of the west will remain, to a certain extent, broken and unproductive.

The timber basin at Lachine would accommodate a much larger quantity of timber by dividing it into, say, five parts, with cross-booms. Under this arrangement the cribs would be kept more compact and manageable, and less liable to be broken up by storms.

The water in this canal is subject to frequent fluctuations, caused by the large

quantity used for milling and manufacturing purposes, and requires constant attention throughout the year. During the season of navigation the water was generally kept at the required height, and comparatively few complaints made of low water. During the months of February and March the river was low, and the supply for milling purposes short, which created a little uneasiness amongst the millers.

The repairs for the year have been of a general character and confined to such works as were required for their efficient maintenance, viz. :—

Repairing superstructure of the pier at Lachine, replacing mooring-posts, repairing banks and slope-walls. The cost of maintaining these banks and walls, is largely increased by the strong current, and by the passage of rafts; the current washes the banks, forms sand-bars on the bottom, and undermines the walls; while the rafts drag and tear them down. The gates broken out of the Guard Lock, were also repaired and replaced. The walls of Locks Nos. 2 and 4 were pointed; and new rollers placed on nearly all the gates on the canal, and such other repairs effected as were found necessary. The dock wall on the south side of Basin No. 2 was pointed, and a considerable portion of the wharves on the north side replanked. The first 12 feet of the flume on lots 12, 13 and 14 were rebuilt. A new flour shed, 289 feet in length, was finished at the upper end of this basin in October. The roads and banks around the wood and timber basins were raised and repaired with refuse stone from the "rook out."

One pair of spare gates for the Guard Lock at Lachine were contracted for in November; but the work has not progressed in such a manner as to warrant their completion before October or November next. When these gates are completed, the supply of spare gates should be sufficient for another year. The walls of Locks Nos. 3 and 4 continue to leak badly, and will soon require rebuilding. The walls of the old lock used as a regulating-weir at St. Gabriel, are in a dilapidated condition, and the construction of a new weir instead, should not be longer delayed. The construction of the swing-bridge and abutments above this lock, was postponed; in order to afford more time for procuring and preparing stone and other materials for the work. The bed of the old canal below Lock No. 4 should be deepened to correspond with that of the enlarged canal, so as to afford room for vessels to lay at the mills and manufacturing establishments.

The gallows-frames on the bridges at Lock No. 2, and at Wellington-street, broken by vessels last fall, were renewed during the winter; and the gallows-frame to the bridge at Côte St. Paul repaired. These bridges were replanked and the permanent bridges over the old canal and feeder at Lachine repaired.

The steam dredge was employed from the 14th to the 30th days of November, deepening the channel of the old canal below Brewster's Bridge, to allow vessels of nine feet draft to discharge at the rolling mills, nail works, and other establishments on the north side of the canal. This work was resumed about the middle of May, and is now progressing satisfactorily.

The repairs for the six months ending on the 31st day of December next will be confined to such works as are absolutely required for their maintenance, the cost being estimated at \$4,930.00.

This canal has been successfully and uninterruptedly maintained throughout the year, except for eighteen hours, caused by the steamer *Grecian*, breaking one of the gates in the Guard Lock at Lachine, which took place on the 11th of July. It was permanently closed on the 10th day of December, and opened again in the spring on the first day of May.

There has been \$9,842.40 collected on this canal, besides regular tolls and rents, viz. :

Fines and damages, by order of the Superintendent.....	\$ 771 96
Dues on firewood at Lachine.....	196 05
" timber in basin at Lachine.....	705 68
" graving dock at Montreal.....	667 01
For vessels wintering in canal.....	604 25
" storage in flour sheds.....	1,307 46
Dues on vessels entering canal from lower ports, and on firewood.	5,429 99
For repairing vessels on canal grounds.....	160 00

Total amount.....\$9,842 40

There are 80 men employed on the permanent staff, ranked as follows, viz :—

- |                        |   |  |
|------------------------|---|--|
| 1 Superintendent,      | } | employed by the year.                            |
| 5 Lock Masters,        |   |  |
| 5 Bridge Masters,      |   |  |
| 1 Asst. Bridge Master, |   |  |
| 15 Lock Laborers,      | } | employed by the day during season of navigation. |
| 2 Bridge Laborers,     |   |  |

A detailed statement of the amount of fines and damages collected by order of the Superintendent will be found herewith.

#### RICHELIEU NAVIGATION.

The Richelieu river improvements, are formed by the Chambly Canal and St. Ours Lock and Dam.

These improvements open a navigable channel for vessels of six and a half feet draft of water, between Lake Champlain and the River St. Lawrence at Sorel; and in connection with the Champlain Canal in the State of New York, form an inland navigable channel between Montreal and New York City, viz :—down the St. Lawrence, from Montreal to Sorel, 45½ miles: up the Richelieu River from Sorel to Chambly Basin: passing St. Ours' Lock, 45 miles: through the Chambly Canal to St. Johns, twelve miles: through Lake Champlain to Whitehall, 137 miles: through the Champlain and Erie Canals to Albany, 73 miles: down the Hudson River to New York, 145 miles: making a total distance of 457 miles. The course grains of Lower Canada, a large portion of the sawed lumber from the St. Maurice, the Ottawa, and other rivers emptying into the St. Lawrence, as well as a large amount of flat and square timber in rafts, annually find their way to the American markets over this route; which is one of great importance.

#### CHAMBLY CANAL.

This canal is situated on the west side of the Richelieu River, and is twelve miles in length: it has nine locks 122 feet between quoins, and is 28½ feet in width, with seven feet water on the sills: it overcomes a fall of 74 feet in the river, between the St. Johns and Chambly Basin. The repairs between the first day of July and the close of navigation, were confined to the efficient maintenance of the works; the most important consisting in walling and strengthening the banks, and the removal of sediment from the bottom, washed in from the creeks and ditches. This sediment accumulates at every rain storm, and frequently forms sand bars which materially interfere with the passage of vessels. These bars are now removed with hand dredges which work slowly. One of the steam dredges should be reduced to the size of the Locks on the Canal, in order to make it available in cleaning out and widening the prism, especially above the Guard Lock at St. Johns, where the channel is filling up.

The wood work of Bridges Nos. 3 and 5 was renewed, and a new pair of upper gates for Lock No. 2, and one lower gate for Lock No. 8, were built by the Lock and Bridge tenders during the winter.

The walls of Locks Nos. 2, 3, 4, 5 and 6 were pointed: a new mitre sill fitted in Lock No. 7: the bottom of Locks 4, 5 and 6 repaired: the prism of the canal cleaned, and the narrow portions of the bottom widened, before opening the canal this season.

New fender timbers have been placed at the upper entrance of Locks 2, 3, 4, 5 and 6, to prevent vessels striking and breaking the walls; new pivots placed under bridges Nos. 4 and 7, and the north abutments repaired.

The lower gates at Locks Nos. 1 and 5, and the north half of No. 8 should be renewed next winter.

The banks on the east side of the basin above Edson's Bridge, are being destroyed by the action of the water, and should be protected with stone. The superstructure of the upper end of the wharf at St. Johns, requires extensive repairs, and the bank on river side should be raised.

This canal has been maintained in working order, the entire season with one exception; when the water was shut out of the level above Lock No. 7, to repair the mitre-sill and remove an accumulation of stone and dirt below Lock No. 6.

The estimated cost of repairs for the six months ending the 31st day of December next amounts to \$3725 00.

There are eighteen men on the permanent staff, viz :—

1 Superintendent.

9 Lock Masters.

8 Bridge Masters.

These men are employed during winter in repairing and rebuilding lock gates and bridges : keeping the by-washes and ditches open : and on any other repairs necessary for the maintenance of the work.

A statement of fines and damages collected by order of the Superintendent and for wharfage dues at Chambly will be found enclosed.

The canal was closed on the 7th day of December, 1864, and opened on the 25th day of April, 1865.

#### ST. OURS LOCK AND DAM.

These works consist of a lock and dam situated at an island about fourteen miles above Sorel. The dam is in two parts. The main portion on the west side of the island is 600 feet in length, built of crib work with abutments of cut-stone masonry. The portion east of the island is formed by an embankment about 300 feet in length, with the lock near the centre. The lock is 200 feet between quoins and 45 feet in width with eight feet of water on the sills. These works raise the water four to seven feet, which sets back to the Chambly Basin.

The main dam rests on a clay foundation, which it became necessary to protect by sinking apron cribs below. The safety of this structure depends to a great extent on the maintenance of these cribs which must be kept well filled with stone. Forty eight toise of large stone were used for that purpose last season, and 25 toise were placed in sink-holes formed above the dam. New friction-rollers and bed-plates were placed on the lower lock gates ; the segments repaired and portions of the piers repaired and strengthened.

A shoal below the lock of about 180 feet in length, which has always interfered with loaded vessels at seasons of low water, was removed with one of the steam dredges in October. The superstructure on one of the anchor cribs above the dam, was carried away by the ice in April ; which must be rebuilt. The upper end and sides of the island, damaged by slides during high water, will require further protection. The bank north of the island was also washed and should be raised ; and about 50 toise of stone placed in the centre crib below the main dam, with such other incidental repairs as may be found necessary ; all of which is estimated to cost \$1,471.00.

There are three men employed on these works, viz., one superintendent, paid by the year, and two lock laborers, employed only during season of navigation.

A statement of fines and damages collected at this lock, amounting to \$13.20, will be forwarded herewith.

The navigation has been maintained throughout the season, except for a few hours in July, while placing new friction-rollers and bed-plates on the lower gates.

The navigation closed on the 9th day of December, 1864, and opened on the 16th day of April, 1865.

#### OTTAWA RIVER NAVIGATION.

The Ottawa River Improvements below Ottawa City, consist of a lock and dam at Ste. Anne and the Carillon and Grenville Canals ; which open a navigable channel of five feet in depth, the scale of navigation being limited to the small locks at the upper portion of the Grenville Canal, viz., 106 feet 8 inches between quoins and 19 feet in width with five feet water. These locks, three in number, were built about 40 years ago, and are now quite out of keeping with the scale of navigation required for this route.

#### LOCK AND DAM AT STE. ANNE.

This lock and dam overcomes a fall of three feet in the river at the Ste. Anne Rapids. These works are situated 13½ miles from the upper end of the Lachine Canal, and consist of a lock 190 feet between quoins, 45 feet in width, with six feet water on the sills ; and a wing-dam above the lock, with guide-piers on each side of the channel, and a guide and

protection pier below the lock. There are also two guide-piers about one mile below the lock.

The timber, in about 200 feet of the superstructure of the wing dam, was renewed, and the top covered with three-inch pine plank: 350 feet of the face, sheeted with four-inch tamarack plank, and four bumping-posts placed on the dam. The lower end of the guide pier, below the lock, was also renewed, and sheeted with three-inch elm plank, secured with iron straps: the foot-path on the pier repaired and nine mooring posts renewed: the docking timbers outside of the lock, were broken by the ice, was repaired and new mooring posts placed at the locks; all of which cost \$1,197.43.

The repairs for the coming year should be confined to facing the long dam with tamarack plank: rebuilding the superstructure of the guide piers above the lock; pointing the lock walls and repairing the roof of lock house, &c.; all of which is estimated to cost \$1,022.57.

There are but two men on the staff at this lock, viz., two lock laborers employed only during season of navigation: the collector acting as lock master, but paid only as collector.

The navigation closed on the 1st day of December, 1864, and opened on the 12th day of April, 1865. There was no interruption to navigation during the year.

#### CARILLON AND GREENVILLE CANALS.

The distance from Ste. Anne's Lock, through the Lake of Two Mountains to the foot of the Carillon Rapids, is about 25 miles. This rapid has a fall of eight and three-quarters to ten feet which is overcome by the Carillon Canal.

#### CARILLON CANAL.

This canal is 2.09 miles in length, with three locks 128 feet between quoins: 32 feet six inches in width, with five feet six inches water on the sills: with a feeder from the North River of about three-fourths of a mile in length.

The new gates for Locks Nos. 2 and 3 contracted for in November, were fully completed in May, and the lower gates brought into use. A new pair of lower gates have also been inserted in Lock No. 1.

A leakage through the north wall of Lock No. 2 has been checked with grout and concrete: the south upper recess of Lock No. 3 was partially rebuilt, which has also checked the leakage from the culverts. the north wall of this lock is gradually pressing in at the centre, and should be rebuilt above line of water next spring, there is great danger of its falling and interrupting the trade if longer neglected.

The prism of this canal was thoroughly cleaned last April, and the point of the slopes removed where required, so as to give greater width on the bottom. The towing-path is very much worn and must be raised, and the inside slope walled. The buildings for the employés on the canal should also be repaired.

The upper end of the feeder was widened at low water in August and September, and a larger quantity of water obtained for the Canal. The enlargement of this feeder is of great importance to the trade, especially during the dry season when the supply is short. New sluice gates have also been placed in the regulating-weir.

In the early part of December the anchor ice collected on the dams in the North River, raising the water fully three feet, flooding the canal and roads for some hours. The only damage consisted in carrying away about fifty feet of the dam. This dam being built of stone was easily repaired.

There are three and a-half miles of river navigation between the Carillon Canal and the Chute aux Blondeaux Rapids which are overcome by the

#### CHUTE AUX BLONDEAUX CANAL.

This canal is 0.16 miles in length and passes through a deep rock cut, with one lock three feet ten inches lift and 128 feet between quoins, 32 feet six inches in width, with six feet water on the sills. The upper mitre sill of this lock is lower than the bottom of the canal above, reducing the draft of water during the dry season to less than five feet.

The lower gates at this lock have been renewed and the sluice gates repaired. Loose



stones and rubbish that have collected at the upper and lower entrance should be removed: 190 panels of new fence built: and the walls of the lock house repaired.

There is one and one-third mile of river navigation between this canal and the foot of the Long Sault Rapids, where a fall of 45½ feet is overcome by the

#### GRENVILLE CANAL.

This Canal is 5.78 miles in length with seven locks. Nos. 5 & 6 and 7 & 8 form two sets of combined locks, the smallest being 129 feet 1 inch between quoins and 32 feet 3 inches in width. Locks Nos. 9, 10 and 11 are 106 feet 8 inches between quoins and 19 feet 3 inches in width. All of these locks have the same depth of water on the sills, viz: five feet six inches. The prism of this canal is generally through rock cuttings, portions of which were left fully six inches above the line of the mitre-sills, so that the depth of water available for navigation is practically reduced to five feet.

The locks and fixtures have generally been maintained in working order. The gates are old, but with care may last another season, except those at the guard-lock, which should be renewed with as little delay as possible. New sluice frames and gates have been furnished where required.

Special attention has been given to cleaning and widening the bottom and raising and walling the banks. The cut above the guard lock was thoroughly cleaned and deepened to the level of the mitre sill by dredging last season, which, I believe, has given general satisfaction. There are two swing-bridges on this canal which will require repairs.

The banks have never been lined with stone and are being constantly washed by the passage of steamers which has the natural effect of filling up and forming bars in the bottom. This should be remedied by walling and raising them, which will constitute the largest portion of repairs on this canal (except new lock gates) for the next half year.

These canals have been successfully maintained throughout the year, any detentions have been of a temporary nature, caused by overloaded vessels or low water.

The navigation closed on the 30th day of November, 1864, and opened on the 1st day of May, 1865.

There are seventeen men employed on the permanent staff, viz:—

1 Superintendent and

7 Lock Masters, who are paid by the year.

9 Lock Laborers, paid by the day during season of navigation.

A statement of the amount collected for fines and damages, amounting to \$15.00 will be forwarded forthwith.

There are 54 miles of river navigation between Grenville and Ottawa City.

#### CAUGHNAWAGA ROADS.

The repairs on these roads were resumed in June and completed in September, when good country roads were formed, and a considerable portion of the Primeau and St. Jean Baptiste Roads covered with broken stone. A further expenditure of about \$500 could be made to advantage on the marshy portions of the Primeau and St. Jean Baptiste Roads.

I am, Sir,

Your obedient servant

JOHN S. SIPPPELL,

*Superintendent Engineer.*

### BEAUHARNOIS CANAL.

**STATEMENT of the fines and damages imposed and collected on the Beauharnois Canal, from the 1st July, 1864, to 30th June, 1865.**

Date.	Name of Vessel.	Master or Owner.	Amounts	Remarks.
			\$ cts.	
1864.				
July.....	Barge Matilda .....	Auger.....	54 75	Damage to upper gates, Lock No. 9.
Sept. 15...	Steamer Grecian.....	C. I. S. N. Co...	23 76	Breaking machinery, Lock No. 8.
22.....	.....	Peter Lynch ...	10 00	Fine for violation of Canal Regulations.
Oct. 4...	Barge John Patton.....	Ranshaw.....	1 50	Damage to south upper gate, Lock No. 7.
9...	Propeller Perseverance...	W. R. R. Co....	2 50	do galleries of lower gates, Lock No. 8.
31...	Steamer Passport.....	C. I. S. N. Co...	8 90	do bumping post, do
Total.....			101 41	

BEAUHARNOIS CANAL OFFICE, (Signed,) **PIERRE LAURENCEL,**  
30th June, 1865. *Superintendent.*

### LACHINE CANAL.

**STATEMENT of fines and damages collected by order of the Superintendent, for the year commencing 1st July, 1864, and ending 30th June, 1865.**

Date.	Name of Vessel.	Master or Owner.	Amount.	Remarks.
			\$ cts.	
1864.				
July 4...	Steamer John Stewart...	Dickinson .....	10 00	Fined for taking forcible possession of lock.
9...	Barge Matilda .....	McLennan .....	15 00	Violation of Canal Regulations.
9...	do .....	do .....	39 75	Damage to Côte St. Paul Bridge.
14...	Barge Alexander.....	Hodges .....	10 00	Violation of Canal Regulations.
18...	Brig Six Frères .....	Michon .....	5 00	Damage to cast iron racks, Gould's Mill.
19...	Scow Jenny Lind .....	Brown.....	10 00	do bumping post, Lock No. 3.
19...	Barge St. Catherine.....	Bélangier .....	20 00	Fine, hauling out Barge without permission.
August 2...	Raft Timber .....	Henderson ....	4 00	Fine, abandoned in canal.
3...	do .....	do .....	4 00	do do
5...	Scow St. Francis.....	Duford .....	5 00	Damage to Brewster's Bridge.
6...	Barge J. Lind.....	Smith.....	2 50	do Bridge No. 3.
8...	Scow Williamstown.....	Laplante.....	5 00	Fined, violation of Canal Regulations.
17...	Scow St. Lawrence.....	Fortin .....	4 00	do do
25...	Barge Martha.....	Glassford & Co.	6 00	Damage to crane, Basin No. 2.
Sept. 5...	Barge Providence .....	Brunette.....	8 00	do cast iron racks, Gould's Mill.
15...	Steamer Grecian .....	C. I. S. N. Co...	250 00	do lower gates, Lock No. 5.
20...	B. A. Bongeois .....	.....	4 00	Fined for hauling out for repairs.
Oct. 20...	Scow St. Jean Baptiste	.....	20 00	do hauling out without permission.
25...	Schooner Brawnstone..	Berry .....	40 00	Damage to Bridge, Côte St. Paul.
27...	Scow Williamstown.....	Laplante.....	4 00	Violation of Canal Regulations.
Nov. 12...	Steamer Magnet.....	C. I. S. N. Co...	150 00	Damage to Bridge No. 1.
24...	Raft Timber .....	Henderson .....	5 00	Fine, abandoned in Canal.
25...	Scow St. Zotique.....	Elie .....	20 00	Hauling out without permission.
26...	Steamer Ranger .....	Black & Co.....	20 00	Damage to suspension cables, Wells' Bridge.
29...	Propeller Merritt.....	do .....	15 00	do Bridge at Lachine.
1865.				
May 9...	Schooner City.....	Langlois.....	12 00	do stone pillars, Brewster's Bridge.
10...	Scow Jenny Lind.....	Brown.....	4 00	Fined for obstructing navigation.
13...	Steamer Lotbinière.....	Stevenson .....	10 00	Damage to foot of Bridge, Lock No. 1.
June 15...	Barge Billow.....	Correan .....	18 00	Fine, abandoned in Basin No. 2.
9...	Propeller Enterprise .....	W. R. R. Co....	36 71	Damage to Côte St. Paul Bridge.
26...	One Crib Cedar.....	Greer.....	5 00	Fine, abandoned in Canal.
28...	Barge Oak .....	.....	10 00	Fine, obstructing navigation.
Total .....			771 98	

LACHINE CANAL OFFICE, (Signed,) **ALEXANDER BISSETT,**  
Montreal, 1st July 1865. *Superintendent Lachine Canal.*

## CHAMBLY CANAL.

STATEMENT of Fines and Damages collected by order of the Superintendent, and Wharfage Dues for the year commencing 1st July, 1864, and ending 30th June, 1865.

Date.	Name of Vessel, &c.	Amounts.	Remarks.
		\$ cts.	
1864.			
July 4	Barge Redolphe.....	23 96	Damages to Bridge No. 2.
21	Raft Square Timber.....	4 00	Fined for being abandoned in canal.
August 1	Steamer John Redpath.....	15 00	Damage to Bridge No. 2.
6	Barge Forth.....	12 00	do do
Sept. 9	Barge Montreal.....	0 50	do Lock Gate No. 8.
9	Barge Forth.....	2 00	do Bridge No. 7.
11	Schooner W. F. Cook.....	1 00	do Lock No. 2.
20	Barge Ethelind.....	1 00	do do No. 6.
20	Barge Modesty.....	2 00	do do No. 2.
Oct. 6	Barge Billow.....	1 50	do do No. 9.
6	Barge Clyde.....	1 50	do do No. 9.
6	Steamer Champion.....	2 00	do Bridge No. 7.
10	Barge India.....	50 00	do do No. 3.
12	Barge Rio.....	3 00	do Lock No. 3.
12	Barge Odo.....	1 00	do do No. 4.
13	Barge Forth.....	2 00	do Bridge No. 7.
14	Barge Boule d'Or.....	2 00	do Lock Gate No. 7.
31	Barge J. R. Sherman.....	1 00	do do No. 2.
31	Captain Collins.....	2 00	Fine for using abusive language.
31	Captain Chubb.....	2 00	do do
Nov. 7	Steamer Erie.....	1 00	Damage to Lock Gate No. 8.
8	Barge Canadien.....	1 00	do do No. 6.
9	Barge Bruno.....	15 50	do do Nos. 2 and 3.
9	Barge Harvest.....	1 00	do Bridge No. 7.
9	Steamer Blin.....	19 00	do Lock No. 6.
16	Barge No. 8.....	2 00	do do No. 7.
20	Barge Hunterstowna.....	1 00	do Lock Gate No. 6.
22	Barge Consort.....	1 00	do do No. 5.
22	Barge Zof.....	1 00	do Bridge No. 1.
22	Barge Nero.....	1 00	do do
26	Steamer Erie.....	7 00	do Lock No. 3.
26	Barge Alice.....	1 50	do do
Dec. 1	Barge St. Joseph.....	2 00	do Lock No. 4.
1865.			
April 28	Boat Walter Scott.....	1 50	do do
May 2	Barge St. Joseph.....	9 50	do do
11	Barge Major.....	2 50	do Lock No. 5.
20	Steamer Advance.....	2 00	do Fender Lock No. 2.
June 10	Barge Titl.....	1 00	do Lock No. 5.
17	Steamer Swan.....	4 00	do do No. 3.
May and June.	Collected.....	23 00	for damages done in 1864.
		\$231 96	
Wharfage dues.....		34 93	
Total.....		\$266 89	

(Signed,)

C. PRÉFONTAINE,  
Supt. Chambly Canal.

CHAMBLY CANAL OFFICE,  
30th June, 1865.

## ST. OURS LOCK AND DAM.

STATEMENT of Fines and Damages collected by order of the Superintendent,  
from 1st July, 1864, to 30th June, 1865.

Date.	Name of Vessel.	Master or Owner.	Amount	Remarks.
1864.			\$ cts.	
Aug. 19...	Barge Jeannette.....	Augil.....	0 75	Damage to lower pier.
Oct. 12...	Str. Ignatius Tyler.....	Truman .....	1 00	" lock.
20...	do	do .....	5 00	
23...	Barge Hicks.....	.....	0 75	" pier.
27...	.....	Louis Richard.....	1 00	Fined for losing tools.
28...	.....	Joseph Lefebvre.....	2 00	" using abusive language in lock.
1865.				
April 29...	Barge Matilda .....	M. Lavallée.....	1 50	Damage to railing, &c., of lock.
June 11...	Barge Forth.....	Dickinson.....	1 20	" lower pier.
			\$13 20	

(Signed,)

LEVI LARUE,  
*Superintendent.*

ST. OURS LOCK,  
1st July, 1865.

## CARILLON AND GRENVILLE CANALS.

STATEMENT of Fines and Damages collected on the Carillon and Grenville Canals,  
by order of the Superintendent, from 1st July, 1864, to 30th June, 1865.

Date.	Name of Vessel.	Master or Owner.	Amount.	Remarks.
1864.			\$ cts.	
July 6...	Str. St. Andrews.....	M. Valade .....	10 00	Damage to Gate Lock 5.
16...	Str. John Redpath.....	E. Monarque.....	5 00	Violation of Canal Regulations.
			\$15 00	

(Signed,)

JOHN THOMPSON,  
*Superintendent.*

CARILLON, 1st July, 1865.

## APPENDIX No. 4.

REPORT BY D. A. McDONELL, SUPERINTENDENT,  
ON THE CORNWALL CANAL.

F. BRAUN, Esquire,  
Sec'y Dept. Public Works, Quebec.

CORNWALL, July 3rd, 1865.

SIR,—Agreeable to instructions conveyed in your letter No. 54,221, I beg respectfully to report on the works and matters connected with the Cornwall Canal, from the 30th June, 1864, to the 1st July, 1865, in the order following, viz:—

The navigation from the period first mentioned, continued without interruption until the 10th December, the end of the season, when it was closed by the severity of the weather.

At that date the services of the Lock-keepers' assistants were dispensed with, and steps taken to prevent injuries to the exposed portions of the work, from ice and high water, during the winter and spring.

The Lock-masters, being employed by the year, continued as usual to give their attention to regulating the water in the different reaches during winter. This precaution is always necessary at Locks No. 17 and 20, owing to the irregular quantity of water used by the mills situated in the vicinity of these locks.

The repairs in progress at the close of navigation were proceeded with: and arrangements made for such other works, as were necessary and authorized, for operations of the present season.

The spring being open and mild, the Lock-men were put on at the 1st of April, and the Canal emptied on the 7th of that month, for the purpose of cleaning out the locks, removing bars from the channel and effecting the necessary repairs to the lock-gates, valves and waste-weirs.

On the 26th April, the water was again let in, and navigation resumed. Since that time all the works have been maintained in an efficient state, and there is every probability of their continuing so for the season, unless some unforeseen casualty occurs.

The principal works undertaken within the period mentioned, consist in raising some of the embankments which have settled to an extent that endangered the safety of navigation; raising and repairing of slope walls, especially at places where settlement of the banks has occurred; cleaning out culverts, side ditches and drains; repairs to lock-gates, pointing lock-walls, &c.

It is desirable that the raising of some of the heavy embankments along the line of the canal should be continued for the next few months, so as to guard against the effects of fall rains. About 200 cords of stone should also be provided for the protection of the banks and repairs of slope-walls.

These, together with a few general repairs comprise the works, absolutely required to be done within the next month.

It is, however, important that the wharf at the upper entrance of the canal, which is now in a very dilapidated condition, should be thoroughly repaired and part of it rebuilt.

This wharf is situated immediately at the head of the rapids and considerable dependence has to be placed upon it, by those in charge of vessels entering the canal.

In its present state it is not only unsafe, but has a tendency to mislead those who have occasion to moor vessels to it as a means of safety.

It is therefore advisable that this work should be placed under contract, as early as circumstances will admit—the estimated cost of which is \$5,238.00.

The superstructure of the piers at the outlet of the canal, and the wharf adjoining the Town of Cornwall, should (as previously stated) also be rebuilt, the probable cost of which would be about \$1,500.00.

Aggregate of pay lists and accounts for repairs, certified from 1st December, 1861, to 30th June, 1865, \$1,514.92.

Aggregate of pay lists and accounts of staff, certified from 1st December, 1864, to 30th June, 1865, \$4,459.82.

Fines and damages collected, from 1st July, 1864, to 30th June, 1865, amount to \$47.00.

I have the honor to be, sir,  
Your obedient servant,  
(Signed,) D. A. McDONELL,  
*Superintendent.*

## APPENDIX No. 5.

### REPORT BY ISAAC N. ROSE, SUPERINTENDENT, ON THE WILLIAMSBURG, RAPIDE PLAT AND GALOPS CANALS.

1st July, 1865.

SIR,—In compliance with instructions contained in your letter, No. 54,223, dated 27th May, 1865, I beg to furnish you with my annual report, as follows:—

The Williamsburg Canals were kept in good working order without any unusual outlay from 1st July, 1864, to 10th December, 1864, when they were closed on account of the ice; they were again opened on the 28th day of April, 1865, and continued in working order until the 30th June, 1865, not a single accident or detention to any vessel passing through having occurred during that period.

The works in progress may be classed under the head of ordinary repairs, as follows:—The lining of the canal banks with stone. The force employed consisted of two scows, a foreman and five laborers on each, with a horse for towing. One scow was employed on the “Rapide du Plat,” and the other on the “Galops” Canal.

The scow employed on the Rapide Plat Canal was worked during the months of July, August, September, and up to the 31st October.

The one employed on the “Galops” Canal, was worked from the 1st July, 1864, to the 30th November, 1864, and from 1st May, 1865, to 30th June, 1865. The quantity of work done on the “Rapide Plat” Canal is sixty rods, stoned and filled in with earth on the inner bank, also repairs to the ditches, water-courses and some portions of the outer bank.

On the “Galops” Canal, the work done was principally on the outer bank. One hundred and seventy-five rods were lined with stone above high-water mark, and on the inside thirty rods of rip-rap wall was made, and the bank raised with earth in several places. The work was highly necessary, owing to the unusual high water for the past three years, having washed away large portions of the earth in many places; so as to endanger the safety of the canal. This work was not done when the canals were made, and I think it is important that it should be continued until completion. Repairs have also been done to the wharves, bridges, lock-gates, snubbing-posts, boats, scows, surface ditches, and sluices, in connection with the several canals.

The booming in Point Iroquois Canal has caused considerable outlay in consequence of its being worn out and unfit for use. These booms were built to prevent vessels from striking against points of rocks projecting from the sides of the canal. At the time of their construction the canal had its upper outlet into the River St. Lawrence, but since, a junction has been formed with the “Galops” Canal, and I believe that the banks are sufficiently secure to permit the water to be drawn off with safety, when these obstructions might be removed. Were this done the booms might be dispensed with altogether, or be made much narrower than at present.

Timber has been purchased and delivered for the repairs of the south pier, upper entrance “Galops” Canal, but the water at this season of the year being so much higher than in the autumn, I have thought it advisable to delay that work until then; when it can be done much cheaper and to better advantage. The lower end of the pier, at Farran’s Point Canal, will be repaired at the same time.

The buoy-service and land-marks have been attended to, and are now in thorough order from Dickinson’s Landing to Prescottt.

The bridges over Lock No. 26, “Galops” Canal, and No. 23, “Rapide Plat”

Canal require to be replaced, the want of them being much felt by vessels navigating the canals, and by the inhabitants in the immediate vicinity.

The estimated cost of these two bridges is \$2,500.

On the following page is a statement of expenditure for repairs, &c., during one year, leaving a balance of \$1,298.51 unexpended, to be reserved for works now in progress.

In respectfully submitting the above,

I have the honor to be, sir,

Your obedient servant,

(Signed,)

ISAAC N. ROSE,

Supt. *Williamsburg Canals.*

F. BRAUN, Esquire,  
Sec'y Public Works, Quebec.

## APPENDIX No. 6.

REPORT BY S. D. WOODRUFF, SUPERINTENDENT,

ON THE WELLAND CANAL.

WELLAND CANAL OFFICE,

St. Catherines, July 10th, 1865.

SIR,—I have the honor, in compliance with your letter of instruction, No. 54,222, to submit my annual report of the works under my charge, during the fiscal year, viz., from the 1st July to the 30th June last.

The canal was opened to the trade on the 17th April, of the current year; since which period its navigation has been uninterrupted. For several days subsequent to the opening of the canal, lake navigation was impeded by large bodies of ice blocking up the harbour at Port Colborne. The canal was closed with frost on the 11th of December last. During the last two days of it, the frost was so severe, that it was only by the expensive means of using steam tugs, in breaking up the ice, that vessels were enabled to be passed through.

During this period the interruptions in the navigation have been four, causing a delay altogether of four days. The first accident occurred on the 28th of July, by the propeller *Akron*, carrying away the gates of Lock No. 21; the repairs were made in 48 hours. On the 5th of August, the propeller *Bristol* ran into the head-gates of the lock at Colborne, causing a suspension of 12 hours. On the 27th of September, the schooner *Ellie* sunk in the canal at Hurt's bridge, from injuries received in consequence of striking against the quarry at the side of the canal, thereby causing 24 hours, interruption, and on the 28th of November, a gate at Lock No. 17, failed from long use.

The repairs of these casualties were promptly made, and the cost of those that were occasioned by vessels, was collected from them. The canal has otherwise been efficiently maintained.

### CONSTRUCTION.

The principal work executed under this head, has been the deepening of the canal to meet the Lake Erie level, embracing sections Nos. 15 to 26 inclusive, extending from the Lock at Allanburg, to the rock-cut at Rainey's Bend, a distance of 12 miles. All of the work embraced in this contract is completed, except the removal of a small strip of rock, of about 1,000 cubic yards upon section No. 26. It is proposed to remove this rock next winter, by putting in dams and unwatering the space, &c., &c.

In the deep cut sections, Nos. 15 and 16, three small slides have taken place, but these do not in any way affect the navigation, as their extent does not exceed 5,000 or 6,000 cubic yards. It is probable that on the water being lowered to the lake level, that further slides will occur; but with so large a prism of canal, it is not probable that they will be so great as to cause an interruption in the navigation. When commencing the enlargement it was anticipated that such contingencies might arise. Should slides occur, they can be easily removed with the aid of a steam excavator.

The final estimate of the work done is in progress, and will be completed as soon as

possible, the cost of which, and the removal of the rock above alluded to, will be covered by the sum authorized in your letter, No. 54,106, for the completion of the work, viz., \$59,782.

The work of opening the channel, below the lock at Port Robinson, to the River Welland, has been completed for the sum authorized, viz., \$2,500.

Previous to the commencement of this work, much delay ensued from boats grounding in the channel.

#### REPAIRS.

Under the head of repairs, are embraced the works of the maintenance of the canal required in consequence of the dilapidation of its structures, or the replacing of those destroyed by casualties.

The repairs of the damages occasioned by storm to the piers at Ports Colborne and Maitland, have been completed. These repairs have been confined to the portions so damaged; other parts of them are in such a dilapidated state, that further repairs may shortly be required.

Many of the repairs upon the lock-gates, bridges, &c., have been required in consequence of their being damaged by the collision of vessels.

For these repairs \$2,613.98 have been collected from vessels occasioning them.

By the spring-floods the water rose to a much greater height than ever before; at Dunnville it carried away a portion of the bridge over Sulphur Creek, and washed out the embankments of the dam. The safety of the Toll-bridge was also jeopardized, the public travel much inconvenienced, and the streets of Dunnville flooded for a considerable time.

The current occasioned by the flood in the Grand River, was so great as to cause an undermining and settlement in a portion of the east pier at Port Maitland; but as the repairs of this damage have been authorized, it is very probable, that no further injury will be sustained, otherwise the storms would carry away the pier-work so damaged.

Previous to the opening of the canal last spring, the repairs authorized upon the lock-gates, bridges, removal of bars from the bottom of the canal, &c., were completed; and during the navigation attention has been directed to the maintenance of the works and the repairs of casualties. The cost of the repairs and renewal of lock-gates, bridges, and maintenance of the canal banks, repairs of the piers at Ports Colborne and Maitland, removal of bars from the bottom of the canal, and the repairs of casualties, &c., during the fiscal year, amounts to \$24,304.94. There has been collected from vessels, &c., for repairs of casualties and committing breaches of the Canal Regulations, \$3,080.98.

After the opening of the canal this spring, the water stood so low in the harbour at Port Colborne, that vessels were constantly grounding, thereby occasioning much delay. It has been deepened, and a number of dangerous rocks removed out of the channel, so that no further delays will be occasioned from such impediments.

Previous to the water being lowered to the Lake Erie level, the following works are necessary, viz:—

Deepening the channel from the lock, at Port Robinson, to the main Canal.....	\$ 2,800 00
Waste-weir and channel thereto, at the junction, to regulate the water in the feeder.....	9,800 00
Securing embankment along the old canal from the aqueduct to the Junction to maintain the water in the feeder.....	2,000 00
Superintendence and contingencies .....	2,400 00
	<hr/>
	\$17,000 00

On the Lake Erie level being brought into use, the following works will be required, viz:—

Boom timbers in the rock-out for the protection of vessels.....	\$ 6,000 00
Facing the slopes of the banks with stone and gravel to protect them from wash .....	7,625 00
Securing towing-path, at the float bridges, above and below Port Robinson.....	1,600 00



Removal of loose stone from the rock-cut, the side walls having fallen in .....	2,000 00
Superintendence and contingencies.....	2,775 00
	\$20,000 00

It is desirable that the estimates of \$17,000 be early authorized, as the building of the waste-weir will require several months; and these works must, under any circumstances, be executed previous to the lake water being admitted.

An office should be provided for the accommodation of the Collector at Port Robinson. It is now in an insecure wooden building, in which there are other tenants, greatly increasing the risk of the papers being destroyed by fire: a suitable building of brick may be provided for the sum of \$1,500.

The annual rental of the water, power and other property leased  
on the canal is..... \$ 9,039 10

The amount collected during the fiscal year is..... 7,653 55

The amount remaining due on the 1st July, is..... 12,679 71

A portion of the large amount shewn due, and in arrears, has accumulated since the 30th ultimo, and will be shortly paid up; other portions of them cannot be collected in consequence of the abandonment of the privileges, the erections being situate upon private property, and the lessees bankrupt, as well as the destruction of premises by fire. The remainder may be collected by enforcing payments through legal process.

*Schedule No. 1*, appended, shews the several holdings, &c.

Considerable payments have been made upon the lands sold. The amount collected during the fiscal year is \$11,541.24; of the sales, the only amount remaining due is \$17,247.20 from the municipality of the County of Welland.

*Schedule, No. 2*, appended, shews the sales, payments, &c.

*Schedule No. 3*, appended, gives a list of the vessels, &c., upon which penalties have been imposed, for committing breaches of the Canal Regulations. The amount collected is \$3,080.98.

All of which is respectfully submitted.

I have the honor to be, sir,

Your obedient servant,

(Signed,)

S. D. WOODRUFF,

Superintendent, &c., Welland Canal.

F. BRAUN, Esquire,

Sec'y. of Public Works, Quebec.

## APPENDIX No. 7.

REPORT BY JAMES D. SLATER, SUPERINTENDENT,

ON THE RIDEAU CANAL.

OTTAWA, 9th July, 1865.

SIR,—In accordance with instructions contained in your letter No. 54,220, and also with the rules and regulations issued by the Hon. the Commissioner, dated 23rd May last, Sec. XVI., I beg respectfully to submit the Annual Report of the state of the works under my charge.

The Rideau Canal was opened for navigation this season, on the 24th of April. This is earlier than usual, but as a rule it is not doing proper justice to the works, to open the navigation at too early a date, as the masonry requires to be repaired more or less every year, and the pointing and grouting is injured if the frost is not out of the masonry.

No interruption to the navigation has occurred during the past season, or since the 1st of September, 1862, with the exception of three days at Jones' Falls, viz., from the 19th to 21st June. This was caused by the lower sill of the detached lock being blown and raised nine inches. A dam had to be put in and the water drawn off. The forwarders had timely notice of the repairs, and they made such arrangements as caused them little inconvenience.

The only work that comes under the head of construction or entirely new work, is the building of two piers and a retaining boom at the head of the bay above Hogsback. This boom collects the flood-wood, and prevents it from jamming in the sluices of the bulk-head at Hogsback.

There are seventy-five pairs of lock-gates on this canal. The average duration of a pair of gates is about fifteen years, thus requiring the renewal of five pairs every year. Eight pairs were reconstructed last winter; six pairs by contract and two pairs that were intended to be repaired, but were found to be in such a bad state that it was not safe to trust them. These gates cost about \$800 each pair, a saving could be made by providing oak timber the year previous and the gates could be framed leisurely during the summer and would also be on hand in case the old ones should fail or an accident occur.

The mill-owners on the Rideau require a constant and abundant supply of water to carry on their operations, and applications have been made to Government to build dams on some of the lakes to store the water in the spring. This would, as a matter of course, be a very desirable improvement; the objection to it would be the claims for damages that would arise and the difficulty of maintaining the dams and regulating the water at remote places. At the other end of the canal the Messrs. Chaffeys are willing to build and maintain the dams at their own cost and regulate the water if they were invested with the powers of Government to settle with people who may have claims for damages.

At this end of the canal an important improvement has been effected in the matter of water supply. The outlet of Rideau Lake has been deepened by dredging, so that on an emergency the Rideau Lake, which is 21 miles in length and five or six miles wide in one place, can be drawn upon for one foot in depth of water over the whole surface.

The dredge has also removed a troublesome bar at a sharp bend in the canal immediately below Lower Brewers' Lock. There is also a considerable quantity of sunken flood-wood in the cut below Lower Brewers that ought to be removed.

The first place where the water fails is at Kilmarnock, about half way between Mirriekville and Smith's Falls. The lift of the lock at this place is seldom, more than two feet. On the easterly side of the station, one and one-half mile distance there is a low piece of land of considerable extent called the "Break Ground" through which a great portion of the river finds its way. The Government owns most of these lands. The ordnance department having paid for them as drowned lands or otherwise acquired them, and put dams in and expended considerable money to stop the water from flowing that way; but the inhabitants of the neighbourhood open the channel again as often as it is closed, to drain the lands, as they are valuable as meadows or pasture lands. No one can be got who will give information of the offenders. The cut above the lock which is in rock, and not of great extent, might be deepened; but it would be expensive to keep the water off while the work was being done.

The swing bridges at Kingston Mills and at Upper Brewers are in a bad state of repair, and will have to be rebuilt during the next season. They are too far gone for further repairs. By making use of the old irons they may be renewed for about \$1,000 each.

The swing-bridges at Mirriekville, Kilmarnock and Burritts, will last some time longer with repairs and new turn-tables. The present ones are worn out.

The Sappers' Bridge at Ottawa has been hitherto kept in repair by the Government. It now requires to be covered with broken stone; but the traffic over this bridge is so great, that the soft limestone of Ottawa soon becomes pulverized into dust or mud. It would be more economical as well as more pleasant if some harder material could be got, or to have it nicely paved with blocks of stone.

An extra man has to be employed to keep the entrance lock at Ottawa free of refuse from the saw-mills at the Chaudière.

Frequent complaints are made of the unsightly state of the by-wash running from the canal basin into the Rideau River through Lower Town. It is made a depository for filth of various descriptions. We flush it out occasionally with water and do the best we can. The corporation might do something towards keeping it clean, but then the question of ownership comes up.

More accommodation for the traffic, especially for landing fire-wood, and shipping sawn lumber is required. A plan and estimate will shortly be submitted for the purpose of

affording more wharfage room, and for deepening the canal basin. Some power will have to be given to the collector to charge a rent for wharfage grounds, when they are occupied by merchandize or lumber more than twenty-four hours.

There is no necessity on this canal for Sunday traffic, nearly all the respectable forwarders lay up on Sundays; an exception might be made in case of any detention to the passenger steamers; these might be allowed to finish their trips on Sunday, if they could show that they had started in proper time to arrive at their destination before Sunday.

Under the head of ordinary repairs is included cement furnished to all the stations, (the pointing and grouting is done by the lock-masters and lock-laborers,) and numerous small repairs to gates, sluices, coping blocks, gratings over man-holes and to the machinery generally. The more important of these repairs may be mentioned more in detail as follows:

At Ottawa several old gates have had new rails put in, and strengthening bars put on. New sheds for tools, &c., gravelling lock walls, repairs to old by-wash, and lock-laborers quarters.

At Hartwell's the dam at the head of the deep cut has been repaired and faced with stone.

At Long Island the sluices and apron of the bulk-head of the dam at the foot of the Island, has been repaired thoroughly, and new flooring put in.

At Burritt's, portions of the embankment have been faced with stone, and 100 cubic yards have been provided to repair any damages that may be caused by the washing of the banks.

The upper slope of the wooden dam across the river has been repaired and re-sheeted.

At Clow's the gates were hoisted to repair the machinery. New foot-boards were put on, &c.

At Merricksville considerable repairs were made. A coffer-dam was put in at the head of the cut, which was cleaned out and the retaining walls repaired; the wooden dam across the river was newly sheeted and repaired; the wood-work of the upper lock-gates was renewed; the other gates were more or less repaired, two pairs received several new bars and the posts were spliced.

At Maitland the upper gates received new rails and the heel and mitre posts were spliced and all the gates hoisted to repair machinery. The swing bridge was also repaired.

At Edmonds the old by-wash had failed—the masonry and apron had both given way; taking down the masonry and rebuilding would be costly, and could not be done easily and maintain navigation; so that a wooden bulk-head has been constructed inside the masonry which will be supported thereby. This work required a coffer-dam, 75 yards of broken stone and gravel has been provided to repair the dam.

At Smith's Falls, the swing-bridge was thoroughly repaired and the approaches improved. A temporary bridge was made and the travel diverted while the work was done. A new turning-table and machinery were provided. A new store and tool-house was made and considerable repairs were done to lock-laborers' quarters. The water or lower gates were lifted to repair machinery.

At Poonamalee Narrows, Newboro', Chaffey's and Davis' Stations, gates were hoisted and general repairs were made.

At Jones' Falls four sets of flanges were bushed, and four new sluice-frames put in, the lower lock was pumped out to repair sill, &c.

At Brewers' upper mills, one pair of lock-gates was replaced by new ones, the other gates and swing bridge had received repairs.

At Brewers' lower mills, the gates received four new swing-bars: the lower gate a tamarac knee: 100 yards of gravel and broken stone to repair dam, &c.

At Kingston mills, a new bulkhead has been constructed. Three new sluice frames with irons complete were put in, and considerable repairs were done to the swing-bridge, lock-gates and machinery.

I have the honor to be, sir,

Your obedient servant,

JAMES D. SLATER,

*Supt. Rideau Canal.*

## APPENDIX No. 8.

REPORT BY E. D. ASHE, COMMANDER, R.N.,

ON THE COST OF DETERMINING THE LATITUDE AND LONGITUDE OF CERTAIN LIGHT HOUSES.

OBSERVATORY, QUEBEC, May 5, 1865.

T. TRUDEAU, Esquire, &c., &c., &c.

SIR,—In accordance with your request, I have the honor to express my opinion with regard to the position of the several "Light-houses" in the River St. Lawrence being determined.

As an illustration of the importance attached to obtaining the exact position of a light-house, I may state that the distinguished Surveyor, Captain Orlebar, R.N., on seeing the accurate results of fixing positions by means of the electric telegraph, wrote to the Hydrographer of the Admiralty and recommended that I should determine the position of Cape Race and Cape Ray by the same method; as the safety of the navigation of inward bound ships, depends so much on the true latitude and longitude of those lights being known.

The death of Admiral Washington and the retirement of Captain Orlebar from the survey, will prevent their views being carried out. But coming more immediately to the question of getting the latitude and longitude of some 20 light-houses in the River St. Lawrence, opposite those names in the Admiralty List of Lights, &c., &c., there are blanks, I should recommend that they be determined as soon as possible, not that the safety of the navigation of a river depends upon the latitude and longitude of its Light-houses being known, but that it is imperative in a country extending over so many degrees of longitude, that certain fixed points should be well ascertained.

### MODE OF PROCEEDING.

The latitude to be obtained by altitudes of the Pole Star, meridian altitude of stars, and also by observing stars with a transit instrument in the prima vertical. The last method would insure the greatest accuracy.

The longitude is a much more difficult question, and if obtained by astronomical observations alone, would require much time. If determined by Moon, culminating stars, taking the average number of fine nights, a whole lunation would be required to insure satisfactory results. But as several light-houses are in sight from positions that can be connected by telegraph, I should recommend that those positions should first be accurately fixed, and then connecting the light houses by means of triangulation.

Those light-houses that cannot be seen from any telegraph station, must be connected by triangulation to some point the position of which is well determined.

I append the description of getting the difference of longitude between Quebec and Chicago, to illustrate the mode of using the telegraph for that purpose.

### EXPENSES.

Taking 18 days as the average including travelling, for the determining the latitude and longitude of each station, and that my staff would only consist of an assistant surveyor with such extra help as might occasionally be required, and also, supposing that I be remunerated upon the same scale as I was in determining the longitude for Sir William Logan, then the probable expenses for each station will be as follows:—

Superintendent.....	\$120 00
Assistant @ \$2.50 a day.....	45 00
Board and lodging @ \$1.50.....	54 00
Travelling expenses.....	10 00
Erecting temporary observatory.....	12 00
Incidental expenses.....	6 00

Total for each station.....\$247 00

I should be able to undertake this year the three light-houses that are below Quebec, and in two years to complete the remainder.

Expenses of three light-houses in 1865.....	\$ 741 00
Expenses of eight light-houses in 1866.....	1976 00
Expenses of nine light-houses in 1867.....	2223 00
	\$4940 00
Twenty light-houses.....	\$4940 00

E. D. ASHE,  
Commander, R.N.

## APPENDIX No. 9.

### REPORT BY H. R. SYMMES, SUPERINTENDENT,

#### ON THE STATE OF THE ST. MAURICE WORKS.

(No. 75,993.)

SUPERINTENDENT'S OFFICE, ST. MAURICE WORKS,  
Three Rivers, July 18, 1865.

SIR,—In compliance with your instructions of the 25th of May last, I have the honor to submit my annual Report upon the state of the St. Maurice Works, for the fiscal year ending 30th June, 1865.

#### REPAIRS.

During the year ending 30th June, 1865, the expenditure for repairs certified and paid, amounts to the sum of \$4,380.58. The following is a summary of the work done:—

*At Booms at mouth of River.*—Sundry repairs to 12,181 feet of boom, two tamarac posts for gate heads, five mooring posts in piers; raising four piers, and a new store-house on Isle St. Christophe.

*At Showinegan.*—Sundry repairs to 18,000 feet of boom, 350 feet new boom, five anchor piers, renewing covering of dam, 50 feet long, repairs to piers Nos. 1, 2, 3, 4 and 5, one new mooring post, raising pier No. 8, and side pier at foot of Falls, 400 feet long. Repairs to two scows and six buoys.

*At Grande Mere.*—Repairs to piers Nos. 1, 2 and 3, and one at Penobscot Skiff.

*At La Tuque*—One anchor pier and material prepared for three more, two mooring piers at mouth of the River Bastonais, and one large scow. Preparations are now being made to proceed with the repairs authorised by your letter of the 4th instant (No. 54,689), as soon as the booms are clear of timber.

*Staff and Working Expenses.*—The expenditure for “staff and working expenses” for the same period of time amounts to the sum of \$7,505.74, which is \$557.40 more than the expenditure of the preceding year. This extra outlay is to be attributed to several causes which were unavoidable: 1st, to the fact that the ice in the river broke up, and spring operations commenced nearly two weeks earlier this year than usual; 2nd, to the increased quantity of lumber that came down this year; 3rd, to the rise in the price of labour; and 4th, to the extreme high water.

#### GENERAL REMARKS.

Considering the height of the water, the booms have been this year very successfully operated. I would, however, direct the notice of the Honorable the Commissioner to the fact, that in consequence of the ice remaining so long every spring in Flamendou's Bay, above La Tuque, the booms at the latter place cannot be extended for nearly two weeks after the river is open, thereby rendering them nearly useless for the purpose for which they were constructed. The past spring, the Vermilion, as well as other timber, was detained nearly two weeks waiting for the extension of this boom. In the meantime, the water had so

fallen, that the lumber was got out with great difficulty, and in ordinary seasons it would not have been got out at all. The remedy for this difficulty is by booming in the ice as mentioned in my Report of December 6th, 1864. I consider it essential to the prosperity of the trade, and of the works upon the River St. Maurice, that that Report should be adopted in full.

I beg also to bring before the notice of the Department, the fact, that in the eddies, caused by the numerous piers at the mouth of the river, the sand has accumulated to such an extent, as, in low water, to cause much difficulty in getting the lumber away from the booms. This difficulty can only be obviated by taking the sand away at high water with dredging boats, or by removing the booms further up the river. The adoption of the latter plan, although somewhat expensive, would be of great advantage to the lumber trade.

Annexed is a description of the Public Works on the River St. Maurice, shewing their extent.

I have the honor to be sir,

Your obedient servant,  
(Signed,)

H. R. SYMMES,  
Superintendent.

To F. Braün, Esq., Secretary,  
Department of Public Works, Quebec.

SUPERINTENDENT'S OFFICE, ST. MAURICE WORKS,  
Three Rivers, July 18th, 1865.

#### DESCRIPTION OF THE ST. MAURICE WORKS, SHEWING THEIR EXTENT AND POSITION.

##### *Station No. 1—Mouth of the River.*

The improvements at the mouth of the River St. Maurice consist of 12,181 lineal feet of glance and retaining booms, forty-six mooring piers, and four anchor piers. This large number of piers are necessary in consequence of the rapidity of the current. They are made sloping upon the upper side, so as to allow the lumber to form "jams" upon them, as without such an arrangement no boom could be made to hold.

The booms are from twelve to twenty inches in depth, and from one to eight feet in width; average width about three feet. The mooring piers are, upon an average, about twenty-five feet in height, and twenty-five feet square at the base; the anchor piers eight feet high and fifteen feet square. These dimensions will apply to the booms and piers at the several stations hereinafter detailed. At this station from fifteen to twenty men are employed in putting out the booms in the spring, and from five to eight during the running of the timber.

##### GRÈS FALLS.

##### *Station No. 2—Seventeen miles from mouth.*

The works at this station consist of a side pier, about 200 feet in length, six anchor piers, a mooring pier, and about 6,000 feet of glance boom, intended simply to conduct the lumber into the proper channel of the Falls. There is also here an unfinished crib-slide which was abandoned nearly eight years ago. This station, after the booms are out, employs two men for about two months in the spring. Height of Fall is forty-four feet.

##### SHAWINEGAN FALLS.

##### *Station No. 3—Twenty-two miles from mouth.*

This is one of the most important stations upon the river, and the most difficult to manage. The improvements consist of a single-stick slide 600 feet in length, 18 mooring piers, 1,075 feet of dams, 33 anchor piers, and 18,000 feet of glance and retaining booms. It employs from fifteen to twenty men while the lumber is passing. Height of Falls, 150 feet.

##### GRANDE MÈRE FALLS.

##### *Station No. 4—Thirty miles from mouth.*

At this station there is a single-stick slide 400 feet in length, four side piers, 500 feet, ten anchor piers, two mooring piers, and 3,500 feet of glance boom. It employs ten

men in putting out the booms, and from two to six during the passing of timber. Height of Fall, forty feet.

LITTLE PILES FALLS.

*Station No. 5.—Thirty-three miles from mouth.*

At this place there is only a side dam, 250 feet long, to conduct the timber in the right channel. No men employed. Height of Fall, six feet.

LATUQUE FALLS.

*Station No. 6—One hundred miles from mouth.*

The improvements at this, the most remote station on the river, consist of four mooring piers, eleven anchor piers, 1,291 feet of side dams and piers, and 3,500 feet of retaining booms. It requires ten men to extend the booms, after which four men, exclusive of the station-master, are retained until the timber is past. Height of Falls about fifty feet. The height of the several Falls and their distances from the mouth of the river, as herein given, is only approximate.

(Signed,)

HENRY R. SYMMES,

Superintendent.

ABSTRACT shewing the extent, position, &c., of the St. Maurice Works.

STATIONS.	Length of Boom in lineal feet.	Mooring Piers, number.	Average width of Boom.	Average size of Mooring Piers and Dams.		Slides, length.	Anchor Piers, number.	Side-piers & Dams, length.	Distance from mouth of River.	Height of Falls.	Average number of men employed to put out Booms.	Average number of men required during running season.
	1	2	3	Feet	Base Feet	5	6	7	8	9	10	11
Mouth of River.....	12181	46	3	25	25	.....	4	.....	.....	.....	13	6
Grés Falls.....	6000	1	3	25	25	.....	6	200	17	44	10	2
Shawinegan Falls.....	18000	18	3	25	25	600	33	1075	22	150	20	15
Grande Mère.....	3500	2	3	25	25	400	10	500	30	40	10	3
Little Piles.....	.....	.....	.....	25	25	.....	.....	250	33	6	.....	.....
Latuque.....	3500	4	3	25	25	.....	11	1291	100	50	10	4
Total.....	43181	71	.....	.....	.....	1000	64	3316	.....	.....	68	30

(Signed,)

HENRY R. SYMMES,

Superintendent.

THREE RIVERS, July 18th, 1865.

## APPENDIX No. 10.

### REPORT OF HORACE MERRILL, SUPERINTENDENT,

#### ON THE OTTAWA RIVER WORKS.

OTTAWA RIVER WORKS, SUPERINTENDENT'S OFFICE,

Ottawa, 4th July, 1865.

F. BRAUN, Esq.,  
Secretary of Public Works, Quebec.

SIR,—I have the honor to acknowledge the receipt of your communication, No. 54,219, dated 27th May last, requesting me to send to the Department, as early as possible after the 30th June, my Report on the Ottawa River Works, for the year ending at that date.

Having been authorized by the Honorable the Commissioner, since the date of my last Report, to proceed with certain works estimated by me on the 14th day of January last, I have to report that repairs were executed at the following stations, viz: Chaudière Slide, Union Suspension Bridge, Chats, Portage du Fort, Mountain and Calumet Slides. Repairs were also executed at the dams and boom on the Du Moine River, at the works at Crooked Chute, and Half-mile Rapid on the north branch of the Petewawa River, and at the dams and slides on the south branch of the same.

The Madawaska River Works, from Chain Rapids to the retaining-boom in the Chats Lake, which were shattered and in many instances swept away by the spring floods of 1864, were restored and thoroughly overhauled, enlarged and strengthened.

At the Gatineau Boom Station, a new canal was excavated from the river to the pond, and the River Works were so enlarged and strengthened as to afford additional facilities and accommodation to the growing lumber trade of the Gatineau.

These extensive repairs and improvements were all completed in due time, and the works were available for the passage of timber on the opening of navigation.

The "pitch" of water in the Ottawa and its tributaries has, from the time of the breaking up of the ice in the spring to this date, been most favorable for the operations of the raftsmen, and from all I can learn, the great bulk of the timber, even from the most remote limits on the Ottawa Valley, will arrive at its destination much earlier than usual.

The Works have up to this date been in successful operation, and I am glad to say that very little damage has been done to them this season, either by the shoving of ice, or jamming of timber, but as the improvements have of late years been very much extended, and some of them have been in existence for quite a number of years, it will necessarily follow that, after the timber has passed, a considerable amount will be required for repairs and maintenance. In a letter addressed to you on the first day of March last, I stated, approximately, that it would cost about \$8,000 to prepare the River Works for the timber running season of 1866.

The Works under my charge are not exposed to so much danger since the issuing of the Regulations for the protection of "the Provincial Slides," lately established by an Order in Council, as printed copies of these Regulations are now in the hands of the officials, at the different stations, with instructions to enforce their observance, I am confident that, in future, much of the inconvenience and delay caused by the reckless driving of large quantities of timber in past years will be obviated.

As the operations of the lumbermen are gradually being extended up the Ottawa River and its tributaries, the importance of the Government Works for facilitating the descent of timber becomes more apparent, and it is a fact that timber cut on some of the upper streams, which a few years ago could not have been taken to market in less than two running seasons, now reaches Quebec within a few months after it has been manufactured. And when the resources of that vast timber region bordering on Lake Temiscaming are fully developed, I am of opinion that the running of the timber can be further improved at no very great expense, by the construction of dams across the outlets of certain great lakes, near the head waters of the Ottawa, for the purpose of regulating and controlling the spring floods.



The Public Works under my charge may be known and described as follows:—

AT CARILLON STATION,

Which is 68 miles below this city, the rapids have a fall of about five feet, and an improvement in the running of square timber, sawed lumber and saw-logs, is effected by pier-dams, the aggregate length of which is 3,000 feet.

SOUTH CHAUDIÈRE STATION (CITY OF OTTAWA).

This may be said to be the most important station on the Ottawa, as, in addition to a very large proportion of square timber from the main river and its feeders, which passes the Works, upwards of 200,000 saw-logs are annually passed into the retaining boom at the head of the great Chaudière Falls for the use of the extensive saw-mills in the neighborhood.

The following are the dimensions of the improvements:—

Length of guide booms for square timber, supported by 6 piers...	3,234 feet.
do retaining do saw-logs, do 7 piers...	4,389 "
do 1st Slide.....	150 "
do 2nd do .....	380 "
do 3rd do .....	278 "
do 4th do .....	66 "
do main hydraulic dam from head of Chaudière Island to Russell Island.....	1,254 "
do continuation of do from Russell Island to Mary Island	1,221 "
do do do from Mary Island to Amanda Island	132 "
do entrance bulkhead and pier dam for slide .....	148 "
do stiff booms at entrance to 1st Slide.....	957 "
do do from foot of 1st to head of 2nd Slide....	264 "
do wooden bridge across head of 2nd Slide .....	82 "
do stiff boom between 2nd and 3rd Slides.....	429 "
do do do 3rd and 4th do .....	825 "
do dam at head of 4th Slide.....	214 "
do dam from Coffin to Albert Island .....	66 "
do stone pier dam from Coffin to head of Victoria Island	346 "
do bulkhead from Albert to Chaudière Island .....	82 "
do do and storehouse from Chaudière Island to main dam.....	115 "
do hydraulic dam from Chaudière to Victoria Island...	330 "
do wooden bridge from mainland to Chaudière Island..	445 "
do side bridge from main bridge to Victoria do ..	33 "
do do do do Albert do ..	66 "
do Pooly's Bridge, City of Ottawa.....	148 "
do Union Suspension Bridge, between towers.....	246 "
do stone bridge and approach at northerly end of Suspension Bridge, leading from Hull.....	561 "

Toll House on Union Bridge reserve.

AT THE HULL STATION,

Immediately opposite this city, the works necessary to guide the timber safely past the north side of the Great Chaudière Falls, where there is a difference of level between the head and foot of the slide of almost 40 feet, consist of—

Guide boom for slide supported by six piers....(length) .....	2,376 feet.
Guard pier at entrance of slide.....	594 "
Wing dam from guard pier extending towards Fall .....	346 "
Span of bulkhead over slide.....	26 "
Stone-pier dam laid in cement from bulkhead to lower side of bridge, forming side of canal leading to bridge and slide....	280 "
6-ply boom from stone dam to head of slide.....(length).....	173 "
Wing dam at the head of slide.....	90 "

Upper crib slide (26 feet wide).....	(length) .....	443 feet.
Lower " " .....	" .....	115 "
Wing dam at head of 2nd Slide.....	" .....	58 "
Stone dam from Island to main shore.....	" .....	49 "

**AT THE LITTLE CHAUDIÈRE STATION,**

Which is about two miles from the City of Ottawa, the works are—

A long guard pier above islands.....	(length).....	300 feet.
Boom hanging from do., supported by 2 piers...	" .....	400 "
Pier dam below Island .....	" .....	400 "
Crib Slide (26 feet wide).....	" .....	140 "
Span of bulkhead over slide.....	" .....	26 "

**THE REMOUS BOOM,**

Which was constructed for the purpose of diverting timber from the rapids leading to the head of the Great Chaudière Falls, is about four miles from this city, and is supported by five piers. It measures 7,920 feet in length.

**AT THE CHATS STATION,**

Which is about 33 miles above this city, the fall is 42 feet, and the works and their dimensions are as follows, viz. :—

Guard pier on Island at entrance.....	(length).....	175 feet.
Dam across timber channel, head of Victoria Island "	" .....	250 "
Entrance bulkhead at upper end of canal .....	(span).....	26 "
Canal leading to slide.....	(length) .....	1,700 "
Crib slide.....	" .....	350 "

The slide at this station is one of the best constructed and most serviceable on the Ottawa, a very large quantity of timber passes through it annually.

**HEAD OF CHATS.**

Four piers for snubbing rafts preparatory to running rapids.

**CHENEAUX BOOM.**

About 19 miles above the last mentioned station, supported by four anchor piers—length 6,230 feet.

**AT PORTAGE DU FORT STATION,**

About 55 miles from Ottawa, where there is a fall of about 20 feet, the works necessary to pass the timber consist of a stiff guide boom at entrance of slide supported by four piers—length, 710 feet; crib slide—length, 350 feet.

**AT MOUNTAIN STATION,**

A short distance below the Grand Calumet, there are :—

A guide boom at head of slide.....	(length).....	297 feet.
Bulkhead.....	(span).....	26 "
Crib slide.....	(length).....	572 "

**AT CALUMET STATION,**

Which is about 65 miles from this city, there is a fall of 56 feet. The following have been constructed there, viz :—

Stiff 6-ply boom at entrance of slide, supported by pier and heavy anchor.....	(length).....	360 feet.
Canal through solid rock.....	" .....	300 "
Entrance bulkhead centre of canal.....	(span).....	26 "

Large basin and by-wash.

Stiff guide boom in basin leading to head of long slide (length)...	221 feet.
Upper crib slide.....	530 "
Guard pier from foot of upper to head of lower slide. ....	250 "
Stiff guide boom.....	80 "
Lower slide (26 feet wide).....	126 "
Guard pier on south side from foot of slide.....	420 "
"    "    north    "    "    .....	120 "

This is one of the principal stations on the Ottawa, as the timber from the upper portions of the main river and rafts from such important tributaries as the Matawan, DuMoine, Petewawa, Black River and Coulogne, escape the Grand Calumet Falls by passing through the works just enumerated.

#### AT JOACHIM RAPIDS,

About 140 miles above this city on the main river, the fall is about 28 feet and the improvements consist of—

North dam of upper slide.....(length).....	140 feet.
Width of slide.....	26 "
Length of " .....	37 "
South dam.....	107 "
Boom between slide, supported by four piers....	990 "
Width of Lower Slide.....	26 "
Length of do .....	297 "
North side dam do .....	(length)..... 157 "
South do do .....	" .....
Guard pier at lower end of slide, north side.....	182 "
do do do .....	" .....
do do do .....	41 "

#### THE GATINEAU RIVER

Is the largest tributary of the Ottawa, and falls into it from the north side, at a distance of about two miles below this city. It is about 400 miles in length, and drains upwards 9,000 square miles of territory. The timber berths on the Gatineau and its tributaries are very extensive, and some of them were worked upon by the first settlers, at the beginning of the present century.

The timber from this river is taken out principally in the shape of saw-logs, and since 1861 the average number has been about 280,000 annually. Square timber of good quality is also manufactured to a limited extent.

In the spring of 1864, the Government Boom, near the mouth of the Gatineau, broke, on account of having been subject to the under-pressure of a vast accumulation of saw-logs and square timber; since that date a new pier has been built and the old piers have been enlarged and very much strengthened.

Saw-logs are turned from guide boom into a safety pond which has an area of about 72 acres, and from thence they pass through a creek or outlet to the rafting station on the north side of the Ottawa River.

It was found that the old canal leading from the boom to the pond had not been favorably located, consequently a new canal was commenced last fall at a point further up stream, and since the completion of the excavation a current of water from the Gatineau has passed through the pond, effecting a decided improvement in the driving of saw-logs and promoting the safety of the main guide boom.

The Government Works are situated about a mile from the mouth of the Gatineau River, and may be described as follows:—

Boom (1,300 feet of it being 6-ply) supported by 8 large piers.....	(length) .....	2,000 feet.
Wooden bridge at head of old canal.....	" .....	52 "
Old canal from river to pond. ....	" .....	2,191 "
New do with bridge over it.....	" .....	890 "
Division boom in pond, supported by two anchor piers, (length)	1,958 "	
Boom at mouth of creek.....	" .....	185 "

And an anchor and floating stage at rafting ground near the junction of the creek and the Ottawa River.

**THE MADAWASKA RIVER.**

This important tributary falls into the Ottawa from the south side, 169 miles above its confluence with the St. Lawrence. The Madawaska is about 240 miles in length, and drains a country having an area of about 4,100 square miles; upon this lumbering has been extensively carried on for upwards of a quarter of a century, and a very large quantity of valuable timber has been exported from it. Many of the principal lumbermen have lately turned their attention to the getting out saw-logs, as well as the manufacture of square timber, and as the system of floating in single pieces prevails on the Madawaska, the spring "drive" to the retaining boom at the mouth presents a scene of great stir and activity. The greater part of the Madawaska limits have still an abundant supply of white and red pine, and the duties and tolls on the products of its forests must, for a long series of years, continue to swell the Provincial revenue.

The works on this stream, as already stated, were much damaged by the freshets of 1864, but have since been put in a thorough state of efficiency; they consist of:—

**MOUTH OF RIVER.**

Retaining boom (1291 feet of which is made of double timber 16 in. x 16 in.), supported by 19 piers and 2 anchor piers.....(length)..... 6,265 feet.

**ARNPRIOR.**

Safety boom above bridge .....(length)..... 400 feet.  
 Wooden bridge over river ..... " ..... 266 "  
 Guide booms at head of slide..... " ..... 377 "  
 Dam across river ..... " ..... 250 "  
 Crib slide 26 feet wide ..... " ..... 180 "  
 Guard pier on west side, immediately below slide. " ..... 180 "

**FLAT RAPIDS.**

Flat dam on north side.....(length)..... 500 feet.  
 " south side ..... " ..... 300 "

**BALMER'S ISLAND.**

Flat dam .....(length)..... 116 feet.

**BURNSTOWN STATION.**

Boom supported by 8 piers.....(length)..... 700 feet.

**SPRINGTOWN BOOM.**

Supported by 4 piers .....(length)..... 740 feet.

**CALABOGIE LAKE.**

Double boom supported by 2 piers.....(length). ..... 3,040 feet.  
 Boom at foot of Calabogie Lake ..... " ..... 600 "

**HIGH FALLS.**

Main 10-ply guide boom, supported by 4 large piers ....(length) 692 feet.  
 Dam across head of falls..... " ..... 300 "  
 Single-stick slide, with a fall of 60 feet..... " ..... 1,200 "  
 Boom supported by pier at foot of slide ..... " ..... 355 "  
 Two dams below foot of long slide..... " ..... 140 "  
 Six flat dams, about a quarter of a mile further down stream, at and near Barrett's Chute ..... " ..... 790 "

**RAGGED CHUTE.**

Dams on south side at head of falls .....	(length).....	550 feet.
Pier adjoining " " .....	" .....	150 "
Flat dam adjoining pier .....	" .....	77 "
Flat dam on north side at head of falls .....	" .....	80 "
Eddy pier at foot of falls.....	" .....	300 "
Boom between Ragged Chute and High Falls ...	" .....	1,050 "

**BONIFACE RAPIDS.**

Flat dam .....	(length).....	100 feet.
Flat dam below Boniface Rapids .....	" .....	70 "

**DUCK'S ISLAND.**

Two flat dams.....	(length).....	80 feet.
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**BAILEY'S CHUTE.**

Flat dam on south side .....	(length).....	180 feet.
" " .....	" .....	70 "
" north side .....	" .....	150 "

**AT CHAIN RAPIDS.**

Boom supported by 4 piers and 3 islands .....	(length).....	3,960 feet.
Single-stick Slide, 6 ft. wide at lower end of boom. " .....	" .....	250 "

**THE COULONGE RIVER**

Falls into the Ottawa from the north side, about 200 miles above the confluence of the latter with the St. Lawrence.

It is about 160 miles in length, and drains a thickly-wooded country having an area of about 1,800 square miles.

The Coulonge limits have not been overrun by fire, but on the contrary are well stocked with valuable white and red pine, so that in all probability large quantities of timber will be taken from that stream for years to come.

Prior to this season the descent of timber was greatly obstructed at the High Falls and Rapids, about five miles from the mouth of the river, but since the completion of the Single-stick Slide in the month of May last, the running of a raft of timber in safety, past this dangerous gorge, is the work of only a few hours. The slide is about 3,000 feet in length, and at some places it is carried along precipices at a height of between 50 and 60 feet above the waters of the Coulonge, and as the rapids are hemmed in by steep rocks towering to great heights above the seething waters below, the placing of the foundation of the slide was attended with great difficulties. It is satisfactory, however, to know that this improvement has realised the most sanguine expectations of the lumbermen.

**THE PETEWAHA RIVER**

Falls into the Ottawa from the south side, about 245 miles above its junction with the St. Lawrence; it is 138 miles in length and drains about 2,200 square miles of country.

Lumbering operations have been carried on for quite a number of years on the Petawawa, and those engaged in its forests have contributed largely to the revenue of the Province. In order that the timber from the valuable limits on the chain of lakes near the head waters of the north branch of the Petawawa River might find an outlet to market, your Department, last winter, caused a series of dams, &c., to be constructed between Cedar Lake and Thomson's Rapids.

The upper dam and the one at the rapids, just referred to, were built for the purpose of reserving a portion of the spring floods in Cedar Lake and Lake Traverse, so that it might be made available for "driving" purposes at the season of low water. The works on the Petawawa are as follows:—

## AT HALF-MILE RAPID.

A flat dam .....(length).....160 feet

## AT CROOKED CHUTE.

A flat dam .....(length)..... 100 feet

Single-stick Slide ..... " ..... 250 "

Guide boom at head of slide ..... " ..... 400 "

During the winter of 1861-2, a single stick, 480 feet long, and certain dams and booms were constructed at a cost of upwards of \$13,000, with a view of improving the running of timber on that portion of the north branch of the Petewawa River between High Falls and Lake Traverse. These improvements were much required, and they have been in successful operation since their completion. The works on the north branch of the Petewawa River consist of—

Station No. 3—Thompson's Rapids, 3 piers 12 ft. wide, 36 ft. × 14 ft. high.	
" " 2 by-washes, 20 × 40 "	
" " flat dam, 132 × 7 "	
" " Chenail dam, north shore, 26 × 5 "	
" 4—Sawyer's Bay Boom.....	2,671 feet long.
" 5—Meno Rapids Lake, flat dam.....	200 ft. long × 9 ft. high.
" 6—Below Front Lake, " .....	160 " × 9 "
" 7—Strong Eddy pier .....	93 × 10 × 8 ft. 4 in.
" 8—Cedar Islands " .....	108 × 10 × 5 "
" 9—Foot of Devils Chute, pier.....	40 × 8 × 5 "
" 10—Devil's Chute, wing pier.....	90 × 12 × 8 "
" 11—Elbow Rapids, flat dam.....	63 feet long, 7 feet high
" 12—Foot of Long Sault (north).....	130 × 10 × 5 "
" " (south).....	50 × 10 × 6 "
" 13—Middle of Long Sault (south) ...	60 × 12 × 8 "
" " (north) ...	40 × 12 × 8 "
" 14—Angle pier at head of Long Sault	23 × 12 × 12 (north shore).
" " "	39 × 18 × 12 (south "
" 15—South shore, flat dam.....	87 × 20
" Pier at back of dam .....	20 × 10 × 10 feet high.
" 16—North shore side pier .....	184 × 12 × 8 "
" South do .....	90 × 10 × 8 "
" 17—Cedar Lake dam, north shore pier	127 feet long, by 5
" feet high, by 8 feet wide.	
" North shore dam.....	25 feet × 23 feet.
" 3 Bulkhead piers, north channel	36 feet × 14 feet 3 in. × 12
" 2 Bulkheads or by-washes, 20 feet each,...	40 feet.
" South shore dam.....	34 "
" Island pier .....	95 × 8 × 5
" South channel, 2 piers, 15 feet each .....	30 feet.
" By-wash .....	20 "
" Total length of Cedar Lake dam.....	407 "

On the south branch of the Petewawa the following improvements have been made, viz:—

First slide .....	(length).....	174 feet.
" dam.....	" .....	150 "
Second slide.....	" .....	432 "
Third " .....	" .....	271 "
" dam .....	" .....	78 "
Fourth slide.....	" .....	215 "
" dam.....	" .....	100 "
Fifth slide .....	" .....	75 "
" dam.....	" .....	60 "

Sixth " .....	" .....	82	"
Seventh, second single-stick slide.....	" .....	372	"
Eighth, upper, " " .....	" .....	513	"

The following works are on the Petewawa main River :—

#### MOUTH OF PETEWAWA.

Retaining boom supported by 6 piers.....(length)..... 4,000 feet.

#### FIRST CHUTE.

Guide boom, north side of head of slide.....(length) .....	248	feet.
" " south " " .....	541	"
Dam on north side of slide.....	118	"
" " south " " .....	359	"
Single stick slide.....	563	"

#### SECOND CHUTE.

Guide Boom, north side of head of slide.....(length).....	332	feet.
" " south " " .....	1,169	"
Dam on north side of slide.....	489	"
" " south " " .....	287	"
Single-stick slide.....	554	"

#### THIRD CHUTE.

Guide Boom, north side of head of slide.....(length).....	243	feet.
" " south " " .....	586	"
Dam on north " " " " .....	97	"
" " south " " .....	101	"
Single-stick slide.....	1,346	"

#### BOIS DUR STATION.

Flat dam .....	(length).....	116	feet.
Pier " .....	" .....	250	"
Single-stick slide.....	" .....	250	"
Guide Boom .....	" .....	950	"

#### THE DU MOINE RIVER

Is about 120 miles in length, and falls into the Ottawa on the north side, about 283 miles from its confluence with the St. Lawrence. The Du Moine drains about 1,600 square miles of territory, and in its valley much valuable white pine timber is found.

The Government, with the view of rendering this stream navigable for timber, have, within the last few years, caused a series of flat dams to be built on the lower course of the river, a single-stick slide to be improved and strengthened, and a retaining boom and piers to be constructed at the mouth.

These improvements have been fairly tested, and work satisfactorily.

#### NEW WORKS COMPLETED DURING YEAR ENDED 30TH JUNE.

Dams, &c., between Cedar Lake and Thomson's Rapids and Petewawa River,	already described in this Report	
Single-stick Slide on the Coulonge River .....	do	do
New Canal, and bridge over same, from Gatineau River to pond.....	do	do

APPROXIMATE ESTIMATE of Cost of Repairs of Ottawa Works, during winter of 1865-6, a detailed account of which will be furnished to the Department after the timber has passed..... \$8,000 00

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Probable cost of renewing the superstructure (in wood) of the Bridge over the Slide at this city, and extending from main land to Chaudière Island... ..	2,000 00
	<u>\$10,000 00</u>

This bridge, which is the line of a very important thoroughfare, is somewhat dilapidated, and a new superstructure, at an early date, is an absolute necessity. A wider bridge at this station is much required by the travelling community.

The quantity of timber reported at this station, as having passed the works under my charge, in 1864, was 17,615 cribs from Ottawa district, 4,597 pieces of square timber from the Gatineau, and 529,270 saw-logs (not including those at the Chaudière Booms).

The amount of revenue in 1864, from Booms and Slides on the Ottawa River and its tributaries, was seventy thousand and sixty-four dollars and fifty-two cents (\$70,064.52), including the charge for the Chaudière Booms—amounting to several thousand dollars—which is disputed.

Up to the 30th day of June, of this season, 8,174 cribs, or 177,176 pieces of square timber, from the Ottawa, and 2,884 pieces of square timber and 220,469 saw-logs from the Gatineau, have been reported here, which is a larger quantity than passed at the same date last season, the return for the corresponding period of last year having been 5,278 cribs of square timber from the Ottawa, equal to 114,814 pieces; but upon the whole I am led to believe that this year's business will fall short of that of 1864.

It is due to A. J. Russell, Esq., Crown Timber Agent, and C. S. McNutt, Esq., Collector of Slide Dues (both of this city), that I should acknowledge their kindness in furnishing me with valuable statistical information relating to the staple trade of the Ottawa valley.

In respectfully submitting the above,

I have the honor to be, Sir,

Your most obedient servant,

(Signed,)

HORACE MERRILL,

Superintendent of Ottawa Works.

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OTTAWA WORKS, SUPERINTENDENT'S OFFICE,  
Ottawa, 21st August, 1865.

SIR,—I have examined my Report on the Works, as commencing at the lower station and going up. I find everything correct, with the exception of the location of the Che-neaux Boom. The necessary correction is made, and the document is herewith returned.

I have the honor to be, Sir,

Your most obedient servant,

(Signed,)

HORACE MERRILL,

Superintendent of Ottawa Works.

T. TRUDEAU, Esq.,

Deputy Commissioner of Public Works,

Quebec.

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## APPENDIX No. 11.

## REPORT OF G. F. BAILLAIRGÉ.

DEPARTMENT OF PUBLIC WORKS,

Ottawa, 19th March, 1866.

SIR,—I beg to transmit you herewith a Statement shewing the nature and extent of the Government Works and of the water communication on the River Trent and its tributaries.

This Statement is similar to that furnished on the 28th February, 1866 (No. 79,190), excepting that it is under a different form, as requested by the Deputy Commissioner.

I have the honor to be,

Sir,

Your most obedient servant,

F. Braun, Esquire,  
Secretary of Public Works.

(Signed),

G. F. BAILLAIRGÉ.

## WORKS on the River Trent and its Tributaries.—Table of Distances and Levels.

NAMES OF PLACES.	Distances in miles.		Length of River & Lake, in miles.		Levels.			
	Intermedi-ate.	Total from mouth of Trent.	Navigable.	Unnavig-able.	Intermedi-ate rise.		Total rise abo. Bay of Quinté.	
	Miles.	Miles.	Miles.	Miles.	Feet.	In.	Feet.	In.
From Kingston to the Mouth of River Trent .....	67	67	67	.....	.....	.....	.....	.....
Mouth of Trent to Widow Harris' Rapids.....	9	.....	.....	9	116	5 $\frac{9}{12}$	116	5 $\frac{9}{12}$
Widow Harris' Rapids to Lock at Chisholm's Rapids..	6 $\frac{1}{2}$	15 $\frac{1}{2}$	6 $\frac{1}{2}$	.....	.....	.....	116	5 $\frac{9}{12}$
Chisholm's Rapids to Percy Landing.....	13	28 $\frac{1}{2}$	13	.....	8	7 $\frac{8}{12}$	125	1 $\frac{5}{12}$
Percy Landing to Head of Ranney's Falls.....	5	33 $\frac{1}{2}$	.....	5	49	8	174	9 $\frac{5}{12}$
Head of Ranney's Falls to Campbellford.....	1 $\frac{1}{2}$	34 $\frac{1}{2}$	.....	1 $\frac{1}{2}$	} 54	6 $\frac{6}{12}$	229	3 $\frac{1}{12}$
Campbellford to Fiddler's Island.....	1 $\frac{1}{2}$	36	.....	1 $\frac{1}{2}$				
Fiddler's Island to Foot of Middle Falls.....	1 $\frac{1}{2}$	37 $\frac{1}{2}$	.....	1 $\frac{1}{2}$				
Foot of Middle Falls to Crow Bay.....	1	38	.....	1	} 46	2 $\frac{9}{12}$	275	6 $\frac{8}{12}$
Crow Bay to Junction of River Trent.....	3	41	3	.....				
Junction of River Trent to Foot of Heely's Falls.....	1 $\frac{1}{2}$	42 $\frac{1}{2}$	.....	1 $\frac{1}{2}$	.....	.....	275	6 $\frac{8}{12}$
Foot of Heely's Falls to Foot of Crook's Rapids.....	12	54 $\frac{1}{2}$	12	.....	76	11 $\frac{5}{12}$	352	6 $\frac{1}{12}$
Intermediate rise on the various reaches between the } rapids from Mouth of River Trent to Rice Lake.. }	.....	.....	.....	.....	4	3 $\frac{1}{12}$	356	10
Foot of Crook's Rapids to Foot of Rice Lake.....	6 $\frac{1}{2}$	61	6 $\frac{1}{2}$	.....	8	2	365	0
Foot of Rice Lake to Outlet of River Otonabee.....	12 $\frac{1}{2}$	73 $\frac{1}{2}$	12 $\frac{1}{2}$	.....	.....	.....	365	0
Outlet of River Otonabee to Head of Whitlaw's Rapids.....	19 $\frac{1}{2}$	93	19 $\frac{1}{2}$	.....	4	6	369	6
Head of Whitlaw's Rapids to Head of Little Lake.....	1	94	1	.....	} 147	6	517	0
Head of Little Lake to Peterborough Bridge.....	2	94 $\frac{1}{2}$	1	2				
Peterborough Bridge to Foot of Clear Lake.....	14 $\frac{1}{2}$	109	5	9 $\frac{1}{2}$				
Foot of Clear Lake to Foot of ..... Rapids.....	16	125	7	9	32	2	549	2
Foot of Buckhorn Rapids to Foot of Bobcaygeon Rapids	15 $\frac{1}{2}$	140 $\frac{1}{2}$	15 $\frac{1}{2}$	.....	6	2	555	4
Foot of Bobcaygeon Rapids to Outlet of River Scugog	12 $\frac{1}{2}$	153 $\frac{1}{2}$	12 $\frac{1}{2}$	.....	5	5 $\frac{4}{12}$	560	9 $\frac{4}{12}$
Outlet of River Scugog to Slide at Town of Lindsay...	8	161 $\frac{1}{2}$	8	.....	1	6	562	3 $\frac{4}{12}$
Slide at Town of Lindsay to Foot of Lake Scugog ...	9	170 $\frac{1}{2}$	9	.....	8	0	570	3 $\frac{4}{12}$
Foot of Lake Scugog to Head of Lake Scugog .....	19 $\frac{1}{2}$	190	19 $\frac{1}{2}$	.....	.....	.....	.....	.....
Total from Mouth of River Trent, Bay of Quinté, } to Port Perry, at Head of Lake Scugog..... }	.....	190	151 $\frac{1}{2}$	38 $\frac{1}{2}$	.....	.....	570	3 $\frac{4}{12}$

THE PUBLIC WORKS at the various Stations on the River Trent and its tributaries, the elevation of the water at each station above the Bay of Quinté, at the mouth of the Trent, the length of navigable and unnavigable water, together with the distances from one station to the other, may be described as follows, viz :—

	Length.		Breadth.		Height.	
	ft.		ft.		ft.	in.
<i>At Trenton,</i>						
Which is at the mouth of the Trent, on the Bay of Quinté, 67 miles above Kingston. A bridge of arch and truss work, with a draw-bridge across the River Trent; superstructure and piers of timber, completed in 1831, and afterwards placed under the charge of the local municipality. Dimensions of bridge, which is roofed and covered in on the sides .....	570		29			
<i>Widow Harris' Rapids.</i>						
9 miles above mouth of Trent.						
Elevation of the Trent at the head of Widow Harris' Rapids above the Bay of Quinté.....					116	5 $\frac{1}{2}$
9 miles of continuous rapids from mouth of Trent up to Widow Harris Rapids, run only by rafts.						
Stone dam, built in 1844, across part of the river, at head of an island, about 4 feet wide at top, 10 feet wide at base, and 6 feet in height, made of boulders .....	1265					
There is a landing place here where rafts disband previous to running rapids. At the landing the Government own a lot of land which is occupied by squatters. Land should be surveyed and boundaries ought to be properly established.						
<i>Chisholm's Rapids.</i>						
15 $\frac{1}{2}$ miles above mouth of Trent.						
Elevation of the Trent at the foot of Chisholm's Rapids, above the Bay of Quinté .....					116	5 $\frac{1}{2}$
River navigable for boats of 4 $\frac{1}{2}$ feet draught of water, at low water, from Widow Harris' Rapids to foot of Chisholm's Rapids, for 6 $\frac{1}{2}$ miles.						
Land belonging to Government at this station should be surveyed and boundaries ought to be properly established. It is now under lease.						
Canal above lock, completed in 1844 .....	2164					
Do below lock, do do .....	763					
Lock of masonry, do do .....	133 $\frac{1}{2}$		32 $\frac{1}{2}$			
Lift of lock .....					11	
Depth of water on lower mitre sill of lock.....					4	3
Dam of truss work, about 6 ft. in height, completed in 1839 .....	715					
Slide, with 2 ft. draft of water, completed in 1843.....	100		50			
The gates of this lock are decayed, .						
<i>Percy Landing.</i>						
28 $\frac{1}{2}$ miles above mouth of Trent.						
Elevation of the Trent at Percy Landing above the Bay of Quinté.....					125	1 $\frac{1}{2}$
River navigable for boats of 4 $\frac{1}{2}$ feet draught of water, at low water, from Chisholm's Rapids to Percy Landing, for 13 miles.						
The piers and booms constructed at this station in 1844 are no longer in use, having been either carried away by floods or removed elsewhere on account of the expense of maintenance.						
<i>Ranney's Falls.</i>						
33 $\frac{1}{2}$ miles above mouth of Trent.						
Elevation of the Trent at the head of Ranney's Falls, above the Bay of Quinté.....					174	2 $\frac{1}{2}$

## THE PUBLIC WORKS at the various Stations on the River Trent, &amp;c.—Continued.

	Length.		Breadth.		Height.	
	ft.		ft.		ft.	in.
<i>Ranney's Falls.—Continued.</i>						
Continuous rapids from Percy Landing to Ranney's Falls, run by rafts for 5 miles.						
Lower slide, with 2 feet draught of water, completed in 1845 .....	390		33			
Upper do do do .....	1102		33			
Dam of truss work, about 12 feet in height and 33 feet broad at base, completed in 1844 .....	414					
Guide booms of of 3 sticks of timber.....	1352		3½			
<i>Campbellford (Seymour).</i>						
34½ miles above mouth of Trent.						
Elevation of the Trent at Campbellford, above the Bay of Quinté, not ascertained. (See Middle Falls.)						
Continuous rapids from Ranney's Falls to Campbellford, for 1½ miles, run by rafts.						
Queen Post Bridge, now under control of Township Council of Seymour, completed in 1844 .....	348		18			
Guide booms, completed in 1844 .....	1100		3½			
<i>Fiddler's Island.</i>						
36 miles above mouth of Trent.						
Elevation of the Trent at Fiddler's Island, above the Bay of Quinté, not ascertained. (See Middle Falls.)						
Continuous rapids from Campbellford to Fiddler's Island, run by rafts, for 1½ miles.						
Wing dam of crib-work, about 14 feet broad at base, and 6 feet in height, completed in 1848.....	300					
Cross-dam of crib work, about 14 feet broad at base, and 12 feet in height, completed in 1848.....	100					
<i>Middle Falls.</i>						
37½ miles above mouth of Trent.						
Elevation of the Trent at foot of Middle Falls, above the Bay of Quinté.....					229	3½
Continuous rapids from Fiddler's Island to Middle Falls, for 1½ miles, run by rafts,						
Lower slide, with 2 feet draught of water, completed in 1844 .....	455		33			
Upper do do do .....	60		33			
1st or lower dam of truss-work, do do .....	97	av.	25	av.	12	0
2nd dam do do do .....	48	"	26	"	7	0
3rd or upper do do do .....	48	"	20	"	7	0
Wing dam of crib work, do do .....	637	"	8	"	5	0
<i>Foot of Crow Bay.</i>						
38 miles above mouth of Trent.						
Elevation of Trent at foot of Crow Bay, above the Bay of Quinté. Not ascertained. (See Junction of River Trent and Crow Bay.)						
Continuous rapids run by rafts, from foot of middle Falls to foot of Crow Bay, ½ mile.						
Single stick retaining boom.....	2600		1- <sup>2</sup> / <sub>12</sub>			
Measurement of rafts made in Crow Bay and account of the same kept for collection of slide dues.						
Whilst the timber is running from Crow Bay to Percy landing, the slide dues are collected or bonds are taken for the payment of the same.						

THE PUBLIC WORKS at the various Stations on the River Trent, &c.—*Continued.*

	Length.		Breadth		Height.	
	ft.	ft.	ft.	ft.	ft.	in.
<i>Junction of River Trent and Crow Bay.</i>						
41 miles above mouth of Trent.						
Elevation of the Trent at Junction of the same with Crow Bay above the Bay of Quinté.....					275	6 $\frac{8}{12}$
Navigable for 3 miles from foot of Crow Bay to Junction of River Trent and Crow Bay, water attains a depth of about 20 feet in this part of the river.						
<i>Heely's Falls.</i>						
42 $\frac{1}{2}$ miles above mouth of Trent.						
Elevation of the Trent at the foot of Heely's Falls, above the Bay of Quinté .....					275	6 $\frac{8}{12}$
Continuous rapids run by rafts for 1 $\frac{1}{2}$ mile between Junction of Trent with Cow Bay and Heely's Falls.						
Lower slide, 2 feet draught of water, completed in 1844.....	360	33				
Upper Slide, do do .....	713	33				
Dam of truss-work, do do .....	488	33				
Here the Dam is being gravelled in order to render the same water-tight, and thereby raise the water above, towards Crook's Rapids.						
<i>Crook's Rapids (Hastings).</i>						
54 $\frac{1}{2}$ miles above mouth of Trent.						
Elevation of the Trent at the foot of Crook's Rapids, above the Bay of Quinté.....					352	6 $\frac{1}{12}$
Navigable for 12 miles from Heely's Falls to Crook's Rapids, for boats of 4 feet draught of water, at low water. Removal of boulders which obstructed channel along Stewart's Island, ordered to be done in fall of 1866.						
Canal below lock, completed in 1844 .....	390					
Canal above lock, do .....	220					
Lock of Masonry, do .....	134	33				
Lift of lock .....					6	9
Depth of water on lower mitre sill of lock .....					6	0
Dam of Truss-work, completed in 1838 .....	253	27			7	6
Slide, 2 feet draught of water, do 1845 .....	79	33 $\frac{1}{2}$				
Swing Bridge across lock, do 1845.....	84 $\frac{1}{2}$	13				
Bridge across the Trent below dam at Crook's Rapids, built of truss-work (Queen and King Posts), in continuation of Swing Bridge, in 1845, at a cost of \$4340 .....	485	18				
This bridge is now under the control of the Counties of Northumberland and Peterborough, who have renewed the superstructure. Improvements at lock, above lock and below it, ordered to be done in 1866.						
<i>Foot of Rice Lake.</i>						
61 miles above mouth of Trent.						
The elevation of the Trent from Crook's Rapids to the foot of Rice Lake is 8 feet 2 inches, but as the intermediate rise of the water on the various reaches between the mouth of the Trent and the foot of Rice Lake is given at 4.3 $\frac{11}{12}$ , this gives for total elevation of Rice Lake above the Bay of Quinté.....					365	0
Navigable from Crook's Rapids to foot of Rice Lake for 6 $\frac{1}{2}$ miles by boats drawing not more than 4 feet of water at low water.						
Boulders obstructing channel between Crook's Rapids and foot of Rice Lake ordered to be removed in 1866.						

THE PUBLIC WORKS at the various stations on the River Trent, &c.—*Continued.*

	Length.		Breadth.		Height.	
	ft.		ft.		ft.	in.
<i>Outlet of River Otonabee.</i>						
73½ miles above mouth of Trent.						
Elevation of Rice Lake at mouth of Otonabee towards head of Lake above the Bay of Quinté. ....					365	0
Lake navigated by steamers drawing not more than 4 feet of water, owing to the shallowness of the Trent below, and of the Otonabee above. Distance from foot of Rice Lake to mouth of Otonabee, 12½ miles.						
<i>Whitlaw's Rapids.</i>						
93 miles above mouth of Trent.						
Elevation of the Otonabee at the head of Whitlaw's Rapids above the Bay of Quinté. ....					369	6
Otonabee navigated by steamers drawing not more than 4 feet of water at low water, for 19½ miles, from Rice Lake up to Whitlaw's Rapids.						
Canal below lock, completed in 1843 .....	220					
Canal above lock do .....	526					
Lock of masonry, do .....	133½	33				
Lift of lock .....	6½					
Depth of water on lower mitre sill of lock .....	4					
Wing dam of truss-work above lock, completed in 1843 .....	323½	27	av. 12			0
Cross-dam, do do .....	160		av. 9			0
<i>Little Lake.</i>						
94 miles above mouth of Trent.						
Lake 1 mile in length near Town of Peterborough navigable for boats of 4 feet draught of water.						
3 piers and 1 boom—completed in 1852.						
<i>Peterborough Bridge.</i>						
94½ miles above mouth of Trent.						
The Otonabee navigable to within ¼ mile of bridge, for ¼ mile, remainder rapid.						
Bridge across the Otonabee—Howe Truss, 2 spans, side trusses covered in—completed in 1847 .....	284	18				
<i>Clear Lake.</i>						
109 miles from mouth of Trent.						
Elevation of the Otonabee at Young's mills, at foot of Clear Lake, above Bay of Quinté. ....					517	0
9½ miles of continuous rapids from Peterborough Bridge to foot of Lake Ketchiwannoe.						
5 miles of slack water from foot of Lake Ketchiwannoe to foot of Clear Lake.						
<i>Buckhorn Rapids.</i>						
125 miles above mouth of Trent.						
Elevation of water at foot of Buckhorn Rapids or at head of Buckhorn Lake, above the Bay of Quinté .....					549	2
7 miles navigable from foot of Clear Lake up to Burleigh's Rapids.						
9 miles of rapids and still water from Burleigh's Rapids to Buckhorn Rapids.						

THE PUBLIC WORKS at the various stations on the River Trent, &c.—Continued.

	Length.		Breadth.		Height.	
	ft.		ft.		ft.	in.
<i>Buckhorn Rapids.—Continued.</i>						
2 slides, 4 dams and several booms have been built since 1852 at Burleigh's Rapids by lumberers.						
Works at Buckhorn Rapids, as follows, viz :—						
Double stick boom, completed in 1857.....	300		3½			
Single do do do 1865.....	600		1½			
Dam of stones, do 1835.....	173	Base	8	av. 6	0	
do of truss work, do 1835.....	387	do	25	av. 5	0	
Slide with 2 feet draught of water, completed in 1857.....	65		33			
Bridge on bents, completed in 1845, rebuilt in 1857.....	600		12			
<i>Bobcaygeon Rapids,</i>						
140½ miles above mouth of Trent.						
Elevation of water at foot of Bobcaygeon Rapids, at upper end of Pigeon Lake, above mouth of Bay of Quinté.....						
555 4						
15½ miles navigated by steamers drawing not more than 4 feet of water from Buckhorn to Bobcaygeon, through Buckhorn and Pigeon Lakes.						
22 miles navigated from Bobcaygeon downwards to Bridgenorth on Chemong or Mud Lake.						
Canal above lock, completed in 1835.....	973					
Lock of masonry, do 1857.....	134		33			
Dam of truss work, do 1839.....	468	av. 25	av. 12		6	
do crib work, do 1839.....	794	av. 15	av. 6		0	
Slide do do 1858.....	30		33			
Mill race of grist-mill, do 1858.....	141		12½			
Basin do do do 1858.....	35		24			
Mill race of saw-mill, do 1858.....	60		45			
Bridge with king post truss, do 1845.....	162		16			
do do do do 1845.....	60		16			
do on bents, do 1845.....	200		16			
Swing bridge across lock, do 1858.....	85		13			
Old wooden lock at Bobcaygeon was built in 1835 and replaced in 1857 by the new lock of masonry.						
Lift of new lock.....					7	3
Depth of water on upper mitre sill.....					12	9
do do lower do.....					4	9
The king-post bridges and the bridge on bents are under the charge of the local municipality who rebuilt the former in 1864-5 and the latter towards 1857.						
The traffic on Buckhorn, Chemong and Pigeon Lakes consists chiefly in towing lumber from the extensive saw mills erected along those lakes up to the Lindsay railway station, <i>via</i> Bobcaygeon Lock, Sturgeon Lake and the River Scugog.						
<i>Outlet of River Scugog.</i>						
153½ miles above mouth of Trent.						
Elevation of water at outlet of River Scugog at head of Sturgeon Lake, above the Bay of Quinté.....						
560 9 1/12						
Sturgeon Lake navigated from Bobcaygeon at foot of lake up to outlet of River Scugog by the steamers that ply on Buckhorn, Chemong, and Pigeon Lakes. Distance from Bobcaygeon to outlet of Scugog, 12½ miles.						
<i>Town of Lindsay.</i>						
161½ miles above mouth of Trent.						
Elevation of the River Scugog at the foot of the slide at Lindsay, above the Bay of Quinté.....						
562 3 1/2						

**THE PUBLIC WORKS at the various Stations on the River Trent, &c.—Continued.**

	Length.		Breadth.		Height.	
	ft.		ft.		ft.	in.
<i>Town of Lindsay.—Continued.</i>						
Navigated for 8 miles from the mouth of the Scugog up to Lindsay by the steamers plying on the above-named Lakes.						
Queen post bridge of 3 spans on cut stone piers and abutments. Completed in 1864. ....	172		18		.....	.....
Foot walk on side of bridge 4 feet wide.						
Slide through old lock at Lindsay. Completed in 1859. ....	65		33		.....	.....
The old lock now converted into a slide was 131 $\times$ 32 $\frac{1}{2}$ $\times$ 8 feet lift and 4 feet 7 inches of water on the lower mitre sill of the lock, it was constructed in 1844.						
Dam at head of slide completed in 1844. ....	280		30		9	0
<i>Foot of Lake Scugog.</i>						
170 $\frac{1}{2}$ miles above mouth of Trent.						
Elevation of Lake Scugog above the Bay of Quinté. ....					570	3 $\frac{1}{2}$
River Scugog navigable from slide at Lindsay for 9 miles up to Lake Scugog, for boats drawing not more than 4 feet of water at low water.						
<i>Head of Lake Scugog.</i>						
190 miles above mouth of Trent.						
The navigation of Lake Scugog from the foot of the lake up to the head of it at Port Perry is regulated by that of the River Scugog from Lindsay upwards. Distance from foot to head of lake 19 $\frac{1}{2}$ miles.						
The total distance from Kingston, by the River Trent and its tributaries up to Perry at head of Lake Scugog is 257 miles.						

**GENERAL REMARKS.**

The booms, piers, slides and all such portions of the works as are connected with the lumbering operations on the River Trent at Chisholm's Rapids, Ranney's Falls, Middle Falls, Heely's Falls and Crook's Rapids, were transferred to a company formed on purpose for the management and maintenance of those works, with the right of levying tolls thereon, at the rate of five shillings per crib, at each of the slides.

The company are not liable for the renewal of the works, in case of their failure from decay of materials, or their destruction by fire, flood or any other cause.

It is their duty to keep an exact account of all the moneys collected by them, and to transmit the same to the Department of Public Works. (See Order in Council No. 1,325, of 20th Feb., 1855, authorizing transfer; also No. 17,522 of 4th May, 1855, describing works; No. 21,187 of 22nd April, 1857, explaining conditions of transfer; and No. 27,914 of 14th Sept., 1859, establishing rate of tolls to be collected on each crib at each of the slides.)

The dimensions of the various works described in the foregoing Statement, and which were constructed prior to the union, and also from date of the union, on 10th Feb., 1841, to the 31st Dec., 1848, are taken from Appendix N in the Public Works Report of 1848. The dimensions of the works constructed from 1848 to 1866 were furnished by G. W. Ranney, Superintendent of the Trent works. The description of the navigable and unnavigable portions of the Trent and its tributaries is based on Mr. Ranney's General Report on the Trent Works, of 7th February, 1866.

The rise of the River Trent and its tributaries above the Bay of Quinté, and the distances given from one station to another, from the mouth of the Trent to the head of Lake Scugog, are from a map compiled by F. P. Rubidge, C. E., for N. H. Baird, C. E., in 1836.

(Signed)

G. F. BAILLARGÉ.

OTTAWA, 19th March, 1866.

## APPENDIX No. 12.

### REPORT BY G. F. BAILLAIRGÉ, SUPERINTENDENT,

#### ON PUBLIC ROADS.

DEPARTMENT OF PUBLIC WORKS,  
Quebec, 11th August, 1865.

F. BRAUN, Esquire,  
Secretary of Public Works, Quebec.

SIR,—I have the honor to submit the following Report respecting the progress and condition of the various roads below Quebec and the outlay thereon; from 1st July, 1864, to 1st July, 1865.

I have appended thereto, lists shewing the distances by the Temiscouata and Matapédia Roads from Quebec to Halifax and other ports :—

#### ROADS BELOW QUEBEC ON NORTH SHORE OF ST. LAWRENCE.

##### NORTH SHORE GULF ROAD.

From Portneuf westward to Tadoussac at the mouth of the River Saguenay, and from Ste. Catherine on the opposite or west side of the Saguenay to Rivière Noire, below Ste. Fidèle, in the Seigniory of Mount Murray, where it connects with main road leading to Quebec.

Total length of divisions in progress, 77 English miles—work commenced in 1855.

	Completed.	To be constructed.	Total length miles.
<b>Third, or Portneuf Division—</b>			
From Portneuf to Escoumains.....	2½	27½	30
Felix Tetu, Local Superintendent.			
Work commenced in 1864.			
<b>Second, or Escoumains Division—</b>			
From Escoumains to Tadoussac.....	16	12	28
Ruel Boulianne, Local Superintendent.			
Work commenced in 1856.			
<b>Third, or Callières Division—</b>			
From the Baie de Ste. Catherine across Townships of Saguenay and Callières to Rivière Noire...	9½	9½	19
John McLaren, Local Superintendent.			
Work commenced in 1855.			
Totals.....	28	49	77

*Expenditure incurred as authorized from 1st July, 1864, to 1st July, 1865.*

	Authorized.	Expended.	Unexpended.
On Portneuf Division.....	\$ 2,000	\$ 1,860.99	\$ 639.01
On Escoumains do .....	1,500	1,500.00	.....
On Callière do .....	500	500.00	.....
Totals.....	\$4,000	\$3,860.99	\$639.01

*Work done from 1st July, 1864, to 1st July, 1865, included in the above.*

On the Portneuf Division 2½ miles of road and 16 bridges, varying from 15 to 180 feet in length, were constructed during the past year.

The work was commenced on the 15th of August, and completed on the 31st of October, 1864.

On the Escoumains Division nearly 1 mile of new road was constructed at Bon Desir, at about 11½ miles west of Escoumains; more than one-third of a mile of the road previously



built at this place, slid into the St. Lawrence, this occasioned the re-construction of the road on another line of the length stated.

Seven miles of the road previously made in 1857, from Escoumains to Bon Desir, were repaired and improved.

The bridge across the River Grande Bergeronne has been partly constructed.

The work was commenced on the 1st August, 1864, and continued until the appropriation was exhausted.

The road is practicable as a summer road from Escoumains to Petite Bergeronne for about 16 miles, and as a winter road thence to Tadousac for about 12 miles.

On the Callière Division 2½ miles were completed to the Baie des Rochers.

The road is now practicable as a summer road up to St. Fidèle.

The work was commenced last summer and discontinued in the fall of the same year, the funds authorized being expended.

The reports of the Local Superintendents show that these roads are being settled as fast as they are constructed and even faster.

Their speedy completion is highly desirable in the interest of colonization.

#### • MALBAIE AND GRANDE BAIE ROAD,

Connecting the North Shore Coast Road at Malbaie with the Grande Baie and Upper Saguenay settlements—being opened as a summer road on the west side of the Malbaie River. Total length from main road on the St. Lawrence to Grande Baie or Baie des Ha! Ha! Church on the Saguenay, estimated at 76 English miles, 10½ of which, at the Malbaie terminus, made by settlers.

Paschal Bouchard, Local Superintendent.

Work commenced in 1856 and continued in 1859, 1860-1-2. No work done from 1862 to 1st July, 1864.

Work resumed in August, 1864.

*Total work done from the commencement, and remaining to be done.*

19 miles.—Finished as a summer road from Grande Baie southward, towards the River St. Jean, eight miles at north end being 18 feet wide, and 11 miles 12 feet wide.

6 do Finished as a summer road 12 feet wide along the River St. Jean.

9½ do Partly completed at the Passe-des-Monts, 12 feet wide, towards Malbaie.

31 do Opened only as a winter road, eight feet wide, to be completed as a summer road.

Total 65½ do. In progress under Government.

Total cost of work done from the commencement, \$13,200.

*Work done from 1st July, 1864, to 1st July, 1865, included in the above.*

Ten miles, comprising three bridges of from 45 to 90 feet in length and 85 culverts, were completed as a summer road, from the end of the nine miles already constructed from Grande Baie, thus forming a continuous length of 18 miles southward, available for summer traffic.

To connect this portion with the six miles finished in previous years along the River St. Jean, and with the branch road leading to Anse St. Jean, a thriving parish on the Saguenay, there now remains about four miles to be constructed, at a probable cost of \$400, according to Mr. Bouchard's Report.

When these are completed there will be a continuous summer road from Grande Baie to the Anse St. Jean Road for about 29 miles across most favorable land for settlement.

The 31 miles opened only as a winter road are chiefly towards Malbaie, where the land is more or less fit for settlement for a distance of about 14 miles.

In continuing the work, the connection between Grande Baie and the Anse St. Jean Road should be completed the first; once this has been effected the road should be completed from the Malbaie settlement northward, so as to afford convenient access to the land fit for settlement. The intervening portion, where the land is unfit for settlement, should be left for the last

The total amount expended, as authorized, from 1st July, 1864, to 1st July, 1865 is \$1,206; \$200 of which were applied to the construction of a bridge across the Malbaie River.

CHEMIN DES MORAIS OR CARTIER ROAD,

Connecting the North Shore Coast Road, at Malbaie, with the Grande Baie and Anse St. Jean Roads, terminating on the Saguenay.

Being opened as a winter road, on east side of the Malbaie River.

Length of road estimated at 39½ miles, as follows:—

	Length, miles English.
From Bridge across outlet of Malbaie River, on the St. Lawrence, to end of old road through settlements, on east side of the Malbaie River, constructed as a summer road by inhabitants.....	4.50
From end of old road, thence through forest to road leading to Anse St. Jean, most of which was opened last year as a winter road by the Government.....	32.25
From intersection of Anse St. Jean Road to intersection of Grande Baie Road, partially opened by the Government last year as a winter road.....	3.00
<hr/>	
Total length, of which 35½ miles are being opened as a winter road by the Government (Erratum in last year's printed Report, 25 instead of 35½ miles).....	39.75
François Lapointe, Local Superintendent.	
Work commenced in 1864.	

*Work done from 1st July, 1864, to 1st July, 1865, included in the above.*

The work was commenced within seven miles from the Malbaie settlements and completed to within one mile of the intersection of the Grande Baie Road.

The entire sum authorized, viz., \$800, has been expended.

A further sum of about \$400 is required for the completion of the winter road, according to Superintendent's Report.

ROADS BELOW QUEBEC, ON SOUTH SHORE OF ST. LAWRENCE.

GASPÉ AND ST. LAWRENCE ROAD,

Connecting Gulf Road, along south shore of St. Lawrence with Gaspé Bay, and Basin.

Length (deducting the six miles hitherto included of the Gulf Road from Griffin's Cove up to Great Fox River), 29 miles.

Antoine Painchaud, Local Superintendent.

Work commenced in 1859.

Twenty and one-half miles completed; eight and one-half to be constructed.

The completed portions are:

- 7 miles from Griffin's Cove on St. Lawrence to Peninsula on north side of Gaspé Bay;
- 10 do from Peninsula eastward, along north side of Bay, to Grande Grève, at extreme easterly end of the Gaspé District.
- 3½ do from end of Road on north side of Gaspé Basin around Arnold's Bluff up the north-west arm of Gaspé Bay on its south side beyond L'Anse aux Cousins.

*Work done from 1st July, 1864 to 1st July, 1865.*

The latter is the portion that was constructed during the past year at a cost of about \$570 per mile, it forms part of the branch road traced in 1861 from Gaspé Basin to La Grande Vallée des Monts.

The portions to be constructed are:

- 1½ mile from L'Anse aux Cousins up the north-west arm of Gaspé Bay on its south side to Pointe à Navet, or to the proposed scow ferry.
- 7 do from the opposite side of the ferry down the north-west arm of Gaspé Bay, along its north side to the Peninsula.

The cost of the unfinished portions is estimated by Mr. Painchaud at about \$7,000.

The cost of the work done last year amounts to \$2,000, the sum authorized to be expended.

The total outlay on the above sections of completed road, exclusive of what was expended on the six-mile section of the Gulf Road between Griffin's Cove and Great Fox River, amounted, on the 1st July, 1865, to about \$14,500.

#### SOUTH SHORE GULF ROAD.

From Cap Rosier Light-house, westward to lot 9, Township of St. Denis, or to end of main road leading to Quebec.

Total length 179.83 English miles.—Work commenced in 1857.

This road comprises three divisions :

	Completed.	To be constructed.	Total length miles.
<b>First Division—</b>			
Cap Rosier to River Magdalen.....	6.00	59.78	65.78
Antoine Painchaud, Local Superintendent.			
<b>Second Division—</b>			
River Magdalen to Cap de Chatte.....	16.45	60.97	77.42
Charles Roy, Local Superintendent.			
<b>Third Division—</b>			
Cap de Chatte to Matane.....	36.63		36.63
Joseph Rosa, Local Superintendent.			
<b>Totals .....</b>	<b>59.08</b>	<b>120.75</b>	<b>179.83</b>

*Work done from 1st July, 1864, to 1st July, 1865, included in the above.*

On the 1st Division, nothing has been done during the past and preceding years, since 1862.

On the 2nd Division, the only work done during the same period has been the construction of  $3\frac{1}{2}$  miles of road from St. Anne des Monts downwards; it was let on the 15th and commenced on the 18th of last August; it was completed on the 18th of October following, with the exception of two small bridges which were completed last spring; the cost of the work done is about \$610 per mile.

From the lower end of St. Anne des Monts upwards to Cap de Chatte the road constructed by the settlers is  $13\frac{1}{2}$  miles in length.

The whole amount of \$2,000, allowed for this section, has been expended.

On the 3rd Division, three miles of road have been improved, and the bridges across the Ravines of Ruisseau de la Wapper and Ruisseau à Sem have been completed; by the construction of these bridges, four of the worst hills have been avoided; the Wapper Bridge measures 188 feet in length by 70 in height and 18 in width, resting on bents 33 feet high and 80 feet apart, based on cedar crib work 37 feet high at centre; the Sem Bridge measures 300 feet in length by 48 in height and 18 in width, resting on bents 30 feet high, 30 feet apart, and based on cedar crib-work 18 feet high at centre.

The cost of the work done is equal to about one-half of the authorised expenditure.

The unexpended balance of about \$2,500 is being applied to the improvement of the remainder of the road which is now settled nearly throughout, although it was only commenced in 1857, and opened to the public in 1860.

#### METAPEDIAC (OR EASTERN CANADA AND NEW BRUNSWICK) ROAD.

From Ste. Flavie on the St. Lawrence to James Sillers' on the Ristigouche Road, which connects at Cross Point with the Coast Road along the north side of the Baie des Chaleurs and the New Brunswick Coast Road on the opposite side, leading to Halifax.

Length  $100\frac{1}{2}$  English miles.

Joseph Rosa, Local Superintendent.

The ferry between Cross Point and Campbellton, across the outlet of the Ristigouche, connects the Canada and New Brunswick Roads.

*Work commenced in 1857 and still in progress.*

	Miles.
Length of road finished on 1st July, 1865.....	60.15
do partly finished and passable on 1st July, 1865.....	4.15
do put under contract last fall, now in progress, and to be completed in 1865.....	36.00
<hr/>	
Total length per Survey in winter of 1864-5.....	100.30
Amount available on 1st July, 1864, out of former appropriations...	\$58,062 74
Expenditure from 1st July, 1864, to 1st July, 1865.....	14,574 26
<hr/>	
Unexpended balance on 1st July, 1865, required for completion of works in progress.....	\$43,488 48
<i>Unforeseen expenditure yet to be provided for.</i>	
Repairs of damages caused by fires of May and June, 1864.....	\$ 3,500 00
do do inundation in spring of 1865, on portions of the road left unfinished last year by the Contractors, who abandoned the work.....	2,800 00
Amount required to complete other portions of the road abandoned by Contractors of 1862-3.....	1,400 00
For superintendence and contingencies.....	2,300 00
<hr/>	
Total required.....	\$10,000 00

*Work done from 1st July, 1864, to 1st July, 1865.*

Little progress has been made with the works put under contract last fall, the most of which was commenced only during the third week of last June.

Nearly 2½ miles of the road contracted for in 1862-3 were completed during the past year.

The work remaining to be done under the contracts passed last fall and spring, is to be completed on the 1st of next September; if it is finished by the time stipulated, the road will then be opened throughout.

Since the date of my last annual Report, serious damage has been sustained from the overflow of the Metapediac, on portions of the road which had been left in an unfinished state by the Contractors who had abandoned their work.

Several of the road lots, contracted for in 1862-3, have been abandoned and left in an unfinished state, on the southern portion of the road.

The amount required to cover these unforeseen contingencies is stated above.

During the past winter, the survey of the road line was commenced in December and completed in March, for the purpose of preparing a map to show the road as constructed.

The maintenance of the road in winter is expected to be easily accomplished, except for a distance of eight miles along the base of the cliffs known as Louis Lachance's Rocks, where snow slides occur once or twice each winter.

As this portion of the road is not fit for settlement, Mr. Evans, one of the Government Camp Keepers, should be instructed to reside at the 77th mile, as previously recommended; Mr. Rosa considers that not more than 15 or 18 days' work will be required each winter to keep this portion of the road in proper order.

**RISTIGOUCHE ROAD.**

From end of Metapediac Road at James Sillers, along the River Ristigouche to Cross Point Ferry.

Length. 10.02 English miles.

There has been no outlay on this road since the time of its completion, in 1843.

Two of the main bridges upon the line, across Little River and Fraser's Mill Stream, are so decayed, that their reconstruction is now a matter of absolute necessity. Unless they are rebuilt, the road communication with the Gaspé and New Brunswick settlements will be certainly interrupted.

This subject has been already referred to in previous reports, and is deserving of the serious consideration of the Commissioner.

The amount required for the reconstruction of these bridges and other indispensable repairs, is estimated at \$5,000.

**TEMISCOUATA (OR WESTERN CANADA AND NEW BRUNSWICK) ROAD.**

From Rivière du Loup to Province Line, New Brunswick.—Length 67 miles.

Messrs. Hudon and Deslauriers, Local Superintendents.

Work commenced in 1856. Road opened September, 1861.

Sixty-six and a quarter miles completed, and one and three quarters partly completed and passable.

The repairs and completion of this road are in progress.

The plan for the reconstruction of a new bridge across Rivière du Loup, opposite to the Railway Station, has been prepared for putting the work under contract during the coming winter.

All of which is respectfully submitted by

Your very obedient servant,

G. F. BAILLARGÉ.

**QUEBEC TO HALIFAX, via Temiscouata Road, Woodstock, Fredericton, St. John, and Amherst.**

N.B.—River St. John, from Little Falls to Grand Falls, forms a Boundary between Main and New Brunswick.

Names of Places.	Intermediate Mileage.	Total Mileage From		Remarks.
		Quebec.	Halifax.	
Canada—				
Quebec .....	0	0	705	Grand Trunk Railway.
Rivière du Loup.....	128	128	577	
Province Line.....	67	195	510	
New Brunswick—				Temiscouata Road.
Little Falls (Edmundstone)....	12	207	498	Near confluence Rivers Madawaska & St. John.
Grand Falls.....	38	245	460	On East side of River St. John.
River de Chute.....	33	278	427	On West do do
Woodstock.....	40	318	387	do do do
Fredericton.....	63	381	324	do do do
St. John.....	66	447	258	Bay of Fundy Railway, 107 miles long. St. John to Shediac.
Petitcodiac (on Shediac R'y)...	90	537	168	
Nova Scotia—				[of Fundy.
Amherst.....	44	581	124	Head N. W. arm, or Cumberland Basin. Bay
Truro.....	63	644	61	Head S. E. arm, or Coboquid bay, Bay of Fundy.
Halifax.....	61	705	0	Railway from Bay of Fundy to Ocean.

**QUEBEC TO HALIFAX, via Temiscouata Road, Woodstock, St. Andrews, St. John and Windsor, crossing the Bay of Fundy.**

Canada—				
Quebec .....	0	0	643	
Province Line.....	195	195	448	
New Brunswick—				
Woodstock.....	123	318	325	Railway ends on N. side Bay of Fundy.
St. Andrews.....	100	418	225	
St. John.....	63	481	162	On North side do
Nova Scotia—				
Windsor.....	120	601	42	Up Bay of Fundy by Steamboat.
Halifax.....	42	643	0	Railway from Bay of Fundy to Ocean.

QUEBEC TO HALIFAX, *viâ* Temiscouata Road, Woodstock, Fredericton, St. John, and Annapolis, crossing the Bay of Fundy.

Canada—				
Quebec.....	0	0	629	
New Brunswick—				
Fredericton .....	381	381	248	
St. John.....	66	447	182	North side Bay of Fundy.
Nova Scotia—				
Annapolis .....	59	506	123	South side do
Windsor .....	81	587	42	do do
Halifax .....	42	629	0	Railway from do to Ocean.

QUEBEC TO HALIFAX, *viâ* Metapédias Road.

Names of Places.	Intermediate Mileage.	Total Mileage From		Remarks.
		Quebec.	Halifax.	
Canada—				
Quebec .....	0	0	701	Mail Route.
Rivière du Loup.....	128	128	573	Grand Trunk Railway 14 miles longer than Road along South shore of St. Lawrence.
Rimouski .....	66	194	507	
St. Flavie.....	21	215	486	On do do
Mouth of Metapédias River ...	94½	309½	391½	Northern end Metapédias Road, on do
Cross Point, South, and Meta- pédias Road .....	15½	325	376	At confluence of Ristigouche River.
New Brunswick—				
Campbellton .....	1	326	375	At head of Baie des Chaleurs.
Dalhousie.....	16	342	359	Riv. Ristigouche, Boundary Canada and N. B.
Belle Dune.....	31	373	328	Ferry from Cross Pt. across month Ristig'che.
Bathurst.....	23	396	305	On Baie des Chaleurs.
Chatham.....	46	442	259	do do
Richibucto.....	40	482	219	do do
Shediac.....	36	518	183	Miramichi Bay, Gulf St. Lawrence.
Bend of Petitcodiac.....	15	533	168	E. entrance Northumb. Strait, Gulf St. Lawrence.
Nova Scotia—				
Amherst .....	44	577	124	On do do
Truro .....	63	640	61	Head of B. of F., N.W. arm or Cumb. Basin.
Halifax.....	61	701	0	do Coboquid Bay, B. of F., S.E. arm.
				Railway ending on Atlantic Ocean.

Distance from Quebec to Liverpool, *viâ* Belle Isle, 3,060 miles; *viâ* Cape Clear, 2,910 miles.

REMARK.—From Campbellton to the River St. John, near the mouth of the Tobique River, 132 miles at 11 miles above Rivière de la Chute, and 27 miles below Grand Falls.

G. F. B.

## APPENDIX No. 13.

REPORT BY JOHN PAGE, CHIEF ENGINEER,

ON THE CONDITION OF THE PUBLIC BUILDINGS AT OTTAWA.

PUBLIC BUILDINGS, OTTAWA,

20th July, 1865.

The Secretary of Public Works.

SIR,—The site, relative position, and general arrangement of the Public Buildings at Ottawa having been frequently described, it is proposed, in carrying out the instructions conveyed in your letter No. 54,224, to confine the following Report to the present condition of the Works, and their progress since February, 1864, the date of the last annual Report of the Department.

With this object in view, the three Blocks of Buildings will be referred to separately, and the works connected with them will be briefly noticed under their respective heads.

The *Departmental Buildings*, being farthest advanced, and likely to be the earliest required, it is considered proper to draw attention to them first, in order following :—

### EASTERN BLOCK.

This Building is the larger of the two, and in it are situated the rooms allotted to His Excellency the Governor General, the Honorable the Executive Council, the Attorney General East and West, and the other Law Officers of the Crown, the Provincial Secretary, the Minister of Finance, the Receiver General, the Minister of Agriculture, Provincial Registrar, &c., &c., the whole of which are now nearly completed.

The principal works executed since February, 1864, have been the carrying up of the unfinished exterior masonry, consisting of towers, chimneys, approaches, stairs and other works; construction of inside stairs, laying the remainder of the iron joists and fire-proof floors; completing the carpenter's, slater's and plumber's work of the roof; preparing and fixing cresting on towers and roofs, finishing the plaster work of all classes in the basement, first and second stories, or about two-thirds of that required for the whole Building; laying the cement floors and skirtings in basement, and running the corridor skirtings of the first and second stories; hanging doors, laying floors, fitting up architraves, skirtings and other necessary joiner work; preparing and fitting up chimney-pieces, hearths and grates; glazing, both plain and ornamental; fitting up heating and ventilating apparatus, completing water distribution to wash-basins, closets, &c., &c.; laying and arranging pipes for gas distribution, extension of sewage, construction of drains, &c.

The largest items of work remaining to be done are the roofing of the main tower, constructing a carriage porch at the Governor General's entrance, laying the corridor floors in cement, making and fixing balusters to stairs, arranging bells, finishing painting, glazing, &c., &c.

### WESTERN BLOCK.

This structure contains the rooms allotted to the Crown Lands, Post Office, Public Works, Militia, and Indian Departments, all of which are now nearly finished.

The works carried on during the past eighteen months have been generally of a similar class (although not of a like extent) as those referred to for the Eastern Block. The attics have, however, been converted into drafting rooms for the use of the Crown Lands and Public Works Departments, and alterations made by which several portions of the Building, not otherwise available, have been brought into use.

The works still remaining to be done are chiefly the laying of the corridor floors, fixing hand-rail and balusters of stairs, arrangement of bells, finishing painting and glazier's work, and other matters of detail.

The following statement shows the quantities, &c., of the leading items of work done on both Blocks, during the period embraced in this Report, viz. :—

I T E M S .	East Block.	West Block.	Totals.
Excavation.....cubic yards.....	4,000	5,934	9,934
Masonry.....do.....	1,796	1,242	3,038
Ohio Stone used.....cubic feet.....	18,379	10,026	28,405
Cutting for do.....sup'l feet.....	33,324	27,163	60,487
Concrete.....cubic yards.....	1,409	985	2,394
Brickwork.....M.....	483,098	365,812	848,910
Plaster work.....sup'l yards.....	24,731	26,153	49,884
Plaster Cornice.....do feet.....	27,610	17,774	45,384
Keene's and Portland Cement.....do yards.....	2,942	2,576	5,518
Lead.....lbs.....	61,649	48,317	109,966
Wrought iron work.....do.....	307,401	254,374	561,775
Pine flooring.....squares.....	501	372	873
Architrave mouldings.....lin'l feet.....	9,819	8,919	18,738
Doors hung.....No.....	216	212	428
Painting.....sup'l yards.....	8,058	8,376	16,434
Chimney pieces, hearths and grates.....No. of each.....	80	78	158
Wash basins.....No.....	86	89	175
Water closets (including urinals and sinks).....do.....	51	31	82
Cast iron pipe, 4-inch.....lin'l feet.....	755	1,155	1,910
Wrought iron pipe.....do.....	10,764	12,264	23,028
Stoneware pipes for ventiducts.....do.....	4,801	5,371	10,172
<i>Steam Pipes for both Blocks.</i>			
Four-inch pipe.....lin'l feet.....	1,419		
Three-inch do and under.....do.....	60,077		

#### PARLIAMENT BUILDINGS.

The wings and central portion of this structure are plastered, and pipes fixed for gas and water distribution; the window and door architraves, skirtings and other finishings fitted up, and the floors of rooms in the first and second stories nearly all laid.

The Assembly Chamber is also well advanced, all the marble work of the interior being in place, the ceiling is finished with the exception of glazing; the gallery platforms fixed, and the plaster work nearly completed.

The Legislative Council Chamber is not so far advanced, but the marble work is done, the ceiling fixed, and the works generally in so forward a state that, with proper exertions, this portion of the structure can also be finished at an early period.

The principal works executed since February, 1864, are as follows:—

The completion of the three angle towers, chimneys and ventilating shaft, east wing; carrying up the walls of both chambers and smoking rooms, and roofing them in erecting ventilating shafts and chimneys; raising the walls of main tower 45 feet, or to the height for commencing the clock panels; furnishing, preparing and placing marble work in both chambers; preparing and fixing inside stairs, building foundation for outside steps, carrying up main extracting shaft to its full height, raising walls of library 18 feet over plinth course, or 28 feet over surface of ground, laying the remainder of the iron joists, concrete floors and ceilings; setting the boilers for the heating apparatus and constructing furnaces, arranging steam coils, pipes, &c.; forming drains from water closets, wash basins, &c.

Plastering both stories of main building and wings, the Assembly Chamber, wardrobes, reading rooms, Speaker's apartments, dining rooms, saloons, &c., &c.

Putting in window and door frames, fitting up panelled ceilings, and finishing of joiner work, including floors and skirtings throughout first and second stories; staining and varnishing wood ceilings, and partly painting the finishings; glazing generally, and preparing the ornamental stained glass for Assembly chamber.

Preparing and fitting up cresting on angle towers, and terminals for large dormers, laying pipes for gas to the various rooms, and for water distribution to wash basins, water closets, hydrants, &c.

Preparing and fitting up chimney pieces, hearths and grates throughout the building, &c., &c.

The chief works remaining to be done are the preparation and placing of outside steps, rails and balusters to the several entrances; construction of two ventilating towers,



and chimney to the Legislative Council Chamber; carrying up clock gables, pinnacles and roof of main tower.

Laying cement floors, and running skirtings in corridors of basement, and two upper stories; plastering basement rooms in central portion of building, kitchens, &c.; also Legislative Council Chamber, and adjoining corridors, smoking rooms, &c.

Laying floors and fitting up skirtings and door finishings, in basement; fitting up panelled ceilings in galleries and corridors of Legislative Council Chamber, laying floors in halls and galleries, preparing and fixing gallery fronts, and wainscoting around walls of both Chambers; fitting and hanging doors throughout the building.

Preparing and fitting furniture connected with water closets, lavatories, wash basins, &c.

Fixing hand rails and balusters to stairs, painting skirtings, door and window finishings, glazing ceilings of both Chambers, preparing and fixing ornamental stained glass for the Legislative Council Chamber.

Extension of main sewer to river, and completing termination of cold-air ducts.

Fitting up heating apparatus for both Chambers, preparing fan, engine, &c., for warming and ventilation.

Arranging bells.

Completion of Library, &c.

Although all the works above enumerated have yet to be done; it is proper to state that the doors and most of the joiner work is already prepared.

The following statement shews the main items of work executed since February, 1864:—

Masonry.....	cubic yards.....	5,586
Concrete for floors.....	do .....	1,320
Bricks laid .....	M. ....	994,000
Ohio and other Block stone used.....	cubic feet .....	50,000
Labor on do .....	sup'l " .....	67,400
Marble .....	cubic " .....	7,384
Workmanship on Marble.....	sup'l " .....	8,900
Roofing, flooring, &c.....	squares .....	710
Slating.....	do .....	443
Galvanized iron.....	sup'l feet .....	12,000
Panelled and moulded ceilings.....	do .....	67,500
Sashes and frames, door and window finishings.....	do .....	4,865
Door frames.....	lin'l feet .....	5,123
Pine skirtings.....	do .....	3,690
Plastering .....	sup'l yards.....	30,500
Plaster cornices.....	lin'l feet .....	7,100
Painting and varnishing.....	sup'l yards.....	10,321
Cast and wrought iron work.....	lbs. ....	317,540
Lead work.....	do .....	163,000
Iron pipe for Gas and Water distribution.....	lin'l feet .....	20,000
Glazing.....	sup'l " .....	13,428
<i>Heating and Ventilation.</i>		
Valves, Registers, &c.....	No. ....	430
Cast and wrought iron work.....	lbs. ....	21,400
Four and six-inch cast iron pipe.....	lin'l. feet .....	1,653
Steam pipes, two-inch and under.....	do .....	46,000

#### HEATING AND VENTILATION.

In the *Departmental Buildings*, the works connected with this service having been sufficiently advanced and the boilers properly tested, it was decided last fall to bring them into use for the purpose of drying out the air vaults, basements and other portions of the structures.

Arrangements were therefore made for the delivery of firewood in such quantities as might be required, and for furnishing the necessary supply of water.

On the 4th of November steam was raised in the two boilers of both Blocks, and a few days having been allowed for drying out the flues it was gradually introduced into the pipes and coils situated in the air vaults, and its range from time to time extended, until

the system was in full operation throughout the respective Buildings, except the attics, in which the steam pipes were not then placed.

Although it would now be premature to express an opinion relative to the working of the system as a whole, it is proper to state that the result has so far proved satisfactory, even under the unfavorable circumstances in which it has been tried, that is, with only exterior doors (and in many cases single windows) in the Buildings.

Nevertheless, a temperature of 50° Fahrenheit could generally be maintained in very cold weather, with a pressure of from 15 to 20 lbs. of steam; and in mild winter weather from 8 to 10 lbs. pressure sufficed to keep up a like degree of heat during the day, after the apparatus had been fairly started.

The average consumption of fuel during the winter months was about two cords per day for each boiler, or eight cords daily for both blocks of Buildings. As spring set in, however, the quantity of wood required was, of course, greatly diminished, and now not more than from one to one and one-half cords are used daily for both Buildings.

The dampness has been in a great measure drawn out of the vaults, concrete floors, walls, &c., and it is quite probable that in future the consumption of fuel required to keep up a like degree of heat to that above mentioned will be less than heretofore.

In the *Parliament Building* the heating apparatus was started on the 9th of January last, and the system was shortly afterwards carried throughout the wings and central portion of the structure.

In February arrangements were made to fit up temporary steam coils under and in the Legislative Assembly Chamber, for the purpose of drawing out the frost and drying the walls so as to admit of proceeding with the interior works.

As the winter sashes were not hung, and only temporary doors put up, which were frequently used by workmen and others, the cold air was but imperfectly kept out, thus rendering it impossible to form a correct opinion of the operation of the system when complete. It was, however, ascertained that the enclosed portions of the Building could be sufficiently warmed by steam at a comparatively low pressure.

There were generally two (and occasionally three) boilers in use daily, which consumed, on an average, about two cords of wood each during the coldest weather, or a like quantity per boiler as those of the Departmental Buildings.

The original design for the heating and ventilation of the two Legislative Chambers contemplated the introduction of warm air through the perforated risers of the platforms on which the Members' seats were to be placed, and the downward extraction of foul air through a line of cast-iron gratings placed under the Public Galleries.

On each side of the Chamber there are to be three ranges of seats, which it was then proposed to raise respectively 14, 28 and 42 inches over the floor of the House.

On further consideration, however, it was deemed advisable that the front ranges should be on the same level as the floor of the House; and that a like relative height, as at first proposed, should be maintained between those in the rear.

By the adoption of this plan the front risers were, of course, dispensed with, and the means of introducing the warm air greatly diminished.

This and other circumstances led to further enquiry into the subject and the collection of facts bearing upon it, when it was decided to recommend that certain alterations should be made.

These consisted in arrangements by which warm air can be introduced along the side walls of the Chambers and the foul air drawn off through the risers of the platforms.

It is believed that this modification will result in a genial and equable distribution of heat, without being open to the objection of its issuing close to the seats occupied by the Members.

In order to secure an abundant volume of air of the necessary temperature, it has been decided to construct a fan in the boiler-house, for the purpose of forcing the supply through the warm-air vaults which communicate with both Houses. By this means there is reason to believe that the purity of the interior atmosphere can at all seasons be maintained, and the injurious effects which usually result from breathing highly-heated and rarefied air entirely avoided.

#### GAS SUPPLY.

The subject of illuminating gas for the Public Buildings, having been fully invest-

igated, it was decided to advise the use of that manufactured from coal as likely to prove eventually the most advantageous.

A contract was subsequently entered into with the "Bytown Consumers Gas Company" to furnish all the gas required for the Departmental Buildings by the 15th day of October next; and to have its works sufficiently enlarged, and the necessary mains, &c., laid, to deliver the full supply for all the Public Buildings by the first day of January, 1866. This contract is for a period of ten years, and provides for the delivery of gas of the best quality at the main entrance, to be measured by meters placed within the respective Buildings.

#### GAS DISTRIBUTION.

*Departmental Buildings.*—Both blocks are to be connected with the main by supply pipes of three inches diameter. These enter the respective Buildings near the angles formed by their southern and quadrangle faces, and are carried into metre rooms situated in the basements, from whence a two-inch pipe is carried up to the first story of each block. This pipe is then continued to the attic, or ceiling of the second story with a diameter of only one and a half inches. From these vertical pipes others of smaller dimensions (and imbedded in the concrete floors) branch off along the corridors in the second story, and in like manner through the attics. The horizontal pipes vary from one and a quarter to half an inch diameter, according to their distance from the vertical supply, and the number of smaller pipes which they are intended to serve.

The arrangements for pendants and brackets, &c., have, in all cases, been made to suit what is understood to be the views of the Heads of Departments, and the occupants of the several rooms.

It is however proper to state that the existing contract does not provide for gas fittings, these being generally classed as furniture.

*Parliament Building.*—As this Building will be occupied by both branches of the Legislature, it was considered necessary to provide the means of distinguishing the consumption of illuminating gas on the Council side from that used by the Legislative Assembly.

For this purpose, arrangements have been made to carry two separate four-inch supply pipes from the main into Register rooms situated in the basement on the east and west side of the central tower.

From each register a 3-inch pipe is carried horizontally along the corridor ceilings of the basements, from which vertical pipes ascend to the several floors to serve the various pendants and brackets in the corridors, committee and clerks' rooms, &c. A 2-inch pipe is also laid to the Picture Gallery, smoking rooms and Library, and another is carried round the passages under the Houses, to supply the necessary brackets in the corridors and adjoining rooms, &c. A 3-inch pipe has also been carried to the ceilings in order to provide means of lighting the Chambers either on the solar principle as originally designed, or to supply pendants and brackets.

As already stated, no provision has been made in the Building contracts for gas fittings.

The latter, in this case, should of course be in keeping with the style of architecture and must necessarily be imported (and probably manufactured) after the order is given.

#### WATER SUPPLY.

There being no proper means of supplying the Buildings with water, other than by pumping, it was decided, after a careful examination of the locality, that the most advantageous site for the machinery necessary for that purpose would be at a point on the margin of the river, near the foot of the cliff, and immediately north of the Library.

At this place an engine-house of masonry has been erected, and a pump well sunk beneath it, communicating with the river by a covered way in which are placed the necessary racks and filters, for the purpose of obtaining a supply of pure water.

The bottom of this well is about six feet below low water mark, but provision has been made for access to it at all periods, either for clearing out or executing any repairs which may be required.

A strong boom is moored in the river in a position to guard the works from injury by rafts and prevent floating timber lodging on the outer rack.

Two double-acting force pumps, each of six-inches bore and two feet stroke, have been constructed, placed and connected with an air vessel of suitable capacity situated within the engine-house, and from which a rising main of six inches diameter issues. Either of these pumps, working five or six hours daily, is capable of elevating the whole of the required supply.

It is believed that the reflux pressure in the air vessel will, in conjunction with the almost continuous action of the pumps, secure a steady flow through the main, and thus diminish the probability of accident to the machinery from the sudden shocks which would otherwise be experienced.

The Building has been planned for the the reception of two steam-engines, but only one has been fitted up. This is a small portable engine with two 7½-inch cylinders of 12 inches stroke, which had been used for several years under the Department. It has been thoroughly repaired and applied to this service, and has, so far, been found capable of working one of the pumps with ease. But it is contemplated that a more powerful engine of a different class shall be provided for permanent use, and that the present one shall be held in reserve.

From the engine house the rising main is carried in an oblique direction along the face of the cliff in which it is imbedded to a proper depth to protect it from frost. It then curves round to the westerly end of the Parliament Building, where it enters a room in the basement of the north-west angle tower, and is continued vertically to a receiving tank placed under the roof at a height of 226 feet over low-water level of the Ottawa River. The main is provided with proper reflux and pressure valves, sludge cock, &c.

In the room referred to an arrangement of circular branch pipes and valves has been constructed, by means of which the supply to all the Buildings can be controlled; at this point a four-inch extension of the pumping main diverges to the Western Block, and the six inch pipe is continued under the basement corridor floor to a similar room at the eastern end of the Parliament Building, where it rises vertically to a tank placed under the roof of the north-east angle tower; in the latter room a four-inch pipe branches off for the supply of the Eastern Block.

In the other four angle towers of the Parliament Building, wrought iron tanks are also placed, all of which are connected, and form collectively one reservoir capable of containing about 75,000 gallons of water—in the boiler house there are three tanks of an aggregate capacity of 12,000 gallons.

In addition to the means of pumping thus afforded, arrangements have been made by which the same mains will be used to supply the Departmental Blocks, by gravitation alone, from the chain of tanks at the higher level in the towers of the Parliament Building, and which, it is believed, will be the general mode of effecting this service.

#### DEPARTMENTAL BUILDINGS.

Three tanks have been placed in the towers of the Eastern Block, which can collectively contain about 27,500 gallons, and in connection with the boiler-house storage has been provided for 5,700 gallons.

In the Western Block there are two tanks in the angle towers capable of holding 10,000 gallons, and in the boiler-house the tanks have a capacity of 5,700 gallons.

It will thus be seen that the water storage in all the Buildings is equal to 135,900 gallons, of which 112,500 gallons are available for distribution, or sufficient for eight or nine days' consumption when the several structures are fully occupied; the remaining 23,400 gallons being for the use of the boilers, and sufficient for fully a month's supply without drawing from the general reservoirs in the attics.

#### WATER DISTRIBUTION.

In order to secure the speedy equalization of the supply to the various tanks, it has been deemed necessary (as before stated) to join those of each block by independent pipes, through which the water might pass unimpeded by branches for the distribution. These pipes, in the Parliament Building, are four inches diameter, and in the Departmental Blocks two inches diameter.

As the reservoirs occupy the highest levels within the Buildings that circumstances

would permit, it was considered that the distribution could be most advantageously effected by carrying the main pipes for that purpose through the attics and extending from them branch pipes leading downwards to the various places required. By the adoption of this plan the steam and water pipes are placed alongside each other in positions where they are at all times easily accessible. In this manner the several closet-cisterns, numerous wash-basins, &c., throughout the different buildings are supplied. Hydrants have also been provided and fixed in the attic, basement and intermediate stories of the respective structures, nine in each of the Departmental Blocks and fourteen in the Parliament Building; and as the tanks in the angle towers of the latter are not sufficiently high to command the roofs of the Chambers, a steam pump provided for the boilers is made to serve the purpose of a fire-engine, in case of accident to them or other high roofs.

In carrying out the system as a whole, every care has been taken to ensure its efficiency and many precautions adopted to which it is deemed unnecessary further to refer.

An idea of the extent of this and the gas service may, however, be formed from the fact that the length of the different kinds of pipe used for these two purposes alone is about 49,000 lineal feet, or fully 9¼ miles.

The quadrangle enclosed by the Buildings being still occupied by workshops, sheds, &c., it has, so far, been considered injudicious to attempt the formation of roads around it, or do anything by which the contractors' operations might be impeded. It is, however, expected that within a short time the grading of roads can be carried on without interfering with existing arrangements.

Although, as already stated, the outline of these Buildings has often been described, it will, nevertheless, be evident that the execution of such masses of work as those above enumerated must have largely contributed, not only to prepare them for early occupation, but also to add considerably to their general appearance.

The principal part of the exterior work performed having been the finishing of towers, chimneys, roofs, cresting and other prominent features which tend materially to develop the imposing characteristics of the style in which the structures have been erected, a much closer idea than heretofore can now be obtained of what will be their ultimate effect as a whole. This, however, will not be fully realized until the old buildings in the vicinity shall have been removed, and the grounds properly laid out and completed.

I have the honor to be, Sir,

Your obedient servant,

(Signed,) JOHN PAGE,  
Chief Engineer, Public Works.

## APPENDIX No. 14.

### REPORT OF E. P. RUBIDGE, ASSISTANT ENGINEER.

#### ADDITIONS AND IMPROVEMENTS TO RIDEAU HALL.

CITY OF OTTAWA,

June 13th, 1865.

F. BRAUN, Esquire,  
Secretary, Public Works.

SIR,—In compliance with your letter of instructions, calling for the Reports of Departmental Officers in furtherance of the annual Report of the Honorable the Commissioner of Public Works, to His Excellency the Governor General and the Legislature, I have the honor to state that upon being, some twelve months since, relieved from the duties of Superintendent of Public Buildings at Ottawa, I remained in that city, under instructions, to afford information to the Department, and prepare Plans of the necessary additions and improvements proposed to "Rideau Hall," which property, situated near the City of Ottawa, had recently been leased from the Heirs of the Mackay Estate for the occupation of His Excellency the Governor General, and his establishment.

This property, about 65 acres in extent, is situated on the right bank of the Rideau River, adjacent to the Ottawa or Grand River at their confluence, and being in the Township of Gloucester and County of Russell. The grounds are undulating, partially wooded, and susceptible of ready improvement. The residence, erected by the late Honorable Thomas MacKay, about twenty-five years since, and seated near the centre of the property leased, is of moderate extent, being only 75 by 47 feet on ground plan, and offering little pretensions to architectural appearance; the outer walls, built of the limestone of the locality, shew evidences of disintegration on portions of the exposed surfaces.

The house can only be considered an ordinary dwelling of some eleven rooms, without including the basement and attic stories. The elevation of the ceilings of the best apartments is much too low, and in other respects the abode is deficient in many of the requisites of a modern mansion. A more ample water supply, with proper drainage therefrom, have to be provided, and the location being in the limestone rock close to the surface, will add greatly to the cost of these wants.

The stabling and out-buildings are rude farm structures, and by no means suitable or becoming appendages to the residence of the Governor General of British America. These must be either renewed in whole or in part, or else removed farther from the house to a more fitting site, according as the expenditure authorized will admit thereof, or otherwise.

A suitable building, for the accommodation of a Sergeant's Guard, has been designed and estimated for, and forwarded to Quebec. Also, enclosing the whole of the acquired property with park-paling, and putting up proper entrance gates, have been prepared for, and plans and estimates submitted.

The desire of the Honorable Commissioner being to confine any expenditure for improvements at "Rideau Hall" within as moderate a sum as possible, in consideration that the property was held by the Government, for the present, only for a term of years; plans to carry out this object were prepared and sent to the Department; these were followed by others restricted to a still less outlay.

At the commencement of the present year, a ground plan of proposed internal arrangements for the additions to "Rideau Hall" was sent to Ottawa from the Department, with the request that I should have plans prepared in accordance therewith. This duty being complied with, the drawings were submitted to the Honorable Commissioner; but in order to lessen the probable cost, it was proposed to reduce the size of rooms, extent of roofing, &c., and thereupon modified plans were immediately drafted, upon which contractors were, by public advertisement, invited to send in tenders on the 22nd of May last.

Thirteen competing parties accordingly gave in tenders for the additional buildings, wings and alterations, varying in amounts from \$27,940 to \$47,000. The architect's estimate being a mean of the foregoing or \$36,591. The time for completion named in the specification, was the 31st day of August, 1866, for the reason that the building season of the present summer would be very much absorbed after the contract could possibly be signed, in collecting and preparing materials on the ground, and that winter weather would shortly arrest all outside operations.

In seeking to combine the existing or old building known as "Rideau Hall," with the proposed alterations and additions thereto, nothing beyond ample space, convenience and economy, has been studied. The residence intended for His Excellency the Governor General, distant two miles from the present imposing and costly edifices in which the Legislature and Executive Departments will be convened, rendered it unnecessary that any expense should be incurred, in architectural features, in order to harmonise with the latter.

The buildings, therefore, as above intimated, will be plain and substantial, but at the same time, perfectly unpretending in exterior elevation.

The parties to whom the contract should be awarded, if the lowest tender is accepted, are Messrs. Ward & O'Leary, the former of the City of Montreal, the latter of Quebec, master-plasterers and builders. The securities offered by the contractors being unexceptionable.

To carry into effect certain indispensable wants in and upon the premises at "Rideau Hall," not embraced in the contract above alluded to, it is estimated will require a further outlay of, say \$18,000, namely:—

A guard-house for soldiers.

Portion of new stabling.

Fencing in the entire property, entrance, gates, &c.

Fitting up kitchen range, hot plate, charcoal furnace, &c.

Paper hanging and decorative painting.

Gravelling and repairing roads and approaches.

Dairy, laundry, ice-house, carriage shed, and other out-buildings, &c.

#### AYLMER COURT-HOUSE.

The covering to the roof of the east wing of this building continuing to prove leaky and defective, notwithstanding previous repairs, it was decided, with the approval of the Honorable the Commissioner, to re-lay the flat deck with new lead, and to secure the chimneys where passing the roof, with new metal flashings, also to staunch the connection of the wing with the main building by proper precautionary measures. The work having been executed successfully within the sum estimated therefor, namely, \$200.

#### LIGHT-HOUSE, UPPER GAP, BAY OF QUINTE.

The site proposed in 1857 by the undersigned for this much-required light, was visited again in the month of August last, under Departmental instructions, and the choice of the previously chosen spot was confirmed, after consulting with the Inspector of Light-houses and parties resident in the neighborhood. The entrance to the Upper Gap from Lake Ontario, in dark and stormy weather, is attended with much uncertainty and danger—many vessels having been wrecked in making the entrance from the lake.

As the sum appropriated for this and other lights in the vicinity was limited, a tower of wooden frame-work, based on a crib foundation, the light on which will be about fifty feet above water level, has been projected; and a plan and specification were, in September last, put before the public in the Kingston papers by advertisement:

Only two tenders were received, both of which, probably from the late period of the year, were found too high to be accepted; it was consequently proposed by the Engineer to erect the tower under the supervision of the Departmental Inspector of Lights, who resides in the vicinity. The cost of which tower and foundation, not, however, including the lantern and lighting apparatus, was estimated at \$1,564.

#### ARBITRATION ON PUBLIC BUILDINGS, OTTAWA.

A special arbitration having been appointed by His Excellency the Governor General, to award upon the several claims preferred against the Government by the contractors and architects of the Public Buildings, Ottawa, under the original contracts, all the documents, correspondence, plans, &c., connected therewith, were placed under my charge in January last, with instructions to assist the arbitrators and counsel for the Crown in their researches among the papers, and, further, afford all information and explanations in my power with a view to the establishing of proper evidence. Mr. John Bowes, measurer on the Parliamentary Buildings, was afterwards associated with me in the latter duty.

The gentlemen appointed arbitrators were, Mr. John Page, Chief Engineer of the Department, in behalf of the Crown,—Mr. Frederick W. Cumberland, Architect, of the City of Toronto, on behalf of the claimants,—and James Robert Gowan, Esquire, Judge of the District Court for the County of Simcoe, U.C., the latter being chosen by the two arbitrators first named.

The arbitrators met in the City of Ottawa on the 15th of February, 1865. The amounts of claims produced before them being:—

Thomas McGreevy, contractor	Parliament Buildings.....	\$244,055	84
Jones, Haycock & Co., do	Departmental do .....	320,067	55
Fuller & Jones, architects	Parliament do .....	25,289	61
Stent & Laver, do	Departmental do .....	84,267	34

\$628,680 84

After 15 days' session, and receiving evidence on the claims of Jones, Haycock & Co., the Board of Arbitrators adjourned on the 3rd of March, resumed their investigations on the 29th of the same month, sat again until the 7th day of April, when they again adjourned until the 8th of May and continued to receive evidence up to the 16th of May, the claimants having then closed their case after thirty-two days' enquiry.

The Counsel for the defence, on the part of the Crown, Messrs. Stephen Richards, Q.C., and R. W. Scott, having desired an adjournment until the 13th of July next, to produce rebutting testimony.

The charge of the papers, the duties connected with this investigation, the attendance upon the Court, and the many statements called for by Counsel, must necessarily engage nearly the whole of my time and attention for some time to come.

I have the honor to be, Sir,

Your obedient servant,  
(Signed,)

F. P. RUBIDGE,  
A. E. P. W.

## APPENDIX NO. 15.

### REPORT BY F. BUTEAU, MANAGER,

ON THE SERVICES PERFORMED BY THE PROVINCIAL STEAMERS FROM 1st JULY, 1864,  
TO 30th JUNE, 1865.

*S. S. Lady Head*.—9th July, 1864. The *S. S. Lady Head* returned from her fifth trip of the season and continued making her regular trips between Quebec and Pictou, calling at intermediate ports, with mails, passengers and freight, until the end of October, when she went into winter quarters, having been replaced on her last, or 14th trip, by the *S. S. Queen Victoria*.

9th May, 1865. Left upon her first trip of the season for Pictou, calling at intermediate ports with mails, passengers and freight, and has continued making regular trips since.

*S. S. Queen Victoria*.—27th July, 1864. The *S. S. Queen Victoria* left for the Saguenay with His Excellency the Governor General and Suite.

18th August. Left for the Island of Anticosti to rescue shipwrecked crew and passengers, and brought them to Quebec.

29th August. Left with the Ministry for Charlottetown, P. E. I., Shediac, N. B., Pictou and Halifax, N. S.

27th September. Left for Three Rivers and Ste. Anns with their Excellencies the Governor General, Lord Lyons and Suite.

3rd October. Left for Pictou, N. S., Shediac, N. B., and Charlottetown, P. E. I., to convey Lower Provinces Delegates to Quebec.

3rd November. Left for Pictou, calling at intermediate ports, with mails, passengers and freight, in place of the *S. S. Lady Head*, and during other portions of the season was engaged in towing vessels, &c., &c.

23rd November. Went to winter quarters.

18th June, 1865. Left for Pictou, calling at Gaspé, with mails, passengers and freight, and a number of men for the Nova Scotia Railway.

26th June. Left for Halifax, calling at Gaspé, Shediac and Pictou, with mails, passengers, freight and a large number of men for Nova Scotia Railway, being first regular trip of the Line formed between Quebec and Halifax.

*S. S. Napoleon III*.—9th July, 1864. The *S. S. Napoleon III*. returned from Belle-Isle, having been employed by the Trinity House in supplying light-houses, provision depôts, &c., &c., in the Gulf of St. Lawrence; and on 23rd September, left again upon the same service.

17th June, 1865. Left for Belle-Isle, upon first trip of this season on the above service; during other portions of season was employed in towing.

*S. S. Advance*.—The Steamer *Advance*, during the seasons of navigation of 1864 and 1865, was in the service of the Trinity House; placing buoys and replacing those displaced or lost and taking them up in the fall, and supplying light-houses and provision depôts; surveying the north and south channel with pilots and apprentices, and during other portions of the season of navigation was employed in towing vessels, &c., &c.

(Signed,) F. BUTEAU,  
Manager.

OFFICE PROVINCIAL STEAMERS,  
Quebec, 25th July, 1865.

(Signed) J. U. GREGORY,  
Book-keeper.



## APPENDIX No. 15.—(Continued.)

PROVINCE OF CANADA, for Provincial Steamers, in account current with Department of Public Works.

1864.	Dr.	\$ cts.	1864.	Cr.	\$ cts.
July 1...	To stock of coals on hand at this date and outstanding debts.....	7,048 78	July 1...	By balance at credit of steamer.....	2,063 52
1865.			" 1...	" Appropriation, 27 & 28 Vic., chap. 1, to 30th July, 1865...	75,000 00
June 30..	" amount expended from 1st July, 1864, for running expenses, outfit in 1865, and repairs.....	75,566 76	1865.		
" 30..	" amount expended fitting out " La Canadienne".....	1,239 56	June 30..	" Revenue paid Hon. Receiver General from 1st July to this date.....	34,613 11
" 30..	" do do advertising sale of steamers.....	27 50	" 30..	" stock of coals, &c., on hand at this date, and outstanding debts.....	3,950 02
	" Balance.....	36,754 05			
		\$120,626 65			\$120,626 65
			June 30..	By Balance.....	\$36,754 05

DEPARTMENT OF PUBLIC WORKS,  
July, 1865.

J. BAINÉ,  
*Book-keeper.*

# APPENDIX No. 16.

STATEMENT of awards made by the Official Arbitrators, and claims still pending before them, for year commencing 1st July, 1864, and ending 30th June, 1865.

Names of claimants.	Subject of claim.	When referred.	Amount claimed.	Amount awarded.	With or without costs.	Date of award.
<i>Claims settled.</i>						
Hon. A. E. Kierkowski.....	Damages to water privilege, occasioned by the St. Ours' Dam, Richelieu River .....	1864. March 28.....	\$ cts. 6,000 00	\$ cts. 1,600 00	With.....	July 1.
J. Bte. Derome.....	Pier at Rimouski .....	June 8.....	3,270 95	2,659 91	do .....	do
<i>Claims still pending.</i>						
Charles Peters .. .. .	Court House and Jail, at St. Hyacinthe .....	1863. February 20..	13,473 00	.....	.....	.....
Ira Gould .....	Water-power and Land, Lachine Canal .....	April 20.....	39,962 00	.....	.....	.....
Brown & Watson .....	Court House and Jail, at Beauharnois.....	1865. June 27.....	645 36	.....	.....	.....
do .....	do do Arthabaska.....	do .....	363 26	.....	.....	.....
do .....	do do Ste. Scholastique.....	do .....	1,131 00½	.....	.....	.....
do .....	"Rock Cut," Lachine Canal .....	do .....	10,410 30	.....	.....	.....

(Signed,)

F. H. ENNIS,  
Secretary Official Arbitrators.

QUEBEC, June 30th, 1865.

### ERRATA.

Page 9, Appendix.—For “Cap St. Pierre de Miquelon,” read “Cap St. Pierre de Miquelon.”

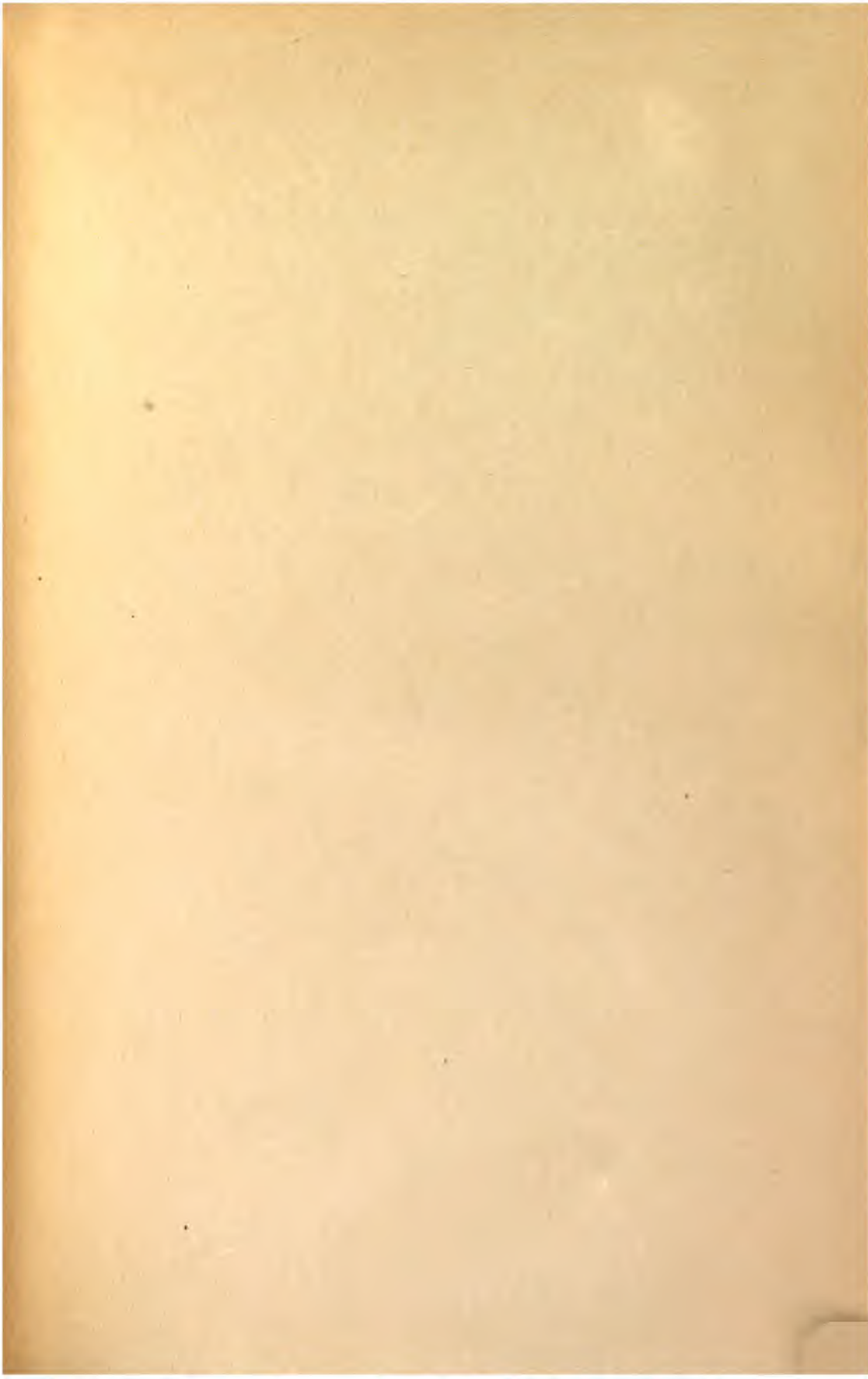
“ 17,        “        For “Damage to Suspension Cables, Wells’ Bridge,” read “Wellington Bridge.”















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