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REPORTS

OF THE

COMMISSIONERS

OF

INTERNAL NAVIGATION,

APPOINTED BY

His Excellency Sir Peregrine Maitland, K. C. B.

&c. &c. &c.

IN PURSUANCE OF

AN ACT OF THE PROVINCIAL PARLIAMENT OF UPPER-CANADA.

PASSED IN THE SECOND YEAR OF

His Majesty's Reign,

ENTITLED,

“ AN ACT TO MAKE PROVISION FOR THE IMPROVEMENT OF THE INTERNAL
NAVIGATION OF THIS PROVINCE.”

Kingston,

PRINTED BY JAMES MACFARLANE, AT THE OFFICE OF THE KINGSTON CHRONICLE.

1826.



1826

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3774

ERRATA.

IN THE PREFACE.

Page iv—in line 19th for “Mintsters,” read “Ministers”.

do—in line 23d, for “point of view; and,” read “point of view, and”

IN THE REPORTS.

Page 8, in line 23d for “Persons in Upper Canada,” read “Persons in Upper and Lower Canada.”

do. in line 32d, for “Services,” read “Service.”

Page 9, in line 2d, for “on the River Ouse,” read “at the River Ouse.”

do. in line 7th, for “than at Fort Erie,” read “than at the Lake near Fort Erie.”

Page 12, in line 13th, for “miles long” read “miles in length.”

Page 13, in line 3d, for “100 long” read “100 feet long.”

Page 16, in calculations for 19th mile, line 3d, for “South side” read “North side”.

do. last line, for “excavation” read “extra excavation.”

Page 17, line 10th, for “£3,378 15,” read “£3,378 15 6.”

Page 23, calculations for 39th mile, line 2d, for “stratas” read “strata.”

do. in ditto, for “Grubbing, £60,” read “Grubbing, £60 15.”

Page 25, line 3d, for “57.50” read “37.50.”

do. line 4th, for “amout” read “amount.”

do. line 16th, £126,306,” read “£136,306.”

Page 26, forty-seventh mile, for “requires more cutting that what is necessary,” read “requires no more cutting than is necessary.”

Page 30, 59th mile, for “3,322 8 0” read “3,222 8 0.”

Page 32, At this place there is an error in numbering the pages, there being an omission of Nos. “33, 34, 35, and 36.”

Page 38, line 3d, for “1825,” read “1823.”

Page 40, line 38, for “that the whole” read “that on the whole.”

Page 44, line 36, for “side of the top,” read “side at the top.”

Page 45, line 5, for “beam” read “berm.”

Page 47, on second line from bottom, for “one hundred and thirty yards” read “one thousand and thirty yards.”

do. line 40th, for “ten feet deep” read “twelve feet deep.”

Page 51, at end of line 7th, add “nothing will be required in the minor canals in this distance.”

Page 52, in Estimate No. 2, for “8434” read “3,844.”

do. ditto, for “£4268” read “£4268 1 0½”

do. ditto, for “£6009 16 6” read “£8009 17 6½”

Page 54, ditto, line 1st, for “£ 06 17” read “£206 17.”

Page 56, in estimate No. 1, line 1st, for “£25821 18 2½” read “£25821 18 11½”

do. line 11, for “requirei” read “require.”

Page 57, in estimate No. 3, for “£530” read “£535.”

do. line 27, for “27 miles and 34 chains” read “28 miles and 34 chains.”

do. line 32, for “9¼ decimals” read “91¼.”

Page 60, Estimate No. 2, line 1, for “£41026,” read “£41062”

do. do. 1, for “£ 883 2” read “£4883 2.”

Page 62, do. 2, for “£55031” read “£50031.”

do. do. 2, at foot for “£58411” read “£53411.”

Page 63, do. 2, at head for ditto, read ditto.

do. do. 2, at foot, for “£60642,” read “£55642.”

Page 64, do. 2, at head for ditto, read ditto.

do. do. 2, at foot for “£75136,” read “£70136.”

Page 67, do. 2, at foot for “10d.” read “10½d.”

Page 69, 4th line from foot, for “32 chains” read “38 chains.”

Page 80, line 10, for “caee” read “case.”

Page 81, line 6, for “required a considerable” read “required considerable.”

Page 83, line 37, for “of Rideau” read “on Rideau.”

Page 84, line 8, for “as any” read “as of any.”

do. line 7, for “benifit” read “benefit.”

Page 87, Estimate No. 2, for “22” read “32.”

Page 88, line 36, for “circumstance” read “circumstances.”

IN APPENDIX.

Page iv. line 32, for “many. The Committee” read “many, the Committee.”

Page vii. line 27, for “and several” read “and the several.”

Page x. line 24, for “and under a” read “and a”

PREFACE.

THE Commissioners of Internal Navigation, in putting to the Press the following Reports, have been actuated by the consideration that, as they are the fruits of much time, expense and labor, applied to subjects of great and growing interest, they ought by a multiplication of copies to be protected from the risk of accidents such as on a recent occasion involved some of their plans and estimates in a destruction common to many public documents. They have also been induced to think it of some moment that these papers should be submitted in a printed form, and as generally as possible to the inspection of those, at whose cost and for whose benefit, the surveys which they detail and illustrate, were projected and executed.

The advantages to be derived from a well organized system of improvement in our water communications are too obvious, and too generally admitted to require that their value should be here pointed out.

If a retrospective glance be cast upon our domestic history for the last seven or eight years, no circumstance will stand out more prominently than the change which has taken place in public sentiment on this particular subject. Within that brief space, that is, during the present administration, the people and Legislature of this Province, incited perhaps by the spirit-stirring examples before their eyes, have not only been led to consider that which had not previously engaged their serious attention, viz. the means and practicability of improving the natural facilities for navigation presented by their magnificent lakes and mighty rivers, but they have actually commenced on an extensive scale the construction of canals and harbours, the mere mention of which would within a very few years have been ridiculed as the wildest of dreams, and for the accomplishment of which the probable resources and energies of the colony a century hence would have been then conceived unequal. Within this short period, then, (and it assuredly comprehends a most memorable epoch) is to be dated the happy nativity of that spirit of public enterprise, which by stimulating commerce and agriculture, and holding forth the brightest rewards to well directed industry, is destined to guide and quicken our march in the highway of prosperity.

To the late Mr. Nichol, whose zealous devotion as a Member of Parliament to objects of this nature renders his untimely end a great public loss, is to be accorded the praise of having been the first to recommend the improvement of our navigation to the attention of the Legislature. By his exertions the Statute of 1821 was passed, authorising the appointment of a Commission "for the purpose of exploring, surveying and levelling the most practicable routes for opening a communication by Canals and Locks between Lake Erie and the Eastern Boundary of this Province."—Of this Commission he became himself a member, and attended to its duties, until his melancholy death, with characteristic intelligence and zeal.

How far the objects of the Statute have been satisfactorily accomplished, it rests with the Legislature and the Country to determine, when experience and examination shall have afforded the means to judge. In the Estimates for the various Canals referred to in the reports, it cannot be imagined but that some errors may exist, notwithstanding the care with which they have been framed; but if on the one hand unexpected difficulties might occur in opening any line of Canal laid down, it is on the other, very probable that facilities which originally escaped notice would on further examination be discovered. Such circumstances, if they shall be found to occur, will scarcely occasion surprise, when it is considered how many more obstacles combine to perplex the Engineer in a country but partially and recently redeemed from the wilderness, than in those which having been long and thickly peopled, must necessarily be more perfectly and intimately known.

It will be seen by the Reports that the attention of the Commissioners has been chiefly occupied in exploring two great lines of navigable communication, i. e. one between Lake Erie and Lake Ontario, and the other between the latter Lake and the Rideau and Ottawa Rivers.

In selecting the course of the former, they had in view the importance of keeping as far in the interior of the country as was practicable, and of providing good harbours at each of its extremities. Since that route was reported on, which seemed the most effectually to embrace these objects of the Commissioners, the Welland Canal has been surveyed and commenced ; and this work, pursuing a course nearer the frontier, and possessing many local advantages, will, when completed, for many years at least, and with reference to commercial purposes, meet all the exigencies of the Country. The Province is indebted to the exertions of private enterprise for this Canal which promises such beneficial results, and which has been prosecuted under many untoward circumstances with a degree of zeal and perseverance alike honourable to the parties and gratifying to every friend of public improvement.

The inlet into Burlington Bay, suggested by the Commissioners in their report of the survey between the Lakes, has since been undertaken at the public expense ; and although not as a part of the projected Canal for which it was to furnish a harbour, yet as it will render a port accessible which in point of security and commodiousness will vie with any on the Lake, the work is one of immense value to the beautiful tract of country lying in its immediate vicinity, and stretching westward into the interior.

It is most satisfactory to witness the interest which has been so decidedly and so promptly taken by Government in the projected canal from Lake Ontario to the Ottawa, by the River Rideau.—While the survey was yet but half perfected, His Majesty's Ministers, proposed on very favourable terms, a loan of *seventy thousand pounds*, in aid of such funds as might be appropriated from our Provincial Treasury to the construction of the Canal. The Legislature having, however, evinced some hesitation in closing with this liberal offer, apparently because they considered the enterprise more necessary in a military, than in a commercial, point of view ; and, also, because they were somewhat apprehensive of involving the Province beyond its resources, His Majesty's Government have, it is said, resolved to undertake the important work at the sole cost of the Imperial Treasury ; and have, accordingly, sent out an officer of high character, belonging to the Corps of Royal Engineers, to superintend its execution. This gentleman has already proceeded to carry into effect the magnificent plans of the Government. The ground has been broken near the Richmond landing, on the Ottawa—a bridge, and other erections for facilitating the work, are in progress—and this vast undertaking promising wealth to our agriculturists, convenience to our commerce, and security to our country, is actually commenced.

The advantages which the Province will derive from the Rideau Canal, are, indeed, inestimable, as they regard the commerce of some of its most valuable and flourishing sections, and setting out of view every consideration connected with its military defence. The present determination to open that Canal at the sole expense of England, is, therefore, another signal and endearing benefit added to the long catalogue of favours which this Colony owes to the affection of the parent state, and which no return of the most loyal and faithful attachment can ever overpay.

It is not yet publicly understood, nor is it perhaps decided, on what scale the Canal is to be constructed. One of the three plans of the Commissioners may be adopted, or one of dimensions differing from all of them. In prosecuting the work, the superintending Engineer may be able to improve in some points on the line traced by the Commissioners, since in laying out the work for actual execution, a further and more minute examination of the Country must be made than was required in the original survey, in order to arrive, without unreasonable expense, at the objects contemplated by the Legislature. It is also probable that as under his management, the Canal will be constructed in a great measure, with reference to military purposes, or with a preference of them to those which are merely commercial, it may appear to him desirable to alter the course laid down in the Reports, even if the deviation should occasion a considerable addition to the cost. With the limited means of this Province, and with commercial objects in view, as those alone which we could hope, by our own resources, to attain, the Commissioners naturally sought for the cheapest route ; but different views prevailing with a military Engineer, planning a work principally designed for military uses, may induce him, in many instances, to regard the cheapest as by no means necessarily the best, or most expedient to be adopted. These remarks can, however, only apply to those places, few in number, where the

line deviates from the course of the waters, which will, in general, prescribe the obvious direction of the Canal.

The survey of the River St. Lawrence from Johnstown, to the Eastern Boundary of the Province, has been left unattempted by the Commissioners. The reason for omitting a work, evidently claiming their attention, as indispensable to the completion of the purposes regarded by the Statute, are fully stated in the Reports. It will be seen that according to their opinion, the expense of such survey should be defrayed jointly by the Provinces, from the fund now in the Treasury of Lower Canada, collected on rafts, &c. passing Chateauguay; more especially as in the year 1823, the Legislature had addressed the Lieutenant Governor on the subject of this fund, and at their request, His Excellency had recommended to the Arbitrators (then about to make an award on the arrears of revenue due Upper Canada) that provision should be made from it for an accurate survey of the River St. Lawrence, above Montreal.

It seems that the Arbitrators took the subject into their consideration agreeably to the desire of the Legislature and the Lieut. Governor, and concurred in the opinion that "Commissioners should be appointed without loss of time, to inquire into the state of the navigation of the River Saint Lawrence, to suggest improvements, and to procure plans and estimates accordingly"; that the expense which might be thus incurred "ought to be defrayed in equal proportions by the two Provinces;" and that "the sum remaining unexpended of the fund heretofore raised in Lower Canada, for the partial improvement of the River, should be applied generally to that purpose." This determination of the Arbitrators was followed by an act of our Legislature,* confirming it on the part of this Province; but the Parliament of Lower Canada, having neglected to afford a similar sanction on its part, no survey upon the equitable plan submitted by the Arbitrators could be effected—If done at all, it must have been undertaken wholly at the charge of Upper Canada, although promising at least equal utility to the commerce of the sister Colony. Our Legislature, sensible of its necessity, (especially since by the loss of Barnhart's island) we are deprived of the main and only navigable channel of the River has at length resolved to institute a survey at its sole expense; and in pursuance of this resolution, Mr. Clowes has been directed by His Excellency the Lieutenant Governor, to proceed with the examination during the present season. It is said that Mr. Clowes has succeeded in discovering an advantageous course for a Canal along the banks of the river opposite to Barnhart's Island; and that he has carried his levels over the whole country, bordering on the river from thence upwards to Johnstown, and noted all the facilities, as well as the obstacles, within that space, that are connected with the improvement of the navigation. The desideratum in the Reports of the Commissioners will thus be speedily supplied.

In the event of the estimates of Mr. Clowes proving, when laid before His Excellency the Lieutenant Governor, as encouraging as it is supposed they will be, the Province, relieved from the question of the Rideau Canal, may direct her undivided energies to the improvement of the frontier waters; and even if she should be forced by the unfortunate want of co-operation on the part of Lower Canada, to contend, with her own resources, against the rapids of the St. Lawrence, she may undoubtedly accomplish much by a judicious application of the means at her disposal. If a loan on the principle suggested in the correspondence of the Provincial Arbitrators in 1823,† is not to be hoped for, greater consideration will be necessary on the part of our Province, in digesting a plan of operations for the gradual improvement of the river within our own boundaries, for gradual, as well as incomplete, it must unfortunately be, while Lower Canada stands aloof, and declines to unite her efforts with ours, in the noble cause of *national* improvement. Under such circumstances, it may not be advisable to engage in any work exceeding in dimensions the Canal at Lachine; for whatever may be the general impression, with regard to the advantages that might be derived from improvements having in view, a sloop, or steamboat navigation along the whole course of the river, projects of this nature, must, perhaps, be deferred until the Province shall have arrived at a greater degree of maturity and vigor.‡

* See Statute 4, Geo. 4. cap. 22.

† See Appendix.

‡ It may not be amiss in this place to advert to a suggestion made by persons who have been in Holland, and admired the flat-bottomed craft there used in navigation. These vessels, in the management of which, the Dutch are wonderfully expert, while they draw little water,

With the survey of the St. Lawrence closes the examination of our leading and more important navigable communications. There are, doubtless, other objects, which, though of minor value, will become well worthy of consideration, as we advance in the career of improvement, and to these it may not be improper briefly to advert.

Besides the Canal near the Carrying Place for the junction of the Bay of Quinty with Presqu'île Harbour, surveyed by order of the Legislature; a work in some measure connected with it, which would promise great accommodation to a very fine tract of country, is the formation of a harbour near Cobourg, or Port Hope. The experience which will be acquired at the Twelve Mile Creek and at Burlington Beach, will enable the public more fairly to estimate the expense of such an enterprise; and if the works at those places should happily be executed with success and economy, the construction of the Harbour now under notice, it may be presumed, will not long be deferred.

A project for rendering the Gananoque River navigable for boats has lately been agitated in the country bordering on that stream; and as it can be carried into execution at an expense by no means considerable, there is ground to anticipate its speedy accomplishment.

The rising settlements on the Otonabee river, and the Rice Lake, and in the neighbourhood of the River Trent, from Cavan to Rawden, are at present almost shut out from a market, by the impediments which exist in the navigation of the River last named. No regular survey of this stream having been made, there is no means of estimating the cost of improving it, but there is room for believing that the difficulties in its bed might be surmounted at a very moderate expense. As a general object of domestic policy, the improvement of this river ranks next in importance to that of the great navigable communications with the sea-ports; for, by it, the Province must receive from Marmora, its supplies of bar iron and castings, the products of our home industry. By this river, also, must the trade of the country lying on its banks, and on those of its tributary streams, as well as of the extensive region stretching westward to Lake Simcoe, find an outlet. Its improvement should, consequently, be undertaken at as early a period as circumstances may render practicable.

There is yet another project to be noticed, which has for its object the connection of the head waters of the Rivers Credit and Nottawasaga; the former of which disembogues itself into Lake Ontario, and the latter into Lake Huron. Should this communication be found practicable, the slightest glance at the map will shew how beneficial it would prove, when opened, to a very extensive country stretching along its course between the Lakes.

In closing these summary remarks, it is conceived that the review now taken of what has been already done, and of what still remains to be achieved of the plans and projects which have engaged the public mind for the last few years, may not unreasonably be regarded as cheering. The Province has evidently before it a wide field for improvement, and has entered on it, with a degree of spirit and zeal, which, considering its infancy, and slender revenues, materially redounds to its honor. Let it be hoped, that the same ardour will be continued to be applied with judgment and perseverance, in cultivating our vast means of internal navigation, since, by such a course, we shall most successfully and rapidly develope our resources, and establish our prosperity on secure and imperishable foundations.

— 1826.

carry large cargoes, and with ice-boards are manœuvred with as much ease on the broad expanse of the German Ocean, as on the narrow seas and canals of the Netherlands. Would they not, consequently, be peculiarly well adapted for our inland navigation, embracing, as it will do, lakes, rivers, canals?

FIRST REPORT

Of the COMMISSIONERS appointed by His Excellency the Lieutenant Governor, in conformity to the provisions of an Act passed in the second year of His Majesty's reign, entitled, "An Act to make provision for the improvement of the internal navigation of this Province."

AT an early period after their appointment, the Commissioners met at Kingston, where they made choice of a President, and organized the board.

They deliberated on the best means of carrying into effect the intentions of the Legislature, and being quite inexperienced in details of the nature submitted to their guidance, it was deemed a preliminary of indispensable necessity to send a deputation of two of their number into the State of New York, where, by conferring with the Canal Commissioners, and by a personal inspection of the splendid work, then in successful progress in that State, it was presumed such information would be obtained as would enable the Board to perform, with greater effect, the important duties confided to them.

From the American Commissioners, and the scientific persons employed under them, they were furnished most liberally with every information in their power to communicate.

With Benjamin Wright, Esq. principal Engineer on the New York Canal, they had repeated communications; in all of which he expressed himself decidedly of opinion, that from the nature of the Country, and the great facilities which it afforded for extensive inland navigation, the plans of improvement to which the Government of this Province ought to give its attention, should be on a scale of such magnitude, as to admit Sloops and Schooners of moderate dimensions to proceed direct, without unloading their cargoes, from Lake Erie to the Sea.

The deputation while in the State of New York, endeavoured to engage an experienced and skilful Engineer, but without effect. Letters had been addressed to several persons in Upper Canada, and in the United States, who were supposed to possess some general knowledge of the science, enquiring into their qualifications, when the Board was adjourned until the 8th of October, 1821. On that day, the two Commissioners having returned from a very satisfactory tour, along the Erie and Northern Canals, in the course of which they obtained much useful information, reported to the Board that they had not been able to engage an Engineer of established character abroad, to conduct the surveys. A selection consequently became necessary from among the persons with whom a correspondence had been previously opened, and it was determined, after examining the testimonials of ability, submitted to them, by Mr. Valentine Gill, and finding them highly commendatory, to accept of his tender of services and to engage others as soon as it could be done.

The next object which claimed the attention of the Board, was the direction and number of the Surveys to be undertaken, and to fix on the points from whence their operations should commence. On a general view of the Province from Lake Huron to its eastern boundary, two grand impediments are opposed to ship navigation, viz: the Falls of Niagara, and the shoals and rapids of the St. Lawrence, below Johnstown.

These natural obstacles overcome with the aid of art, vessels of considerable burthen might freely navigate our frontier waters, from the Sault St. Mary's to the Province line, without any transfer of lading, and the communication with the Ocean would be thus essentially facilitated.

With respect to the first difficulty, viz : the Falls of Niagara, it occurred to the Commissioners that it might be surmounted by a canal commencing on the River Ouse, (Grand River) or any other convenient point on Lake Erie, and leading to Burlington Bay, at the head of Lake Ontario. The Ouse, or Grand River, was more particularly selected for the point of departure, as containing, at all seasons, an abundant supply of water, to feed a canal of any dimensions, as being sufficiently remote from the frontier, and as possessing one very material advantage, viz : that it is free from ice, at least three weeks or a month earlier than at Fort Erie ; the latter port being frequently blocked up by the Lake ice till the latter end of May or beginning of June.

There were other inducements which led the Board to prefer this point, to which they will advert in a subsequent part of their Report. Burlington Bay, to which they directed their attention as the outlet of the contemplated canal, is situated at the west end of Lake Ontario, from which it is separated by a narrow sandy ridge, and with which it communicates by a narrow and shallow channel navigable only for boats. It is a large and deep Basin capable of sheltering the whole Royal Navy of Great Britain ; it is remote from the frontier—is considered by military men a strong military position—is surrounded by a populous and highly cultivated country, and seems designed by nature as the centre of a flourishing trade.

It was, therefore, under every view of the subject, considered a most important point in the general plans of the Board. and it was determined that surveys should be undertaken to ascertain the practicability of connecting, by the most direct course, two points possessing so many advantages as the Ouse and Burlington Bay, and which might, at a comparatively small expense, be rendered safe and commodious harbours.

Four plans of improvement offered themselves to the notice of the Board in the Eastern Section of the Province, in which a greater variety of considerations demanded attention.

First.—The melioration of the main channel of the St. Lawrence, by removing rocks and shoals, constructing locks and towing paths, and making short cuts in difficult places.

Second.—A canal commencing at any convenient place near the Gallop rapids, which, keeping near the river, would terminate near the Lake St. Francis.

Third.—A canal commencing also near the Gallop rapids, which should convey the waters of the St. Lawrence through the interior of the country, and blend them with the waters of the Ottawa, near the Long Sault, or at some other convenient point.

Fourth.—A canal commencing near Kingston, which, following up the Grand River, Cataraqui, to its head waters, and crossing the numerous Lakes in the interior, which serve as reservoirs, and feeders for the rivers Cataraqui, Gananoque, and Rideau, would descend the valley of the latter river or the Petite Nation, and terminate in the Ottawa.

The first of these plans, if adopted, would obviously be useful in time of peace, though to a limited extent, and would facilitate the intercourse of the Province with the ocean. It would also recommend itself strongly to the consideration of the Legislature, should the state of the Public funds unfortunately forbid the greater enterprise which shall be pointed out. The objections to it are, that it would only partially remove the impediments that are to be found in the navigation, and that the whole line of communication by the St. Lawrence would be liable to interruption, and would doubtless be interrupted in the event of any future war with the neighbouring States.

The second, though it would more extensively improve the navigation, is liable to similar objections ; being also too near the frontier.

The third plan would carry the communication with the ocean through the interior from Prescott, and leaving behind our eastern boundary, run some distance into the Lower Province. Whether the nature of the country in the interior would admit of a route such as is here proposed, is of course a point of some uncertainty, and can only be determined by the level. Nevertheless, from the general flat character of the country, and the information obtained respecting it, the Commissioners are inclined to the opinion that the scheme is practicable, and that if it were necessary at the summit to rise above the level of the St. Lawrence, a sufficient supply of water could be drawn from the numerous streams which intersect the country in every direction, and which might be carried, as feeders, into the canal.

Were the objects of commerce the sole considerations to be weighed, this route might be found to answer the desired end ; but, when it is recollected that the whole of the communication above Prescott, until it reaches Kingston, passes along the frontier of the United States—that throughout the whole extent, a distance of sixty miles, it is filled with islands and intricate channels, admirably adapted for ambuscades, it must be obvious, that this commerce, in time of war, would be exposed to imminent hazard of being obstructed or destroyed.

When all these circumstances are duly investigated and considered, the superiority of this route over every other, may fairly be called in question.

On passing to the fourth and last plan, which has occurred to the Commissioners, they have to observe, that it combines all the advantages of, and is free from all the objections to the other three.

Kingston, the principal military depot of the Upper Province, and the only naval station within its limits, is the point of departure. From thence to the Ottawa river, by the Catarqui and the Rideau, or the Petit Nation, the course of the proposed canal lies completely in the interior. The distance to the markets of Lower Canada, in this direction, may, it is true, be rather greater than by the St. Lawrence, but this distance is by no means such as to counter-balance the security of the route, and the benefits which would accrue to the whole interior country from opening a canal in that direction.

In the event of war, it is true, the intercourse between Kingston and the upper parts of the lake, would depend on the successful operations of the Royal Navy ; and in the event of the enemy's obtaining the superiority, our communication by water would be interrupted ; yet supplies, naval and military, provisions or merchandise, might be transported to Kingston by the proposed canal, and from thence, as during the late war, conveyed by the bay of Quinte and the lake shore, to York and Burlington bay : while, by the facility thus afforded for the transportation of every species of equipment, our means would be increased, and we might be enabled to regain the superiority on the lakes.

With these views, the Commissioners determined to prosecute the survey of the route from Grand River to Burlington Bay ; also, by the main channel of the St. Lawrence, and that from Kingston to the Ottawa, by the Rideau and other interior waters. It seemed advisable to carry on all these surveys at the same time, if a sufficient number of scientific persons could have been engaged ; but that being at the time impracticable, and the season being rather far advanced for entering on a very extensive scheme of operations, the whole was postponed until May last ; the Board was therefore adjourned till that period.

In the meantime Mr. Gill suggested to the Board, the propriety and advantage of running a level, during the winter, over the country in the neighbourhood of Burlington bay, by which he observed, that the operations in the ensuing spring would be much facilitated. Confiding in his judgment and science, the Commissioners acceded to his proposal, and authorized him to devote six weeks to the superficial examination of the country as he had suggested. The Commissioners, however, lament to say, that they were grievously disappointed by the result of this exploratory attempt, by which they were involved in considerable expense, without reaping any adequate advantage. They refer to the report and field-notes presented by the Engineer ; which, in their opinion, do not support the pretensions to scientific acquirements in the line of his profession, nor the flattering testimonials of character which he had previously laid before them. It is painful to make these observations, yet the nature of the case, and the extent of the expenditure uselessly incurred, through their reliance on the accuracy and ability of a person so well recommended, render them unavoidable. At a meeting of the Board, on the 13th May last, when they received Mr. Gill's report, they directed him to be settled with, and dispensed with his further services.

Mr. Samuel Clowes was then engaged as a civil engineer, who was originally intended to explore and level the route from Kingston to the Ottawa.

The Board, however, having been disappointed in procuring the services of a person in that line in the United States, with whom they had corresponded, directed Mr. Clowes to commence with the survey between the Grand River and Burlington bay, and engaged his son as an assistant, and Mr. John Harris as a land surveyor, to accompany him.

They commenced their operations about the first of June, and, after six months of indefatigable exertions through a difficult and (as it proved) a very little known country, brought them to a successful

close. A minute account of the survey, with plans and estimates, is herewith submitted; on examining these, it will be seen that the practicability of connecting Lakes Erie and Ontario by a navigable canal, is established beyond a doubt, and that secure harbours may (as had been suggested) be formed at each of its extremities at a moderate expense.

The estimate of the cut by which it is proposed to connect Burlington with Lake Ontario, is on a scale corresponding with that for the contemplated canal; should it be required of greater dimensions, a re-survey will become necessary. In making choice of the situation for this, every proper consideration was given to the advantages and disadvantages of every part of the beach; and, after comparing them, it was the decided opinion of the civil engineer, in which opinion the marine surveyor concurred, that immediately under the high bank near Mr. Brants was the most favorable point for the work.

The scale on which this work is designed was determined on, with reference, first, to the exigencies of the trade, to which a boat-navigation would render no essential service, as many of the facilities afforded by canal-navigation, would be lost by the necessity of removing the cargoes several times before reaching Montreal; secondly, to the probable means of the Province for carrying it into effect; and lastly, to information communicated to the Board (since found to be incorrect) that there were obstructions and shallows in Lake St. Louis, which could not be removed without much difficulty and enormous expense.

The estimate is for a canal of the following dimensions:—Forty feet wide at the bottom, about sixty-two feet wide on the water surface, and to be seven feet deep; the Locks, one hundred feet long, and twenty-two feet wide in the clear; the Bridges to be what are called, in England, Turn-Bridges, ten feet wide and twenty-two feet long; these may be opened and shut without difficulty by one person.

A canal of these dimensions will answer for vessels of eighty, or even one hundred tons burthen, and also for rafts of timber or masts; and by enlarging the Locks to the proper dimensions, (which would probably cost thirty thousand pounds,) might admit large class gun brigs light, and steam vessels to pass through on any emergencies.

In estimating the advantages of which a work of this kind, connected with corresponding improvements between Lake Ontario and Montreal, would be productive, it is only necessary to look at the map of the Province. The immense chain of lakes and navigable waters which would thus be connected by uninterrupted sloop-navigation, and made subservient to the interests of agriculture and commerce, will immediately appear to view.

The valuable timber, masts, staves and other bulky productions, with which the peninsula between Lakes Huron, Erie and Ontario abounds, and which are at present of little value, would, by the facilities thus afforded to transportation, be conveyed to Montreal, and there sold or bartered for British manufactures, and other commodities of indispensable necessity to the inhabitants of a new country, thereby increasing the consumption of British goods, and augmenting the means of paying for them.—The shipping interest would also benefit largely by the increase of this trade.

The Ouse (Grand River) is a beautiful stream. With its various branches, it flows through a very extensive and fertile territory, which, being remote from market, is but thinly settled and little known. It has, however, been ascertained, that one of the branches (Hornor Creek) takes its rise to the North-West of the township of Zorra, and that in that township it comes within a quarter of a mile of the main branch of the River Thames.

Cedar Creek, which flows into the Thames from Blandford, through the township of Oxford is a constant stream, and may be connected, by interlockage, with Hornor's Creek, so as to make a boat-navigation from the Thames to the Ouse, and from thence through the feeder, to sloop-navigation on the Canal.

The proposed canals would give a new stimulus to population and improvement, and in places where at present not an inhabitant is to be seen, towns and villages would speedily arise.

The superior advantages attending such a canal as is here proposed, would destroy the hopes and defeat the calculations of the Commissioners of the American canal; as our being enabled to ship commodities on the Ouse three weeks before the lake opens at Fort Erie and Buffalo, with a certainty of their being transported without removal, direct to Montreal, would give a preference to that route,

and all our trade, with much of that from the south shores of lake Erie, would thereby be secured to us.

The Board considers it unnecessary to enter into any minute examination of the importance of canal navigation, in advancing the prosperity of a nation. The history of other countries, and particularly of the great Empire to which we belong, amply demonstrates the fact.—Seventy years ago, England was without a single canal; and, from her insular position, numerous streams, and easy land communication, inland navigation was considered unnecessary. But since that time, what a change has taken place! The whole country is intersected with canals, which, passing in every direction, like arteries in the human system, circulate the life-tide of her prosperity from London to the extremities of the island.

The total length of navigable canals in England alone, now exceeds two thousand five hundred miles, in the construction of which, upwards of twenty-five millions of pounds sterling have been expended. Our neighbours in the State of New York are imitating her great example, having in the space of four years completed one canal of sixty-five miles long, connecting Lake Champlain with the Hudson, at an expense of upwards of £200,000, and more than half completed another of much greater length, intended to connect Lake Erie with the same point. Both these canals have been undertaken with the intention of leading towards New York, that commerce which was destined by nature, to the Gulf of St. Lawrence; and ought we to remain inactive until she has gained her point? Should we not rather exert ourselves to retain the advantages we possess by improving them to the extent of which they are capable?

To the superficial enquirer the ability of the Province to execute a work of this magnitude, may seem doubtful, and some may be disposed to question the policy of investing in such an undertaking so large a portion of its funds. The Commissioners are, however, of opinion, and doubt not that they will be able, on another occasion, to shew the practicability of effecting this great object, viz. sloop-navigation from lake Huron to the sea, an object which ought never to be lost sight of, as its completion will not only create a fund which will probably, at no very distant day, redeem the capital invested, with interest, and yield a large annual revenue to the Province, but will also extend our commerce and population, multiply the resources of the vast interior country, strengthen the connection of this colony with the parent state, and promote the prosperity of its inhabitants.

By the accounts which accompany this Report, the expenses of the survey, and certain contingencies of the Board, will be seen. These are greater than were contemplated, but they were unavoidable. A considerable part of the appropriation is, however, still unexpended, and this, from the experience acquired by the Board, will be more economically applied in future. An additional grant will, however, be necessary to enable them to complete the survey of the Lower Routes, and this, they hope, will be cheerfully accorded. To withhold the necessary funds for completing this important survey, would render useless the exertions which have been made, and destroy the hopes and anxious expectations of the Province.

All which is most respectfully submitted.

(SIGNED)

ROBERT NICHOL, *Vice Pres't.*
JAMES GORDON,
CHARLES JONES.

York, 15th February, 1823.

ESTIMATE

Of the expenses required for the construction of a Canal, seven feet deep, forty feet wide at the bottom, and with a slope of one foot and a half to one—the locks one hundred long by twenty-two feet wide with Turning-bridges twenty-two feet in the clear, and ten feet wide.

In the first nine miles all that is required is the deepening of the entrance of the Grand River, and the formation of a towing path on the bank. The river, when the obstructions at the entrance are removed, contains a sufficient depth of water for every purpose :—to deepen the entrance to twelve feet water, and prevent its again filling up, two piers will be necessary ; the materials for which being on the spot, it can be done at a comparative low rate.

	Amount in detail.			TOTAL.	
Constructing piers of piles, and opening Channel, - - - -	4,000	0	0		
Levelling banks, and constructing towing-paths nine miles, at £150 per mile, - - - - -	1,350	0	0	5,350	0 0

Tenth mile.—Lomas' Creek being the most advantageous place to abandon the Grand River, it is proposed to leave the same with a lock ascending, to contain eight feet water, of nine feet lift ; this lock, which is calculated for the lowest ebb of the river, brings us with nine feet water into the said creek thirty-eight chains, requiring only the removal of some black mud. There will be a small embankment and towing path the whole distance : this creek being in most places, sixty-six yards wide, will form an excellent harbor half a mile long—thence forty-two chains through a bed of clay excellent for a canal.

	No of C. Yds.	Rate.	Amount in detail.			TOTAL brought forward.	
			£	s.	d.		
Cutting, - - - - -	4,219	1 0	210	19	0	5,350	0 0
“ “ - - - - -	24,010	0 6	600	5	0		
Embanking, - - - - -	4,671	0 6	116	15	6		
Puddling, - - - - -	3,290	0 6	82	5	0		
Locks, Nos. 1 & 2, - - - - -			4,492	1	0		
Grubbing, - - - - -			70	0	0		
Fencing, - - - - -			32	0	0		
One Bridge,- - - - -			100	0	0	5,704	5 6
Carried Forward.						11,054	5 6

Eleventh mile.—Is excellent for a canal, running through a bed of strong clay frequently crossing Lomas' Creek. It is proposed to admit the creek into the summit pond, which may be done with the greatest safety ; the ground rising so rapidly, two locks will be required in the first 52 chains,—then commences the summit level.

	No. of C. Yds.	Rate.		£	s.	d.	Amount bro't. Forward.
		s.	d.				
Cutting, - - -	57,694	0	6	1,442	7	0	11,054 5 6 6,198 14 0 <hr/> 17,252 19 6
Puddling, - - -	3,210	0	6	80	5	0	
Locks, Nos. 3 & 4, 9 feet lift, -				4,344	2	0	
Grubbing, - - -				200	0	0	
Fencing, - - -				32	0	0	
One Bridge, - - -				100	0	0	

Twelfth mile—Passes through the same clay ; there are two small streams that cross the line and may be admitted into the canal, and will save expense in the embanking. There is no extra cutting in this mile—running near our level.

	No. of C. Yds.	Rate.		£	s.	d.	Amount bro't. Forward.
		s.	d.				
Cutting, - - -	28,484	0	6	712	2	0	17,252 19 6 1,334 3 0 <hr/> 18,587 2 6
Embanking, - - -	7,087	0	6	177	3	6	
Puddling, - - -	4,115	0	6	112	17	6	
Grubbing, - - -				200	0	0	
Fencing, - - -				32	0	0	
One Bridge, - - -				100	0	0	

Thirteenth mile—Runs through the same clay as described in the last two miles. There are two streams cross the line, the first is small and may be admitted into the canal, being only three feet below bottom ; the other is larger and six feet below. The land lying level towards the south, it cannot, without drowning much land, be admitted into the canal—it will therefore be necessary to construct a culvert eight feet by five feet, and cross the stream. In this mile there is very little extra cutting.

	No. of C. Yds.	Rate.		£	s.	d.	Amount bro't. Forward.
		s.	d.				
Cutting, - - -	37,964	0	6	949	2	0	18,587 2 6 1,650 18 10 <hr/> 20,238 1 4
Embanking, - - -	15,135	0	4	252	5	0	
Puddling, - - -	7,299	0	6	182	9	6	
Culvert, - - -				85	2	4	
Grubbing, - - -				50	0	0	
Fencing, - - -				32	0	0	
One Bridge, - - -				100	0	0	

Fourteenth mile—The same body of clay continues through the whole of this mile. This mile crosses Crook's Creek 27 feet below the surface of the canal. A culvert 8 feet by 5 feet, and an embankment will be necessary, there is a little deep cutting on the south side of the said creek very convenient. Another small embankment will be necessary in this mile ; the cutting is, in no other part than the one mentioned, more than necessary.

	No. of C. Yds.	Rate.	£	s.	d.	Amount bro't.	
						Forward.	
Cutting, - - -	34,186	0 6	854	13	0	20,238	1 4
Embanking, - - -	26,624	0 5	554	13	4		
Puddling, - - -	7,670	0 6	191	15	0		
Culvert, - - -			158	4	0		
Grubbing, - - -			100	0	0		
Fencing, - - -			32	0	0		
One Bridge, - - -			100	0	0	1,991	5 4
						22,229	6 8

Fifteenth mile—Passes over ground like the last. The Oswego Creek crosses this mile 37 feet below the surface of the canal; it will be necessary to cross this creek with an Aqueduct 20 feet by 15 feet; the embankment here is unavoidably long. The land being very low in coming to and leaving the creek, it will be necessary to remove the mill, that being the most advantageous place to cross the creek. In this mile, the land continues very shallow cutting.

	No. of C. Yds.	Rate.	£	s.	d.	Amount bro't.	
						Forward.	
Cutting, - - -	35,240	0 6	881	0	0	22,229	6 8
Embanking, - - -	52,659	0 6	1,316	9	6		
Puddling, - - -	10,526	0 6	263	3	0		
Aqueduct, - - -			836	2	0		
Grubbing, - - -			50	0	0		
Fencing, - - -			32	0	0		
One Bridge, - - -			100	0	0	3,478	14 6
						25,708	1 2

Sixteenth mile—Is with respect to the soil, similar to the last; the ground runs very near our level; there is one small embankment, and is entirely without extra cutting.

	No. of C. Yds.	Rate.	£	s.	d.	Amount bro't.	
						Forward.	
Cutting, - - -	32,880	0 6	882	0	0	25,708	1 2
Puddling, - - -	3,900	0 6	97	10	0		
Grubbing, - - -			150	0	0		
Fencing, - - -			32	0	0		
One Bridge, - - -			100	0	0		
Embanking, - - -	3,487	0 6	85	18	6	1,287	8 6
						26,995	9 8

Seventeenth mile—Is a continuation of the same soil—it is rather higher than our level—some extra-cutting is consequently necessary.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				26,995 9 8
Cutting,	-	-	-	51,825	0 6	1,295	12	6	
Puddling,	-	-	-	900	0 6	22	5	0	
Grubbing,	-	-	-			200	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	1,649 17 6
									28,645 7 2

Eighteenth mile—Answers nearly to the last in every respect.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				28,645 7 2
Cutting,	-	-	-	59,986	0 6	1,499	13	0	
Puddling,	-	-	-	980	0 6	24	10	0	
Grubbing,	-	-	-			200	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	1,856 3 0
									30,501 10 2

Nineteenth mile—The same extra-cutting continues through the first 27 chains ; the Chippawa crosses the line in this mile 33 feet below the surface of the canal ; there is a little extra-cutting on the south side, very convenient for the embankment ; to cross this, it is necessary to put in an aqueduct 30 feet by 15 feet. The embankment here is heavy on account of the land being below level, and having to cross a ravine on the north.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				30,501 10 2
Cutting,	-	-	-	43,048	0 6	1,076	4	0	
Embanking,	-	-	-	45,277	0 6	1,131	18	6	
Puddling,	-	-	-	8,733	0 6	218	6	6	
Aqueduct,	-	-	-			990	16	0	
Grubbing,	-	-	-			100	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	3,649 5 0
									34,150 15 2

Twentieth mile—Passes through clay and marl. Two streams cross the line, namely, Limeburner's Creek and Muddy-Run ; between the two there lies some deep cutting, the principal part of which is very convenient for the embankments ; it is proposed to cross Limeburner's Creek with an aqueduct 12 feet by 10 feet. Muddy-Run may be admitted into the canal without the least injury. The land continues rather above the level, and consequently some excavation is necessary.

			No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
				s. d.				34,150 15 2
Cutting,	-	-	45,169	0 6	1,129	4	6	
Embanking,	-	-	47,465	0 6	1,186	12	6	
Puddling,	-	-	9,439	0 6	235	19	6	
Aqueduct,	-	-			494	19	0	
Grubbing,	-	-			200	0	0	
Fencing,	-	-			32	0	0	
One Bridge,	-	-			100	0	0	
								3,378 15 6
								<u>37,529 10 8</u>

Twenty-first mile—Commences a little above the level, and passes some distance through the same earth as last described, then falling to the level, passes through considerable swales, with from two to three feet black mud upon sound clay. This mile rises towards the end from 5 to 9 feet cutting. The swales here are very favorable, having sufficient sound earth to make the banks, and being easy to excavate, which prevents an additional sum on the deep cuttings, that would otherwise be necessary.

			No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
				s. d.				37,529 10 8
Cutting,	-	-	63,884	0 6	1,597	2	0	
Puddling,	-	-	1,046	0 6	26	3	0	
Grubbing,	-	-			200	0	0	
Fencing,	-	-			32	0	0	
One Bridge,	-	-			100	0	0	
								1,955 5 0
								<u>39,484 15 8</u>

Twenty-second mile—Continues above level ; the surface uneven ; from four to eleven feet cutting. It is impossible to avoid this excavation without being thrown into an immense embankment, which would over-balance the advantage.

			No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
				s. d.				39,484 15 8
Cutting,	-	-	56,899	0 6	1,422	9	6	
Puddling,	-	-	380	0 6	22	0	0	
Grubbing,	-	-			200	0	0	
Fencing,	-	-			32	0	0	
One Bridge,	-	-			100	0	0	
								1,776 9 6
								<u>41,261 5 2</u>

Twenty-third mile—The earth still continues too high; frequently crossing swales and small ravines; towards the end of this mile the land descends to the level. The same stratum of earth apparently composes the whole country, and that of the best kind for a canal.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				41,261 5 2
Cutting,	-	-	-	57,274	0 6	1,431	17	0	
Puddling,	-	-	-	528	0 6	13	4	0	
Grubbing,	-	-	-			200	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	
									1,777 1 0
									43,038 6 2

Twenty-fourth mile—Runs near the level with no extra-cutting ; Beaver Creek crosses this mile, and may be admitted into the canal with safety ; by so doing the embankment will be reduced eleven thousand yards. The same description of earth continues.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				43,038 6 2
Cutting,	-	-	-	29,620	0 6	740	10	0	
Embanking,	-	-	-	11,245	0 6	281	2	6	
Puddling,	-	-	-	4,945	0 6	123	12	6	
Grubbing,	-	-	-			200	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	
									1,477 5 0
									44,515 11 2

Twenty-fifth mile—The land rises at the commencement of this mile, and continues above level. The surface rather uneven ; small rises, intersected by swales. The earth same as last.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				44,515 11 2
Cutting,	-	-	-	54,430	0 6	1,360	15	0	
Puddling,	-	-	-	1,753	0 6	43	16	6	
Grubbing,	-	-	-			200	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	
									1,736 11 6
									46,252 2 8

Twenty-sixth mile—Runs forty chains above level, varying from 6 to 9 feet cutting, then gradually descends to the level: almost the whole of this mile is one continued swale, under which there lies a fine bed of strong clay—the grubbing of this is lighter.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				46,252 2 8
Cutting,	-	-	-	55,475	0 6	1,386	17	6	
Puddling,	-	-	-	1,730	0 6	43	5	0	
Grubbing,	-	-	-			150	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	
									1,712 2 6
									47,964 5 2

Twenty-seventh mile—Runs near the level, frequently crossing swales; this mile is easy of excavation; no extra-cutting, and yet sufficient; no embankment, and grubbing very favorable.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				47,964 5 2
Cutting,	-	-	-	39,379	0 5	820	7	11	
Puddling,	-	-	-	5,295	0 6	132	7	6	
Grubbing,	-	-	-			125	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	
									1,209 15 5
									49,174 0 7

Twenty-eighth mile—Runs 42 chains near the level, then rises above, and varies from 3 to 9 feet cutting. This mile is frequently intersected by small rises and swales; towards the end, some extra-excavation is necessary. The cutting is easy; a part of the deep cutting will be in a swamp with 5 to 6 feet of black mud; there is a sufficiency of good clay to make the banks through this mile.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				49,174 0 7
Cutting,	-	-	-	43,698	0 5	910	7	6	
Puddling,	-	-	-	2,621	0 6	65	10	6	
Grubbing,	-	-	-			200	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	
									1,307 18 0
									50,481 18 7

Twenty-ninth mile—Runs 54 chains rather above the level, varying from 5 to 10 feet cutting, then falls to the level. The earth is still composed of the same strong clay. There are in this mile several swales with from 2 to 3 feet of black mud.

				No of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				50,481 18 7
Cutting,	-	-	-	65,650	0 6	1,641	5	0	
Puddling,	-	-	-	1,028	0 6	25	14	0	
Grubbing,	-	-	-			200	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	1,998 19 0
									52,480 17 7

Thirtieth mile—The whole of this mile runs near the level, with little extra-cutting, and is entirely free from embankments. The same description of earth and surface as the last.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				52,480 17 7
Cutting,	-	-	-	49,840	0 6	1,246	0	0	
Puddling,	-	-	-	1,320	0 6	33	0	0	
Grubbing,	-	-	-			200	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	1,611 0 0
									54,091 17 7

Thirty-first mile—The first 23 chains are very near the level, in which distance a small stream crosses the line, and may be brought into the canal without expense. The land thence rises and varies from 8 to 11 feet cutting. It was found impracticable to avoid this extra-cutting without going far to the south, and then the embankments of the 16 and 20 mile creeks would have been very heavy; this line was therefore preferred being more direct and less expensive.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				54,091 17 7
Cutting,	-	-	-	81,130	0 7	2,366	5	10	
Puddling,	-	-	-	704	0 6	17	12	0	
Grubbing,	-	-	-			200	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	2,715 17 10
									56,807 15 5

Thirty-second mile—Towards the end of the last mile commences the dividing ridge between the Chippawa and Twenty-mile-Creek, running in a south-easterly direction, and which it is impossible to avoid. The cutting in this mile varies from 7 to 11 feet; there are several swales, and two and a half chains towards the last—it crosses the corner of a large cranberry marsh. This marsh is a bottom of mud, from 12 to 15 feet in depth.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				56,807 15 5
Cutting,	-	-	-	104,104	0 8	3,470	2	8	
Grubbing,	-	-	-			150	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	
									3,752 2 8
									60,559 18 1

Thirty-third mile—The same rise of land continues for 30 chains, on which summit the line passes 16 chains through the Cranberry marsh mentioned in the last mile, then descends to 5 feet cutting. There is a small rise the last ten and a half chains, which terminates at the south bank of the Sixteen mile Creek. The above rise lies very conveniently for the embankment.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				60,559 18 1
Cutting,	-	-	-	81,449	0 6	2,036	4	6	
Grubbing,	-	-	-			50	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	
									2,218 4 6
									62,778 2 7

Thirty-fourth mile—Commences at Sixteen mile Creek, which being only 9 feet below, renders it impossible to place an aqueduct sufficiently large to take the spring and fall floods; it is, therefore proposed to cross it by placing two culverts 8 feet by 5 feet. An embankment will be necessary, 16 chains long; thence 25 chains, the land is near our level, till it terminates at the south bank of the Twenty mile Creek; 6 feet 12 decimals cutting. It is proposed to cross the Twenty mile Creek with an aqueduct 30 feet by 15 feet; an embankment will be necessary 18 chains long.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				62,778 2 7
Cutting,	-	-	-	20,047	0 6	501	3	6	
Embanking,	-	-	-	164,950	0 6	4,123	15	0	
Puddling,	-	-	-	26,492	0 6	662	6	0	
Aqueduct,	-	-	-			1,215	2	3	
Two Culverts,	-	-	-			295	1	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	
									6,929 18 9
									69,708 1 4

Thirty-fifth mile—For the first 61 chains runs rather higher than the level, and terminates with 16 feet cutting; all of which will be required for the embankment of Mud Creek, lying distant one chain; to cross Mud Creek, an aqueduct, 12 by 10 feet, will be required. The embankment here necessary is 4 chains 46 feet long; deep cutting; lies very convenient on both sides. The land still retains the same uniformity of strata.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				69,708 1 4
Cutting,	-	-	-	75,372	0 6	1,884	6	0	
Embanking,	-	-	-	16,807	0 6	420	3	6	
Puddling,	-	-	-	4,613	0 6	115	6	6	
Aqueduct,	-	-	-			319	3	0	
Grubbing,	-	-	-			100	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	
									2,970 19 0
									72,679 0 4

Thirty-sixth mile—Commences with 20 chains of 9 feet cutting, the greatest part of which lies very convenient for Mud Creek. The land then falls to 5 feet, and immediately afterwards rises to 7 feet, at which it continues 29 chains, and then falls to our level, with small swales, to the end. There are two creeks, both of which may be admitted into the canal without injury or expense; the largest is 3 feet below bottom.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				72,679 0 4
Cutting,	-	-	-	70,006	0 6	1,750	3	0	
Embanking,	-	-	-	3,872	0 4	64	10	8	
Puddling,	-	-	-	852	0 6	21	6	0	
Grubbing,	-	-	-			100	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	
									2,067 19 8
									74,747 0 0

Thirty-seventh mile—Runs near our level. One stream 3 feet 15 decimals below bottom, may be admitted into the canal without expense; two small embankments will be necessary, for which the earth lies very convenient.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				74,747 0 0
Cutting,	-	-	-	35,589	0 6	889	14	6	
Embanking,	-	-	-	10,222	0 4	170	7	4	
Puddling,	-	-	-	4,332	0 6	108	6	0	
Grubbing,	-	-	-			150	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	
									1,450 7 10
									76,197 7 10

Thirty-eighth mile—Runs below level, a distance of 30 chains, then rises to the level, and passing over a summit, 30 chains wide, arrives at the mountain, which here descends rapidly. Stony Creek crosses the line in this mile, which is only six feet below level, consequently it must be passed under the canal, with a broken backed culvert, 8 feet by 5 feet. At the 68th chain will stand double locks, Nos. 1 and 2, each 10 feet lift descending, having passed over a summit of 27 miles 16 chains long. The rapidity with which the mountain descends, renders it necessary to place lock No. 3, ten feet lift, in this mile. At locks Nos. 1 and 2 there will be a little deep cutting. In forming this estimate a proper allowance is made for loose stone found therein.

	No of C. Yds.	Rate.	£	s.	d.	Amount bro't.
						Forward.
						76,197 7 10
Cutting,	14,801	1 0	740	1	0	
"	30,610	0 6	765	5	0	
Embanking,	48,114	0 6	1,202	17	0	
Puddling,	10,510	0 6	262	15	0	
Culvert,			112	10	0	
Locks, No. 1 2 & 3,			5,905	2	6	
Grubbing,			50	0	0	
Fencing,			32	0	0	9,170 10 6
One Bridge,			100	0	0	85,367 18 4

Thirty-ninth mile—Commences with 10 feet excavation. There will be some rock excavation necessary. The rock, lying in horizontal stratas, will be removed at the expense of very little powder. A small embankment will be necessary to lengthen the distance between the locks, which are rather too near each other. The mountain breaking off almost perpendicularly, a side wall will be necessary, 15 feet high by 3 feet 28 chains long. The stone is a fine white freestone, and for the construction of locks not to be surpassed. This mile contains lock No. 4, ten feet lift; double locks, Nos. 5 and 6, each ten feet lift; and locks Nos. 7, 8, 9, 10, 11, 12, and 13, each ten feet lift, amounting to ten locks, and descending 100 feet. All the stone excavated will be wanted in the locks and side wall.

	No. of C. Yds.	Rate.	£	s.	d.	Amount bro't.
						Forward.
						85,367 18 4
Removing top earth and loose stones,	21,115	0 9	791	16	3	
Rock excavation,	24,216	2 0	2,421	12	0	
Embanking,	7,040	0 6	176	0	0	
One Bridge,			100	0	0	
Puddling,	13,996	0 6	349	18	0	
Side wall,			346	10	0	
Locks from No. 4 to 13,			19,710	0	0	
Grubbing,			60	0	0	23,981 11 3
Fencing,			25	0	0	109,349 9 7

Fortieth mile—The whole of this mile is rock cutting: we are enabled to run near our level, and shall not have to excavate more than is necessary to construct our stone work. There will be a side wall, 15 feet by 3 feet 15 chains long, to prevent the canal from leaking: this distance will have to be puddled across the bottom and up the side wall: 3 locks are necessary in this mile, Nos. 14, 15 and 16, each descending 10 feet lift.

	No. of C. Yds.	Rate.	£	s.	d.	Amount bro't.
						Forward.
						109,949 9 7
		s. d.				
Rock excavation, - - -	57,482	2 0	5,748	4	0	
Puddling, - - - - -	15,000	0 6	375	0	0	
Side wall, - - - - -			185	12	6	
Locks Nos. 14, 15, and 16, - - -			5,905	2	6	
Grubbing, - - - - -			150	0	0	
Fencing, - - - - -			27	0	0	12,490 19 0
One Bridge, - - - - -			100	0	0	121,840 8 7

Forty-first mile—Commences on the first flat below the mountain. The earth is composed of strong red marl, with from 12 to 18 inches of light earth on the top. No rock excavation. Two embankments will be necessary, both of which it is proposed to form of one bank; the first is 12 feet 56 decimals, and the other thirty-five feet below level; by crossing these with one bank, a saving of £552 will be made, and excellent reservoirs will be formed, without drowning any land capable of cultivation. Reservoirs of this kind are of the greatest advantage to ponds so short. Lock No. 17 is in this mile.

	No. of C. Yds.	Rate.	£	s.	d.	Amount bro't.
						Forward.
						121,840 8 7
		s. d.				
Cutting, - - - - -	47,580	0 6	1,189	10	0	
Embanking, - - - - -	22,092	0 6	552	6	0	
Puddling, - - - - -	5,053	0 6	126	6	6	
Lock No. 17, - - - - -			1,968	7	6	
Grubbing, - - - - -			175	0	0	
Fencing, - - - - -			32	0	0	4,143 10 0
One Bridge, - - - - -			100	0	0	125,983 18 7

Forty-second mile—With respect to strata, it is of the same description as the last. There are two embankments necessary, which it is proposed to construct in the same manner, the one 18.50, the other 13.37 below level. There is sufficient cutting, to make the banks necessary in this route, very convenient. The expense saved, together with the advantages obtained by such reservoirs, are of the greatest moment. Locks Nos. 18 and 19, each 10 feet lift, are necessary in this mile.

	No. of C. Yds.	Rate.	£	s.	d.	Amount bro't.
						Forward.
						125,983 18 7
		s. d.				
Cutting, - - - - -	51,755	0 6	1,293	17	6	
Embanking, - - - - -	16,628	0 6	415	14	0	
Puddling, - - - - -	3,545	0 6	88	12	6	
Locks Nos. 18 and 19, - - -			3,936	15	0	
Grubbing, - - - - -			175	0	0	
Fencing, - - - - -			32	0	0	6,041 19 0
One Bridge, - - - - -			100	0	0	132,025 17 7

Forty-third mile—In this there is no extra cutting ; there is a little deep cutting very convenient for two large embankments, which it is proposed to construct with one bank ; and this may be done without drowning any lands. One of these is 29.20, and the other 57.50 below level. The cutting of this mile is easier than the last, the loam being deeper. The amount saved in these embankments, by crossing them with one bank, is £1000, independently of the other advantages in short ponds. Lock No. 20, 10 feet lift, in this mile.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				132,025 17 7
Cutting,	-	-	-	49,119	0 5	1023	6	3	
Embanking	-	-	-	31,699	0 6	792	9	6	
Puddling,	-	-	-	6,559	0 6	163	19	6	
Lock No. 20,	-	-	-			1968	7	6	
Grubbing,	-	-	-			200	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	4,280 2 9
									<u>126,306 0 4</u>

Forty-fourth mile—The greatest part of this mile runs near our level. There is some deep cutting so very convenient for an embankment required for passing a ravine 11.50 below level, that it enables us to estimate it at half price. The earth is composed of the before named red marl. Lock No. 21, 10 feet lift, is in this mile.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				136,306 0 4
Cutting,	-	-	-	55,684	0 6	1,392	2	0	
Embanking,	-	-	-	7,294	0 3	91	3	6	
Lock No. 21,	-	-	-			1,968	7	6	
Grubbing,	-	-	-			100	0	0	
Fencing,	-	-	-			32	0	0	
Puddling,	-	-	-	2,617	0 6	65	8	6	3,749 1 6
One Bridge,	-	-	-			100	0	0	<u>140,055 1 10</u>

Forty-fifth mile—Commences at the east edge of the Thirty Mile Creek, running 9 chains nine feet from 2 to 15 feet cutting ; the whole lying very convenient for the embankment, which is the largest on the whole route, 3 chains 20 feet wide, 56 feet below level. To cross this by an aqueduct, and embankment, would require an aqueduct 12 by 10, and cost £400, an embankment containing 97,389 c. yards, and 3,520 puddle, aggregate of the embankment £2,922 14 6d. By crossing it with one bank, and allowing it sufficient strength to resist the power of 156 feet head, would only amount to £1,229 5s. leaving a balance of £1,693 9s. 6d. independently of its being a reservoir to feed 4 locks, which is equal to more than double the sum saved. To provide against floods a waste weir would be necessary, which would be very valuable for any hydraulic establishment. The residue of this mile runs near our level. No extra excavation. Lock No. 22, and double Locks Nos. 23 and 24, and Lock No. 25, each descending 10 feet lift. The fall of land being so rapid, it became necessary to substitute double Locks to descend to the second flat of the mountain.

	No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
Cutting, - - -	69,051	0 6	1,726	5	6	140,055 1 10
Embanking, - - -	47,970	0 6	1,199	5	0	
Puddling, - - -	7,647	0 6	191	3	6	
Locks Nos. 22, 23, 24, & 25, -			7,873	10	0	
Grubbing, - - -			100	0	0	
Fencing, - - -			32	0	0	11,222 4 0
One Bridge, - - -			100	0	0	151,277 5 10

Forty-sixth mile—Continues near our level. The cutting is very easy, being nothing more than the loam to remove, and is excellent for a Canal. Lock No. 26, 10 feet lift, is in this mile.

	No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
Cutting, - - -	31,352	0 4	522	10	8	151,277 5 10
Puddling, - - -	3,123	0 4	52	1	0	
Lock No 26, - - -			1,968	7	6	
Grubbing, - - -			50	0	0	
Fencing, - - -			32	0	0	2,724 19 2
One Bridge, - - -			100	0	0	154,002 5 0

Forty-seventh mile—requires more cutting than what is necessary to form the banks. The earth answers to the description of the last mile, being very easy to excavate.

	No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
Cutting, - - -	32,645	0 4	544	1	8	154,002 5 0
Puddling, - - -	5,279	0 4	87	19	8	
Grubbing, - - -			50	0	0	
Fencing, - - -			32	0	0	
One Bridge, - - -			100	0	0	814 1 4
						154,816 6 4

Forty-eighth mile—Runs near our level, the first 37 chains 33 feet ; thence 6 chains crosses the Forty mile creek, which it is proposed crossing with one bank, and placing a waste weir, to allow all waters above seven feet to run off ; this would be an advantage to all mills situated on the line of the Canal. The earth is composed of the red marl before described. The line here passes close under the mountain and through Mr. H. Nelles's stable, leaving the house one chain to the right.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				154,816 6 4
Cutting,	-	-	-	44,663	0 6	1,116	11	6	
Embanking,	-	-	-	9,360	0 6	234	0	0	
Puddling,	-	-	-	4,883	0 6	122	1	6	
Grubbing,	-	-	-			40	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	3,416 3 9
Lock No. 27, 9 feet lift,	-	-	-			1,771	10	9	158,232 10 1

Forty-ninth mile—Runs along the road from Niagara to Hamilton, and very near our level. No extra cutting except where it will be necessary for an embankment.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				158,232 10 1
Cutting,	-	-	-	37,754	0 5	786	10	10	
Embanking,	-	-	-	5,827	0 3	72	16	9	
Puddling,	-	-	-	3,945	0 6	98	12	6	
Grubbing,	-	-	-			30	0	0	
Fencing,	-	-	-			32	0	0	1,120 0 1
One Bridge,	-	-	-			100	0	0	159,352 10 2

Fiftieth mile—Is so very level that neither embankment nor extra cutting are requisite; from three to four feet of loam upon the same clay and marl before described.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				159,352 10 2
Cutting,	-	-	-	26,400	0 4	440	0	0	
Puddling	-	-	-	5,280	4	88	0	0	
Grubbing,	-	-	-			25	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	685 0 0
									160,037 10 2

Fifty-first mile—Resembles the last, as respects goodness of earth and easy cutting Lock No. 28 descending 9 feet lift.

	No. of C. Yds.	Rate.	£	s.	d.	Amount bro't.
						Forward.
		s. d.				160,037 10 2
Cutting, - - -	39,231	0 4	653	17	0	
Puddling, - - -	5,880	0 4	98	0	0	
Lock No. 28, - - -			1771	10	9	
Grubbing, - - -			100	0	0	
Fencing, - - -			32	0	0	
One Bridge, - - -			100	0	0	
						2,755 7 9
						162,792 17 11

Fifty-second mile—Passes through the same description of earth. The cutting necessary is scarcely sufficient to make the banks. Lock No. 29, descending 10 feet lift.

	No. of C. Yds.	Rate.	£	s.	d.	Amount bro't.
						Forward.
		s. d.				162,792 17 11
Cutting, - - -	26,400	0 4	440	0	0	
Puddling, - - -	5,280	0 4	88	0	0	
Lock No. 29, - - -			1968	7	6	
Grubbing, - - -			50	0	0	
Fencing, - - -			32	0	0	
One Bridge, - - -			100	0	0	
						2,678 7 6
						165,471 5 5

Fifty-third mile—Runs very near our level. The earth again resumes its clayey substance. Very trifling extra-cutting.

	No of C. Yds.	Rate.	£	s.	d.	Amount bro't.
						Forward.
		s. d.				165,471 5 5
Cutting, - - -	26,653	0 6	666	6	6	
Puddling, - - -	5,002	0 6	125	1	0	
Grubbing, - - -			120	0	0	
Fencing, - - -			32	0	0	
One Bridge, - - -			100	0	0	
						1,043 7 6
						166,514 12 11

Fifty-fourth mile—Twelve chains from the commencement of this mile the line crosses the Niagara road, and continues some distance further near the level, and then falls : a lock, No 30, is placed here, being a short distance from the mountain : the transportation of materials adds a little to the expence of each lock. The whole of this mile is composed of strong clay and marl.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				166,514 12 11
Cutting,	-	-	-	25,998	0 6	649	19	0	
Puddling,	-	-	-	5,606	0 6	140	3	0	
Lock No. 30,	-	-	-			1871	10	9	
Grubbing,	-	-	-			200	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	
									2,993 12 9
									169,508 5 8

Fifty-fifth mile—There is very little extra excavation in this mile—it consists entirely of the red marl before mentioned. The ground still descending, a Lock No. 31, descending 10 feet lift is placed here.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				169,508 5 8
Cutting,	-	-	-	35,974	0 6	899	7	0	
Puddling,	-	-	-	5,880	0 6	147	0	0	
Lock No. 31,	-	-	-			2068	7	6	
Grubbing,	-	-	-			200	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	
									3,446 14 6
									172,955 0 2

Fifty-sixth mile—Passes through the same description of earth without extra excavation. The last four or five miles are well adapted for the proposed Canal.

				No of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				172,955 0 2
Cutting,	-	-	-	33,440	0 6	836	0	0	
Puddling,	-	-	-	5,280	0 6	132	0	0	
Grubbing,	-	-	-			200	0	0	
Fencing,	-	-	-			32	0	0	
One Bridge,	-	-	-			100	0	0	
									1,300 0 0
									174,255 0 2

Fifty-seventh mile—This answers to the last mentioned miles, though a little deep cutting will be necessary. The descent in this mile being considerable, Lock No. 32, descending 10 feet lift, is placed here.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				174,255 0 2
Cutting,	-	-	-	40,101	0 6	1,002	10	6	
Puddling,	-	-	-	3,520	0 6	88	0	0	
Lock No 32,	-	-	-			2,068	7	6	
Grubbing,	-	-	-			200	0	0	
Fencing,	-	-	-			32	0	0	3,496 18 0
One Bridge,	-	-	-			100	0	0	177,745 18 2

Fifty-eighth mile—Stony Creek crosses the line, which it is proposed to pass with one bank: immediately after, there is a large ravine with a stream, which must be passed under the canal with an aqueduct, 15 feet by 12 feet; on the north side of the ravine lies some deep cutting, well situated for the embankment; previously to reaching the east edge of Stony Creek, Lock No. 33, descending 10 feet lift, must be placed: by placing the Lock previously to passing Stony Creek, the advantage of lowering the bottom level is gained; it now stands 16.81 below level, and would have stood 26.81 without this Lock.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				177,745 18 2
Cutting	-	-	-	88,250	0 6	2,206	5	0	
Embanking,	-	-	-	39,533	0 6	988	6	6	
Puddling,	-	-	-	10,446	0 6	261	3	0	
Lock No. 33,	-	-	-			2068	7	6	
Aqueduct,	-	-	-			352	10	0	
Grubbing,	-	-	-			200	0	0	
Fencing,	-	-	-			32	0	0	6,208 12 0
One Bridge,	-	-	-			100	0	0	183,954 10 2

Fifty-ninth mile—Continues through the same kind of earth. The land descending, we are here obliged to place lock No. 34, descending 8 feet lift; there is a little extra-excavation.

				No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
					s. d.				183,954 10 2
Cutting,	-	-	-	47,673	0 6	1,191	16	6	
Puddling,	-	-	-	2,888	0 6	72	4	0	
Lock No. 34,	-	-	-			1,676	7	6	
Grubbing,	-	-	-			150	0	0	
Fencing,	-	-	-			32	0	0	3,322 8 0
One Bridge,	-	-	-			100	0	0	187,176 18 2

Sixtieth mile—Commences with lock No. 35, descending 9 feet lift. One chain from the lock, Clench's Creek crosses the line. To pass this water under the canal, two large culverts are necessary, 8 feet by 5 feet; being only 8 feet below level—it would not admit of an aqueduct. There is a ravine, 2 chains wide, 4 chains from Clench's Creek, which may be crossed with one bank. Some deep cutting very convenient for this embankment. Lock No. 36, descending 9 feet lift, is in this mile.

	No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
		s. d.				187,176 18 2
Cutting, - - -	49,944	0 6	1248	12	0	
Embanking - - -	22,057	0 6	551	8	6	
Puddling, - - -	7,645	0 6	191	2	6	
Locks Nos. 35 & 36, - - -			3352	15	0	
Grubbing, - - -			200	0	0	
Fencing, - - -			32	0	0	
Two Culverts - - -			205	4	0	5,881 2 0
One Bridge, - - -			100	0	0	193,058 0 2

Sixty-first mile—Crosses the head of several marshes; it varies from 2 to 6 feet cutting, excellent for a canal.

	No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
		s. d.				193,058 0 2
Cutting, - - -	56,970	0 6	1424	5	0	
Puddling - - -	5,232	6	130	16	0	
Grubbing, - - -			100	0	0	
Fencing, - - -			32	0	0	
One Bridge, - - -			100	0	0	
						1,787 1 0
						194,845 1 2

Twenty-eight chains 15 feet after the above there are $2\frac{1}{2}$ chains of thick mud, the removal of which opens the canal into 7 feet water in John De Pue's Creek, Burlington Bay. At 28 chains 38 feet, stands Lock No. 37, descending 11 feet lift, which is intended to open the Canal from this Lock into the little lake with seven feet water.

	No. of C. Yds.	Rate.	£	s.	d.	Amount bro't. Forward.
		s. d.				194,845 1 2
Cutting, - - -	18,619	0 6	465	9	6	
Puddling, - - -	1,000	0 6	25	0	0	
Lock No. 37, - - -			2368	0	0	
Grubbing, - - -			10	0	0	
Fencing, - - -			11	0	0	3,179 9 6
Opening the mouth $2\frac{1}{2}$ chains, -			300	0	0	198,024 10 8

	Amount brought forward—	£	198,024	10	8
Thirty trunks must be introduced into the Canal at different points, capable of laying a part, or the whole of a pond dry when necessary	}	150	0	0	
Grooving the stone for stop-planks and supporters,		90	0	0	
Twelve extra waste weirs, to be placed at the ravines crossed with one bank	-	50	0	0	
Opening a channel between Lake Ontario and Burlington Bay, and defending the mouth with two piers, Bridge, &c. &c.	}	8,240	0	0	
PROVINCIAL CURRENCY.—		£	206,554	10	8

On commencing to take the levels for a feeder, the weather which had previously been very favorable, became very bad, raining almost incessantly, filling the swamps and rivulets, which rendered it almost impossible to carry on the work with due precision. After much difficulty, however, it was ascertained that no impediment is in the way of constructing it on a scale to admit of boats carrying thirty tons, for about £25,000. It is, however, presumed, that a better route may be found when the weather becomes settled in the spring.

(Signed)

SAMUEL CLOWES,
Superintendent Engineer.
 JAMES CLOWES,
Assistant.

YORK, January 20th, 1823.

R E P O R T

Of a survey and level of the several Ravines and streams falling into Burlington Bay, in order to facilitate a Canal Navigation from Lake Erie into Lake Ontario.

Great Creek, a strong stream, turns several mills; but, from its falls at the mountain ridge of nearly one hundred feet perpendicular, is rendered impracticable for canal navigation.

Little Creek, a smart stream, winding through a deep ravine of clay bottom; its source is five hundred feet above the level of the lake, and by its meanders, is more than twelve miles long, forming a regular inclined plain.

Coldstream Creek, turns several saw mills; its source is in a swamp, from which issues a stream that falls into the Grand River, and is four hundred and eighty-five feet above the level of the lake, embosomed by a deep ravine, winding for seven miles; it forms a junction with the little creek; it has many advantages of lime-stone, water-proof lime, &c.

Crooks' Creek turns some mills; runs under Ancaster; is incapable of canal navigation from its steep, broken, and irregular course.

Clench's Creek is the most feasible channel by which to pass the canal; the local advantages are many, such as lime stone quarries, water proof lime, &c.; its deep and narrow worn channel will in many places, require little excavation; it rises beyond the Albion Mills which it turns; is more than seven miles long, and three hundred and sixty feet above the level of the lake, forming mostly a regular inclined plane, over a tough clay bottom; disembogues into the bay by a flat march, near to where the government house once stood; here it formerly opened a passage into the great lake; this obstruction could again be removed at a trifling expence, perhaps to the depth of twenty feet, if required, when a safe and commodious harbour would be formed, rendered secure from tempest or the incursions of an enemy by the protection of the well known Burlington Heights.

I have surveyed and levelled from the source of the Little Creek before mentioned, by Hines' Creek, which rises near the same place, to the banks of the Grand River, a map of which route, time

did not permit me to accomplish ; this stream, swelling as it advances, turns Kitchen's saw mill, three miles from its source with a small fall ; from thence to Ancaster road, with various declensions and ascensions, thence, by said road, which is in general nearly level, to the banks of the Grand River, near the Indian Village, which I ascertained to be only twenty feet lower than the highest level I had taken ; the river is here deeply bedded below its banks, perhaps sixty feet ; from this I continued the level up the river with a view to determine where its waters could be turned to supply the summit level, and after passing Holley's Inn, much higher up the river, to the distance of eighteen miles from the commencement, when bad weather obliged me to return, but not until I had sufficiently discovered the practicability of making those waters subservient to the intended purpose, which can be effected by a collateral canal, always useful to the inland trade of the country.

With diffidence, I take a retrospective view of the seemingly insurmountable barrier nature has obstinately opposed to a canal navigation between the two lakes. It certainly requires cautious deliberation ; but, considering the great national good, the incalculable public and private advantages that will arise from so vast a navigation as this short cut will open, also, that otherwise our neighbours will engross the trade of this Province, by their extensive inland navigation, I feel confident these difficulties can be surmounted without hazardous innovation, and with comparatively small expense.

I have the honour to be, Gentlemen, with great respect,

Your Obedient Humble Servant,

(Signed)

VALENTINE GILL.

To the Honorable the Board of Canal Commissioners, }
York, Upper Canada. }

SUPPLEMENTARY REPORT

Of the Commissioners appointed by His Excellency the Lieutenant Governor, in conformity to the provisions of An Act passed in the second year of His Majesty's Reign, entitled, "An Act to make Provision for the Improvement of the Internal Navigation of this Province."

In their first Report the Commissioners stated, that they had (in deciding on the scale on which to estimate for the proposed Canal) been influenced in part by information communicated to the Board, (since found to be incorrect) that there were obstructions and shallows in the Lake Saint Louis, which could not be removed without much difficulty and enormous expense. Considering it to be of the utmost importance to ascertain the fact, they engaged an intelligent Marine Surveyor to survey that Lake :—this service he effectually performed in the month of October last, as will be seen by the marine chart which is transmitted with this Report.

His first object was to sound the channel from the Cascades to Lachine, in which he found plenty of water, though in some places rather intricate ; the least water (being fourteen feet) is found close to Finchley's wharf at Lachine.

He next proceeded to survey the channel leading from the Lake of the Two Mountains, on both sides of the Isle Perrot ; the north channel was found impracticable, from the numerous rocks and shoals with which it is obstructed : the south, or Vaudreuil channel is accurately laid down. In the rapids of this the shallowest water is 6 feet, but is capable of being improved to any depth by lockage into deep water near to the Cascades.

An advance to the amount of £50 was made to the surveyor on account of this survey ; but owing to the absence of the President under whose direction the survey took place, the account has not been audited.

Which is respectfully submitted.

(Signed)

ROBERT NICHOL,
Vice President.
JAMES GORDON,
CHARLES JONES.

York, February 15th, 1823.

REPORT

OF THE COMMISSIONERS OF INTERNAL NAVIGATION,

1825.

To his Excellency SIR PEREGRINE MAITLAND, Knight Commander of the most Honorable Military Order of the Bath, Lieutenant Governor of the Province of Upper Canada, Major General Commanding His Majesty's Forces therein, &c. &c. &c.

The Commissioners appointed by your Excellency in conformity to the provisions of An Act passed in the second year of His Majesty's Reign, entitled "An Act to make provision for the improvement of the Internal Navigation of this Province,"

MOST RESPECTFULLY REPORT,

That in prosecution of the plans stated in the first report, submitted at the late session of the Legislature, the Commissioners this season applied their attention to the route from Lake Ontario, by the interior lakes and streams, to the River Ottawa; and because no positive direction could be assigned to this survey without more general knowledge of the interior, than was at that time in their possession, they found it necessary that the Engineer should traverse the country, from Kingston to the confluence of the Rideau and Ottawa Rivers, and personally acquire the requisite information respecting its leading features.

Mr. Clowes, the Engineer, accompanied by one of the commissioners, and by Mr. Sherwood, the Land Surveyor, who acted as guide on the occasion, embarked in canoes early in the spring, and proceeded from Kingston up the Grand River Cataract, and through Cranberry Lake to the Gananoque River, which are all connected by means of dams erected at the Whitefish falls in the township of South Crosby, and at the Round-Tail in Pittsburgh. The exploring party then passed up Jones's falls, or rapids, and following up the Whitefish branch of the Gananoque, through several small lakes, to the carrying place from Mud into Rideau Lake, transported their canoes and baggage from the lower end of the latter into the River Mississippi by the main road leading from Perth to Lanark. From thence they descended to the Ottawa and returned to Kingston by Rideau River, Irish Creek, and the Gananoque.

The Commissioners had been led to suppose that the Mississippi would afford great facilities for their proposed survey. It is in truth a fine and copious stream, taking its rise somewhere in the neighbourhood of Crow River, one of the tributary streams of the Trent, and running in a northerly direction, a course of about two hundred miles. On observing, however, its numerous rapids and cascades, as well as the falls at the Chats and Chaudieres, on the Ottawa, it was evident that the bed of the Mississippi was far too elevated, and that as the lockage to attain and descend from the summit pound, would be enormously expensive, no canal would be practicable in that direction.

The Rideau River seemed to oppose fewer obstacles, and as it presented a shorter course from Kingston, to the still waters of the Ottawa, below the Chaudieres falls, the examination of the Petit Nation River, which was more distant and less promising, though also in contemplation, was postponed until the localities of the Rideau had been fully explored.

The Engineer was therefore instructed to commence his surveys near Kingston, and to gain the Rideau (if possible below the lake of that name) by the most direct line, and the lowest summit he

might discover. It was at the same time suggested, that he might probably meet with the lowest summit at a place in the township of Kitley, called Plum Hollow, where the waters of the Rideau and Gananoque very closely approach each other.

With these general views for his guidance, the Engineer began to employ the level on the 12th day of June and continued incessantly engaged with it, until the 15th day of November, when the severity of the weather, and the necessity of reporting on the progress of the survey, put a period to his operations. The result so far as there was time to proceed this season, is detailed in the following statement, furnished by the Engineer, and will be further elucidated by the accompanying maps and plans.

(For this estimate, extending sixty-five miles from Kingston to the lower end of Rideau lake, the reader is referred to the THIRD REPORT.)

THUS it appears, that a good and easy navigation, 65 miles in length, for vessels drawing 6 feet water, carrying 120 tons, and capable of braving the weather on Lake Ontario, might be acquired at an expense not exceeding £70,000, a sum absolutely insignificant, when compared with the magnitude of the object for attaining which it would be applied.

In making up the foregoing estimate, the Engineer has bored the ground wherever excavation would occur, to the depth of the bottom level of the canal, and has thus accurately ascertained the nature of the various strata of earth and rock along the whole line. As the bed of the river Cataragui, at Kingston Mills, is used for the canal, it will be necessary at the back part of each lock, to construct a waste weir 40 feet in width, to protect the work against the dangers of floods. From Kingston mill pond as far as the Round Tail, the excavation is so favorable for raising the banks, and is besides so easy, that the expense of the canal between those points is very moderate.

In the 18th mile stands Brewer's mill, which should be removed, as a lock would unavoidably occupy its site.

The position of every lock as far as Jones' rapids, is so judiciously selected that no rock excavation occurs from Kingston harbour, until the line of the canal reaches the foot of Jones's rapids; a distance of 28 miles. A bed of clay throughout separates the limestone rock on the west, from a species of rock, resembling granite, which runs along the eastern bank, to which fortunate circumstance is to be ascribed the facility and cheapness with which this part of the work may be effected.

From the Round-tail to Jones's rapids there is a wide extent of low marshy land, naturally inundated every spring; on one part by the western or Whitefish branch of the Gananoque, and on another by the superfluous waters of the Loughborough lake, Dog lake, &c. The inundation of this tract is rendered permanent to a greater depth, by dams placed at the Round-tail and the Whitefish falls, by the proprietors of the mills at those places.

In connecting the canal at the Round-tail with Gananoque river, the Engineer might either make a cut across the intervening flats; or by dams at the outlets, he might convert them into one extensive lake, comprising Cranberry lake, and another small one in its vicinity. The difficulties attending the former plan are numerous and important. In many places it would be necessary to drive piles, and secure the banks of the canal by planking them, and the excavation would be very troublesome, in consequence of having to contend with water and soft mud, extending several yards in depth. At a moderate calculation it is supposed that the cost of a cut at this place, would not be less than £5,175 per mile. The distance is about nine miles and a half, of which one and a half would be rather favorable. The whole expense is therefore estimated in the aggregate for the nine miles and a half, at £25,650. By the latter plan the water would be raised to the depth of seven feet over the whole surface of the flats, to the foot of Jones's rapids. The expense of forming waste weirs at the Round-tail, and Whitefish falls, clearing the timber from the direct line of the canal on the flats, &c. would amount to £725; and as the difference between the two plans, amounts to £24,925, the advantages of inundating the tract instead of cutting through it, obtain a decided superiority. The owners of the land would no doubt require compensation for the loss of their property; but its total value, in its

present state, cannot by any mode be estimated to exceed £1,500 including the reservations for the Crown and Clergy, which sum may be added to the estimate.

The twenty-ninth mile connects the drowned lands with Davis's or west lake, and embraces Jones' rapids, where the Gananoque river descends sixty feet, ninety-one and a half decimals over a narrow rocky channel, confined within precipitous banks of great elevation, which retire at intervals more or less from the bed of the stream. Although the expense of this route will be great, it is far less than that of any other route to the east or west of it. A certain rise in the line of the canal was inevitably to be encountered, and no place could be discovered for this purpose, presenting fewer obstructions than that in question. In fixing the situation of the six locks, which are here required, occasion is taken to provide a reservoir between each, varying from one to four chains in width, and forming a pond sufficiently spacious for vessels coming in opposite directions, to pass each other.

By dams at the outlets of the several lakes, between Jones' rapids and the Rideau, the water is raised to the required depth of the canal, without inundating much land of any value. From the peculiar formation of the country all the good land lies high, and marshy lands principally are covered by means of the proposed dams. The difficulties attending rock excavation are exhibited by the estimate for the cut between Mud and Rideau lakes, where a ridge of rock occurs for a short space, and hence a fair conjecture may be formed of the expense which would be incurred in deepening the bed of the lakes, by removing not merely sand-bars, but shoals of rock, remarkably solid and difficult to be blasted. Such an enterprise would indeed be nearly impracticable, and if attempted, would occasion an incalculable waste of money. By means of dams every obstacle is overcome, and the water is raised to a proper depth at a trifling expense.

The rock at the Indian carrying place has alone prevented the Rideau and Mud lakes from uniting without the aid of art. In cutting through this rock, Indian, Mud, Rideau and Clear lakes, are placed on the same level, and thus constitute a magnificent summit pond, thirty-one miles in length on the course of the canal, at an elevation of 154 feet ten and a half decimals above lake Ontario. In addition, there are several extensive lakes lying west of the line on the same level or above it, besides an arm of the Rideau lake itself, which stretches off in a south westerly direction. There can therefore be no cause to dread a want of water, for with the most extensive trade which can be anticipated, the summit pond would still remain an inexhaustible reservoir during the most arid seasons.

In the proposed cut between Mud and Rideau lakes, the width of the canal is reduced where the rock excavation occurs, to twenty-four feet at the bottom and forty-three feet at the top water line, which produces a saving of expense without the risk of any inconvenience to trade at a future day.

By the plan of the bridges, of which owing to the nature of the country, six only would for a length of time be required, the Engineer has ingeniously effected additional savings, for he makes the side walls of the locks supply the place of abutments. The form of the bridges which are intended to admit vessels with masts and standing rigging, perhaps renders the plan more feasible on the proposed canal, than on such as do not afford similar advantages to the craft which ply on their waters.

A circumstance which may not be unworthy of remark, is, that the whole route so far as the survey has been completed, i. e. on a line of sixty-five miles, neither embankment nor culvert is required, and it is questionable whether this fact has a parallel in canal surveying. Though the plain reason of this singularity is, that the natural course of the waters has been studiously adhered to, it nevertheless illustrates the uncommon facilities of the route more amply, than the most laboured arguments or abstract calculations.

It will be observed that the original idea of passing through Plum Hollow, founded on a presumption that the lowest summit would be found in that quarter, and adopted also on account of that place lying nearly in a direct line from Kingston to the mouth of the Rideau, was abandoned on its being ascertained, that Plum Hollow which appeared low to the eye from its position in the neighbourhood of elevated ridges, was actually one hundred and fifty-six feet forty-nine and a half decimals higher than lake Ontario, and consequently two feet thirty-nine decimals above the bottom level of the present summit pond. There were other difficulties to be surmounted on this route. To supply the summit level, a feeder would have been required ten miles in length, from the Big Bay in Rideau lake, the construction of which would be a serious affair, as an intervening summit of lime stone thirty-six

feet above the level, would have occasioned a heavy expenditure of money. The summit pound itself would not have extended above a few hundred yards, while the cost incurred for supplying it with water, would have tripled that of the route by Jones's rapids and the lakes. Besides these objections to the route by Plum hollow, two summits would have been requisite on that line. The flats between the Round-tail and Whitefish falls, would have become the first summit, from which there would have been a descent by two locks at Whitefish falls into one of the Gananoque lakes, called Henderson's or East lake. From thence the route would have led through the Bastard lakes, to the second summit at Plum Hollow, and have reached the river Rideau by way of Irish lake and creek.

The line of the canal is undoubtedly lengthened about twenty miles, by abandoning this course and assuming the more circuitous one by the Lakes; but the great saving of expense in the latter, and the benefit which would be derived from it by the rising settlement near the Rideau Lake, added to various other considerations, more than outweigh the disadvantages of increased length.

From the rugged and broken nature of those parts of Pittsburgh and South Crosby, through which the various levels were conducted: from the numberless rocky eminences, marshes, bogs, &c. every where encountered, and from the scanty information to be gained in any other way, than by personal examination of a tract of country, which still remains almost in its primeval state, there unavoidably resulted much delay, and occasional perplexity. It was desirable to select the nearest, most advantageous and easiest course for the contemplated canal, and for attaining this end every Lake, ravine, and marsh, required to be minutely explored. The field books of the Engineer, will most clearly exhibit the difficulties against which he was obliged to contend in executing this part of his duty, as well as the numerous routes, which after being pursued for some time with ardent hope, led only to disappointment.

On giving up the route by Plum Hollow, the Engineer endeavoured to avoid the expensive work at Jones' rapids, by discovering if possible an easier way of encountering the rise to the summit, at some point westward of those rapids. With this view Loughborough, August, and September Lakes were examined on the supposition that they might be connected with the Opinicon, which lies above Davis's Lake. But Loughborough Lake was found to be elevated 177 feet 37½ decimals above the level of Lake Ontario, and 23 feet 27 decimals higher than the summit pound.

Another level through Dog, Troy and Traverse Lakes to Davis's Lake failed, as a rocky summit of 70 feet above the level, presented an impassable barrier between the two latter Lakes. Various other attempts of a similar description proved equally abortive, and it became eventually necessary to return to the western branch of the river Gananoque, and devise the best means of surmounting the impediments at Jones's rapids. Much time was thus unavoidably consumed in examining routes which proved to be impracticable, and as no part of the country could be left unexplored, which afforded the slightest hope of a lower summit and greater facilities, the unremitting labours of the Engineer and his party, during a season unusually favorable, were insufficient to determine the whole line of the canal from Kingston to its junction with the Ottawa.

The distance from the point of departure in Kingston Harbour to Chafey's Mill, at the outlet from Indian Lake, is about 34 miles: In addition to which there is a navigation created by means of the cuts at the Rideau Carrying Place, and the Upper Narrows, of 31 miles, forming a total of 65 miles of navigation surveyed and estimated. The distances here computed, it may be remarked, are not perfectly correct, as several of the Lakes which were never accurately surveyed, could not be conveniently measured during summer.

This operation was therefore deferred until the ice should afford an opportunity of accomplishing it with greater facility, accuracy, and despatch, and the land surveyor is now engaged in its execution.

From the lower end of Rideau Lake, where the summit pound terminates, to the foot of Chaudieres falls, in the township of Nepean, the distance, by following the windings of the River Rideau, is about 60 miles, which will probably make the total length of the canal, from Lake Ontario to the river Ottawa, about 125 miles.

Owing to the causes already adverted to, the line of the canal through the last 60 miles could not be established this year. By dint of exertion, however, the Engineer carried a level down the

Ottawa river at the village of Sherwood, below the Chaudieres, and ascertained the descent from the summit level to be 268 feet, $33\frac{1}{2}$ decimals. This fall, when added to 154 feet, $10\frac{1}{2}$ decimals, the rise from Lake Ontario to the summit level, makes an aggregate of 422 feet, 44 decimals, for which not fewer than forty-five locks will be required.

The difficulties which may occur in that part of the line of the canal, which remains to be laid down are not supposed to be important, and will not probably occupy much more than three months next season. The expense of Locks for the descent is certain and inevitable, and the chief care of the Engineer will be required in selecting favourable ground, and avoiding rock excavation. It is hoped that about 20 miles of the Rideau river, which for that distance, is still and sufficiently deep, may be taken into the line of the canal ; and should this be found practicable, a material reduction may thus be effected in the general estimates.

On a review of the summer's operations, the Commissioners have every reason to be gratified with their result, and they respectfully beg leave to bring under notice the benefit which has been derived from the long experience and professional ability of their chief Engineer, Mr. Samuel Clowes, aided as he was by the zeal and assiduity of his assistant, Mr. James Clowes, and of the Land Surveyor, Mr. Reuben Sherwood.

The accounts herewith submitted, will explain the amount of disbursements during the year, which have been directed by the most rigid economy consistent with the objects of the commission.

Should the duration of the Statute under which the Commissioners have acted be extended, an additional grant will be required for the purpose of completing the interior survey now in progress, as the arduous nature of the operations prevented its entire completion this season, according to the original expectations of the Board.

It would also be proper to carry into effect the plan for exploring the River St. Lawrence below Prescott, adverted to in the first report in the event of the determination made by the arbitrators last summer on this important subject not being sanctioned by the Legislature of the two Provinces.

It is therefore hoped that the same enlightened patriotism which originally suggested the canal surveys, will watch over them until they shall be perfected, and until the capabilities of the country for internal improvement, vast and noble as they are, shall have been fully investigated and made known.

The Commissioners, before concluding, conceive it incumbent on them to state their regret, that this report was not presented at an earlier period of the present session of Parliament. No exertion was spared for that purpose, but the calculations necessary in framing the estimate, demanded considerable time, and the Engineer could not be suddenly withdrawn from the levels without great inconvenience. All which is humbly submitted.

(Signed)

JOHN MACAULAY,
CHARLES JONES,
JAMES GORDON,
ROBERT NICHOL.

YORK, 20TH DECEMBER, 1823.

SUPPLEMENTARY REPORT

Of the Commissioners appointed by His Excellency the Lieutenant Governor, in conformity to the provisions of An Act passed in the second year of His Majesty's Reign, entitled, "An Act to make Provision for the Improvement of the Internal Navigation of this Province."

The Commissioners of Internal Navigation, beg leave to submit to your Excellency certain plans and estimates for the construction of a safe and commodious harbour at Burlington Bay on different scales of magnitude, to which is appended their correspondence on the subject with his Majesty's Naval commissioner in Canada.

It is considered unnecessary to offer any observations on the importance of a harbour at the head

of the lake, and the advantages which might accrue from a joint application to the same purpose of the late Provincial appropriation, and such aid as the Lords Commissioners of the Admiralty, might be induced to authorize.

It was the intention of the Board to have examined, in the course of the season, the nature of the ground at Burlington beach, by boring to the requisite depth ; and also to have completed the upper Survey, by fixing on the course of the feeder, as that work could not be performed last year. The full occupation given the Engineer on the lower route, did not, however, leave any time for the accomplishment of this object.

(Signed)

JOHN MACAULAY,
CHARLES JONES,
JAMES GORDON,
ROBERT NICHOL.

YORK, 20TH DECEMBER, 1823.

To JOHN MACAULAY, Esq.

PRESIDENT CANAL COMMISSIONERS.

SIR,

Herewith you will receive separate estimates, for connecting Lakes Ontario and Burlington, by a canal of twelve feet deep water, thirty-two feet wide bottom, one of fourteen feet deep water, thirty-nine feet wide bottom ; one of eighteen feet deep water, forty-five feet wide bottom ; and one of twenty-three feet deep water, sixty feet wide bottom. The width of each canal is the narrowest space between piers for a bridge, through which His Majesty's ships and vessels, drawing the depths of water above mentioned, on Lake Ontario, could pass with safety, which gives the width for the bottom of the several Canals.

Where excavation is necessary, the banks of each are calculated to slope one and a half feet to one foot perpendicular. In order to have made a true estimate, the beach between Lake Ontario and the Pond in front of Mr. Brant's House, and also the gravel bank between the said Pond and Burlington Lake, ought to have been bored, and thereby the nature of the earth accurately ascertained, as well for estimating the excavation between the Lakes, as for driving the piles for piers in the Lakes.

In consequence of this work not having been done, I have supposed it to consist of sand, gravel, clay, and a soft slate stone, agreeably to the particulars marked upon the map.

The following specification shows the particulars from whence arises the aggregate of each estimate.

SPECIFICATION.

Each pier for the distance of one hundred yards from the beach into Lake Ontario, to consist of two rows of piles, each pile to be driven six feet deep, the water varying from one to five feet deep. The next one hundred yards (making two hundred yards from the beach into lake Ontario) to consist of two rows of piles, each pile to be driven seven feet deep, the water varying from five to seven feet deep. The next one hundred yards (making three hundred yards from the beach into Lake Ontario) to consist of three rows of piles, each pile to be driven eight feet deep, the water varying from seven to nine feet deep. The next sixty yards (making three hundred and sixty yards from the beach into Lake Ontario) to consist of three rows of piles, each pile to be driven ten feet deep, the water varying from nine to twelve feet deep ; three hundred and sixty yards being the shortest distance from the beach to twelve feet deep water in Lake Ontario, and the length of piers required for the first or twelve feet deep Canal.

From thence to 14 feet deep water, is a distance of one hundred and forty yards (making five hundred yards from the beach into Lake Ontario) the pier to consist of three rows of piles, each pile to be driven twelve feet deep ; five hundred yards being the shortest distance from the beach into Lake

Ontario, to fourteen feet deepwater, and the length of the piers required for the second or fourteen feet deep Canal. Thence one hundred and seventy yards, from fourteen to eighteen feet deep water, (making six hundred and seventy yards from the beach into Lake Ontario, to eighteen feet deep water) to consist of three rows of piles, each pile to be driven twelve feet deep. Six hundred and seventy yards, being the shortest distance from the beach to eighteen feet deep water in Lake Ontario, and the length of the piers required for the third or eighteen feet deep Canal

Each pile, for the first two hundred yards from the beach into Lake Ontario, to measure one foot diameter, six feet from the bottom end of the pile. Thence one hundred and sixty yards, (making three hundred & sixty yards from the beach into Lake Ontario) to measure thirteen inches diameter, nine feet from the bottom end of the pile. Thence one hundred and forty yards, (making five hundred yards from the beach into Lake Ontario) to measure fourteen inches diameter, twelve feet from the bottom end of the pile. Thence one hundred and seventy yards, (making six hundred and seventy yards from the beach into Lake Ontario,) to measure fifteen inches diameter, twelve feet from the bottom end of the pile. Each pile to be shod with wrought or cast Iron. A strong Iron hook to be fitted on the head of each pile while driving, to prevent the same from splitting, and afterwards to be removed.

Between each pile, to measure two feet in the clear, lineal measure, and four feet from outside to outside, where there are two rows of piles, and five feet from outside to outside, where there are three rows of piles; each pile, in the first and second row, to be grooved on each side, three inches wide and two inches deep, to admit of a pile plank, from the top of the pile to one foot below the depth of water in which they stand.

The piers in Lake Ontario, to stand five feet above water level: between the piles in the first and second row, to have a pile plank two feet four inches wide, & three inches thick—a self plank. The vacant space between the piles to be filled with earth, free from large stones, to form a puddle. From the beach to the end in Lake Ontario, behind each pier, loose stone to be thrown in such quantities as to be three feet wide at the top of each pier, forming its own slope, part of the excavation to be thrown at the back of the said stone, to form a bank of three feet wide, finding its own slope: making the piers in Lake Ontario eleven feet wide, five feet above water level, and thereby forming one solid mass.

A bunting piece of twelve inches deep and nine inches thick, to be fixed at water level, the whole length of the pier circling six inches from the bottom, to three inches thick at the top, and fastened with spike nails fifteen inches long, of half inch square Iron, one to every pile, or three feet asunder, above which to the top of the said piers, as well as across the top, to be planked with three inch planks, and fastened with five inch spike nails on every pile, and round the ends of each pier, the piles to be fastened together with cramps of one inch and a quarter of square iron.

The excavation between the piers to be allowed to slope one and a half feet to one foot perpendicular, exclusive of a berm on each side of the top of the said excavation, of two feet wide, to guard and strengthen the piles against any underset arising from easterly gales, which makes the width of the surface of water for the twelve feet canal, seventy-two feet wide; for the fourteen feet Canal, eighty five feet wide; for the eighteen feet Canal, one hundred and three feet wide, and for the twenty-three feet canal, one hundred and thirty-three feet wide, which may be seen by a reference to the map. In the excavation through the beach between Lake Ontario and the pond, where the road is, it will be necessary to have a single turnbridge, for the twelve feet canal, or a double one for the fourteen and eighteen feet canals, the abutments for each to be composed of masonry, six feet thick in the centre and four feet thick in the wing walls. The whole to be good sound stone, properly bedded, joined and set in lime mortar, and the part facing the canal, to be well hammered or dressed, and no course or layer of stone, less than twelve inches thick, and the top course or layer of stone called coping stone, to be two feet thick, and each stone to be three feet long; the wing walls to be circling round, so as to be at the end of the same width as the piers and centre agreeably to the dimensions of the said depths. It will be necessary on the south side of the canal, to extend a pier from the east end of the pond westward, one hundred and thirty yards long, to twelve feet deep water in the pond, opposite Mr. Brant's house, for the twelve feet canal, the north shore forming a pier on its own side.

An additional length of pier on the south side, will be required of one hundred and fifty yards, for the fourteen feet canal, and of three hundred yards for the eighteen feet canal, the north shore still forming its own pier. This pier to consist of two rows of piles, and to be made in every respect the same as the first one hundred yards from the beach into Lake Ontario.

The top excavation between Lake Ontario and the pond, to have a beam of six feet wide on each side, at the height of the piers, or five feet above water level, so that the piers in Lake Ontario, as well as the excavation across the beach, and the pier opposite Mr. Brant's House, the Bridges, &c. may have a uniform appearance.

At the head of the said pond where the gravel bank commences, from twelve feet deep water in the pond, to twelve feet deep water in the Burlington Lake, is a distance of three hundred and sixty yards; from fourteen feet deep water in the pond to fourteen feet deep water in Burlington Lake, is a distance of four hundred yards; from eighteen feet deep water in the pond, to eighteen feet deep water in Burlington Lake, is a distance of five hundred and twenty yards.

Commencing in the head of the pond at twelve feet deep water, with two piers, each pier for the distance of seventy-five yards, to consist of two rows of piles to be driven eight feet deep, the water varying from twelve to three feet deep. Thence crossing the gravel bank, to four feet deep water in Burlington Lake, a distance of one hundred yards, (making one hundred and seventy-five yards,) to be driven six feet deep; thence from four to eight feet deep water, in Burlington Lake, a distance of one hundred and twenty-five yards, (making three hundred yards) piles to be driven eight feet deep. Thence from eight to twelve feet deep water in Burlington lake, a distance of sixty yards (making three hundred and sixty yards) piles to be driven ten feet deep. These piers to be finished in every respect the same as the first one hundred yards, from the beach into Lake Ontario, except that they are to stand four in lieu of five feet above the surface of the water. From twelve to fourteen feet deep water in the pond at Burlington lake, to be finished with three rows of piles, the same as in Lake Ontario, exclusive of standing four in lieu of five feet above water level. From fourteen feet to eighteen feet deep water in the pond and Burlington lake, to be completed as in Lake Ontario, except standing four in lieu of five feet above water level. The width between the piers at the Burlington end of the work, to correspond in every respect with those of Lake Ontario, as shown on the map. By reference to the map it will be seen, that the twenty-three feet canal will be formed at the least possible expense, fourteen hundred and thirty yards south of the other proposed route, for minor cuts, or four hundred and forty yards North of the present bridge, crossing the outlet.

From two feet deep water in Lake Ontario, to four feet deep water in Burlington lake, is a distance of five hundred and sixty-seven yards. The piers for this distance, to consist of two rows of piles, each pile to be driven six feet deep. From four feet deep water in Burlington lake to twelve, a distance of two hundred and twelve yards, the piers to consist of two rows of piles driven eight feet deep. Thence from twelve feet deep water to twenty-three, a distance of one hundred and ninety-eight yards, to consist of three rows of piles driven twelve feet deep. From two to six feet deep water in Lake Ontario, a distance of one hundred yards, to consist of two rows of piles, driven seven feet deep. From six to twelve feet deep water, a distance of two hundred yards, to consist of three rows of piles, driven ten feet deep. From twelve to twenty-three feet deep water, a distance of three hundred and seventy three yards, to consist of three rows of piles, driven twelve feet deep.

The piers, excavation, bridge, &c. to be finished in every respect as specified in the minor canals.

From twenty three feet deep water in Burlington lake, to twenty three feet deep water in Lake Ontario, is a distance of sixteen hundred and fifty yards, as may be seen by reference to the map.

ESTIMATES.

Depths of water in feet.	Width of bottom in feet.	Width of surface in feet.	Total amount.		
			£	s.	d.
12	82	72	7910	13	1
14	89	85	12984	13	10
18	45	103	26975	14	9
23	60	133	48227	5	1

The above Estimates are founded on manual labour, &c. as at the present time.

Good, able and skillful labourers, are allowed two shillings and six-pence per day.

Mechanics from three to five shillings per day.

Materials are calculated at prices current at the present time.

The contractor to find all machinery for driving piles, pumping water, Scows, Boats, Tools and Utensils of every description, at his own expense, only to be allowed to procure whatever timber may be wanted for piers, bridge machinery, &c. on government lands, in the vicinity of the canal. No other timber to be used for piers, &c. than cedar pine and white oak.

I am, Sir, Your Obedient Servant,
[Signed]

SAMUEL CLOWES,
Civil Engineer.

Kingston, November 29th, 1823.

P. S.—The estimates delivered last winter to the honourable the Board of Commissioners, as mentioned in their first report, to connect Burlington Lake with Ontario, was, from necessity, founded on information, since found to be rather defective. The weather at that time did not permit the marine surveyor to ascertain the distance from the beach into lakes Ontario and Burlington, to the depth of water required, and this circumstance will account for the difference in the estimates.
S. C.



Kingston, 26th March, 1824.

SIR,

Since the Commissioners of Internal Navigation had the honour of reporting to His Excellency the Lieutenant Governor the progress of their surveys in December last, they have employed their engineer to bore the beach at Burlington Lake, and I now beg leave to transmit his report for the information of His Excellency.

On examining the route laid down on the map, and for which the former estimates were made, on the presumption that the bottom would be found favourable, the engineer ascertained that the expense would be seriously increased by the difficulty of piling among loose round stones, of which the bottom principally consisted; and it was, therefore abandoned for a spot about one mile and a quarter south of the outlet of Burlington lake, where the bottom was found to be clay, and the distance from deep water in Lake Ontario to the requisite depth in Burlington Lake, was not so great as at the place originally selected.

I have the honour to be, Sir,

Your Obedient Servant,

JNO. MACAULAY,

President Commissioners Internal Navigation.

To Major Hillier, &c. &c. &c.

To JOHN MACAULAY, Esquire,
President Commissioners Internal Navigation.

SIR,

HEREWITH you will receive separate estimates for connecting Lakes Ontario and Burlington by canals, of the following dimensions:—

1st, By a canal of twelve feet deep water, fifty one feet wide, top and bottom, and from the beach into Lake Ontario, to increase regularly in width on each side, so as to be seventy two feet wide at the entrance.

2d, By a canal of fourteen feet deep water, fifty six feet wide, top and bottom, and from the beach into Lake Ontario to increase regularly in width, so as to be eighty feet wide at the entrance.

3d, By a canal of eighteen feet deep water, sixty feet wide, top and bottom, and from the beach into Lake Ontario, to increase regularly in width, so as to be ninety feet wide at the entrance.

4th, By a canal of twenty three feet deep water, seventy two feet wide, top and bottom, and from the beach into Lake Ontario, to increase regularly in width, so as to be one hundred feet wide at the entrance.

The above canals to widen from the beach into Burlington Lake, the same as into Lake Ontario.

From twelve feet deep water in Lake Ontario, to twelve feet deep water in Burlington Lake, is a distance of six hundred and twenty yards, and will require two rows of piles in both piers, the piles to stand one foot clear of each other in a straight line; and as there are two rows, each row to stand two feet clear of the other, leaving a space of two feet wide, which must be filled with small stones to the top of the pier, to prevent the sand from washing into the canal. The piles to be thirty feet long each, and to measure twelve inches diameter, six feet from the bottom end of the pile. Each pile to be shod with an iron shoe, with four straps of one foot long, to fasten them to the pile on each side of the square. A strong iron hoop to be put upon the head of each pile to prevent it from splitting whilst driving; and afterwards to be removed. A bunting-piece, twelve inches broad and twelve inches thick, to lie level with the water six hundred and twenty yards long, to be rounded off from the centre to the bottom edge, and from the centre to the top to be left three inches thick, for a three inch plank to be jointed to it on the top, as the pier must be planked four feet deep in the front, and four feet across the top; the bunting-piece to be nailed with spike nails fifteen inches long, and made of half inch square iron, one in every pile. In the front, the planks for the piers to be jointed and made level with each other, and a spike nail six inches long to be put in every pile. Round the ends of the piers to be cramped with inch and a quartersquare iron, and to be well screwed together so as to make it one solid mass. From the beach to the end of the pier in Lake Ontario; is a distance of one hundred and seventy five yards, which must be backed with stone the whole length of the 175 yards—fifteen feet wide at the bottom and three feet wide at the top of the pier, to which must be added a layer of earth of the same breadth and thickness, top and bottom, as the stone, to form a pier ten feet wide at the top, and thirty four feet wide at the bottom, from the beach to the end of the pier in Lake Ontario.

From the beach to twelve feet deep water in Burlington lake, is a distance of two hundred and seventy yards, which must be completed in every respect the same as the Lake Ontario end. Across the beach is a distance of one hundred and seventy five yards, which must be piled, planked, and finished in every respect the same as the others, except the backing of stone and earth. The piles to be driven twelve feet below the bottom of the canal the whole length.

From fourteen feet deep water in Lake Ontario, to fourteen feet deep water in Burlington Lake, is a distance of seven hundred and sixty yards. Fifty four yards in Lake Ontario will require three rows of piles, and for this length will not want backing with earth, in every other respect it must be finished the same as the twelve feet deep canal. The piles to be thirty four feet long each, to measure thirteen inches diameter, six feet from the bottom end of the pile, and to be driven thirteen feet below the bottom of the canal.

From eighteen feet deep water in Lake Ontario, to eighteen feet deep water in Burlington Lake, is a distance of one hundred and thirty yards. Two hundred and six yards in Lake Ontario, will require 3 rows of piles, to be completed the same in every respect as the fourteen feet cut, except the

addition of two feet thickness of stone the whole length of the backing. The piles to be forty feet long, to measure fifteen inches diameter, six feet from the bottom end of the pile, and to be driven sixteen feet below the bottom of the canal.

From twenty three feet deep water in lake Ontario, to twenty three feet deep water in Burlington lake, is a distance of one thousand three hundred and sixteen yards. The piles to be forty eight feet long, sixteen inches diameter, six feet from the bottom end of the pile, and to be driven eighteen feet below the bottom of the canal, in every other respect to be finished the same as the eighteen feet deep canal.

ESTIMATES.

12 Feet deep water cut	£ 7652 18 9
14	11373 16 8
18	19687 18 0
23	38773 19 3

Materials, Mechanic's, Labourer's wages &c., valued at the same rate as in the first estimate.

I am Sir,
Your Obedient Humble Servant,
(Signed) SAMUEL CLOWES.

Kingston, 20th March, 1824.



Kingston, 2d December, 1823.

SIR,

The Legislature of the Province last winter passed an act, providing for the construction of a navigable canal between Burlington Bay and Lake Ontario, and with this view authorised the expenditure of five thousand pounds, by commissioners appointed by His Excellency the Lieutenant Governor.

As the work thus contemplated, has not yet been commenced, I am induced to submit to your inspection, certain plans and estimates for connecting Burlington Lake or Bay by means of a navigable cut, with Lake Ontario, formed under the directions of the commissioners of inland navigation of this province.—In exploring last year that part of the country which lies between lakes Erie and Ontario, in order to fix on the most eligible route for a canal, those commissioners could not fail to notice the importance of Burlington Bay, where a capacious harbour equally commodious for the purposes of war and commerce could be formed at comparatively small expence.—It appeared to them, that such a harbour might become eminently useful to His Majesty's navy, in the event of hostilities with a neighbouring power at any future day, since there exists at present no port at the upper part of the lake, where His Majesty's ships could be sheltered from storms, or be enabled to repair any damages they might sustain from the elements, or by encounter with the enemy.—As the course of the projected canal for uniting the navigation of Lake Erie, with that of its sister lake, led towards Burlington Bay, and did in fact terminate at that point, the opportunity was taken of surveying not only that Bay, but the contiguous parts of lake Ontario, in the course of the present and preceding summer.—The map or chart herewith sent is the work of Mr. John Harris, an able and intelligent master of the royal navy.—The estimates have been framed by Mr. Samuel Clowes a respectable and experienced English engineer, and there is every reason to believe that they may be relied on for truth and accuracy.

In consequence of the bottom of the bay and lake shore not having been *bored*, our engineer cannot speak positively with respect to that part of the estimates which consists of excavation, and he could not be spared from the survey carried on this year in the vicinity of Kingston to ascertain the nature of the ground below the surface.—It is however scarcely to be doubted that it consists of

gravel, mud and sand without hard rock, to the lowest depth required for sinking piles, or for any other purpose.—This point can easily be decided, should any of the plans now referred to, be thought to deserve further examination.

The late enactment of the provincial legislature, so honourable in itself, merely contemplates a canal between the lake and bay, large enough for the admission of merchant vessels of moderate dimensions, which may then securely receive for conveyance to market the produce of a fertile and rapidly improving district. It is intended solely for the benefit of commerce, and could be of little service to His Majesty's vessels in time of war. The object of this communication is therefore to lay before you for the information of the Admiralty (should you think fit to submit the matter for the consideration of their Lordships), the facilities which present themselves, for the construction of a safe harbour at the upper end of the lake.

In the event of any expenditure being ordered for the security of His Majesty's ships of war at Burlington Bay, I beg permission to suggest the advantage which would follow, were the sum voted by the provincial parliament applied on the same work which might be undertaken by authority from England. It may be added that as labour is now remarkably low in the province, a more favourable opportunity for the execution of any project of this nature could not be desired.

I have the honour to be Sir,

Your Obedient Humble Servant,
JOHN MACAULAY,
Prest. Com. of Inland Navigation.

Commissioner Barrie, C. B. }
&. &. &c. }



Kingston Dock-Yard, U. C. 4th December 1823.

SIR,

I have the honour to acknowledge the receipt of your letter of the 2d instant, together with estimates of the expence of opening a communication between lake Ontario and Burlington Bay, for small vessels, and also for His Majesty's ships, &c. of different drafts of water. The plan of Burlington Bay &c. is herewith returned; it may be proper to observe, that I have copied it.

I beg to return you my thanks for the information contained in your said letter.

The subject is one of the first importance, but I shall defer forwarding your estimates, plans &c. to My Lords Commissioners of the Admiralty, and my professional opinions thereon, till I have had some official communication with His Excellency the Lieutenant Governor and Commander of the Forces on this head.

I have the honour to be Sir,

Your most Obedient Humble Servant,
ROBT. BARRIE

Acting Commissioner.

To

John Macaulay, Esq. }
President of the Canal Commissioners. }
&c. &c. &c. }

THIRD GENERAL REPORT.



To His Excellency Major General SIR PEREGRINE MAITLAND, Knight Commander of the most Honorable Military order of the Bath, Lieutenant Governor of the Province of Upper Canada, Major General Commanding His Majesty's Forces in Upper and Lower Canada, &c. &c. &c.

The Commissioners appointed by Your Excellency, in conformity to the second section of an act passed in the second year of His Majesty's reign, entitled, "An Act to make provision for the improvement of the Internal Navigation of this Province,"

MOST RESPECTFULLY REPORT,

That as early in the month of May last as circumstances would permit, they directed their Engineer to resume the examination of the route for a canal from Kingston to the River Ottawa, at the point where he had closed his operations in the preceding year. Mr. Clowes having in pursuance of those orders, repaired to the Rideau, completed his work in the month of September; and the Commissioners now beg leave to submit the result of the survey in the following estimates :

THREE ESTIMATES

Of the expense of constructing a Canal from Kingston to the Ottawa or Grand River,

OF THE FOLLOWING DIMENSIONS, VIZ :—

The first, seven feet in depth, forty feet in width at the bottom, and sixty-one feet in width at the surface of the water, the banks to slope one foot and a half to one foot perpendicular, the locks to be one hundred feet in length, by twenty-two in width with turning bridges, twenty-two feet in the clear and ten feet wide. The second, five feet in depth, twenty-eight feet in width at the bottom, and forty-eight feet in width at the surface of the water, the banks to slope two feet to one foot perpendicular; the locks to be eighty feet in length by fifteen feet in width with turning bridges, fifteen feet in the clear, and ten feet wide. The third, four feet in depth, twenty feet in width at the bottom, and thirty-two feet in width at the surface of the water; the banks to slope one foot and a half to one foot perpendicular; the locks to be seventy-five feet in length by ten feet in breadth, with turning bridges, ten feet in the clear and ten feet wide.

ESTIMATE No. 1. } 7 feet Canal.				Locks of Stone.				ESTIMATE No. 2. } 5 feet Canal.				Locks of Stone.				ESTIMATE No. 3. } 4 feet Canal.				Locks of Wood.					
No. of C.Yds.	Rate	£	s. D.	£	s. D.	£	s. D.	No. of C.Yds.	Rate	£	s. D.	£	s. D.	No. of C.Yds.	Rate	£	s. D.	£	s. D.	No. of C.Yds.	Rate	£	s. D.	£	s. D.
	d.								d.						d.										
		300	0	0		300	0	0																	
49744	5	1056	6	8					6	1122	4	6		23548	6	718	14	0							
7857	4	130	19	0					6	77	12	0		2286	6	57	9	0							
		5614	0	0																					
		50	0	0						2400	0	0				400	0	0							
		82	0	0						40	0	0				55	0	0							
		6865	5	8		500	0	0		5671	16	6				1237	17	0							

From the foot of Bell's Island to Bower's Island, the proposed place of departure out of Kingston Bay, a distance of one mile, 65 chains, it will be necessary to clear the channel; several shoals crossing the River.

Clearing the channel, &c. the above distance.

At the above Island we commence with Lock No. 1 of 4 feet lift (being a guard Lock,) allowing a depth of 8 feet water at the lowest ebb—the 4 feet lift guards the canal against a fluctuation of 4 feet in Lake Ontario, giving three feet cutting through black mud, lying upon a strong blue clay, a distance of forty-two chains across the marsh; thence 38 chains up a small Ravine composed of soil and clay, excellent for a canal. In the last distance of 38 chains, there is a rise of 15 feet 15 dec. and it contains Lock No. 2 of 7 feet lift, and Lock No. 3 of 8 feet lift; bottom level of the canal 15 feet; This mile crossing the main road from Kingston to Montreal, it will be necessary to have a turning Bridge. In constructing either a 5 or a 4 feet canal, no guard Lock will be necessary. Locks Nos. 1 & 2 each a 7 feet lift will be required. No. 1 will stand at the end of the first 47 chains, and No. 2 at the end of 72 chains; The situation of these Locks being alike in both.

- CUTTING.
- PUDDLING.
- LOCKS Nos. 1, 2 & 3 in Estimate No. 1.
- LOCKS Nos. 1 & 2 in Estimates No. 2 & 3,
- GRUBBING,
- FENCING,

ESTIMATE No. 1. } 7 feet Canal.				ESTIMATE No. 2. } 5 feet Canal.				ESTIMATE No. 3. } 4 feet Canal.			
No. of C. Yds.	Rate	£ s. D.	Locks of Stone.	No. of C. Yds.	Rate	£ s. D.	Locks of Stone.	No. of C. Yds.	Rate	£ s. D.	Locks of Wood.
	d.	6869 5 8 110 0 0	500 0 0 6973 5 8		d.	8071 10 6 70 0 0	5741 16 6		d.	1237 17 0 60 0 0	1297 17 0
140819	5½	3215 12 10½		72827	5½	1668 19 0½		46526	5½	1006 4 5	
1174	4	19 11 4		8484	6	96 2 0		3644	6	91 2 0	
		1932 0 0				2400 0 0				400 0 0	
		60 0 0				50 0 0				40 0 0	
		32 0 0				32 0 0				32 0 0	
		21 0 0	5530 4 2½			21 0 0	4263 0 0			21 0 0	1650 6 5
			12663 9 10½				3809 16 6				2948 5 5

CONTINUED—£
ONE BRIDGE. 1
 2d Mile is composed of a light soil upon strong clay. Near the commencement of this mile, stands Lock No. 4 an 8 feet lift, bottom level 23 feet. In this mile a great quantity of extra cutting is unavoidable. The river Cataruquay above the mills than Kingston Bay, prevents our placing another lock here; it will therefore be necessary to have an extra waste weir 60 feet wide at the end of 1722 yards, to let off the surplus water to Kingston Mills. Locks Nos. 3 & 4 each a 7 feet lift, will be required in the minor canals. No. 3 will stand at the commencement of this mile, and No. 4 at the end of the first 10 chains, the situation of the locks being the same in both, the extra waste weir above described, will also be necessary in these.

CUTTING, - - - - -
PUDDLING, - - - - -
LOCK No. 4, in estimate No. 1, - - - - -
LOCKS Nos. 3 & 4 in estimate No. 2 & 3, - - - - -
GRUBBING, - - - - -
FENCING, - - - - -
EXTRA WASTE WEIR
 5d Mile commences in Kingston Mill Pond, the River forming a natural canal with few alterations, except such as straightening the sudden curves &c.
 The excavation consists of black mud and clay; it is proposed to follow the natural stream from Kingston Mill Pond to the Round Tail.
 In this mile nothing will be required for the minor canals, except a little cutting at the

ESTIMATE No. 1. } Locks of Stone.				ESTIMATE No. 3. } Locks of Stone.				ESTIMATE No. 4. } Locks of Wood.			
No. of C. Yds.	Rate.	£ s. d.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	£ s. d.
19818	4	880 4 4	18603 9 10½	8800	4	146 19 4	8009 17 6½	5866	4	97 15 4	2948 9 5
8067	4	184 9 0				0 0 0				0 0 0	
		80 0 0				20 0 0				15 0 0	
		82 0 0	526 18 4			82 0 0	198 15 4			82 0 0	144 15 4
6109	6	152 14 6		2000	4	88 6 8		1500	4	25 0 0	
1884	4	26 8 0				0 0 0				0 0 0	
		20 0 0				15 0 0				10 0 0	
		82 0 0	231 2 6			82 0 0	80 6 8			82 0 0	67 0 0
51176	6	1279 8 0		8548	8	106 17 0		5195	8	64 18 9	
5595	4	58 18 4		8876	6	86 18 0		3876	6	96 18 0	
		1866 0 0				760 0 0				150 0 0	
		100 0 0				80 0 0				70 0 0	
		82 0 0	3886 6 4			82 0 0	1075 15 0			82 0 0	418 16 0
16157	4	209 5 8		5828	4	97 2 8		8684	4	61 8 0	
4161	4	69 7 0		8511	6	87 15 6		8511	6	87 15 6	
		56 0 0				45 0 0				85 0 0	
		82 0 0	426 12 8			82 0 0	261 18 2			82 0 0	216 9 6
			17124 4 8½				8628 10 8½				8789 19 0

CONTINUED—£

curves sufficient to form a towing path.

CUTTING, - - - - -

PUDDLING, - - - - -

GRUBBING, - - - - -

FENCING, - - - - -

4th Mile consists of a strong clay, excavation favorable; the natural bed of the river requiring a little alteration.

The minor canals will require very little, except the formation of a towing path.

CUTTING,

PUDDLING,

GRUBBING,

FENCING,

5th Mile resembles the preceding; it is a little above the level and the extra cutting lies very conveniently for raising the banks, &c.

In this mile is Lock No. 5, of seven feet lift, bottom level 80 feet.

In the Minor Canals Lock No. 5 will be a 4 feet lift.

CUTTING, , , , ,

PUDDLING, , , , ,

LOCK No. 5, , , , ,

GRUBBING, , , , ,

FENCING, , , , ,

6th Mile runs near the level, all the excavation necessary is in raising the Bank on the East side, a high hill nearly the whole distance on the West, the same description of Earth as in the last mile.

CUTTING, - - - - -

PUDDLING, - - - - -

GRUBBING, - - - - -

FENCING, - - - - -

7th Mile still preserves very nearly the level. It will be necessary to straighten the natural course of the river, the earth

CONTINUED—£

	ESTIMATE No. 1. } 7 feet Canal.			Locks of Stone.			ESTIMATE No. 2. } 5 feet Canal.			Locks of Stone.			ESTIMATE No. 3. } 4 feet Canal.			Locks of Wood.												
	No. of C.Ys.	Rate	£ s. d.	£ s. d.	£ s. d.	No. of C.Ys.	Rate	£ s. d.	£ s. d.	£ s. d.	No. of C.Ys.	Rate	£ s. d.	£ s. d.	£ s. d.	No. of C.Ys.	Rate	£ s. d.										
CONTINUED—£ excavated is very convenient for raising the bank.				17124	4	8½			9626	10	8½							3730	19	0								
CUTTING	20279	4	437 19 8					12411	4	06 17 0				9530	4	161 6 8												
PUDDLING	8666	4	144 8 8					3520	6	88 0 0				5320	6	23 0 0												
GRUBBING			44 0 0							95 0 0						26 0 0												
FENCING			32 0 0			658	8	4		32 0 0						32 0 0				300	6	8						
8th Mile running rather above the level, is of the same description as the last, and little extra cutting will be necessary.																												
CUTTING	31804	4	530 1 4					5339	4	88 19 8				3733	4	62 6 0												
PUDDLING	9669	4	161 3 0					3520	6	88 0 0				3520	6	88 0 0												
GRUBBING			35 0 0							30 0 0						25 0 0												
FENCING			32 0 0			758	4	4		32 0 0						32 0 0							207	6	0			
9th Mile continues through the same clay excavation, and is nearer the level; the cutting is favorable.																												
CUTTING	19626	3	245 6 6					4509	4	75 3 0				3906	4	65 2 0												
PUDDLING	4978	4	82 18 8					1760	6	41 0 0				1760	6	44 0 0												
GRUBBING			40 0 0							30 0 0						25 0 0												
FENCING			32 0 0			400	5	2		32 0 0						32 0 0									166	2	0	
10th Mile runs a little above the level; it will be necessary to deepen the bed of the river, the excavation will answer for raising the East Bank.																												
In the Minor Canals, the river will not require deepening.																												
CUTTING	20537	3	256 14 3					15039	4	250 9 8				12641	4	210 12 8												
PUDDLING	7131	4	118 17 0					7010	6	176 0 0				4634	6	117 7 0												
GRUBBING			35 0 0							23 0 0						20 0 0												
FENCING			32 0 0			442	11	3		32 0 0						32 0 0										330	0	8
11th Mile, the river taking a serpentine course through the whole of this mile, it is necessary to straighten several curves, the excavation of which consists of a strong clay, &c.																												
CUTTING	15540	6	338 10 0					5268	4	87 16 0				4151	4	69 3 8												
PUDDLING			0 0 0					1760	6	44 0 0				1760	6	44 0 0												
GRUBBING			50 0 0							40 0 0						30 0 0												
FENCING			32 0 0			470	10	0		32 0 0						32 0 0										175	3	8
12th Mile consists of the same strong clay, and runs some distance above the level, the River will require to be deepened, the Banks dressed, and sloped, and a towing path formed along the																												
CONTINUED—£						13854	3	9½																		5027	18	0

	ESTIMATE No. 1. } Locks of Stone.			ESTIMATE No. 2. } Locks of Stone.			ESTIMATE No. 3. } Locks of Wood.		
	No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.
CONTINUED—£									
same. Near the end of this mile stands Lock No. 6 of 10 feet lift; bottom level of the Canal 40 feet. In the Minor Canals, Lock No. 6 (being an 8 feet lift) will stand at the end of the first 15 chains, no extra cutting in these.									
CUTTING	24019	6	600 9 6	1304	6	32 12 0	581	6	9 10 6
FUDDLING			0 0 0	800	6	20 0 0	700	6	37 10 0
LOCK No. 6			2366 0 0			1392 0 0			250 0 0
GRUBBING			30 0 0			25 0 0			20 0 0
FENCING			32 0 0			32 0 0			32 0 0
18th Mile, the River running very straight and near the level little alteration is necessary; the nature of the excavation is favorable.									
CUTTING	8592	4	143 5 0	5280	3	66 0 0	5520	3	44 0 0
GRUBBING			40 0 0			30 0 0			20 0 0
FENCING			32 0 0			32 0 0			32 0 0
14th Mile there is a little extra cutting required; the earth answers to the description of the last mile, being easy to excavate. In this mile stands Lock No. 7, of 9 feet lift, bottom level of the canal 49 feet. Locks Nos. 7 and 8 will be required in the Minor Canals. No. 7 of 10 feet lift will stand at the end of the first 30 chains, and No. 8 of 3 feet lift near the termination of this mile. The situation of the Locks is the same in both canals.									
CUTTING	24766	4	412 15 4	14230	4	537 3 4	7529	4	125 9 8
FUDDLING	1936	4	32 5 4	3000	6	75 0 0	2732	6	63 6 0
Lock No. 7 in Estimate No. 1. Locks No. 7 & 8, do No. 2 & 3.			2207 0 0			0 0 0			0 0 0
GRUBBING			0 0 0			2440 0 0			440 0 0
FENCING			40 0 0			30 0 0			24 0 0
15th Mile for the first 20 chains runs near the level, & from thence to the end rises above it; at the end of this mile stands Lock No. 8 an 8 feet lift, bottom level 57 feet, the same uniformity of earth con-									
CONTINUED—									
			19854 3 9½			11098 16 0½			5027 13 0
			25321 13 11½			15542 11 4½			6142 14 2

ESTIMATE No. 1. } Locks of Stone.			ESTIMATE No. 2. } Locks of Wood.			ESTIMATE No. 3. } Locks of Wood.		
7 feet Canal.			5 feet Canal.			4 feet Canal.		
No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.
<i>d.</i>			<i>d.</i>			<i>d.</i>		
48159	4	302 15 0	11022	4	163 14 0	8885	4	139 15 4
6479	4	107 19 8	1424	6	95 12 0	2668	6	66 14 0
		2046 0 0			0 0 0			0 0 0
		80 0 0			95 0 0			90 0 0
		32 0 0			32 0 0			32 0 0
		3020 12 8			276 6 0			256 12 4
25821 13 2½			15542 11 4½			6142 14 2		
24876	4	406 5 4	5951	4	99 3 8	2455	4	40 13 4
3239	4	53 19 3	800	6	20 0 0	700	6	17 10 0
		1866 0 0			1784 0 0			307 0 0
		100 0 0			90 0 0			80 0 0
		32 0 0			32 0 0			32 0 0
		2458 5 0			1975 3 8			477 8 4
31500 16 7½			17794 1 0½			6378 14 10		

CONTINUED—£
times, no Locks in the minor Canals in this mile.

CUTTING, , ,
PUDDLING, , ,
Lock No 8 in Estimate No. 1
GRUBBING , ,
FENCING , ,

16th & 17th miles } For the first
and 34 chains. } 33 1/2 chains
the River will require deepening,
the Banks dressing, &c. At the
end of 34 chains stands Lock No.
9, of 7 feet lift, bottom level 64 feet.
It will be necessary to remove
Frewer's Mill, there being high
banks East and West of it. From
thence we have a natural canal
to the Round Tail, a distance of
30 chains, requiring only to re-
move the dead timber out of the
River and form a towing path on
one side of it.

In the minor canals Lock No.
9 of 10 feet lift, will stand at the
end of the first 52 chains.

CUTTING , ,
PUDDLING , ,
Lock No. 9, , ,
GRUBBING , , ,
FENCING , , ,

From 17 miles 84 chains } It is
to 27 miles 84 chains. } pro-
posed to raise the water at the
Round Tail as well as in the
Craberry Lake and the draw-
ed Lands, 7 feet perpendicular,
by constructing a Lock & Waste
Weir at the head of the Round
Tail, and a Waste Weir at the
White Fish Falls. These waste
weirs being designed to let off the
superfluous water, and to guard the
canal from the injurious effects of
a sudden rise, should be compos-
ed of substantial masonry. Lock
No. 10 being a lift of 7 feet 45
decimals, stands at the head of
the Round Tail, bottom level 71
feet 45 decimals.

In the 5 feet canal Lock No.
CONTINUED—£

ESTIMATE No. 1. } Locks of Stone. 7 feet Canal.			ESTIMATE No. 2. } Locks of Stone. 5 feet Canal.			ESTIMATE No. 3. } Locks of Wood. 4 feet Canal.		
No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.
	d.	31900 16 7½			17794 1 0½		d.	6378 14 10
4000	7	116 15 4	9450	7	100 12 6	3200	7	98 6 8
500	4	8 6 8	800	6	20 0 0	700	6	17 10 0
		2182 0 0			1672 0 0			530 0 0
		760 0 0			700 0 0			640 0 0
		50 0 0			40 0 0			50 0 0
		34417 16 7½			20920 13 6½			1915 16 8

CONTINUED.—£ 10, is a lift of 7 feet 21 decimals, and in the 4 feet canal, of 8 feet 21 decimals, the situation being alike to all. Very formidable difficulties would be encountered in attempting to cut through the marshy land it is now proposed to drain, and it would be necessary in many places to pile and plank each side of the canal. The additional expense which would thus be incurred, is calculated not to fall short of £24,825. On the East side of the lock should stand a turn Bridge, so that the Walls forming the Lock may serve as its abutments, and thus save nearly half the expense of the Bridge if placed on any other part of the canal.

CUTTING.

PUDDLING, ;
Lock No. 10, waste Weir, &c.
Cutting and removing dead timber.

ONE BRIDGE,

57th mile & 34 chains bring the line of canal to Jones's Falls or Rapids, and connect the drowned lands with Davis' Lake. In this mile there is a rise of 60 feet 9 1-2 decimals, requiring 6 locks, namely, 4 of 10 feet lift each, one of 10 feet 50 decimals, and one of 10 feet 41 1-2 decimals—the bottom level of the canal at the head of the rapids is 132 feet 56 1-2 decimals. The situation of each Lock is so managed, that double Locks are avoided, while a pound is reserved between each sufficiently wide for vessels to pass each other;—It is proposed from the head of the rapids across the lakes, as well as their inlets and outlets, to allow 8 feet water in order to guard against evaporation, &c. to the extent of one foot perpendicular. The natural

CONTINUED—

ESTIMATE No. 1. } 7 feet Canal.			Locks of Stone.			ESTIMATE No. 2. } 5 feet Canal.			Locks of Stone.			ESTIMATE No. 3. } 4 feet Canal.			Locks of Wood.		
No. of C. Yds.	Rate	£ s. d.	£ s. d.	No of C. Yds.	Rate.	£ s. d.	£ s. d.	No of C. Yds.	Rate.	£ s. d.	£ s. d.	No of C. Yds.	Rate.	£ s. d.	£ s. d.		
s. d.																	
		34417 16 7½				20326 13 6½										819: 11 6	
13400	3 0	2010 0 0	0 0 0	17891	5 0	2683 13 6	0 0 0	13017	3 0	1952 11 0	0 0 0						
6857	2 0	685 14 0	0 0 0			0 0 0	0 0 0			0 0 0	0 0 0						
4160	0 6	104 0 0	0 0 0	6800	0 6	165 0 0	0 0 0	5900	0 6	147 10 0	0 0 0						
		13996 0 0	0 0 0			0 0 0	0 0 0			0 0 0	0 0 0						
		0 0 0	0 0 0			10941 0 0	0 0 0			1841 0 0	0 0 0						
		206 11 6	0 0 0			0 0 0	0 0 0			0 0 0	0 0 0						
		80 0 0	17082 5 6			70 0 0	13359 13 0			60 0 0	4001 1 0						
		580 17 0	0 0 0	6964	3 0	1044 12 0	0 0 0	4077	3 0	611 11 0	0 0 0						
2589	0 7	10 5 4	0 0 0	4142	0 6	103 11 0	0 0 0	2396	0 6	72 8 0	0 0 0						
352	0 4	65 10 4	0 0 0			0 0 0	0 0 0			0 0 0	0 0 0						
2931	0 4	22 0 4	0 0 0	2000	0 6	50 0 0	0 0 0	1500	0 6	57 10 0	0 0 0						
1321	0 4		0 0 0			0 0 0	0 0 0			0 0 0	0 0 0						
		1866 0 0	0 0 0			1578 0 0	0 0 0			250 0 0	0 0 0						
		0 0 0	2394 13 0			40 0 0	2316 5 0			85 0 0	1006 9 0						
		50 0 0	58894 15 1½				98302 9 6½										

CONTINUED—£
 position of the rapids being very favorable, no extra cutting will be necessary.
 The 5 and 4 feet canals will require 7 locks each, viz. 3 of 10 feet lift each, 3 of 3 feet lift each, and one of 9 feet lift. The situation of the locks is the same in both. Nothing will be required at the opening into Davis' lake for the minor canals, the channel being sufficiently deep in its natural state to admit of vessels not drawing more than 5 feet water to pass.
CUTTING Rock, ,
 Do. Loan, ,
PUDDLING, , ,
 Locks Nos. 11, 12, 13, 14, 15, & 16, in Estimate No. 1, Locks Nos. 11, 12, 13, 14, 15, 16, & 17, in do. Nos. 2 & 3,
Opening into Davis's Lake,
GRUBBING, , ,
 To 50 miles 40 chairs 22 links, the line of canal crosses Davis's lake, and enters Opinicon lake. At Davis' mill there is a rise of 7 feet 29 decimals, requiring one lock of that lift, bottom level 139 feet 65 1-2 decimals. A bridge to be constructed across the lock as at the Round Tail. Davis lake will be raised 4 feet for the 7 feet canal, 2 feet 28 decimals for the 5 feet canal, and one foot 29 decimals for the 4 feet canal. One lock of 8 feet lift will be required in each of the minor canals.
CUTTING Rock, ,
 Do. Clay, ,
 Do. Do., , ,
PUDDLING, , ,
LOCK No. 17, in Estimate No. 1,
LOCK No. 18, in Estimate 2 & 3,
ONE BRIDGE, , ,
 CONTINUED—£

ESTIMATE No. 1. } 7 feet Canal.				ESTIMATE No. 2. } 5 feet Canal.				ESTIMATE No. 3. } 4 feet Canal.			
No. of C.Yds.	Rate.	£ s. d.	£ s. d.	No. of C.Yds.	Rate.	£ s. d.	£ s. d.	No. of C.Yds.	Rate.	£ s. d.	£ s. d.
	s. d.		53894 15 1½		s. d.		36802 9 6½		s. d.		13202 1 6
11716	2 0	1171 12 0		15033	2 0	1508 16 0		6537	2 0	655 14 0	
2052	0 8	68 8 0		4223	0 6	105 11 6		3025	0 6	75 12 6	
1000	0 4	16 13 4		2000	0 6	50 0 0		1900	0 6	47 10 0	
		5782 0 0				0 0 0				0 0 0	
		0 0 0				2756 0 0				500 0 0	
		50 0 0				40 0 0				83 0 0	
			5098 13 4				4090 7 0				1515 16 6
			53938 8 5½				41092 17 6½				1515 16 6

CONTINUED—£
 32 miles 59 chains 82 links, the line of canal crosses Opinicon lake, and enters Indian lake, a distance of 2 miles 18 chains 60 links. At Chaffey's mill there is a rise of 14 feet 45 decimals, requiring 2 locks, each with a lift of 7 feet 22 1-2 decimals, and a bridge as at the Round Tail. The water will be raised 4 feet in Opinicon lake, and 5 feet in Indian and Mud lakes, for the 7 feet canal, and for the minor canals the former will be raised one foot 50 decimals, and the two latter 2 feet each.
 The summit pound commences at Chaffey's mill, bottom level of the canal, 154 feet 10 1-2 decimals. The minor canals also require two locks, one of 9 feet lift, and one of 6 feet 55 decimals, the lifts and situation are alike in both.

CUTTING ROCK, ;
 Do. **Clay,** ;
PUDDLING, ;
LOCKS Nos. 18 and 19 in
 Estimate No. 1, ;
LOCKS Nos. 19 and 20 in
 do. Nos. 2 and 3, ;
ONE BRIDGE, ;
 46 miles 38 chains 45 links, the line of the canal passes through Indian lake up the outlet of Mud lake, and through that lake to the place of departure in to the Rideau, a distance of ten miles 53 chains 65 links. In the 5 & 4 feet canals a saving of four miles in distance may be effected at an inconsiderable expense by cutting through the Isthmus between Indian and Clear lakes, and opening the strait between Clear and Mud lakes. It is proposed to raise the water 5 feet perpendicular, thereby acquiring at a trifling expense, a good and

CONTINUED—£

ESTIMATE No. 1. } 7 feet Canal.			Locks of Stone.			ESTIMATE No. 2. } 5 feet Canal.			Locks of Stone.			ESTIMATE No. 3. } 4 feet Canal.			Locks of Wood.			
No. of C.Yds.	Rate	£ s. d.	£ s. d.	No. of C.Yds.	Rate	£ s. d.	£ s. d.	No. of C.Yds.	Rate	£ s. d.	£ s. d.	No. of C.Yds.	Rate	£ s. d.	£ s. d.	No. of C.Yds.	Rate	£ s. d.
	s. d.	58983 8 5½			s. d.	41028 17 0½			s. d.		11515 18 0							
2988	3 4	498 0 0	558 0 0	1890	3 4	920 0 0	270 0 0	358	3 4	148 0 0								
		60 0 0	59911 0 5½			50 0 0	49806 11 6½											
39187	3 4	5364 10 0		31088	3 4	5178 0 0		21845	5 4	8640 16 8								
135824	0 6	883 2 0		125749	0 6	3148 14 6		69631	0 6	1740 10 6								
		80 0 0				70 0 0				60 0 0								
		92 0 0				92 0 0				92 0 0								
		60 0 0	10419 12 0			50 0 0	8478 14 6			45 0 0								

Continued—£
 sa's navigation, besides placing all these lakes on a level with Rideau lake, and forming an extensive summit pound. The neck of land separating Mud from Rideau lake occasions some extra excavation, as the line of canal passes through a summit of 38 feet 92 decimals, for a short space, and then falls near the level. The nature of the excavation through the ridge being rock it is proposed to make the cut in that part 24 feet wide at the bottom in the 7 feet canal, the bank sloping six inches to the yard perpendicular; and in the clay excavation to make the cut 22 feet wide at the bottom sloping 11-2 feet to one foot perpendicular. The 5 and 4 feet canals also to be proportionally less in passing through the ridge. A bridge will be necessary, for which the sides of the rock excavation will form abutments.
 CUTTING Rock, ,
 Do. Clay, ,
 GRUBBING , ,
 FENCING , ,
 ONE BRIDGE, ,
 .47 miles 2 chains 45 links, the course of the canal is down the Rideau lake to the first or Upper Narrows, a distance of three miles 44 chains, where the navigation is obstructed by a bed of rock 5 1-2 chains in breadth. The excavation will be 24 feet at bottom in the centre and 40 feet at each end for the 7 feet canal, the two minor canals will also be made less in the same proportion at this place. A Bridge will be necessary, as the intended road from Perth to Kingston is to cross at this spot.
 CUTTING Rock ,
 ONE BRIDGE, ,
 CONTINUED—£

ESTIMATE No. 1. } 7 feet Canal.			ESTIMATE No. 2. } 5 feet Canal.			ESTIMATE No. 3. } 4 feet Canal.			Locks of Wood.			
No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	£ s. d.
	<i>s. d.</i>	70920 7 2½		<i>s. d.</i>	55031 6 6½		<i>s. d.</i>	20423 5 2				
18004	3 4	8000 13 4			0 0 0			0 0 0				
14182	0 4	286 0 8	15680	1 6	1176 0 0	9480	1 6	707 5 0				
2156	0 6	53 12 0	1963	0 6	49 1 6	1788	0 6	44 13 0				
		1946 0 0			0 0 0			0 0 0				
		0 0 0			1200 0 0			200 0 0				
		82 8 0			82 8 0			82 8 0				
		213 13 0			152 0 0			50 0 0				
		70 0 0			60 0 0			50 0 0				
		16 0 0			16 0 0			16 0 0				
		62 0 0			62 0 0			62 0 0				1212 6 0
		5680 13 0			2707 9 0							
2740	3 4	458 0 0			0 0 0			0 0 0				
		672 9 6			347 12 6			347 12 6				
		200 0 0			161 0 0			160 0 0				
		74 16 0			74 16 0			74 16 0				532 3 6
		1405 5 6			582 3 6							
		78015 5 8½			58411 4 6½							22217 19 8

CONTINUED—**C**
 situation are alike in all the canals.
ROCK Excavation, ,
EARTH do. ,
PUDDLING ,
LOCK No. 20, in estimate
 No. 1,
LOCK No. 21, do. Nos. 2
 and 3,
WASTE WEIR, ,
GUARD Gates, ,
GRUBBING, ,
FENCING, ,
BRIDGE, ,

We continue our line of canal
 in the natural stream to the head
 of Smith's falls, a distance of
 2 miles 42 chains 60 links, some
 rock excavation will be necessary
 in the bed of the river for a dis-
 tance of 12 chains, in the 7 feet
 canal only, in doing which the
 expense of another lock will be
 avoided, which must otherwise ne-
 cessarily occur. Having a small
 Island, Cockburn creek and two
 small streams to encounter, 4
 bridges will be necessary in the
 formation of the towing path.

ROCK excavation in the
 river,
TOWING Path, &c ;
FOUR Bridges, ,
FENCING, ,

At the head of Smith's falls it
 is proposed to raise the water 2
 feet perpendicular, by a waste
 weir 858 feet wide; the extreme
 width of this weir is occasioned
 by a small flat Island that divides
 the river at this place, some rock
 excavation will be necessary in
 the bed of the river at the head
 of the waste weir. Here we are
 again compelled to abandon the
 river—guard gates w. l. therefore
 be necessary. The first mile is
 rather unfavorable; our cutting
 is from 4 to 7 feet, the first 20
 chains of which is composed of a

CONTINUED—**E**

ESTIMATE No. 1. } 7 feet Canal.	No. of C. Yds.	Rate	Locks of Stone.			ESTIMATE No. 2. } 5 feet Canal.	No. of C. Yds.	Rate	Locks of Stone.			ESTIMATE No. 3. } 4 feet Canal.	No. of C. Yds.	Rate	Locks of Wood.		
			£	s.	d.				£	s.	d.				£	s.	d.
		s. d.	70015	5	8½			s. d.	38411	4	0½			s. d.	22517	19	8
	19039	3 4	2173	5	4												
	34003	0 6	865	4	0		25317	0 6	640	8	6		16484	0 6	412	2	0
	9804	0 6	245	2	0		2111	0 8	186	2	0		5764	0 6	144	2	0
	28717	1 0	1455	17	0		22900	0 0	557	10	0		19571	0 8	489	5	6
			465	13	8				465	13	8				465	13	8
			218	19	0				160	0	0				50	0	0
			58	10	0				49	0	0				92	0	0
			150	0	0				140	0	0				180	6	0
			92	0	0				92	0	0				92	6	0
			5689	8	0				3290	19	2				1755	8	2
			82854	13	8½				60642	3	8½				28973	7	10

CONTINUED—£
 solid bed of limestone rock very difficult to excavate; the remainder of this mile is mostly composed of loam and loose stones—two embankments will be necessary—the first is three chains long and 8 feet below the level—this we propose to cross with one bank only. the banks of the ravine being so steep and the descent so rapid, that one bank will be sufficient, whereby a great saving will be made, and an excellent reservoir formed without injuring any land of importance. The cutting here is sufficiently deep to form the bank. The second is more difficult, being 11 chains in length, 3 feet below level, and the ground so flat that two banks will be unavoidable. This embankment crosses a small stream of water which will require a culvert 4 feet by 4.

- ROCK Excavation, ,
- EARTH Do. ,
- PUDDLING, ,
- EMBANKING, ,
- WASTE WEIR, ,
- GUARD Gates, ,
- CULVERT, ,
- GRUBBING, ,
- FENCING, , ,

Second mile from Smith's falls is more favorable than the first, the cutting runs very near the level—the nature of the earth being loam mixed with loose stone. Four locks will be necessary in each of the canals in this mile—viz: 3 of 10 feet lift each, and one of 7 feet lift. The situation and lifts are alike in all.

CONTINUED—£
 CUTTING, , ,
 PUDY LING, , ,
 Locks Nos. 21, 22, 23, and 24
 is Estimate No. 1,
 in Nos. 2, 3,
 Locks Nos. 22, 23, 24, & 25,
 in Nos. 2, 3,
 GRUBBING , , ,
 FENCING , , ,

Third mile and 5 chains con-
 nects the line of canal with the
 river at Mr. James Edmunds,
 the cutting continues very near
 the level; the soil in this answers
 the same description as in the
 first & some rock excavation will
 be necessary where the line en-
 ters the river; Three Locks will
 be necessary in each, descending
 28 feet, the first and shuttles
 being the same in all. In this
 mile the line crosses a road, and
 one bridge will be required. Dis-
 tance from Kingston, 71 miles
 46 chains 5 links.

LOCK Excavation, , ,
 FURTH, , ,
 PUDY LING, , ,
 Locks Nos. 25, 26, & 27,
 is Estimate No. 1,
 Locks Nos. 26, 27 & 28,
 in Nos. 2 and 3,
 ONE BRIDGE, , ,
 GRUBBING, , ,
 FENCING, , ,

From Mr. James Edmunds
 we continue in the natural
 stream to the head of the Isora
 above Mainland's rapids; the
 distance is 8 miles 62 chains.
 All that will be necessary in this
 distance is the formation of a tow-
 ing path and clearing the chan-
 nel of the river.

TOWING Path, , ,
 CHOPPING & Clearing,
 TAKING Shoals out of the
 River, , , ,
 FENCING, , , ,

CONTINUED—£

ESTIMATE No. 1. } 7 feet Canal.	Locks of Stone.			ESTIMATE No. 2. } 5 feet Canal.			Locks of Stone.			ESTIMATE No. 3. } 4 feet Canal.			Locks of Wood.			
	No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	
54207	0 6	1870 3 6	39654 13 8 1/2	26809	0 6	6 0 4 6	30642 3 5 1/2	19207	0 6	480 3 0	19207	0 6	480 3 0	19207	0 6	480 3 0
2442	0 6	211 1 0		8656	0 6	218 8 0		6071	0 6	151 15 6	6071	0 6	151 15 6	6071	0 6	151 15 6
		8814 0 0				0 0 0 0				0 0 0 0			0 0 0 0			0 0 0 0
		0 0 0 0				7015 0 0				1058 0 0			1058 0 0			1058 0 0
		100 0 0				90 0 0				80 0 0			80 0 0			80 0 0
		32 0 0	10527 4 6			32 0 0	8053 12 6			32 0 0			32 0 0			32 0 0
9306	3 4	1331 8 2		23393	0 6	581 18 6		16213	0 6	40 6 3			40 6 3			40 6 3
4 66	0 6	1016 13 6		3322	0 6	268 13 0		6155	0 6	153 17 0			153 17 0			153 17 0
13151	0 6	929 12 0				0 0 0 0				0 0 0 0			0 0 0 0			0 0 0 0
		6792 0 0				4820 0 0				772 0 1			772 0 1			772 0 1
		0 9 0				70 0 0	5205 12 6			21 0 6			21 0 6			21 0 6
		100 0 0	9004 12 2			99 0 0				80 0 0			80 0 0			80 0 0
		100 0 0				32 0 0				32 0 0			32 0 0			32 0 0
		32 0 0				415 5 0				415 5 0			415 5 0			415 5 0
		184 0 0				108 0 0				108 0 0			108 0 0			108 0 0
		200 0 0				0 0 0				0 0 0			0 0 0			0 0 0
		112 0 0	1845 14 9			112 0 0	685 5 0			112 0 0			112 0 0			112 0 0
			105452 4 7 1/2				75186 13 8 1/2									27873 15 4

CONTINUED—£

ESTIMATE No. 1. } 7 feet Canal.	Locks of Stone.			ESTIMATE No. 2 } 5 feet Canal.	Locks of Stone.			ESTIMATE No. 3. } 4 feet Canal.	Locks of Wood.		
	No. of C. Yds.	Rate.	£ s. d.		No. of C. Yds.	Rate.	£ s. d.		No. of C. Yds.	Rate.	£ s. d.
		s. d.	105452 4 7½			s. d.	70136 13 8½			s. d.	27873 15 4
18072	5 4	5012 0 0		5690	5 4	948 6 8		3158	5 4	575 0 0	
2926	0 6	78 4 0		5601	0 6	142 5 6		3158	0 6	81 10 0	
		1866 0 0		1700	0 6	42 10 0		1824	0 6	53 2 0	
						0 0 0				0 0 0	
						1200 0 0				210 0 0	
						90 0 0				93 0 0	
						215 19 0				50 0 0	
						100 0 0				60 0 0	
						100 0 0				50 0 0	
						50 0 0				20 0 0	
			5484 17 0			2778 2 2				1142 1 0	
			110917 1 7½			72914 15 10½				39015 16 4	

Continued—£
 At the head of Maitland's rapids it is proposed to raise the water 2 feet perpendicularly by a waste weir 165 feet wide, and fur- take the river to the still water below. Guard Gates and one road bridge will be required; and as we propose crossing both at the head and foot of the rapid, with the towing path, two bridges will be necessary for that purpose. The distance of cutting is 28 chains, the line runs very near the level, and the excavation is principally line stone rock. One lock of 7 feet lift will be required in each canal—this lock will connect the canals with the river at the end of 23 chains.

The reason for crossing again to the North bank at the foot of the rapids is to facilitate the formation of the towing path; the bank being in general higher, and to avoid small streams that would require bridging and be attended with an extra expense, and after all we should be obliged to cross the North bank at Edward McCrea's; the Canals being there on the North side of the river.

- ROCK Excavation, , ,
- EARTH, , ,
- PUDDLING, , ,
- LOCK No. 28, in Estimate No. 1, , ,
- LOCK No. 29, in do. No. 2 and 3, , ,
- WASTE WEIR, , ,
- GUARD GATES, , ,
- 2 TOWING Path Bridges, , ,
- 1 ROAD, , ,
- GRUBBING, , ,

From Maitland's rapids it is proposed to follow the river, **CONTINUED—£**

ESTIMATE No. 1. } 7 feet Canal.				Locks of Stone.				ESTIMATE No. 2. } 5 feet Canal.				Locks of Stone.				ESTIMATE No. 3. } 4 feet Canal.				Locks of Wood.					
No. of C. Yds.	Rate	£	s.	d.	£	s.	d.	No. of C. Yds.	Rate	£	s.	d.	£	s.	d.	No. of C. Yds.	Rate	£	s.	d.	£	s.	d.		
	s. d.				110917	1	7½		s. d.				73914	15	10½		s. d.				29015	16	4		
		4748	0	0						3555	10	0						3	4	1545	13	4			
26488	0	6	1065	2	6			14138	0	6	614	1	0					0	6	413	4	6			
42605	0	6	115	8	0			25762	0	6	65	12	0					16729	0	6	43	18	0		
4617	0	6	216	2	0			2624	0	6	216	2	0					1746	0	6	218	2	0		
		213	13	0						160	0	0									50	0	0		
		16	10	0						0	0	0									0	0	0		
		30	0	0						15	0	0									10	0	0		
		82	0	0						82	0	0									32	0	0		
		100	0	0						80	0	0									30	0	0		
					6556	16	0																		
					119556	10	10½																		

CONTINUED—£
which forms an excellent natural canal for a distance of 7 miles; and all that is required is the formation of a towing path.

Distance from Kingston, 82 miles 51 chains 5 links.
TOWING PATH
FENCING & Clearing,
FENCING ;

At Edward McCreas's, we again quit the river. It is proposed to raise the water 1 1/2 feet perpendicularly at this place by a waste weir 376 feet wide; guard gates will be necessary. There will be some extra cutting. 91 chains of which is through lime stone rock; this we propose to slope one foot to one foot perpendicularly, with 30 feet bottom in the 7 feet canal, 21 feet bottom in the 5 feet canal, and 15 feet bottom in the 4 feet canal. The remaining part of this mile is composed of loam and loose stone. There is also a little rock excavation in the bed of the river at the head of the waste weir for 16, 7 feet canal only. At the end of the first 32 chains, the sudden rise of the ground forces us to near the edge of the river, that a stone wall will be required for a distance of about 3 chains—one road bridge will be required. Distance, 81 chains 15 links from E. McCreas's.

ROCK Excavation, ;
FARTH Do. ;
PUDDLING, ;
WASTE WEIR, ;
GUARD GATES, ;
SIDE WALL, ;
GRUBBING, ;
FENCING, ;
ONE ROAD Bridge,
Second mile and two chains is

ESTIMATE No. 1 } 7 feet Canal.			Locks of Stone.			ESTIMATE No. 2 } 5 feet Canal.			Locks of Stone.			ESTIMATE No. 3 } 4 feet Canal.			Locks of Wood.		
No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.
	s. d.	119556 10 10		s. d.	77560 14 1½		s. d.	82281 18 2		s. d.			s. d.			s. d.	
46815	0 6	1170 7 6	25029	0 6	575 14 6	16544	0 6	413 12 0									
1320	1 0	66 0 0	1152	0 9	54 9 0	1232	0 9	46 4 0									
7868	0 6	134 3 0	7316	0 6	132 18 0	6144	0 6	152 17 0									
		50 0 0			40 0 0			30 0 0									
		52 0 0			32 0 0			32 0 0									
		1502 10 6			885 1 6			674 13 0									
47981	0 6	1199 10 6	21356	0 6	533 18 0	15378	0 6	334 9 0									
1650	1 0	32 10 0	1941	0 9	72 15 9	1764	0 9	66 3 0									
3981	0 6	224 10 6	7337	0 6	133 8 6	6145	0 6	153 12 6									
		10 0 0			0 0 0			0 0 0									
		52 0 0			52 0 0			52 0 0									
		100 0 0			80 0 0			80 0 0									
		1643 11 0			902 2 3			666 4 6									
		132707 12 4½			79347 17 10			53622 15 8									

CONTINUED—£
a continuation of the same soil, and runs very near the level. At the end of the first 31 chains our line crosses a small ravine, our chain wide and five feet below level, requiring one bank only.

- CUTTING, , ,
- EMBANKING, , ,
- PUDDLING, , ,
- GRUBBING, , ,
- FENCING, , ,

3d mile 1 chain 23 links, respecting soil and cutting, answers to the same description as the last in every respect. At the end of 23 chains, the line crosses a small ravine, one chain wide, and 8 feet 10 decimals below level, requiring only one bank. One road bridge will be necessary.

- CUTTING, , ,
- EMBANKING, , ,
- PUDDLING, , ,
- GRUBBING, , ,
- FENCING, , ,
- ONE BRIDGE, , ,

4th mile will be attended with some extra expense; the soil and cutting however, continue much the same as in the last; the ground is a little more uneven. At the end of this mile, our line crosses a valley 12 1 2 chains wide, and 8 feet below level; the embankment will be expensive on account of the ground being so much below level and no extra cutting. This embankment crosses a creek which will require a culvert 8 feet by 5. Three locks of 10 feet lift each will be required in each of the canals.

CONTINUED—£

ESTIMATE No. 1. } 7 feet Canal.	Locks of Stone.			ESTIMATE No. 2. } 5 feet Canal.	Locks of Stone.			ESTIMATE No. 3. } 4 feet Canal.	Locks of Wood.		
	No. of C.Yds.	Rate s. d.	£ s. d.		No. of C.Yds.	Rate s. d.	£ s. d.		No. of C.Yds.	Rate s. d.	£ s. d.
4576	0 6	1159 8 0	122707 12 4	29633	0 6	740 16 6	79347 17 10 1/2	20345	0 6	503 12 6	53622 15 8
58135	1 0	2559 5 0		47759	0 9	1749 10 3		35355	0 9	1450 11 0	
23373	0 6	571 16 6		18591	0 6	464 15 6		16949	0 6	401 4 6	
		6918 0 0				0 0 0				0 0 0	
		73 10 0				5169 0 0				750 0 0	
		60 0 0				50 0 0				40 0 0	
		32 0 0	11463 10 6			32 0 0	3307 11 8			32 0 0	3222 11 6
52731	0 6	1818 5 6		27305	0 6	690 2 6		17369	0 6	445 1 6	
3613	0 9	135 13 6		5017	0 6	126 3 6		2532	0 6	95 16 0	
6115	0 6	152 17 6		5712	0 6	142 16 0		4763	0 6	119 4 0	
		175 0 0				165 0 0				155 0 0	
		32 0 0	1818 16 6			32 0 0	1156 2 0			32 0 0	847 1 6
			136005 3 4 1/2				33811 11 1 1/2				37692 3 8

CONTINUED—£
CUTTING, , ,
EMBANKING, , ,
PUDDLING, , ,

Locks Nos. 29, 30, and 31,
to Estimate No. 1,
Locks Nos. 30, 31, & 32,
in do. Nos. 2 & 3. ,
CULVERT, , ,
GRUBBING, , ,
FENCING, , ,

5th mile, the cutting continues very near the level; the soil is much the same as in the last, excepting for a distance of 15 chains through a cedar swamp, the top earth of which is Black Mud, 3 feet deep lying on a bed of clay. At the end of the first 20 chains there will be a small embankment 4 chains in length, for which the earth lies very convenient.

CUTTING, , ,
EMBANKING, , ,
PUDDLING, , ,
GRUBBING, , ,
FENCING, , ,

6th mile and 25 chains takes our line of canals into the river on G. Burrett's farm, in Marlboro'. In the first 42 chains the cutting continues near the level, and the soil much the same, at the end of which the line crosses a creek, 3 feet 35 decimals below level. The embankment will be two chains in length, and a culvert 3 feet by 5 will be necessary at this place. Thence the cutting runs of 12 chains; after which we commence with some extra cutting and continue for a distance of 20 chains passing through a summit of 14 feet. The soil being sandy, is easily excavated. Thence the ground descends to the level, and continues the same through the remaining part of

CONTINUED—£

ESTIMATE No. 1. } 7 feet Canal.	Locks of Stone.			ESTIMATE No. 2. } 5 feet Canal.	Locks of Stone.			ESTIMATE No. 3. } 4 feet Canal.	Locks of Wood.		
	No. of C.Yds.	Rate s. d.	£ s. d.		No. of C.Yds.	Rate s. d.	£ s. d.		No. of C.Yds.	Rate s. d.	£ s. d.
			156005 3 4½			38811 11 1½				87692 8 8	
106331	0 6	2253 5 6		62887	0 6	1572 5 6		40355	0 6	1008 17 6	
4842	0 9	163 16 6		4170	0 9	156 7 6		3457	0 9	148 7 9	
13200	0 6	350 0 0		8952	0 6	223 16 0		7747	0 6	193 18 6	
			6412 0 0			0 0 0				0 0 0	
			0 0 0			3800 0 0				740 0 0	
			67 2 6			56 18 4				40 0 0	
			4 0 0			42 0 0				42 0 0	
			42 0 0			80 0 0				80 0 0	
			100 0 0			9776 4 6				2202 18 9	
	3 4	1619 10 0				0 0 0				0 0 0	
		8592 2 8				3000 0 0				2472 0 0	
		740 0 0				911 0 0				262 0 0	
		714 0 0				714 0 0				714 0 0	
		500 5 0				200 0 0				200 0 0	
										3648 0 0	
			157587 5 6½			98987 11 5½				43513 7 3	

CONTINUED—£
 this distance. Two locks of 2 feet lift each & one of 10 feet lift, will be required in each canal, the situation being alike in all. One road bridge will also be necessary. Distance from Kingston, 39 miles, 3 chains 5 links.

CUTTING, , ,
EMBANKING, , ,
PUDDLING, , ,
LOCKS Nos. 52 & 53 of 8
 feet lift each, & No. 34 of 10 feet, in Estimate

No. 1.
LOCKS Nos. 93 & 94, of
 do. do. & No. 85 of do. in

do. Nos. 2 & 3,
1 CULVERT, , ,
GRUBBING, , ,
FENCING, , ,
ONE BRIDGE, , ,

From George Burnett's it is proposed to follow the natural stream to the head of Long Island; a distance of 32 miles 39 chains. The river, with the exception of a few small shoals, forms a most beautiful and natural canal, the whole of this distance. Having removed the shoals, all that will be necessary is the formation of a towing path, for which the situation is a little unfavorable on account of a number of small streams, swales, &c., that obstruct the way, and will require bridging. In the two minor canals nothing will be required in the bed of the river.

ROCK Excavation in the bed of the river, , ,
TOWING PATH, , ,
GRUBBING & Clearing
FENCING, , ,
BRIDGING, , ,

Distance from Kingston, 111 miles 23 chains 5 links.
 At the head of Long Island, it is proposed to raise the water 2

CONTINUED—£

ESTIMATE No. 1. } Locks of Stone. 7 feet Canal.				ESTIMATE No. 2. } Locks of Stone. 5 feet Canal.				ESTIMATE No. 3. } Locks of Wood. 4 feet Canal.			
No. of C. Yds.	Rate.	£	s. d.	No. of C. Yds.	Rate.	£	s. d.	No. of C. Yds.	Rate.	£	s. d.
	s. d.	166610	5 6 1/2		s. d.	104426	4 9 1/2		s. d.	44917	0 5
1000	3 4	166 15 4		4548	0 6	0	0 0	2958	0 6	0	0 0
8633	0 6	217 4 0		1000	0 6	118 14 0		1000	0 6	58 18 0	
1638	0 6	42 4 0				25 0 0				25 0 0	
		409 2 6				409 2 6				409 2 6	
		213 13 0				160 0 0				50 0 0	
		2000 0 0				0 0 0				0 0 0	
		0 0 0				1000 0 0				300 0 0	
		70 0 0				60 0 0				50 0 0	
		268 0 0				220 0 0				210 0 0	
		50 0 0				50 0 0				50 0 0	
		56 0 6				56 0 0				56 0 0	
		3492 16 10				2093 16 6				1109 0 6	
		388 0 0				200 0 0				218 0 0	
		112 0 0				42 0 0				53 0 0	
		96 0 0				96 0 0				96 0 0	
		596 0 0				428 0 0				547 0 0	
		170699	2 4 1/2			106948	1 8 1/2			46373	0 11

CONTINUED—£
 One bridge will be necessary to cross the river Goodwood with the towing path. At the rapids we are compelled to leave the river for a distance of 10 chains, 61 links. Guard gates will therefore be necessary. It is proposed to raise the water 7 feet 6 inches perpendicularly by a waste weir 207 feet wide. The design in raising the water so much is to avoid cutting some rocky shoals in the bed of the river. One lock of 2 feet lift will stand at the termination, to connect the canal with the river at the foot of the rapids. Distance from Kingston, 115 miles. 64 chains, 29 links, to Lock No. 58.
 ROCK Excavation, ;
 EARTH Do. ;
 FUDDLING, ;
 WASTE WEIR, ;
 GUARD GATES, ;
 LOCK No. 58, in Estimate No. 1, of 2 feet lift, Nos. 2 & 3 of do. ;
 CHOPPING & Clearing, ;
 TOWING PATH, ;
 ONE BRIDGE, ;
 FENCING, ;
 From thence to the head of the black rapids, a distance of 3 miles and 10 chains, nothing will be required except the formation of a towing path and clearing the bed of the river. Distance from Kingston, 118 miles 74 chains 59 links.
 TOWING PATH, ;
 CHOPPING & Clearing, ;
 FENCING, ;
 At the Black Rapids it is proposed to raise the water 7 feet by a waste weir 550 feet wide; there we are obliged to forsake

ESTIMATE No. 1. } Locks of Stone.				ESTIMATE No. 2. } Locks of Stone.				ESTIMATE No. 3. } Locks of Stone.				ESTIMATE No. 4. } Locks of Wood.			
No. of C. Yds.	Rate.	£ s. d.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	£ s. d.
64757	0 6	1618 8 6	17472 9 9½	47188	0 6	1179 14 0	109746 18 9½	28989	0 6	723 9 6	47703 11 11	1643	0 6	41 1 6	
3935	0 6	82 2 6		2464	0 6	61 12 0				409 2 6				409 2 6	
		215 15 0				160 0 0				50 0 0				50 0 0	
		50 0 0				0 0 0				0 0 0				0 0 0	
		40 0 0				40 0 0				40 0 0				40 0 0	
		200 0 0				180 0 0				180 0 0				180 0 0	
		52 0 0				52 0 0				52 0 0				52 0 0	
		2615 6 0	17787 10 9½			2072 8 6				2072 8 6				1475 13 0	
															49178 5 6

CONTINUED—£
 meet the canal on the south side; the north being wholly impracticable from the frequent deep ravines, and the extreme height of the land adjacent to the river. One bridge will therefore be necessary. Guard Gates will also be required at the place of departure. The first mile commences with 7 feet cutting and runs a little above the level for 20 chains, thence it descends to the level and runs nearly the same through the remaining part of this mile; no rock excavation will occur; the nature of the earth is loam and favorable for excavation. At the end of the first 21 chains, the sudden rise of the ground forces us so near the river, that a stone wall will be required for the support of the bank on the lower side of the canal, 2 chains long and 18 feet high.
 In the 5 and 4 feet canals no side wall will be necessary.
 CUTTING,
 PUDDLING,
 WASTE WEIR,
 GUARD GATES,
 SIDE WALL, in Estimate No. 1,
 ONE BRIDGE,
 GRUBBING,
 FENCING,
 Second mile commences with 8 feet 78 decimals, cutting and runs near the level 15 chains. Thence it rises very abruptly and continues above the level 34 chains, passing through a summit of 21 1-2 feet; thence it gradually declines until it again meets the level; thence it runs nearly level through the remaining part of this mile; the nature of the earth answers the same description as the last. In passing through the

ESTIMATE No. 1. } 7 feet Canal.	Locks of Stone.			ESTIMATE No. 2. } 5 feet Canal.	Locks of Stone.			ESTIMATE No. 3. } 4 feet Canal.	Locks of Wood.		
	No. of C.Yds.	£ s. d.	£ s. d.		No. of C.Yds.	£ s. d.	£ s. d.		No. of C.Yds.	£ s. d.	£ s. d.
Rate	£ s. d.	£ s. d.	Rate	£ s. d.	£ s. d.	Rate	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
s. d.	177387 10 2 1/2	111799 8 5 1/2	s. d.	111799 8 5 1/2	111799 8 5 1/2	s. d.	49173 5 5	49173 5 5	49173 5 5	49173 5 5	
No. of C.Yds.	22064	11406	No. of C.Yds.	7582	58047	No. of C.Yds.	7582	58047	3951	3951	
Rate	4 0	3 4	Rate	3 4	3 4	Rate	3 4	3 4	3 4	3 4	
£ s. d.	4412 16 0	1901 0 0	£ s. d.	1901 0 0	1901 0 0	£ s. d.	1922 0 0	1922 0 0	1922 0 0	1922 0 0	
£ s. d.	67381 0 6	49021 0 6	£ s. d.	49021 0 6	49021 0 6	£ s. d.	901 3 6	901 3 6	901 3 6	901 3 6	
£ s. d.	6376 0 6	4576 0 6	£ s. d.	4576 0 6	4576 0 6	£ s. d.	76 5 6	76 5 6	76 5 6	76 5 6	
£ s. d.	4600 0 0	0 0 0	£ s. d.	0 0 0	0 0 0	£ s. d.	0 0 0	0 0 0	0 0 0	0 0 0	
£ s. d.	0 0 0	5088 0 0	£ s. d.	5088 0 0	5088 0 0	£ s. d.	500 0 0	500 0 0	500 0 0	500 0 0	
£ s. d.	200 0 0	190 0 0	£ s. d.	190 0 0	190 0 0	£ s. d.	180 0 0	180 0 0	180 0 0	180 0 0	
£ s. d.	32 0 0	32 0 0	£ s. d.	32 0 0	32 0 0	£ s. d.	32 0 0	32 0 0	32 0 0	32 0 0	
£ s. d.	100 0 0	80 0 0	£ s. d.	80 0 0	80 0 0	£ s. d.	50 0 0	50 0 0	50 0 0	50 0 0	
£ s. d.	11193 14 6	6523 12 6	£ s. d.	6523 12 6	6523 12 6	£ s. d.	2941 9 6	2941 9 6	2941 9 6	2941 9 6	
£ s. d.	177387 10 2 1/2	111799 8 5 1/2	£ s. d.	111799 8 5 1/2	111799 8 5 1/2	£ s. d.	49173 5 5	49173 5 5	49173 5 5	49173 5 5	
£ s. d.	177387 10 2 1/2	111799 8 5 1/2	£ s. d.	111799 8 5 1/2	111799 8 5 1/2	£ s. d.	49173 5 5	49173 5 5	49173 5 5	49173 5 5	

CONTINUED—£
above summit a considerable rock excavation will occur, and will be extremely difficult and expensive in consequence of the great depth it lies below the surface. Having removed the top earth, it is proposed to slope the rock one foot to one foot perpendicular, with 24 feet bottom for the 7 feet canal, 17 feet bottom for the 5 feet canal, and 12 feet bottom for the 4 feet canal. Two locks each of 9 feet lift will be required in each of the said canals. Near the termination of this mile, our line crosses a road where a bridge is necessary.

ROCK Excavation, ,
EARTH, Do., ,
PUDDLING, ,
LOCKS Nos. 40, & 41,
in Estimate No. 1, ,
LOCKS Nos. 41, & 42,
in Estimates Nos. 2 & 3,
GRUBBING, ,
FENCING, ,
ONE BRIDGE, ,

38 chains will connect the line of canals with the river on Doxy's farm, in Gloucester. The cutting still continues near the level. The nature of the earth is the same as in the last mile. The descent being so great five locks will be required in each, 3 of 9 feet lift, and 2 of seven feet lift each, the lifts and situations being the same in all. No rock excavation will occur, except in placing the foundation of the locks. At the end of the first 12 chains, our line crosses a ravine one chain wide, 6 feet 66 decimals below level; the earth lies convenient for the embankment. A culvert 4 feet by 4 will be ne-

ESTIMATE No. 1. } 7 feet Canal.			ESTIMATE No. 2. } 5 feet Canal.			ESTIMATE No. 3. } 4 feet Canal.			Locks of Stone.			Locks of Stone.			Locks of Wood.		
No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
3000	3 4	500 0 0	4993	0 6	0 0 0	19876	0 0	0 0 0	118428	6 91	52120	14 5					
21882	0 6	547 1 0	3305	0 9	625 11 6			486 18 0									
3368	0 9	145 1 0	8774	0 6	123 18 9			96 2 5									
12220	0 6	580 10 0			219 7 0			192 11 0									
		11100 0 0			0 0 0			0 0 0									
		0 0 0			7715 0 0			1250 0 0									
		10 0 0			8 0 0			6 0 0									
		44 0 0			36 0 0			59 0 0									
		16 0 0			16 0 0			16 0 0									
		12682 12 6			3741 17 5			2087 11 9									
6752	4 0	1550 8 0	304	3 4	154 0 0	402	5 4	67 0 0									
		1784 6 0			880 0 0			772 0 0									
		112 0 0			79 0 0			68 0 0									
		96 0 0			98 0 0			96 0 0									
		5392 8 0			1189 0 0			1001 0 0									
		20456 4 81			12858 4 01			55209 5 3									

CONTINUED—£
 cessary to pass the water under
 the canal.
 Distance from Kingston, 124
 miles 29 chains 36 links.
 ROCK Excavation, ,
 EARTH Do. ,
 EMBANKING, ,
 PUDDLING, ,
 Locks Nos. 42, 43, 44, 45, &
 46, in Estimate No. 1.
 Locks Nos. 45, 44, 43, 46, &
 47, in do. Nos. 2 & 3.
 GRUBBING, ,
 CULVERTS, ,
 FENCING, , ,

From Lock No. 46 in estimate
 No. 1, we again take our line of
 canal in the natural stream to the
 head of the rapids, called the
 Cascades. The distance is 5
 miles 17 chains. The formation
 of a towing path and a little rock
 excavation in the bed of the river,
 in two or three places, is all that
 is necessary.
 Distance from Kingston, 157
 miles 4 chains 38 links.

ROCK Excavation, ,
 TOWING PATH ,
 CHOPPING & Clearing,
 FENCING , , ,

At the head of the cascades we
 are compelled to forsake the ri-
 ver altogether, there being noth-
 ing but a succession of rapids
 from thence to the Ottawa river.
 At this place it is proposed to
 raise the water 4 feet perpendi-
 cularly by a waste weir, which
 will require to be 462 feet wide—
 guard gates will once more be
 necessary. The cutting in the
 first mile is extremely favorable,
 it runs very near the level; the

ESTIMATE No. 1. } 7 feet Canal.				Locks of Stone.				ESTIMATE No. 2. } 5 feet Canal.				Locks of Stone.				ESTIMATE No. 3. } 4 feet Canal.				Locks of Wood.				
No. of C. Yds.	Rate	£	s.	d.	£	s.	d.	No. of C. Yds.	Rate	£	s.	d.	£	s.	d.	No. of C. Yds.	Rate	£	s.	d.	£	s.	d.	
	s. d.								s. d.								s. d.							
3235	0 0	1505	17	8	204556	4	84	86497	0 6	682	8	6	138359	4	02	18822	0 6	470	11	0	55209	5	8	
930	0 9	84	17	6				919	0 8	51	2	6				702	0 9	87	1	6				
7885	0 6	195	12	6				5074	0 6	128	17	0				7514	0 6	187	17	0				
		55	10	8						32	19	8						24	0	0				
		568	19	8						169	0	0						585	19	8				
		219	19	4						190	0	0						70	0	0				
		200	0	0						22	0	0						130	0	0				
		82	0	0						20	0	0						52	0	0				
		100	0	0						20	0	0						80	0	0				
					2484	10	2						1684	7	2									
					207040	14	10 3/4						180045	11	8 1/2									

CONTINUED—C
 nature of the earth is a high loam. A great proportion of this mile runs through a black ash swale: near its termination our line crosses a creek where a small embankment and a culvert of 4 feet by 4 will be necessary. One road bridge will also be required in this distance.

- CUTTING, , , ,
- EMBANKING, , , ,
- PUDDLING, , , ,
- CULVERT, , , ,
- WASTE WEIR, , , ,
- GUARD GATES, , , ,
- GRUBBING, , , ,
- FENCING, , , ,
- ONE BRIDGE, , , ,

One mile and 17 chains commences the whole route and takes out line of canal to 9 feet 6 1/2 decimals deep water in the Ottawa river, making a total distance from the government wharf in Kingston, to the Ottawa, of 192 miles. We commence with 5 feet cutting, and run a line above through a cedar swamp, the top earth of which is black mud about three feet deep on a bed of clay. Thence the ground rises very abruptly to a summit of 32 feet 24 decimals. The excavation is here 18 chains long: thence it descends almost perpendicularly to the level, but continues only 3 1/2 chains, after which, in a distance of 11 chains 51 links, the ground falls 46 feet 85 1/2 decimals to water level in the Ottawa river (on the 1st September, 1824.) In passing through the above summit, some rock excavation will occur in the

CONTINUED—C

ESTIMATE No. 1. } Locks of Stone.			ESTIMATE No. 2. } Locks of Stone.			ESTIMATE No. 3. } Locks of Wood.		
No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.
	s. d.	207040 14 10½		s. d.	130043 11 9½		s. d.	36579 14 10
12458	4 0	2491 12 0	15924	4 0	2564 16 0	10144	4 0	2028 16 0
2874	5 0	918 10 0	83040	0 0	2098 10 0	57536	0 0	1498 8 0
123683	0 3	4645 12 3	13900	0 6	347 10 0	13900	0 6	317 10 0
18770	0 6	419 5 0						
		14000 0 0			0 0 0			0 0 0
		0 0 0			10498 0 0			1620 0 0
		50 0 0			26 0 0			54 0 0
		1000 0 0			0 0 0			0 0 0
		300 0 0			190 0 0			180 0 0
		40 0 0			40 0 0			40 0 0
		29744 10 3			15758 16 0			5678 14 0
		230785 14 1½			145802 7 8½			2258 8 10

CONTINUED—C
 bottom, which will be somewhat difficult and expensive on account of the great depth it lies below the surface. The top earth here is generally loam mixed with some loose stone.
 At the end of the first 21 1-2 chains the line crosses a little creek which will require a broken backed culvert 4 feet by 3. Having passed through the summit, it is proposed, from where we again meet the level, at the foot of the hill, to carry the bottom 60 feet wide for the 7 feet canal, 45 for the 5, and 86 for the 4 feet canal, whereby an excellent reservoir will be formed 2 1 2 chains long, for which the situation is favorable. The fall from thence is so extremely rapid that 6 locks will be required for each canal in a distance of 11 chains 51 links, which will form an entire piece of solid masonry from top to bottom. Estimate No. 1, will require 5 locks of 9 1-2 and 1 of 16 feet lift, making the bottom level 288 feet below the Rideau lake.
 In estimates Nos. 2 and 3 the lifts and situations are the same as above.

ROCK Excavation,
 Ditto Do. at the Ottawa EASTON Do. ,
PUDDLING, , ,
LOCKS Nos 47, 48, 49,
 50, 51, and 52, in Estimate No. 1,
LOCKS, Nos. 48, 49, 50,
 51, 52, and 53, in do. Nos. 2 and 3.
1 CULVERT, , ,
2 PIERS, , ,
GRUBBING, , ,
FENCING, , ,

CONTINUED—C

ESTIMATE No. 1. } 7 feet Canal.		Locks of Stone.		ESTIMATE No. 2. } 5 feet Canal.		Locks of Stone.		ESTIMATE No. 3. } 4 feet Canal.		Locks of Wood.	
No. of C. Yds.	Rate. s. d.	£	s. d.	No. of C. Yds.	Rate. s. d.	£	s. d.	No. of C. Yds.	Rate. s. d.	£	s. d.
	s. d.	280785	14 14		s. d.	145802	7 81		s. d.	62258	8 10
		280785	14 14			145802	7 81			62258	8 10
		280785	14 14			145802	7 81			62258	8 10

TOTAL—£

CONTINUED—£
 Where the canals are designed to enter the Ottawa river, it is proposed to take the 7 feet canal into 9 feet 6 1/2 decimals water, in order to guard against the fluctuations to which this river is so subject, and in doing which it is also proposed to cut the mouth of the canal 50 yards wide from the water's edge to the foregoing depth in Clerks' Bay in the Ottawa River. To prevent it from filling up, two piers made of piles backed with stone and well planked will be necessary. The 5 and 4 feet canals will not require to go beyond 7 feet water in the Ottawa, and therefore no piers will be required for them. In making the preceding estimates due regard has been paid to the value of the materials and labour which are required for constructing the locks, waste weirs, guard gates, bridges, &c. and which have been estimated according to the present prices of such materials and labour. The locks and guard gates in the 7 and 5 feet canals, to be built of stone, those of the 4 feet canal of wood, the waste weirs and bridges to be constructed of wood in all.

It will be seen that estimates are here framed for canals according to three different scales, the first or largest being calculated to cost £230,785 14 11-2, the second £145,802, 7 8 1-2, and the third £62,258 8 10. The largest canal is planned according to the dimensions recommended in the first general report, which the commissioners had the honor to make, for the canal intended to connect the navigation of Lakes Erie and Ontario. Among the inducements for adopting this scale, one of primary importance, was the advantage that would accrue to the Western trade from the practicability of passing through the canal with vessels suitable for the navigation of the lakes; for not only would the transportation of commodities be thus materially facilitated, but great expense would be saved by avoiding the shifting of cargoes at each extremity of the canal. To reap the full value of this project, it would be necessary that improvements on a corresponding scale should be effected between lake Ontario and the sea-ports; and, on calculating their aggregate cost, it may be worthy of enquiry, whether the magnitude of the expenditure would not, in the present state of the country, exceed its resources, or be more than commensurate with the expected benefits, when estimated with relation to improvements of a minor description, having in view similar ends.

An uninterrupted sloop navigation from the great lakes to the ocean, is without doubt equally important and desirable as it respects local and general interests, and certainly should never be lost sight of. That it will be acquired, at no very distant day, there are fair grounds for hoping; but whether it should form the object of our immediate exertions, is a point which may be considered questionable, and concerning which a great diversity of opinion may be expected to exist.

The expense of the canal for the junction of Lake Erie with lake Ontario, including the feeder, is computed to be

£231,554 10 3

The expense of the canal from Kingston to the mouth of the river Rideau, on the largest scale, is

230,785 14 1½

Forming the sum of

£462,340 4 4½

To this must be added the cost of enlarging the canals now in progress at Hawkesbury and Lachine, which would probably amount to £100,000, making a total expenditure of £562,340 4 4½.

To sustain so heavy a charge, the Provincial resources may perhaps be justly conceived unequal without co-operation on the part of the sister Province, or aid from the parent state.—Singly, Upper Canada would undoubtedly be obliged to make extraordinary efforts in order to accomplish that part of the work which lies within its own limits.

Many years, it is clear, would inevitably elapse, before the province, with its own resources solely, could complete the work; and the delay which would thus be created, forms a main objection to the grand scheme of improvement as an immediate measure. It is also to be remarked, that if the whole energies of the province should be directed to this one great enterprise, our roads and bridges, together with other concerns of public utility, occasionally calling for legislative provision, would be more or less neglected throughout the country. Such inconveniences resulting from an undivided attention to canals, embracing dimensions that would absorb so great a portion of our resources during a series of years, must be regarded as qualifying, if not outweighing, the benefits which its completion, within a given period, might place within our reach, and as recommending for present purposes, a plan less magnificent and costly.

The second estimate contemplates a canal very nearly similar in its dimensions to the Lachine canal, and the cost will amount to £145,802 7 8½ making a difference between it and the large canal of £84,983, 6 5. On the supposition that circumstances may not justify the prosecution of the great scheme along the whole extent of the communication, the plan of this estimate may deserve to be considered. It is larger than that of the Erie canal, on which the people of New York think, that the immense commerce of the Western country, as well as their own internal trade, may with ease be conducted. It will admit larger boats than those now employed in the navigation of the river St. Lawrence, and, moreover, corresponds with the works advancing towards completion, at Hawkesbury on the river Ottawa, under the auspices of the Imperial Government, and at Lachine under the direction of the legislature of Lower Canada. If this scale, therefore, should be adopted, the canal would

form an important part of the projected improvements, and it would preserve a desirable uniformity with great works already commenced, and on which large sums of money have been expended.

The third estimate has for its object the utmost practicable economy, consistent with a regard to useful improvement in the inland navigation of the Province. The dimensions were originally suggested by those of the grand Trunk canal in England, which affords adequate facilities to a vast trade that is in ceaseless activity. For the sake of greater accommodation under the peculiar circumstances of our situation, the bottom of our canal is estimated to be two feet wider than that of Staffordshire, and the locks are calculated for the passage of boats ten feet in width. The Durham boats now used, have generally a breadth of beam varying from 12 to 13 feet, and thus, though they might answer for estimate No. 2, an alteration in their size would in the present case be expedient. It is proposed to build the locks with timber on such a plan that decayed pieces may from time to time be taken out, and replaced with sound wood, without the necessity of removing any other part of the work.— With such occasional repairs, wooden locks may last for many years and be as useful as those of a more costly description. The total expense of fifty-three locks composed of substantial masonry, according to estimate No. 2, is £79,638, averaging £1502 6 0 per lock. The total expense of fifty-three locks built of wood, according to estimate No. 3, is £13,485, averaging £254 8 0 per lock. The actual difference of expense between the locks in those estimates is £66,148, a sum which is in itself more than sufficient to complete the small canal; and although wooden locks obviously require more frequent repairs than those which are built with stone, the interest on the difference of expense between them, would repay in a ten-fold degree, the charges of maintaining them in a serviceable state. As the chief saving in the third estimate is effected in the mode of constructing the locks, the width of the canal to which it refers, might be so increased as to admit boats of the size now employed, without material addition to its cost; and it is indeed probable, that a canal on the scale of estimate No. 2, might be constructed with wooden locks, for the sum of one hundred thousand pounds.

When it is considered how greatly the want of capital is felt in this country, and how important every saving thus becomes in the application of the public money, to the purposes of internal improvement, the advantage of employing wooden locks may well command attention, and if that advantage should be in effect as immense as it is confidently believed to be, there should be little hesitation in adopting them on the scale of the second estimate.

Besides the immediate benefit to be derived from the economical construction of wooden locks, it may be also observed, that in the event of its being found expedient to enlarge the canal at any future period, they might be easily removed, and would in the meanwhile have answered all the purposes of locks, which, if they were more durable, would also have been more costly.

In thus adverting to the distinctions in the three estimates, the commissioners, with submission, leave it to the consideration of Parliament to determine, which of them is most worthy of adoption.

Should the Legislature look forward to future facilities without regarding immediate inconvenience, or should any prospects of co-operation on the part of His Majesty's government, or of Lower Canada be disclosed, the grand canals projected on the scale of estimate No. 1, may lay claim to their approbation.

Should they be dubious of the means of attaining this end, and yet be desirous of completing that part of the work which lies eastward of Lake Ontario, on the same plan with the canals of Lower Canada, as well as satisfied of the sufficiency of their resources for that purpose, the second project will appeal to their judgment.

Should they however, be fearful of compromising the revenue of the province in enterprises conceived to be beyond its ability, and anxious to proceed on the most cautious and saving plan, the third estimate will fix their attention, as at least calculated for temporary purposes, and combining the utmost economy with a great deal of utility.

In their first report, the Commissioners stated, that four schemes of improvement had occurred to them in the eastern section of the province; and it may therefore be proper at the present stage of their proceedings, to recapitulate what has been performed, and point out how far those schemes have severally undergone investigation.

The first season after the organization of the board was occupied with a survey of the country be-

tween lakes Erie and Ontario, a survey which was connected indifferently with either of the four schemes just alluded to. Owing to the difficulties presented by a country which had never been explored with a level, and concerning the general profile of which no useful information could be gathered, the examination of this route could not be entirely finished within the season. Unfavorable weather set in before the course of the feeder had been accurately traced; a task which, though it required a considerable time, the Engineer had nevertheless so far prosecuted, as to feel confident that he could avoid the tunnel, at one period thought necessary, by selecting a course, rather more circuitous, but at the same time less expensive. The commissioners having always dreaded the necessity of a tunnel, which is a work yet unattempted in America, had indulged a hope of being enabled to resume this survey, and determine, beyond a doubt, the best course for the feeder in question at the close of their other operations in succeeding years, but circumstances have defeated their expectations. This disappointment is in point of fact, unimportant, since there is reason to believe that the Engineer in his estimate, has very closely approached the truth. Another season might have been profitably devoted to a further examination of the country eastward of the line of the canal, laid down in the first report of the board, because such an examination would perhaps have shown the practicability of avoiding the rise there encountered of 36 feet, from the river Ouse to the summit level by a route nearer the Niagara River, and have brought to light various other facilities for uniting the navigation of the two lakes. The first object in commencing the survey, obviously was to provide, if possible, good harbours at each extremity, and to carry the line of the canal as far into the interior as the nature of the country would allow. This object was effectually gained in the survey reported on to the Legislature, but at a cost which may be considered a serious obstacle to the opening of the canal. Had the board been at liberty to act upon their inclinations, they would have followed up their surveys in that quarter by exploring a route from the mouth of the twenty mile creek, in a direction towards the mouth of the Ouse, by which it is not impossible that with some occasional deep cutting, the waters of lake Erie might be carried on a continued level, in a very short course and through a favourable country, to the brow of the heights which overlook the shore of Lake Ontario. The expenditure which had been already incurred in examining the country between the lakes, was however considerable; and the commissioners, for that reason, felt it imperative on them not to postpone the other surveys which were to be prosecuted in the lower part of the Province. The idea of more minutely exploring the district of Niagara was consequently relinquished, and the Engineer was, in the year 1823, employed on the fourth plan formerly referred to. This plan has met with full and perfect investigation, as the preceding estimates will demonstrate, and in treating of its merits, it may be necessary to state that none of the routes comprised by the other three schemes of improvement, have been explored and levelled.

The first route, which adheres to the course of the St. Lawrence, was not considered sufficiently comprehensive and effectual, and it could not be supposed to satisfy the views and wishes of the public, embracing as they do, a more complete melioration of the navigable communications with Lower Canada.

The second route certainly promised far superior improvements, but besides its being liable, in common with the first, to the objections specified on a former occasion, there was another and a stronger reason for declining, during the last summer, to prosecute the survey to which it refers. The legislature had sanctioned by a statute, the determination of the provincial arbitrators made in the year 1823, whereby it was recommended to the respective parliaments of Upper and Lower Canada, that a certain fund, amounting to more than £5000, levied for many years, under an enactment of Lower Canada, on rafts, &c. passing Chateauguay, should be applied to a survey of the river St. Lawrence from Lachine upwards, without regard to the boundary line. On the presumption that the parliament of the latter province would not fail to confirm by its vote, the just and equitable decision of the arbitrators, and that the river Saint Lawrence would thus be speedily surveyed, and the expenses of such survey be defrayed from a fund levied indifferently on the property of the inhabitants of both Provinces, the commissioners have forborne to apply to this object any portion of the funds in their hands, which exclusively belong to Upper Canada. They earnestly hope that this conclusion will be approved of, and also that the prospect of an immediate application of the joint fund in question, according to the recommendation of the arbitrators, may not fail to be realized.

The route delineated in the third plan has not been deemed worthy of particular examination with the level, for the commissioners on further acquaintance with the general features of the country, were led to entertain some doubts of its feasibility, and were besides convinced, that, even if practicable, its cost would far exceed that of the fourth or interior route which they have preferred, and which they now recommend to the favourable notice of Parliament.

Should a canal be constructed according to this plan, very important facilities would be afforded the inhabitants of the District of Bathurst and the rear of the Johnstown District, in reaching the markets of Lower Canada, to which they are at present nearly debarred any profitable access. After completing the main line of canal, further accommodation at any future day, when the increasing trade of the country required it, might be provided for Lanark, and other townships more remote from the Rideau, by means of a lateral canal from the first rapids below Rideau lake to the Mississippi lake. In order to ascertain the practicability of such a cut, the commissioners, in the month of June last, explored the course of Cockburn creek, which rises near the Mississippi, and falls into the Rideau a little below the mouth of the Tay. Following up that creek they found that Mississippi lake lay thirty six feet higher than Rideau lake; that there was a dividing ridge composed of lime stone, two miles and a half in breadth, with a rise of twenty six feet, between the head of Cockburn creek and the former lake; and that the distance run over with the level between the two rivers, was about 18 miles. Some considerable expense would of course attend the cut at the lime-stone ridge, but this difficulty will not retard the work when the exigencies of trade shall require the opening of the communication. It is besides to be held in recollection, that so far as the higher townships on the river Mississippi and its various branches are concerned, it would be a much easier and cheaper undertaking to connect its navigation with the Rideau Canal, by following the valley of Cockburn creek, than to encounter the obstacles in the former river itself, presented in its numerous falls and rapids from the lake downward to its junction with the Ottawa at Lac des Chats. The proposed canal by the Rideau would thus, in connection with the improvements in Lower Canada, accelerate the settlement and prosperity of a large tract of our interior country, which yields to no part of the continent in point of fertility of soil or salubrity of climate.

This canal, however, would not only be eminently useful for our trade in time of peace, but it would form a secure channel of intercourse for military purposes in time of war. In the latter contingency that intercourse could never be interrupted, unless by a very powerful irruption into the heart of the country, when the enemy might be enabled, for a season, to establish themselves at some point on the line of communication.

But, without dwelling at greater length on the importance of this canal, as it regards the defence of the province against hostile aggression, there is another point of view in which it claims our attention, as connected with a state of peace. In our intercourse with Lower Canada, by the sole route we can now pursue, we must pass through the waters over which jurisdiction is claimed by a foreign power, and our trade is consequently exposed to vexation, even during the existence of amicable relations between that power and the Imperial government. Through a deplorable oversight of His Majesty's Commissioner for determining the boundary line in this quarter, the United States have acquired a complete control over the navigable channel of the river Saint Lawrence in the neighbourhood of Cornwall; a controul which they will not fail to turn to the best account. The messages of their Presidents and Governors speak a language, which on this point is not to be misunderstood; and the character of the nation forbids the supposition, that an advantage, once gained in negotiation, will ever be neglected or foregone. A right, which it is attempted to support on the authority of international law, is asserted on their part to a free navigation of the Saint Lawrence, as well as to an entrepot for their commerce at some convenient point on its banks within the King's dominions. This right, they have already endeavored to get confirmed by treaty with His Majesty's ministers, but hitherto it would appear, they have met with little success. Possessing, nevertheless, in consequence of the unaccountable cession of Barnhart's Island, a plausible pretext for claiming at that point the absolute dominion of the river, as well as the power of stopping our boats and rafts on their passage to Lower Canada, or of imposing on them such transit duties as they may choose, they can fetter our intercourse with the seaport at pleasure, and render the Saint Lawrence

a very precarious high way for our commerce. There can be no doubt that they will perseveringly exert every diplomatic art, in order to extort some privilege in return for the relinquishment of the threatened duties ; but as much will depend on the nature of their demands, which may embrace far more than an actual equivalent for Islands intrinsically insignificant, and now rendered important only by the superior dexterity of the American Commissioner, a natural repugnance to these claims may fairly be anticipated on the part of our government, and for this reason they may not be soon or easily disposed of.

Besides the benefit which the Rideau Canal would confer on the surrounding country, it would evidently afford as great accommodation to the trade of the upper districts of the Province, as any similar improvement on our frontier waters. That trade, if not subject to foreign restrictions, would no doubt descend to Montreal by the main channel of the Saint Lawrence, and use the Rideau canal on its return. No canal that can be devised will offer any inducement to boats in descending while the present description of craft is employed, because the Saint Lawrence itself holds forth superior facilities in point of economy and expedition. It is in the ascent only that canals will ever be found beneficial to the trade of the upper districts, unless boats of a different construction from those now employed, should come into use, which being either decked for the preservation of flour from the injury at present too frequently sustained, by exposure to the combined action of sun and shower, or from other causes, drawing too much water to pass the rapids, might find it advisable to resort to the canal also in the descent. Another circumstance which may be mentioned, is, that though the western trade would always pass down the Saint Lawrence, the Rideau canal would nevertheless be still used in the descent as well as the ascent, for all the produce of the country in its vicinity, while a canal near the borders of the former stream would never be resorted to in descending. The Rideau canal would thus yield larger tolls than could be exacted on a canal used in one direction only.

Having adverted to some of the advantages by which a canal through the interior would commend itself to the legislature, it is incumbent not to conceal its defects. The first objection which may be urged against it, as a channel of general trade, is its length. The distance from Kingston to Montreal by the Saint Lawrence, is about two hundred miles. The distance from the government wharf at Kingston, to the mouth of the Rideau, following the course of the canal, is one hundred and thirty-two miles, and the distance from the mouth of the Rideau to Montreal, is one hundred and twenty miles, forming a total of two hundred and fifty-four miles. The difference in favour of the former route, is fifty-four miles, which, in point of time, may be computed at rather more than a day's journey on the canal. It is, however, to be observed, that this difference may be compensated by the fact, that on the interior route, the waters are altogether narrow, except at the lake of the Two Mountains, and that boats in ascending would not be exposed to the delays now experienced on the broad waters of the Saint Lawrence, from the general prevalence of south-westerly winds.

The next objection is, the rise from the level of Lake Ontario to the summit pound of Rideau Lake, and the proportionate fall in the progress of the canal toward the river Ottawa. Were a canal constructed in the vicinity of the Saint Lawrence, this rise and fall, exceeding three hundred feet, would be avoided, and it would only be requisite to provide locks for the positive fall in the river from Prescott to Lachine, which perhaps is about 180 feet. A considerable saving in lockage, ever a main source of expense in canals, would thus be effected on the frontier route, which indeed when surveyed, may be found to offer many other facilities, and be capable of improvement at as moderate a rate as the route by the Rideau.

In such an event, it would remain with the Legislature to balance the advantages of one plan against those presented by the other, and to make a judicious selection. Should they decide in favour of the plan for an interior canal, its adoption would not necessarily extinguish the other ; nor need it prevent, though it would of course retard, the improvement of our frontier navigation.

In coming to the consideration of the ways & means for completing the great work now projected, the Commissioners beg leave to state, that looking solely to the provincial resources, they had originally designed to recommend an application to His Majesty for an adequate appropriation of crown reserves, which, when sold, would have essentially contributed to the attainment of the desired ends. But as

the Imperial Government has since disposed of all those reserves, and the Commissioners have not learnt in what mode the proceeds of this extensive sale are to be appropriated, they are not aware that their intended proposal would now be strictly proper.

Setting therefore aside the consideration of the means which a portion of the reserves would have furnished for opening the canals, and apprehending that any grant of waste land, which His Majesty might be graciously pleased to make, would afford no funds immediately useful for that purpose, the Commissioners have on further investigation, taken other views of the question, and have come to a conclusion that the expense of constructing the canal through the interior as well as any improvements on the Saint Lawrence, should be defrayed by means of duties on imports levied at Quebec, and that Lower Canada is justly bound to share in that expense. In support of this opinion it may be shown, that the Lower Province has at least an equal interest with us in accelerating the completion of the Rideau canal. If this Province, by its means, can resort to the markets of Lower Canada with greater facility, safety and expedition, and is stimulated to avail herself of the advantages thus held out, and augment her annual exports, the latter Province, acting in her capacity as a great factor between us and other countries, directly profits by the circumstance, inasmuch as her customer becomes more wealthy, and, in exchange for the increased produce of her soil, is enabled to take for consumption larger quantities of merchandise. In addition to the benefit of finding in Upper Canada a better customer, the Lower Province would enjoy further profit from a large portion of foreign trade, which an improved communication would naturally attract to her markets, but which, in the present state of our navigation, must necessarily seek a vent by the Hudson. Of the truth of these remarks Lower Canada is probably aware, and she might therefore be induced to afford more ready co-operation in the enterprise now recommended. With such impressions the Commissioners would suggest, as the most unexceptionable and most effectual mode of speedily completing the canal, that a loan redeemable within a given period, should be negotiated in London on the joint faith of the Canadas, to such an amount as might be deemed necessary, and that the interest should be regularly paid either from a fund to be provided by specific duties on importations at Quebec, or by an appropriation from the gross revenue of the Provinces, as might appear expedient. If, for instance, the plan of the canal suggested in the second estimate should be adopted, the loan would amount to one hundred and fifty thousand pounds. If the plan of estimate No. 3, should be preferred, the loan need not exceed sixty-five thousand. There can be no question, that while money is so abundant in the British metropolis, that millions are hazarded in loans to revolutionary governments in the old and new world, the great capitalists of that city would readily purchase Canadian bonds, & that the comparatively small sum required for our purposes, could be at once obtained on the most liberal terms. There can be as little room for doubting the ability of Canada to sustain without inconvenience the charge of such a loan. All that appears wanting is a disposition on the part of the Provinces to act in concert with each other on the occasion; a disposition which we may hope, will not be long withheld, upon due consideration of the benefits to be derived from so great an improvement of our internal navigation.

In the foregoing observations, the Commissioners have merely taken into account the means of improvement in the Eastern part of the Province, but it is indisputably clear, that Lower Canada is equally interested in the project for uniting the navigation of the great Lakes, and that without such a junction the work of improvement would be incomplete. Adequate facilities of transportation must be provided for the produce of the Western districts, otherwise the growing trade of that fine region, will assuredly seek another channel. It would therefore be of the highest importance, that Lower Canada should also join us in opening a canal between Lakes Erie and Ontario, sufficiently capacious for vessels navigating those waters; a purpose for which the dimensions formerly stated would be found most suitable.

Should the presumption be well grounded, that a better route than the one laid down by the first survey, may on further examination be discovered, the use of wooden locks would materially reduce the estimate, and the joint resources of the Canadas might thus be capable of effecting the desired melioration along our whole line of communication from Lake Huron to the Ocean. There is still another consideration to be mentioned with respect to the Rideau Canal. From its great utility in time

of war for the transportation of troops and military stores, the Imperial government would, no doubt, regard it as important to the defence of the colony, and might, therefore, be induced to assume a portion of the expense that would be incurred in opening it. Aid from that quarter would greatly lighten the burthen on the provincial resources, and enable the legislature to enter upon the great and interesting improvement between the Lakes with a prospect of more immediate completion.

In discussing the mode in which the interest on the loan is to be provided for, the Commissioners have not adverted to the produce of the tolls which will be received on the completion of the canals. There can be no doubt under the most unfavourable view which can be taken, that they would immediately become productive to a certain extent even upon canals of the largest dimensions, and that on the smaller estimates they would in the course of a few years increase in such a manner as to relieve the public funds from the burthen of the interest. The board will not at present enter into any detailed calculations of the receipts from tolls, because they have not been able to ascertain with due precision, the annual imports and exports in the different sections of the Province. It may, however, be mentioned, that even if the canals should in the beginning prove to be unprofitable, they could not fail eventually to make the amplest returns, and that the advantages which would be derived from their accelerating the settlement and prosperity of the country, would well remunerate us for the exertions made in constructing them, and also for the short period during which they might yield no revenue.

After completing the survey on the waters of the Rideau, the Commissioners proceeded to explore the country lying between the Bay of Quinty and Presqu'île Harbour in conformity to the statute of the late session, and they now annex estimates for connecting those waters by means of canals, planned on three different scales of magnitude.

THREE ESTIMATES

OF the expenses for constructing a canal from the head of the Bay of Quinty to Presqu'île Harbour, of the following dimensions, viz: the first, nine feet in depth, thirty feet in width at the bottom, and sixty-six feet in width at the surface of the water, the banks to slope two feet to one foot perpendicular, with turning bridges fifty-two feet in the clear and ten feet wide; the second, nine feet in depth, twenty-four feet in width at the bottom, and sixty feet in width at the surface of the water; the banks and bridges the same as in the first; the third, five feet in depth, twenty-eight feet in width at the bottom, and forty-eight feet in width at the surface of the water, the banks to slope the same as the above, with turning bridges fifteen feet in the clear, and ten feet wide.

9 feet deep and 30 feet bottom.				9 feet deep and 24 feet bottom.				5 feet deep and 28 feet bottom.			
No. of C. Yds.	Rate.	£ s. d.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	£ s. d.
12615	0 8	315 7 6	315 7 6	12615	0 6	315 7 6	315 7 6				
26174	0 8	372 9 4		21971	0 8	732 7 4		23461	0 6	586 10 6	
		24 0 0				24 0 0				20 0 0	
		32 0 0				32 0 0				32 0 0	
		120 0 0	1048 9 4			120 0 0	908 7 4			70 0 0	708 10 6
77635	0 8	2587 16 8		67810	0 8	2260 6 8		29326	0 6	753 3 0	
		30 0 0				30 0 0				30 0 0	
		32 0 0	2649 16 8			32 0 0	2522 6 8			32 0 0	795 3 0
			4615 13 6				5546 1 6				1503 13 6

In constructing a canal of 9 feet water, it will be necessary to add 30 chains more to the length at the head of the bay of Quinty, than will be required for one of only 5 feet, in order to meet a sufficient depth of water in the bay which is very shoal at this place. In deepening this part of the bay, it is proposed to make the cut 86 feet wide, for the purpose of admitting boats to pass each other, and by means of which, the expense of piles and plank will be avoided, which in the event of cutting it only 30 feet wide would be required to prevent it from filling up with mud.

CUTTING in the bottom of the bay 30 chains, ,
 First mile after leaving the bay of Quinty, runs through marshy ground, which, during the greater part of the year, is covered by water. The nature of the earth is black mud from 6 to 8 feet deep. The line crosses the main road leading to the Carrying Place. One turn bridge will therefore be necessary.

CUTTING, , ,
GRUBBING, , ,
FENCING, , ,
ONE BRIDGE, ,

The second mile is, with respect to the nature of the earth, the same as the preceding. The cutting runs a little deeper.

CUTTING, , ,
GRUBBING, , ,
FENCING, , ,

Third mile runs considerably above our level, the cutting is

CONTINUED—£

9 feet deep and 90 feet bottom.				9 feet deep and 24 feet bottom.				5 feet deep and 28 feet bottom.			
No. of C. Yds.	Rate.	£ s. d.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	£ s. d.	No. of C. Yds.	Rate.	£ s. d.	£ s. d.
	s. d.		4018 13 6		s. d.		3546 1 6		s. d.		1508 13 6
98421	0 5	2050 8 9		87750	0 5	1927 14 2		65245	0 5	1859 5 5	
40392	0 10	1883 0 0		35904	0 10	1496 0 0		18311	0 8	610 7 4	
		160 0 0				160 0 0				150 0 0	
		92 0 0	3925 2 0			22 0 0	5515 14 2			92 0 0	2151 12 9
86302	0 5	1797 19 2		79852	0 5	1659 9 4		100596	0 5	2094 10 0	
112068	0 10	4859 10 0		99816	0 10	4150 13 4		47812	0 8	1537 1 4	
		250 0 0				250 0 0				200 0 0	
		92 0 0				92 0 0				92 0 0	
		120 0 0	6669 9 2			120 0 0	6205 16 8			70 0 0	9983 11 4
112080	0 8	9756 0 0		98576	0 8	3285 17 4		38050	0 6	928 15 0	
		55 0 0				55 0 0				20 0 0	
		56 0 0	3807 0 0			96 0 0	9556 17 4			24 0 0	967 15 0
			18615 11 5				16624 9 8				8606 12 7

CONTINUED—£
 from 9 to 18 feet; the top earth
 about 6 feet deep, is of the same
 description as in the two preced-
 ing miles; the bottom is a bed
 of clay; the last half of this mile
 runs through a very heavy tim-
 bered cedar swamp.

TOP EXCAVATION,
 BOTTOM Do.,
 GRUBBING, , ,
 FENCING, , ,

Fourth mile continues above
 our level. It commences with
 15 feet cutting, the first 20 chains
 of which is through a cedar
 swamp of the same description
 as the last half mile, and lies
 nearly level; thence the ground
 rises gradually to a summit of 21
 feet 52 decimals—the nature of
 the earth here is sandy loam, fa-
 vorable for excavation. In the
 last 10 chains the ground falls
 rapidly, and terminates with 10
 feet 71 decimals cutting. At the
 end of the 70th chain the line
 crosses a road, and one bridge
 will be necessary.

TOP EXCAVATION,
 BOTTOM Do.,
 GRUBBING, , ,
 FENCING, , ,
 ONE BRIDGE, , ,

Fifth mile and 18 chains will
 connect the line of our route with
 ten feet water in Presqu'Isle bar.
 hour, running mostly through a
 marsh, which is the greater part
 of the year overflowed with wa-
 ter. The top earth is a soft black
 mud lying on a bed of clay.
 Here, as at the head of the bay
 of Quinby, we are again obliged
 to add thirty chains more to the
 distance for the 9 feet canals
 than for that of 5 feet.

CUTTING, , ,
 GRUBBING, , ,
 FENCING, , ,

THE third estimate here submitted, refers solely to boat navigation, which, it is evident, would be comparatively of little service to the country. The other two estimates are framed for the purpose of ship navigation, and the second is on the smallest scale that is conceived suitable for that object. The depth of both is regulated by the depth of water at the entrance of Presqu'ile harbour, which is found in no part to exceed ten feet. The second estimate, computed to cost £16,624 9 8, is that which the Commissioners would recommend to the favor of the legislature.

The advantages of a navigable communication between the head of the bay of Quinty & Presqu'ile harbour, are great and numerous. In briefly adverting to them, it may be stated that it would render the latter harbour, which, from its peculiar position, is now almost unfrequented and of little value, very useful for shipping, and a place of great resort. Upon inspecting the map of the Province, it will be seen that Point Petre, in the County of Prince Edward, or, as it is commonly called, Long Point, projects very far into Lake Ontario. A singular peculiarity connected with this point, which has been frequently remarked, is the influence which it appears to exercise on the direction of the winds. It has often occurred, that while an easterly gale prevailed to the westward of the point, the wind blew violently from the southward on the lower part of the Lake. The delays which are thus created in navigation must be sufficiently obvious. With the aid of a canal across the Isthmus in Murray, vessels encountering adverse winds off Long Point in their way downwards, might enter Presqu'ile harbour, and running through the bay of Quinty, effect their passage without much delay or inconvenience. Vessels proceeding upwards might, in like manner, expedite their passage; for mariners during the summer months have observed, that while a steady south-west wind prevails at night on the mid lake, light northerly airs are frequent near the land, and greatly facilitate the progress of vessels that make the north shore of the Lake.

It is as it respects steam-boats, however, that the canal in Murray demands attention; for by steam-boats, the greater part of the trade will eventually be carried on. A vessel of this description proceeding down the lake, and encountering a heavy easterly gale, as frequently happens near Long Point, might run through the canal into the Bay of Quinty, and effect her passage in narrow waters, regardless of the storm without. In the same manner during the occurrence of westerly gales, a steam-boat from Prescott or Kingston, by passing up the Bay of Quinty, might escape the boisterous sea, which at such times prevails off Long Point—and by being ready at Presqu'ile harbour to take advantage of the first favorable weather, might complete the voyage to an upper port under shelter of the land, before another steam-boat, preferring the open lake, could weather Long Point.

Another important benefit that would be derived from the proposed canal near the Carrying place, is the facility it would afford for regular intercourse between the flourishing district of Newcastle and the markets of Lower Canada.—This benefit would be vastly enhanced by the creation of artificial harbours, as the circumstance of the country required and admitted it, along the shore of the Lake from Presqu'ile to York. There is not a harbour or the slightest shelter for vessels at present within that space, and all the produce of the intervening country must be shipped from the open beach, exposed to the surf, and the delays occasioned by the difficulty and risk, which craft of all descriptions often experience in approaching the shore. Were a breakwater for example constructed at Cobourg or Port Hope, or at any other fit situation in that vicinity, steam-boats from Prescott or Kingston, could visit that place weekly by the canal, and convey to its destination the exports of the neighbouring country. It has been calculated that a breakwater sufficient for the security of any vessel navigating the lake, might be constructed at Cobourg for about two thousand pounds; and it is fervently to be wished that a work promising in conjunction with the Murray canal, so much good to that district, may be soon undertaken and completed.

A liberal parliamentary grant in aid of this object, would not perhaps appear a misapplication of the Provincial resources, provided the state of the public funds would warrant the appropriation. The remainder of the money might be raised by an assessment on the district, which there are grounds for believing would not be objected to by the people.

With regard to the ways and means for opening a canal in Murray, according to the scale of the second estimate, the Commissioners must declare, that they are incapable of devising any that will

themselves be immediately available. They beg permission, however, to suggest the sale of Big Island in the Bay of Quinty, containing some thousands of acres of excellent and valuable land, which has been long occupied by persons who hold no titles, and who, if reasonable time were granted them, would no doubt be willing to give a fair consideration for the lots they have severally taken into possession. This Island would probably produce at public sale about five thousand pounds. There is also a large tract of land reserved on the Presqu' isle itself, which, if disposed of in a similar way, would materially aid the fund. A grant from the waste lands of the Crown would be required to make up the residue, provided no part of the proceeds arising from the sales of Crown Reserves in Ameliasburg, Murray, and Cramahe could be obtained for that purpose. These means are suggested, because the benefit of the canal would be rather local when compared with the other greater improvements; and as considerable delay would occur in realizing them, it might in the mean while be advisable, for the sake of hastening the completion of the work, either to obtain a loan from private sources, or to make the requisite temporary advance from the public treasury.

The Commissioners, in devising this scheme, are well aware, that Big Island, and the reserve in the Presqu' isle, as well as all the waste lands, are the exclusive property of the Crown, and that the application of any part of them to the purposes alluded to, can only proceed on a respectful representation of circumstances, from the gracious munificence of a kind and benevolent Sovereign.

The Commissioners beg leave to attach to this Report a general statement of their expenses, and all the vouchers connected with the surveys of last season. These papers are accompanied with a model of a Wooden Lock, and maps and field notes illustrating the line of the cut at Murray and the whole course of the survey from Kingston to the River Ottawa.

All which is humbly submitted,

[Signed]

**JOHN MACAULAY,
JAMES GORDON,
CHARLES JONES.**

YORK, 5th February, 1825.

APPENDIX.

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REPORT OF THE JOINT COMMITTEE ON INTERNAL NAVIGATION.

1825.

THE JOINT COMMITTEE appointed to confer upon the improvement of the Internal Navigation of this Province, have had before them the several Reports of the Commissioners appointed under the Provincial Statute 2d George 4th, Ch. 2. which they have read with great interest, and especially the third or last report, accompanied with an able and very judicious letter addressed by Mr. MACAULAY, the President, to Mr. GORDON, one of the Members of the Board, and submitted by the latter to the Committee.

All these papers are subjoined to this report in an appendix, and the Committee have much satisfaction in calling attention to them as to documents which are, in their opinion, highly creditable to the zeal and intelligence of the commissioners.

With respect to the estimates in detail, however important it is to ascertain their accuracy, it can scarcely be expected that the committee can, of their own knowledge, either verify or discredit them, or, in fact, that they can do any thing more than express their judgment as to the degree of confidence they appear entitled to, from the means which were employed in procuring them.

On this point the committee is happy to believe there is no ground to discourage a reliance upon their general accuracy. On the contrary, Mr. Clowes; after the experience the commissioners have had of him, appears to possess fully their good opinion of his professional knowledge and of his respectable character, and the committee finds no reason to apprehend that the result of his surveys would not be found generally correct, except that as in all similar undertakings of great extent, there is a chance that obstacles might present themselves in the progress of the work, which it is not always possible to discover or foresee.

The probability of some obstacles occurring which would enhance the cost, is perhaps too great to admit of its being safely kept out of view in any case, but as this is purely contingency, and no calculation can possibly be made to meet it, the estimates must necessarily be assumed to be, in the main, correct in the absence of any known reason for suspecting their accuracy.

To these Reports, therefore, the committee refer as containing the best, and in truth, the only satisfactory information it is in their power to present, as to the means of improving the Internal Navigation of this Province; and, indeed, in the observations contained in the reports, so comprehensive a view is taken of the subject, and the public interests involved in it are discussed with so much candour and judgment, that the committee would unwillingly bespeak attention to any attempt of theirs to reason minutely upon the same points with less advantage of leisure and far less opportunities of knowledge.

They have, therefore, confined themselves to such remarks as occurred on a general review of these important results of the labour of the Commissioners.

Though many of the improvements of which the Inland Navigation of this province is susceptible, are perfectly obvious, and had, therefore, been very early the subject of discussion, the first attempt to direct attention to them by any public measure (if we except the provision made by the legislature in 1819 for surveying the waters of the Saint Lawrence) was by the act of 1821, appointing the Board of Commissioners whose labours are comprehended in the subjoined reports.

It is due to the memory of the late Colonel Nichol, formerly an active and very intelligent member of the Legislature, to remark, that his zeal in the cause of public improvements occasioned this measure to be brought forward at an earlier period than it would otherwise have been, and that so long as he lived, he persevered very faithfully in carrying it into effect.

When the state of the Province, even at the present moment, is considered with regard to its population and its resources, it must be acknowledged that it was at an early stage of its advancement that attention was thus turned to objects so important. It has been not unusual to reproach the people of Upper Canada with a want of enterprise and exertion in not having sooner applied themselves to works of this description. A comparison, not very strict, with the neighbouring States, has appeared to give occasion to such reproaches, but they are in truth undeserved.

When the State of New-York contained four times the present population of Upper Canada, and when its resources from its commercial advantages, and the greater general opulence of its inhabitants, exceeded those of this Province in a proportion infinitely greater, no work of the magnitude of some of those which we now venture to contemplate, had been undertaken or even thought of.

When, in very recent years, the patriotic zeal of a few men of more than ordinary talents, inspired them with courage to propose the wonderful undertaking which the State of New-York has now carried nearly to its completion, it appeared to most persons so far above the means of the country to accomplish, that it was with difficulty the plan could be at first supported against the prejudice of public opinion; but it is obvious that when it was determined to proceed in its execution, it was in the power of that State to furnish great resources for the undertaking.

It cannot with any reason be thought to reflect shame on this country, that it has hitherto felt itself unable to commence works of even far less cost.

It must be remembered that with more than a million of inhabitants, whose circumstances are, generally speaking, much more opulent, the State of New-York possesses a very flourishing Sea Port which attracts the riches of commerce and affords the means of raising with ease and certainty, a great revenue by indirect taxation; and that her more advanced state with regard to population and trade, not only makes her infinitely more equal to any great undertaking like that alluded to, but affords a more certain prospect of an immediate and profitable return.

It is in one respect fortunate for this Province, that the State of New-York has found itself able at so early a day, to attempt the completion of an Inland Navigation which might well have been thought to exceed its power. An example has, in the progress of this great work, been afforded to the people of Canada, sufficiently applicable in all essential points, to form the ground of satisfactory calculations. With respect to the general face of the country, (not noticing some particular features) the climate and change of seasons, which call for some consideration, the price of labour and most profitable mode of employing it, the circumstances are so far similar as to make experience in the one country highly useful in the other, and the resemblance in other respects is sufficiently strong to enable us to estimate with tolerable accuracy, the probable effect of such improvements on the commerce and the agriculture of this country, by observing the progress of both under the change of circumstances produced by the Canal in the State of New-York.

With such advantages it is fair to presume, that the commissioners and those they have employed, have not materially erred in their estimate of the probable expense of the several improvements suggested. There is at least much less room for apprehension of any material error being discovered in proceeding to put their plans in execution, than there might have been under other circumstances.

Upper Canada, regarding only those parts of it within the great waters which appear to be capable of cultivation, contains an area of about 50,000 square miles, the soil of which is, with very little exception, most favorable to agriculture, and the climate being equally propitious, there is no doubt that when it is sufficiently peopled, its productions and consequently its trade, must be im-

mense. An inspection of the map discovers remarkable facilities afforded by nature to Inland Navigation, and it is impossible but that in time, besides those shorter Inland cuts connecting the different chains of waters and communicating at intervals with the Saint Lawrence, advantage will be taken of the remarkable features of the country to render navigable, without interruption, the double access to the Ocean by the great waters composing the frontier of the Province, and by those which enclose its settlements to the Northward.

To these grand objects the public attention should undoubtedly first be called, for in these consist the distinguishing advantages with which the Province is so remarkably favored.

It is very probable that works of a similar nature, but of much more limited extent, might be undertaken in particular sections of the Province with a more certain prospect of an immediate recompense ; but there are reasons more obviously applying to Upper Canada than perhaps to almost any other country, why the accomplishment of the greater object should receive the first and engross the whole attention of the Province, though, in the present state of the trade and population, a less return of profit should follow their completion.

It was no doubt with this conviction, that the Legislature has first and principally directed the attention of the commissioners, "to the exploring the most practicable route for a canal between " Lake Erie and the Eastern boundary of this Province."

With what success they have performed their duty, is to be learnt by an attentive perusal of their Reports and an examination of their Estimates, which, it is believed, so far as they may be relied on, are by no means discouraging to those who may have ventured before to look forward to the commencement of undertakings apparently so disproportionate to the present means of this Province.

After examining these Estimates and reports, the considerations remaining to be weighed, are the probable influence of the projected improvements upon our security and welfare, the scale on which they should be attempted, the expense at which they can be accomplished, and the means of meeting that expense—the time at which they may and ought to be undertaken, and in what order.

Upon all these points the commissioners have offered very valuable remarks, and the committee may, without any censurable failure in their duty, forbear much additional observation of their own upon points, upon which great diversity of opinion will undoubtedly prevail, however much they may be discussed, because they involve considerations so various in their nature and so combined a view must be taken of the several questions, that it would be vain to pretend to demonstrate satisfactorily, the precise conclusion to which the suggestions of the commissioners, ought, under all circumstances, to lead.

That a canal from Kingston to the Ottawa River, would, in the event of a war, not merely diminish beyond measure, the charge of our defence, but render its success greatly more certain, admits of no doubt. Happily present appearances indicate no interruption of the good understanding between Great Britain and America ; on the contrary, they afford a well grounded hope of its permanence ; but, without bringing probabilities into discussion, it may be affirmed, that it would be most imprudent to reckon securely on a very long continuance of Peace.

In the event of a war, protracted as the last, the safety and the saving of transport, conducted by such a channel, would, it is believed, fully compensate to the nation the charge of the improvement ; and it is most evident, that to give full effect to the sound and liberal policy which has created the Military settlements on the Rideau, and introduced since the war, a loyal population of more than **TEN THOUSAND SOULS** where there were before no Inhabitants, and which is now surmounting at a considerable expense, the interruption of the Navigation of the Ottawa, it is necessary to perfect the water communication, removed from the enemy's frontier, and leading, in truth, from the Ocean to Kingston, which is the key to Lake Ontario and the principal Military station in the Province.

The same reasoning applies, but in a less degree, to the proposed canal connecting Lakes Erie and Ontario ; such a work would undoubtedly facilitate Military operations in defence of the Province, to a great extent under any probable circumstances, but it would not so decidedly ensure the safety of the western portion of the Province as the first mentioned canal would that of the eastern,

because the enemy, if in possession of the Lake, might still cut off resources from below, and render the benefit of such a work partial and uncertain.

With respect to the advantages to trade and commerce, which the projected communications would procure, little can be said, that has not been urged, and nothing that observation in a neighbouring country, does not readily suggest. In this view the improvement which would connect the waters of Lakes Erie and Ontario, is undoubtedly the most important, because the more remote that portion of the Province is from the Ocean, the more ruinous to its commerce, and consequently to its agriculture, is any natural obstruction which increases materially the difficulty of transport.

To a country so situated, the manufactures its inhabitants consume, come at a higher charge ; and if the only articles they can furnish in return, are subject to disadvantages which almost exclude them from the markets, there is reason to fear a depression of circumstances, a discouragement to exertion, and ultimately, perhaps, even a consequent inferiority in moral character, amidst great positive advantages of climate and soil.

When the great importance in a commercial point of view, of an uninterrupted navigation from the country bordering on Lake Erie, is thus considered, it is very gratifying to find, that a hope is held out of its speedy accomplishment by the exertions of a private company, at a much less expense than that contemplated by the commissioners, but by a route, which may, perhaps, as effectually serve the interests of the country in time of peace.

If the Welland Canal should proceed upon the scale now contemplated by the company admitting of Sloop navigation, it is to be supposed that for all purposes of commerce, the execution of the plan reported by the commissioners, might be postponed until the population of the country should become such as to warrant its being entertained for the reasons that it would serve the interests of a much greater extent of interior country, and would terminate at a safer and more commodious harbour. The latter reason would undoubtedly indicate the canal projected by the commissioners as that which would best conduce to the military defence of the country ; but if the Welland Canal should be carried successfully through, it is conceived, that no sufficient motive would remain for desiring the completion of the other, until many more necessary improvements of a similar kind had been first executed.

The benefits which may be expected to accrue to Agriculture and Trade from a canal leading to the Ottawa from Kingston, are investigated at some length in the paper alluded to, (No.) ; and although, with whatever candour and intelligence the inquiry is there conducted, it is very possible that the results may appear questionable to many. The committee will not pretend to discuss the merits of an Estimate founded on details, by which it may be to a certain degree, verified or contradicted by any who have more leisure and better opportunity to examine them.

THE QUESTION ON WHAT SCALE it would be expedient to undertake either of the canals projected, seems to have appeared very doubtful to the commissioners, and it certainly is one which admits of much discussion and calls for great consideration.

Beginning in the westward, it is certainly most important that the Lakes should be connected by a navigation, which will allow of the same vessels continuing their voyage without discharging their cargoes, so that a schooner laden at Amherstburg, could proceed without breaking bulk to Kingston or Prescott. The present design of the Welland Canal Company, admits of this to the fullest extent contemplated by the commissioners, and it is therefore for the moment unnecessary to discuss the point as regards that part of the communication. With respect to the other great Canal, from Kingston to the Ottawa, it remains an important and somewhat difficult question. The comparative expense is,

On a scale of seven feet in depth, forty feet in width at the bottom, and sixty-one feet in width at the surface of the water ; the banks to slope one foot and a half to one foot perpendicular, the Locks to be of stone, and one hundred feet in length, by twenty-two feet in width, with turning Bridges twenty-two feet in the clear, and 10 feet wide. Cost—£230,785 14 1½:

On a scale of five feet in depth, twenty-eight feet in width at the bottom, and forty-eight feet in width at the surface of the water, the banks to slope two feet to one foot perpendicular, the Locks to be of stone and eighty feet in length by fifteen feet in width, with turning Bridges fifteen feet in the clear and ten feet wide. Cost—£145,802 7 8½:

On a scale of four feet in depth, twenty feet in width at the bottom, and thirty-two feet in width at the surface of the water, the banks to slope one foot and a half to one foot perpendicular, the Locks to be of wood, and seventy-five feet in length, by ten in breadth, with turning Bridges ten feet in the clear, and ten feet wide. Cost—£62,258 8 10.

The Committee in estimating the weight of those arguments, which would lead to the adoption of the largest scale, on the ground of greater military security, cannot avoid stating, that if the idea is entertained of facilitating by such a canal, the Naval defence of the Upper Lakes, by the introduction of vessels of war of a small class from the sea, they consider such an anticipation by no means a safe one. It is evident that it would be at any time in the power of the Americans to construct on the Lakes ships of such overwhelming force, that vessels of the small class, which could ascend by the canal, could render no effectual service, and it would be at last reduced again to a contest of Ship building in the harbours of the Lakes.

A canal larger than is necessary to transport with convenience all descriptions of naval and military stores, would, by its greater dimensions, afford, in the opinion of the committee, no additional security to the Province.

Judging thus, they are inclined to prefer the plan second in order, being of a canal five feet in depth.

So far as the interests of trade are concerned, the committee see more reason to deliberate. It is, however, to be considered in the first place, that unless the canal at the Ottawa and the Lachine canal are altered, so as to be of corresponding dimensions, it would be perfectly useless to construct ours on the enlarged scale. If that could be anticipated with certainty, and if it would be clearly desirable to have the canal on the larger plan, it would seem good policy to make every exertion to attain that object at once, and to commence it accordingly, because though the smaller works alluded to, might, at a tolerable expense, be enlarged to suit the greater, it would scarcely be rational to calculate upon enlarging so long a line of canal as that from Kingston to the Ottawa when once completed. It is but too questionable, however, whether the policy of Lower Canada will ever admit of such an enlargement of the Lachine Canal, as would allow of Navigation by vessels that could continue their voyage to Atlantic Ports.

There are obvious interests against it, and it must be expected, these will have their influence. If, however, this difficulty did not interfere, there is still, in the opinion of the committee, much reason to incline to the smaller scale.

That the same vessels which navigate one of the Upper Lakes, should be able to pass to Kingston and Prescott, is clearly of much consequence, because they are equally fit for every part of the voyage, and they save an expense of trans-shipment at a moderate charge of toll and lockage upon a short line of canal; but unless we could contemplate that these same vessels would continue their course to the West Indies or other parts beyond Lower Canada, which for several reasons could scarcely be expected, it would perhaps not be advisable to construct a canal at so great a cost, merely to admit of their continuing their route to Montreal or Quebec, instead of stopping at Prescott or Kingston. It is true, one transfer of the Cargo would be saved, but on the other hand the toll must be so much greater on a canal of such length with many Locks constructed on such large dimensions, and the wear and tear of a vessel of considerable size and value, passing through a long navigation of that description, might perhaps be such, that little would be lost by avoiding it at the expense of a trans-shipment, into large and secure canal boats at Kingston. But when, in addition to these considerations, the committee reflect that the River Saint Lawrence, when the obstacles in some parts of its course are removed, will present a much more direct and natural course for the navigation of vessels to Lower Canada, they are of opinion that, looking merely at the commercial interest of the Province, a canal on the smaller scale would be most advisable, as being most easily and certainly to be compassed within a moderate period, and as affording to every necessary degree, the accommodation required.

At the same time, it is clear that if the Parent State, concurring with the Colony, in a work so essential to the preservation of her dominions in this quarter of the world, should assume a share of the charge, it would be highly expedient to attempt a canal on the largest dimensions.

The expense of this and of the other undertakings suggested by the commissioners, is to be looked for in their estimates ; and assuming their calculations to be correct, the most material inquiry is, whether in the present state of our revenue, and with the resources which might be called in aid, without imposing oppressive burthens upon the people, a sum could be raised, sufficient to meet the principal undertaking—the Canal from Kingston to the Ottawa.

The very encouraging offer from His Majesty's Government, which was communicated to both Houses by His Excellency the Lieutenant Governor, at the commencement of this session, would, if we can avail ourselves of it, ensure the necessary advance being procured upon the most favorable terms, and with such periods of repayment, as might be thought most convenient. An increase of revenue, sufficient to provide for the payment of the interest, and for the gradual liquidation of the principal of a loan, of such a sum as would be necessary for carrying into execution the plan of the commissioners, might, it is believed, be obtained without injury to the commercial interests of this Province and without inconvenience being felt by any of its inhabitants. If the Legislature of Lower Canada, recognizing the importance of such a work to that Province, should be disposed to concur in imposing a small additional duty on such articles imported, as could easily bear it, and uniting their resources for a work of common advantage, there is no doubt that the Provinces would be fully equal to the immediate execution of a canal on the smaller scale, adapted to commercial purposes ; but if, as has been mentioned, the Mother Country, regarding a canal upon the largest scale proposed, as a work certain to contribute most essentially to the military defence of the Province, should consent to participate in the charge, the committee conceives, that the means of this Province would enable it to meet the exertion which ought in that case to be made on her part to accelerate the period of her security.

Whether the time is now arrived when the Province should actually attempt the execution of works, which, but a few years ago, would have been considered altogether visionary, is another point to be determined. So far as the decision should be influenced by the most reasonable expectation, that can be formed as to the return such works would immediately yield, the calculations which are given in some of the papers annexed, may form, perhaps, as safe a guide, as the committee could pretend to furnish.

One thing is clear ; in the peculiar circumstances of Upper Canada, a country of great capability, thinly peopled, and requiring, above all things, that capital and population should be attracted to it by every possible means, the same reasons which might be properly urged in other countries, should not apply, to induce us to delay such undertakings, till they are certain to afford profit.

It is greatly the interest of the present generation to submit to some temporary sacrifice in the prospect of a very rapid recompense. The more natural order here, would be, that the improvement should precede, in order to accelerate the population and commerce of the country, rather than to await the arrival of a period, when the existing circumstances of the country would, in a commercial point of view, at once justify the enterprize.

The great impulse which would be given to the country, by the demand for labour ; the encouragement it would afford to emigrants of capital, to remove to this Province, and the confidence it would create in the security of the Colony, would amply warrant, in the opinion of the committee, the commencement of the canal at the present period, although the expectation of the commissioners of an immediate indemnity should appear too sanguine.

As to the order in which the internal improvements suggested should be taken up by the Province, it appears obvious to the committee, that the concurrence of the Parent State ought to determine us to apply our first exertions to the communication from Kingston to the Ottawa ; and besides, the prospect of a canal from Lake Erie to Ontario being accomplished by a private company, appears to the committee to put it out of question that public attention should be turned to the other with the least possible delay.

At the same time the committee are of opinion, that regarding only the commercial interests of the Province in time of peace with the United States, and setting out of view all other considerations, the improvement of the River Saint Lawrence would naturally first engage attention, because there can be little doubt that a much less expenditure than would be necessary for effecting an internal

communication, would render this direct and natural channel to the ocean more convenient for all purposes of trade.

Under any view of the subject, it appears to the committee so important, that no time should be lost in ascertaining the nature and probable cost of the required improvement of the Saint Lawrence, that they have come to certain resolutions on that subject, which, they trust, will meet with the approbation of the Legislature, and which are annexed to this report. The most unfortunate disadvantage to which we are subjected in our navigation of the Saint Lawrence, by the cession of Barnhart's Island to the Americans, if that cession must be final, demands the earliest and most earnest attention of the Province, in order that, before any expense is incurred in improving the channel of the river in other parts of its course, it may be known how we can best avert the evil of our extraordinary exclusion from the navigation at that point.

Upon the subject of the navigation of the Saint Lawrence, the committee have to state that they have had under their consideration the petition of Daniel Sutherland Esquire, and others, praying to be incorporated as a company for improving the navigation of the Saint Lawrence, by deepening its bed and removing obstructions, and by facilitating the ascent of boats by chains and fastenings to be used in the channel.

It appears to the committee from the information they have received, that there is ground to believe the improvement thus suggested, might be accomplished at an expense easily to be compassed by a private association, but besides that they have not the means of satisfying themselves as to the expediency of adopting such a mode of improvement, they are apprehensive that it might interfere with the more obvious and effectual system of making a channel fit for sloop navigation near the shore with locks, where they may be necessary, and a towing path, and they would hesitate to recommend the vesting in any company, an exclusive right that might be found to occasion inconvenience in the passage through this great and natural outlet to the sea.

The committee recommends that a sufficient number of copies of this report with the resolutions be printed, if the same shall meet with the concurrence of the Legislature, the that the act of 1821, appointing the commissioners for the improvement of the Internal Navigation, and several reports of the commissioners in their order, and the letter of Mr. Macaulay referred to, be printed as an appendix.

All which is respectfully submitted,

JOINT COMMITTEE ROOM, 6th April, 1825.

JOHN STRACHAN, Chairman of the Committee of the Legislative Council.

ANGUS MACKINTOSH,

JOHN B. ROBINSON, Chairman of the Committee of the House of Assembly.

WILLIAM MORRIS.

JAMES GORDON.

RESOLUTIONS.

RESOLVED—That the offer of His Majesty's Government to grant a Loan of £70,000 to assist in opening a canal from the Ottawa River to Kingston, calls for the warmest gratitude of His Majesty's Canadian subjects, and the earliest consideration of a measure so important to the prosperity of both Provinces.

RESOLVED—That the extensive tract of fertile country, on the line of the proposed canal, will, without a water communication to market, long remain unsettled, and the inhabitants of that populous portion of the Province, still more remote from the Saint Lawrence, will continue to suffer great inconvenience and loss in carrying their products over land to its banks.

RESOLVED—That a canal connecting Lake Ontario and the Ottawa River, will secure to the Government the most effectual means of defence in the event of a war with the United States of America, and to the inhabitants of Upper and Lower Canada, a safe inland navigation when the exposed situation of the Saint Lawrence might render commerce dangerous, and perhaps impracticable.

RESOLVED—That it is proper to request the Legislature of Lower Canada, to unite with this Parliament in carrying into effect a work of equal importance and interest to the inhabitants of both Provinces, and in order to raise a fund to pay the annual interest of the proposed loan, and ultimately to liquidate the principal, it is necessary to impose a small additional duty on such articles of general consumption imported into Quebec as will best bear it, and prove least burthensome to His Majesty's subjects.

RESOLVED—That an humble address be presented to His Excellency the Lieutenant Governor, praying that His Excellency will be pleased to communicate a copy of the foregoing resolutions to the Government of Lower Canada, to be laid before the Parliament of that Province.

RESOLVED—That it is expedient to ascertain, with the least possible delay, the depth of water on the north side of Barnhart's Island, in the River Saint Lawrence, the facilities which that channel affords for boat navigation and the transportation of lumber, and whether, in case of its being found capable of improvement so as to admit of such navigation without difficulty, rafts of timber and heavy craft descending the river from Prescott can be conveniently brought into that channel

RESOLVED—That an humble address be presented to His Excellency the Lieutenant Governor, praying that His Excellency will be pleased, as soon the season will permit, to direct a survey of the said part of the River Saint Lawrence, for the purposes aforesaid, and that the person employed to perform the same be instructed to report to His Excellency for the information of the Legislature, the practicability and probable expense of removing the obstructions, and deepening the bed of the river so as to allow rafts of the ordinary breadth, drawing four feet of water, to pass down.

RESOLVED—That the expense incurred in making the said survey be made good to His Excellency at the next session of the Legislature.

RESOLVED—That it is expedient to address His Excellency the Lieutenant Governor, praying that His Excellency will communicate to the Government of Lower Canada the earnest wish of the Legislature of this Province that the recommendation of the Arbitrators sanctioned by our act 4th Geo. 4, chap. 22, should also receive the sanction of the Legislature of Lower Canada in order that it may be carried immediately into effect, the subject matter thereof being of such great and undoubted interest to both Provinces.

RESOLVED—That it is expedient to address His Excellency the Lieutenant Governor to pray that His Excellency, in case the Legislature of Lower Canada shall separate without making any provision for carrying into effect the recommendation of the Arbitrators above referred to, will direct a survey to be made, for the information of the Legislature, of the waters of the Saint Lawrence, from the Town of Johnstown to the eastern extremity of this Province, in order to ascertain in what manner and for what expense a navigation can be effected fit for schooners drawing seven feet water, to ascend as well as descend, and affording a towing path along the whole line of the course, with the exception of the Lake Saint Francis, and that part of the river which will be embraced in the survey to be made of the waters near Barnhart's Island.

Determination of the ARBITRATORS for the Provinces of Lower and Upper Canada, appointed under the authority of the 3d Geo. 4th, cap. 119, respecting the improvement of the Navigation of the River Saint Lawrence.

WE, the undersigned Arbitrators, appointed under the provisions of an Act of the Imperial Parliament, 3d. Geo. 4th, cap. 119, in pursuance of the 30th Section of the said Act, have had under our consideration a letter from Andrew Wm. Cochrane, Esq. Secretary to His Excellency the Governor in Chief, administering the Government of the Province of Lower Canada, dated the 22d

July, 1823, enclosing certain Reports relating to the Navigation of the River Saint Lawrence, together with an Address from the House of Assembly of Upper Canada, to His Excellency the Lieutenant Governor of that Province, praying that a Survey may be taken, with a view of ascertaining what Improvement may be made in the Navigation of the waters of the River Saint Lawrence, and that the amount of certain duties heretofore levied in Lower Canada, under an act of the Legislature of that Province, 48th Geo. 3d, and remaining unexpended, may be appropriated to the purpose of defraying the expense of the said Survey. Upon which subject we have agreed and determined to recommend ;

1st—That as a preliminary measure, three commissioners should be appointed in the usual manner, to enquire into the present state of the River, to suggest improvements in the Navigation thereof, and to procure Plans and Estimates of the Improvements they may recommend.

2nd—That the Improvement of the Navigation of the River Saint Lawrence being an object of common interest to both Provinces, the sum remaining unexpended of the duties heretofore levied in Lower Canada under the Act before mentioned, should be appropriated generally to that purpose without reference to boundaries.

Signed at Montreal, in Lower Canada, this twenty-fifth day of August, in the year of our Lord One Thousand Eight Hundred and Twenty-Three.

(Signed)	J. BABY.	(L. S.)
		Arbitrator for Upper Canada.
(Signed)	J. HALE.	(L. S.)
		Arbitrator for Lower Canada.
(Signed)	R. MORROGH,	(L. S.)
		Third Arbitrator.

N^o. 1.

THE improvement of the Navigation of the River Saint Lawrence having been brought under the consideration of the present Arbitrators by the respective Governments of Upper and Lower Canada, the undersigned Arbitrator for the former Province, begs leave to submit the following propositions.

1st—Three Commissioners appointed jointly by the Governors of the Provinces, shall be specially authorised to Survey the River Saint Lawrence from the head of the rapid waters, near Johnstown, downwards as far as Montreal, and shall report to both Governments on the practicability of making improvements in the Navigation, preparing at the same time, with the aid of Professional men, and delivering with their reports, Plans, Maps, field Notes, and estimates, respecting the works they may consider necessary. They shall first examine the bed of the River, and ascertain what advantage the commerce of the Provinces might derive from works confined to its banks, or their immediate neighbourhood. They shall next explore the adjoining country and determine on the expediency or benefit of a canal similar in plan and dimensions to the work now in progress at La Chine, which, commencing near Johnstown, should enter Lake Saint Francis, and continuing its course from Coteau-du-Lac, terminate near the Cascades. The expenses of the Survey shall be defrayed out of the monies now in the hands of the Receiver General of Lower Canada, which have arisen from the duties or rates on rafts, scows, &c. passing Chateauguay collected by virtue of the

Act of the Provincial Parliament of Lower Canada, 48th Geo. 3d. cap. 19, and appropriated for the improvement of the Inland Navigation of the River St. Lawrence between Montreal and Lake Saint Francis.

2d.—In the event of the commissioners thus appointed and empowered, reporting that it would be more advantageous to undertake the plan last alluded to, than to confine their operations to the borders of the River, some fund would be required for carrying it into effect; and it is accordingly proposed to create a stock of £100,000, or more if wanted, for the redemption of which at a stated period, and the payment of the interest in the meanwhile, the joint faith of the two Provinces should be pledged. There can be no doubt that a loan of the above amount might be obtained by the Provinces on easy terms, and that their combined resources are adequate to the regular payment of the interest and the extinguishment of the debt within a moderate space of time. The creation of a fund of this description would render the construction of the proposed canal less onerous, and would, it is conceived, afford greater facilities in the immediate execution of the work than an annual appropriation from the ordinary Revenue of Canada or from a special duty. With respect to the mode of discharging the interest on the loan a difference of opinion may exist in the country. Some persons may be inclined to impose an additional duty on rafts and boats navigating the river, and others may prefer a duty on imports to be specifically applicable to that purpose. The undersigned must avow a predilection for the latter mode, because an additional duty on some particular article of commerce might be devised that would bear equally on the Provinces, and produce the sum required easily, and without detriment to any class of people, or to any individual or general interest.

It is on the other hand very questionable how far it would be consonant with good policy to impose any additional duty or tax on rafts or on any branch of the inland trade of the River Saint Lawrence. The present rates paid on rafts of timber, &c. descending to market might perhaps be continued on an improved system of collection, and under a moderate toll might be exacted, and would of course be necessary, in the event of any improvement being effected, on all boats passing upwards. But any scheme for raising in this way a sum of five or six thousand pounds besides keeping the works in repair, paying officers at the Locks, &c. must defeat itself, as it would press too heavily on the trade, and tend to divert a large portion of it from Quebec to New-York. The imposition of duties on the trade of the river cannot be attempted with too great caution, because a mere trifle might have the effect just mentioned. It is hoped that Lower Canada will enter heartily into a project which must so materially contribute to her prosperity. The fund collected for improving the river eastward of the boundary line, where indeed the principal impediments exist, is in her treasury and at her sole disposal. Yet, as it was chiefly paid by the raftsmen of Upper Canada, it is trusted that it may be regarded as a common property applicable to the improvement of the Saint Lawrence, without reference to local distinctions, and that Lower Canada will not object to such a general application of it.

Should it be said that an impost at Quebec, of which the whole produce would be appropriated to the Improvement of Inland Navigation on the great channel of Canadian commerce, would bear unequally on the two Provinces, and would consequently be unjust and inexpedient, it may be observed that, admitting it did bear on the Lower Province with a greater pressure than on Upper Canada, the former Province would still be a gainer. Every improvement in the Navigation of the Saint Lawrence which tends to facilitate the transportation of the Produce of Upper Canada, and the neighbouring States to the markets of Montreal and Quebec, produces immediate benefit to Lower Canada—a benefit not only immediate but permanent and continually increasing with the increasing number and wealth of its customers.

It is perhaps capable of demonstration, that Upper Canada is not so much interested as Lower Canada in improving the water communication by the River Saint Lawrence, for the markets of New York are open to her trade, and would receive it with eagerness. Already have the Merchants of the State of New York purchased wheat in the Districts of Gore and Niagara, and conveyed it to Rochester to be there manufactured and forwarded by the Erie Canal. Flour can also be sent from any part of Lake Ontario to Salina by way of Rochester, at the rate of about two shillings and six pence per barrel; and as soon as the Erie Canal is completed, the expense of sending a barrel of

flour from the shores of Lake Ontario to New-York will not differ materially from the charges incurred for transport from that Lake to Quebec. Should the improvement of the Saint Lawrence, therefore, be neglected or delayed, in consequence of any ill-timed or unworthy jealousy between the Provinces respecting the proportion which each should bear of the expense, Upper Canada might, at least, send her flour to New-York; and, if she should there sell it at a price equal to that offered at Quebec, she could not be said to suffer, while the diversion of her trade to another channel would sensibly depress the commerce of the Lower Province, and its effects would be felt by all classes of its people. This result is, however, greatly to be deprecated, if not in a commercial point of view, at least, from national considerations. Upper Canada could on this question have no difficulty in recognizing the truth of the maxim adduced by the Commissioners of Lower Canada in reporting to their Legislature at an early period, the terms of a Provisional agreement between the Provinces, that "rigid accuracy between Provinces of the same Empire is not necessary; nor is it attainable." She would be therefore ready to bear her share of the expense of improving the Saint Lawrence to the extent of her resources; and should Lower Canada be averse to a duty on imports such as it has been attempted to shew was advisable, she would willingly accede to any other feasible and equitable scheme for effecting an object alike essential to the rapid growth of both Provinces in commerce, wealth, power, and prosperity.

In the report of the commissioners of Internal communications made to the House of Assembly, of Lower Canada in the year 1818, the importance of improving the navigation of the rivers of the Province generally, is very accurately set forth. "It will," say they, "accelerate the settling of the country, facilitate its agriculture, and confer on each and every part of the Province an equitable participation in the benefit of internal improvement. This species of communication will, to commerce chiefly, be of incalculable benefit," and will lead "to the Ports of this Province the trade of a portion of the territories near this Province." They next advert to the "efforts which are making by the American Government to divert the course of the trade by means of the internal navigation of the River Saint Lawrence—with this view that Government contemplate making the Grand Canal and Locks between Lake Erie and the navigable waters of the River Hudson, and also between Lake Champlain and the aforesaid navigable waters." "If the Province of Lower Canada should on the other hand take measures for improving the internal navigation of its rivers from the Saint Lawrence as far as the lines, it will in a great part prevent the effects of the measures of that Government, and Lower Canada, by ameliorating that navigation, will open various sources of exportation by the River Saint Lawrence, and furnish employment to British Shipping."

The Canals here spoken of are now rapidly approaching their completion, and the effects anticipated by the committee must follow, unless the measures of the State of New York should be counteracted in this Country. With the great natural advantages presented by the River Saint Lawrence, nothing more is wanted than a zealous and cordial co-operation between the Sister Provinces of Canada, to accomplish what is so much to be desired, and to retain for ever, the great and increasing trade of which the Gulph of Saint Lawrence is the proper outlet. This co-operation is not to be despaired of, provided a return can be made to that harmony and friendly understanding which formerly existed between the Provinces, and which has been too long interrupted by an unhappy combination of circumstances. Were the two Legislatures once impressed with a sense of the identity of interests, which does actually exist between the Provinces in this matter, such a conviction would induce them to act in concert on this occasion, and the consequence would be, that in a few years the obstacles which nature has opposed to the easy navigation of the Saint Lawrence would be cleared away by the united resources of Canada, and the trade of both sides of that River, as well as of the great Lakes, would, notwithstanding the efforts of American enterprise, be permanently concentrated in the Market of Lower Canada.

QUEBEC, 13th August, 1823.

(Signed)

J. BABY.

Arbitrator for Upper Canada.

NOTE.

Should any general scheme of improvement be adopted, (and unless it be general it cannot be very useful) it appears advisable, that the Locks at the Cascades and the Coteau-du-Lac should be placed under the joint control of the Provinces. It is conceived that the sums disbursed from the Military Chest in their construction, have been long ago refunded by the high tolls which have been exacted on boats passing upwards.

It is also submitted, whether the thirtieth section of the Act 3d Geo. 4, cap. 119, does not annul the Provincial Act of 48th Geo. 3d. cap. 19, so far as it respects Rafts descending the River from Upper Canada.

(Signed)

J. B.

N^o. 2.

THE undersigned Arbitrator for Lower Canada has had the honor to receive from the Arbitrator for the Upper Province, a paper dated the 13th instant, on the subject of the navigation of the River Saint Lawrence, and he concurs with the Arbitrator for Upper Canada in the proposition that commissioners should be appointed without loss of time to inquire into the state of the navigation, to suggest improvements, and to procure plans and estimates accordingly.

The commissioners may in the first instance be appointed in the usual manner ; each of the two Governments appointing one, and these two choosing a third ; but it may be well to provide for the occasional removal of these commissioners, and with this view it is recommended that the commissions of the two first should be held during pleasure, and that the nomination and appointment of the third should be revocable by the first two commissioners with the concurrence of the Governor of either Province.

The undersigned concurs also in opinion, that the expense to be incurred in improving the navigation of the Saint Lawrence, ought to be defrayed in equal proportions by the two Provinces, and upon this Principle, he recommends that the sum remaining unexpended of the fund heretofore raised in Lower Canada for the partial improvement of the navigation of the River, should be applied generally to that purpose. The undersigned declines giving any opinion upon the question how far the 30th Section of the Act of Parliament, 3d, Geo. 4, cap. 119, may affect any tolls hitherto exacted in Lower Canada.

It is doubted whether the Arbitrators are required to suggest the means of carrying on any Public works ; but, if it is to be so understood, the undersigned would recommend the negotiation of a loan rather than any appropriation of the ordinary Revenues of the Provinces. But he could not agree to lay a tax upon Imports for the purpose of paying the interest, because he thinks that the particular branch of commerce, which derives benefit from the improved navigation, ought to support that charge, and if it cannot bear any considerable addition to the tolls existing, the works to be undertaken must be contracted accordingly.

Quebec, 14th August, 1823.

(Signed)

J. HALE.

Arbitrator for Lower Canada

KINGSTON, 7TH MARCH, 1825.

JAMES GORDON, Esquire,

DEAR SIR,

My time during last year was so fully occupied with the canal surveys, and with my own private matters, that I could devote very little attention to the subject of the tolls, which should be levied on the Rideau Canal.—I had, in fact been always impressed with the idea that the revenue to be derived from any canal, whether its course lay in the interior of the country or along the borders of the Saint Lawrence, would for many years be insufficient to pay the interest on the capital expended, more especially if the canal should be constructed on a grand scale for sloop navigation. This impression added to the consideration that I possessed not all the facts necessary to establish the accuracy of my calculations, prevented me from attempting any estimate of revenue for the examination of our commissioners at the late meeting.

Since my return home I have had leisure to enquire into the matter more closely, and the result of my investigation has been a change of opinion with regard to the productiveness of the tolls. I shall submit, in the first place, statements of the present actual expenses of a Durham Boat with an average cargo of 8 tons in ascending the Saint Lawrence from La Chine to Kingston, and of the expenses that would be incurred in the ascent by the Rideau Canal.

ACTUAL EXPENSES VIA THE SAINT LAWRENCE.

Tolls at the Cascades and Coteau,	-	-	-	-	-	£2	10	0			
Towing at different rapids,	-	-	-	-	-	5	10	0			
Land carriage of 6 tons from Cascades to the Cedars,	-	-	-	-	-	3	0	0			
Ditto	Ditto at Millroches, at 10s. per ton,	-	-	-	-	3	0	0			
Towing by steam-boat from Prescott to Kingston,	-	-	-	-	-	3	15	0			
Wages, &c. 6 men 12 days at 3s. 6d.	-	-	-	-	-	12	12	0			
								<hr/>	£30	7	0

ESTIMATED EXPENSES VIA RIDEAU CANAL.

Towing to Hawkesbury or Grenville rapids	-	-	-	-	-	£2	0	0			
Ditto to Rideau River	-	-	-	-	-	3	10	0			
Ditto 90 miles on the canal by one horse and boy 3 days	-	-	-	-	-	0	15	0			
Wages, &c. of 2 men 10 days at 3s. 6d.	-	-	-	-	-	3	10	0			
Wages, &c. of 1 boy 10 days at 2s.	-	-	-	-	-	1	0	0			
Tolls on the boat	-	-	-	-	-	4	0	0			
Tolls on 8 tons of Goods, at 15s. per ton,	-	-	-	-	-	6	0	0			
								<hr/>	£20	15	0

Difference in favour of Rideau Canal

£9 12 0

Thus there would be a saving of one-third in actual expenditure, as well as one-sixth in point of time by adopting the interior route.

Leaving the saving of time out of view, or allowing it as profit to the boatman, and merely taking up the saving of actual disbursements on the passage upwards, we may assert that the present price of transportation, which is on an average of the season about 4s. 6d. per cwt. or 90s. per ton, should for that cause solely be reduced to 3s. per cwt. or 60s. per ton.

If we further consider the wear and tear of a boat and its equipments in the existing state of the navigation, and the heavy expenditure annually required for repairs, (expenses rarely necessary on a canal, since boats not being there liable to be dragged over rocks and shoals would last much longer) it is evident that the price of transportation would undergo still further reduction, and that it might be reasonably stated at 50s. per ton, if not at a smaller sum.

If it be objected that boats could not be towed by steam on the Ottawa at the rate specified, which, however, is in my opinion a sufficient allowance, it may be observed that the aid of steam-boats might be foregone without increasing the expense of the trip. Two days may be set down as an abundance of time for working the boat up without steam from La Chine to the foot of the Long Sault, a distance of 41 miles. Indeed it would probably be accomplished in less time, because the

prevailing wind on the Saint Lawrence, would be on the beam of the boat above the Isle Perrot.— After passing the locks at the rapids, the distance from Grenville basin to the mouth of the Rideau, which is 62 miles, might certainly in ordinary weather be got over in five days. Let us say, that in the whole distance six more days would be consumed in ascending by manual labour than with the aid of steam. The expense of two men and a boy, at 9s. per diem for 6 days, would be £2 14 0 or £2 16 0 less than if the boats had been towed up by steam.

The reduction in the prices of transportation would naturally improve the receipts on the canal by encouraging larger importations of various articles, which under present circumstances, cannot be profitably brought from Lower Canada. One very important article of this description is salt, which is now supplied for the consumption of the upper districts by a foreign state, and for which returns are made in nothing but money.

The present value of a barrel of Onondaga salt containing 5 bushels, according to the average charge to the importer, is fifteen shillings. Seven barrels are, in the State of New-York, allowed to make a ton, which gives 2 cwt. 3 qrs. 12 lbs. say 3 cwt. for the weight of each barrel.

The usual price at Montreal of a bushel of Liverpool salt, weighing about 70 lbs. is 1s. 3d. and the charge for transportation from Lachine, which is, in general, lower for that article than for other descriptions of goods, is about 3s. 9d. per cwt. A barrel of Liverpool salt, containing 5 bushels, and weighing 3 1-2 cwt. would, according to the prevailing rates of price and transportation, cost 21s. 9d. including 3s. for the barrel. The same article, if transported on the canal, might be delivered at Kingston at 16s. 3d. per barrel, or if old flour casks were used, at the rate of 14s. 9d. This equality of price should virtually exclude the foreign supply, and the British salt, for its excellence, ought to recommend itself for general use, even were it a little more costly. It is, however, to be presumed, that the Legislature would afford every encouragement to the importation from Lower Canada, by admitting it through the canal on the most favorable terms, and by imposing, if requisite, additional duties on Onondaga salt. The disadvantageous conditions of our present supply are sufficiently obvious from the fact, that it must be paid for in money, while our returns for Liverpool salt might be made in the usual commodities. It has been asserted that the Province consumes annually fifteen thousand barrels of salt, or seventy-five thousand bushels; and if this estimate approaches the truth, we may be said to contribute £2,343 15 0 per annum to the canal fund of New-York, for that State has appropriated a duty of 7½d. per bushel on all the salt manufactured in its western district towards the completion of its great canals. In this point of view the consideration of the best mode of supplying ourselves with an article so indispensably necessary as salt, assumes great importance.

It is, perhaps, unfortunate that salt is not manufactured to any extent among ourselves. Salt springs abound in all parts of the Province, and there can be no doubt that many of them might be advantageously wrought. Though the domestic article thus obtained might not be found to bear a duty like that which the neighbouring state is fortunately enabled to raise to the annual amount of thirty thousand pounds, applicable to purposes of internal improvement, it would at least prevent the constant drain of specie which now takes place, and save us the unpleasant reflection that we are by our own want of enterprise, contributing to the means of improvement in a foreign country.

In making the foregoing calculations relative to salt, I have supposed that it would be exempted from the tonnage duty of 15s. exacted on other goods, and be merely subject to the charges of the Boatman, enlarged as they would be in a certain degree, by the tolls on his boat, amounting to four pounds per trip. I have besides considered only the expense of transportation in barrels; but the article might be brought in bulk, by which means a saving would be effected, at least equal to the cost of the barrels. If the plan of the Welland Canal should be so amended as to admit of sloop navigation, we might perhaps look forward to the entire supply of the Province with British salt. The article might be taken in bulk from the ship in the Port of Montreal by a Durham boat, which, on reaching Kingston, might transfer its cargo to a sloop or schooner passing into Lake Erie, and in this manner the upper districts might be amply supplied at a moderate price. If this project could be carried into effect, the duty on the salt consumed by our population would go into the chest of Lower Canada for the joint benefit of the Provinces, instead of swelling the resources of another state.

I now come to the consideration of the probable revenue which we may expect to derive from

tolls on the proposed canal by the Rideau River, and in forming my calculations on this head, I assume that the Legislature will approve of the dimensions of the Lachine Canal, and the adoption of wooden locks. A canal, thus constructed, ought not to cost more than one hundred thousand pounds. The advantages of wooden locks have been adverted to in our report, and it is therefore needless to say more on that point. In illustration of the opinions we there express, it may however be observed that the Lachine canal affords proof of the effect of making the work *too good*. The bridges on that canal are elegant, the locks are not only magnificent, but they will endure forever. The expense on the other hand is enormous; it will, according to report, amount to £120,000. Now there can be no question that with wooden, or even with rough substantial stone locks, the expenditure needed not have greatly exceeded half that sum, and the tolls, which, under present circumstances, must necessarily be high in order to pay for repairs, interest and superintendance, might have been proportionably reduced with benefit to general trade and to the profits of the canal itself, while the surplus of the actual expenditure might have been devoted to other improvements.

The very respectable and intelligent gentlemen who planned and superintended that fine canal, probably did not anticipate such large disbursements, when they commenced the work. They no doubt meant that it should be perfect and durable, and these ends it must be confessed they have completely gained. But we, of Upper Canada, who look forward to a grand chain of internal improvements, corresponding with the facilities which our noble streams afford, and with the future commercial importance and progressive prosperity of the Canadas, fully anticipate the period when that canal may require alteration, and when those elegant and costly locks must be pulled down to make room for others of larger dimensions.

The more I reflect on the subject, the stronger is my conviction of the utility of wooden locks. By adopting them in the Rideau Canal, the Legislature will bring the work immediately within the compass of its means. If we suppose that canal to cost £100,000, the interest will be £4000, and the annual disbursements for repairs, collection of tolls and general superintendance about £1000 more—let us say that the whole may amount to £5,500.

By the entries at Coteau-du-Lac, it appears that the Durham boats and bateaux which passed the locks at that place in the years 1818, 1819 and 1820, were as follows:

	<i>Durham boats.</i>	<i>Bateaux.</i>
1818,	315	679
1819,	339	573
1820,	561	430
	<hr/>	<hr/>
	1215	1682
	<hr/>	<hr/>
Average of the whole	405	560 2-3

If we calculate the cargo of a Durham boat at 250 barrels, and that of a bateaux at 30 barrels, the quantity of transportation down the Saint Lawrence within the foregoing period, will appear to be 168,550 barrels annually. Of this amount a certain portion belonged to the country lying below Kingston, and another portion consisted of the trade from the American side of the river which is now, by the operation of the trade act, and the facilities of transportation to New-York, diverted in a great measure from the Markets of Lower Canada.

Having no access to the entries of boats passing the locks at Coteau-du-Lac for the years 1821, 1822, 1823, and 1824, I am without the average for that period. I assume it, however, as a fair opinion, that the transportation as respects foreign produce, though greatly reduced by the causes referred to, still continues to a certain extent, and that as it respects domestic produce it is gradually on the increase. In some years the amount of domestic transportation is, no doubt, greatly reduced by partial or general failures in the harvest, similar to that of 1823, which materially influenced the transportation of the year 1824.—Such contingencies should not, however, be allowed more than their due weight in our calculations.

The average upward cargo of Durham boats, according to the most accurate information I can ob-

tain may be computed at 8 tons, and that of bateaux, which are indeed always fully laden, at 4 tons:

405 Durham boats, each 8 tons,	3240
560 Bateaux, each 4 tons,	2240

making 5480 tons annually as the average of the ascend-

ing transportation.

Let us suppose the tonnage of the Durham boats estimated too highly, and for that reason, and as an allowance for the trade of the lower districts, deduct one-third, or 1080 tons, leaving 2160 tons for the country above Kingston.

Let us also suppose that one-third of the tonnage in the Bateaux is the proper commerce of the country lying below Kingston, and for that reason deduct 747 tons, leaving 1493 tons for the Upper districts.

Tonnage in bateaux	1493
Do. in D. boats	2160

	3653 at 15s. per ton,	£2739 15 0
Tolls on 405 D. boats at £4 per boat,	£1620 0 0	
Deduct one-third	540 0 0	
	<hr/>	1080 0 0
Tolls on 560 Bateaux, at 40s.	1120 0 0	
Deduct one-third	373 6 8	
	<hr/>	746 13 4
	<hr/>	£4566 8 4

Thus a revenue would apparently accrue from these computations of £4566 8 4 beyond the sum to be annually paid as interest. This surplus I shall leave to balance any error which persons less sanguine than I may be thought, may suppose I have made by calculating too largely on the transportation to be done on the canal.

Independently of the interest, provision must be made for the annual expenses of making repairs, of collecting tolls, and of generally superintending the whole, which I have estimated at £1000 or at most £1500. To defray these various charges, I consider the tolls to be levied on the trade which will arise in the country bordering on the canal quite sufficient. I have no means of forming an exact estimate of the present trade of the Perth, Richmond and Lanark settlements, or of that of the country on the eastern border of the Rideau lake and river. Whatever it may now be while those settlements are in a state of infancy, it is manifest that no estimate at this day, however exact, could determine the amount of its increase after the canal should have afforded the inhabitants the means of a speedy, safe, convenient, cheap and profitable intercourse with the markets of Lower Canada.

The quantity of flour, grain, pork, &c. which that section of country can spare, will perhaps be for some time inconsiderable, as large supplies of provisions will be wanted for the use of new settlers.

The quantity of ashes made in that quarter during last year, is not supposed to have exceeded 600 barrels. During the present year the exports will probably amount to 800. If the canal should be opened, the manufacture of that article would be greatly encouraged by the facility of transportation; and I do not think I can be charged with extravagance in estimating the increased exportation at 2000 barrels, or about 500 tons; which, at 10s. per ton, or 2s. 6d. per barrel, would produce an income of £250.

The next articles deserving notice are timber, sawed stuff and staves, of which large quantities would for several years descend to the Ottawa by way of the canal, provided the locks were made of a due size. Possibly it might be found expedient, for the sake of accommodating the timber trade, to increase the dimensions of the locks beyond those recommended in our report; particularly since our general adherence to the natural bed of the river, and other peculiarities in the line of the canal, every where allow ample space for boats and rafts to pass each other.

The expenses at present incurred in conveying timber to market by the Rideau River, are very considerable; for, besides the difficulties at the various rapids, it is necessary at the outlet where the river falls perpendicularly upwards of 30 feet, to draw the timber across the portage, precipitate it down a steep bank, and reconstruct the rafts on the Ottawa.

Equal difficulties are experienced in floating timber down the river Mississippi, which abounds in rapids and falls.—There is by this route the additional labour of passing the falls on the Ottawa at Lac du Chat, and Lac des Chaudieres.

The banks of the Saint Lawrence having been stripped of their best timber, it is now found necessary to go further into the interior, and I am informed that during the present season, timber has been drawn from the neighbourhood of Rideau lake, a distance of forty miles, to the River Saint Lawrence.

I think there can be no question that in the event of the canal being opened, all the timber which would otherwise be carried 30 or forty miles at so great an expense to our frontier waters, all the timber on both banks of the Rideau, and a great portion of the timber which now goes down the Mississippi, would resort to the canal.

The vast forests in rear of Kingston, which cannot now be approached, would also be laid open by means of the canal to the axe of the lumberman, and descend through it to the Markets of Montreal and Quebec.

Let us suppose, on these considerations, that 200,000 feet of oak timber, 300,000 feet of pine, elm, &c. 250,000 staves, and 200,000 deals, would annually pay toll on the canal, an estimate which surely cannot be thought unreasonable. Then on an average of distances, these articles would pass on the canal a distance of 40 miles, and pay the following tolls.

200,000 feet of oak at 6s. per mile, per m. feet	-	-	-	-	£200	0	0
300,000 feet of pine, &c. 5d.	-	-	-	-	250	0	0
250,000 staves, 1s.	-	-	-	-	500	0	0
200,000 deals, 1s.	-	-	-	-	400	0	0
					<hr/>		
					£1,350	0	0
Add tolls on ashes,	-	-	-	-	250	0	0
Tolls on 20 boats employed in conveying ashes to market, say on an average 16 locks each 2s.	-	-	-	-	32	0	0
					<hr/>		
					Making	-	-
					£1,632	0	0

for the total receipts on the descending transportation from the country contiguous to the canal.

We are next to take into account the ascending transportation for the same tract of country, which it is not easy to compute. I have been told that it amounted last year to not more than 200 tons; a great portion of which was subject to heavy charges for land carriage from Brockville. The increased facilities of communication, independently of any other consideration connected with the growth and wealth of the interior settlements, would add immensely to the amount of this tonnage on the opening of the canal. Let us, however, suppose that it would, at the commencement, advance to 300 tons only, and that it should pay a toll of 10s. per ton.

Toll on 300 tons,	-	-	-	-	£150	0	0
Toll on 20 boats, averaging 16 locks each, at 3s.	-	-	-	-	48	0	0
					<hr/>		
					Making	-	-
					£198	0	0

This sum added to £1,632, for descending transportation, forms a total of £1,830, applicable to the payment of all expenses for repairs, collection of tolls, salaries of lock-keepers, &c.

Should this estimate be considered too liberal for the present period, it is certainly below the amount of revenue which may be anticipated from the canal in the course of a very few years.

In calculating the tolls on the trade of the country lying on the canal, it will be observed that I make them higher than on the trade of the upper country, because the former can, from the proximity of the markets, more easily bear it than the latter.

In our report it is remarked that we are not to calculate on diverting from the Saint Lawrence any portion of the descending transportation unless under particular circumstances. It is, however, possible that the canal might be occasionally used even with the common open Durham boats, and that the advantage of using it altogether with large boats either wholly decked, or so contrived as with the aid of a tarpaulin, to protect produce from the weather, would become apparent. I am induced to indulge in this idea by the following calculation.

The average passage of a boat from Kingston to Lachine is 4 days, and the expense as follows :

6 men for 4 days, at 3s. 6d.	-	-	-	-	-	£4	4	0	
Pilotage at the rapids,	-	-	-	-	-	1	17	6	
							£6	1	6

The average passage by the canal would be six days, and the expense as follows :

2 men for 6 days, at 3s. 6d.	-	-	-	-	-	£2	2	0	
1 boy 6 do. 2s.	-	-	-	-	-	0	12	0	
Towing on the canal 90 miles,	-	-	-	-	-	0	15	0	
Toll on the boat,	-	-	-	-	-	1	5	0	
							£4	14	0

The average passage down the Saint Lawrence is called 4 days, though trips are sometimes made in half that time. It is, however, to be considered that a wind which is fair on the river, will also be fair on the canal, and that it will equally expedite the passage of a boat on the latter.

Should boats, while they used the canal in returning, still prefer the river in the descent, they would require more men than if they navigated the canal in both directions, because two men and a boy, though capable of manning a boat on tranquil waters, would not be sufficient in the rapids of the Saint Lawrence.

In the descent of the river, there is always a certain degree of risk, and when a boat happens to be wrecked in a rapid a great loss is usually sustained. For this reason, merchants might eventually be led to prefer the canal, in which their property would be conveyed to market in boats alike secure from danger by wreck, and from damage by too great exposure to the weather. A toll of 2d per barrel, or 1s. 8d. per ton for the whole line of canal, would not probably be regarded as an unreasonable compensation for the saving of risk, and yet it would, if the canal were generally used, add largely to the income. Every inducement should of course be held out to attract transportation to the canal, and if 2d. were considered too high a demand, it should be reduced to 1d. per barrel, and the toll on the boat should be reduced to 15s or be done away with altogether.

You will observe that we have a towing path on our canal for the distance of 90 miles only. It is a misfortune that its length is not greater, since it would, in that case, shorten trips and diminish their general expenses.

It would perhaps be impracticable to construct a towing path from the River Rideau to Grenville basin at a reasonable rate, on account of the floods to which the Ottawa is annually subject in the spring. That river is said occasionally to rise in some places more than twenty feet beyond its usual height, and would of course damage or sweep away any towing path which might be formed along its banks.

On the Rideau Lake, however, where our report contemplates nothing of the kind, it is practicable to make a towing path, and if greater inconvenience and delay than is at present anticipated, should result from its absence, it might be constructed at any time.

In all my calculations I have hitherto referred only to the proposed Rideau canal. But in descending to Montreal by the Ottawa river, boats must pass the Long Sault at Grenville or Hawkesbury, by means of a canal which His Majesty's government is now making at that place, and will of course be liable to the payment of such tolls as the Commander of the forces may see fit to impose. Should his views differ from those of our Legislature, our expectations with respect to the productiveness of the Rideau canal, might prove abortive. It would be essential that the same policy should govern both parties.

I am not aware of the probable cost of the works now going on at Grenville, but from the nature of the excavation, I am satisfied it will be very considerable. The cost of our canal by the Rideau is estimated at £100,000. It is not unlikely that sufficient improvement might be made for that sum on the Saint Lawrence which is the more direct line of communication with Lower Canada and the natural channel of commerce. The particular object of this colony in expending money on canals, is to facilitate the transportation of our commodities to market during peace, when our exports are greatest; for which purpose the Saint Lawrence would obviously attract primary notice. If we divert the line of our intercourse with Lower Canada from the Saint Lawrence to the interior, we truly combine security in time of war, with facility of transportation at all times, but we do so by an addition of 30 locks to the canal. England being, as the parent state, charged with our protection and defence, the interior canal will be immensely valuable for those purposes in the event of war at some future day; and though it is clearly our duty to her as well as to ourselves to aid her efforts on such occasions, though our militia will abide the tug of war by the side of her gallant veterans, and all our resources be at her disposal in such a crisis, we may still appeal to her never-failing liberality, and request her to unite with us in constructing the work which we have projected, and which may be so important for the security of the country. If she should accede to our solicitations, she would probably agree to pay for the difference of lockage between the two routes, which, amounting to 300 feet, may be computed at one-third of the total cost of the canal. If she gave us her aid to this extent and Lower Canada should also contribute as much on her own account, and by reason of her equal interest in the project, there could be neither delay nor difficulty in the execution of the work. Commissioners might then be jointly nominated by the three parties to see the great work accomplished.

It would, however, be far more useful and gratifying if, in lieu of a grant of money in aid of the Rideau Canal, His Majesty's government should, on its completion, assign to this Province the property in the canal at the Long Sault, with a stipulation that government should forever enjoy the privilege of freely passing through it and the Rideau canal with boats, troops, and stores, without payment of tolls or charges of any description. A further condition might be made, if thought expedient, to repay the money expended at Grenville or a portion of it at some given period, when the revenue of the whole line of improvements might admit, or that part of the tolls which would be levied on boats navigating the Ottawa solely, might, after defraying the annual expenses for Lock-keepers, collection, &c. be paid into the military chest. At the same time it is to be observed, that it would be more beneficial to the country, if, in proportion as the revenue increased, the rates of toll could be diminished, for in this way trade would be encouraged and extended, and the reduction in the rates be eventually compensated by the aggregate receipts.

Whatever opinion may be entertained of this suggestion, it is certain that the Grenville and Rideau canals should be under the same management, in order that they might do well and be as useful as they ought to be. The charges for transportation also on them both, ought not to exceed the sums specified in the foregoing calculations.

In making up these statements I have wished rather to fall short of than to exceed the true revenue to be expected from the canal, and I should greatly regret the circumstance, if what I have said should have the effect of misleading the committee on any one point connected with the subject.— Before engaging in a project of this nature it is expedient not only to calculate the cost, but narrowly to examine the benefits it may produce and the revenue it may be expected to yield. I must confess, I have some doubts whether the Rideau canal would pay, if similar improvements were made on the Saint Lawrence. The latter route is the shortest, the most direct, and, if improved, might enable forwarding merchants to transport goods, &c. at a cheaper rate than the interior route. Commerce will always seek the cheapest modes of conveyance without much regard to other considerations, and unless we can combine low charges with other advantages, our labours will be fruitless.

In my estimate of tolls I have fixed a certain charge on the boat itself, which is greater than that on the Erie canal; I have done so for the sake of simplicity in my calculations. As our canal would almost be in effect a canal in one direction, being mostly used in the ascent only, the toll would at the outset be necessarily high, and considerable deliberation would of course be required in establishing a regular system. My information in many points connected with this subject, I beg to say is insuffi-

cient, and my calculations share in the imperfection, but they may serve to elicit something more satisfactory before the committee.

If I should be considered too sanguine, let one-half be deducted from my estimate of the revenue for the first ten years, and even in that case, the burthen which will be imposed on the Provincial Treasury for the whole loan, would not amount to £2000 per annum. It may possibly be equal to that sum, but it is very probable that it will not.

Should the money be borrowed in England, the premium on exchange, which has lately been 12½ per cent. and will not probably decline below 8 per cent, is sufficient to defray the interest for at least two years; at the end of which time, by completing the lower part of the canal in the first instance, the tolls would commence to be productive. Besides, the whole of the loan need not be taken up at once, but annually as required, and according to the progress of the work. It is, however, to be at the same time considered, that in remitting the interest annually, it would be necessary to pay the ruling premium. If exchange should be at an advance of 8 per cent. the cost of remittance would amount to £320 per annum.

I am,

Dear Sir,

Your very Obedient Servant,

JOHN MACAULAY.

P. S.—A correspondent has favoured me with the following calculations relative to the export of wheat from the new settlements in the district of Bathurst.

“ There are many men in this (Perth) settlement that have this year fifty bushels of wheat, and some one, two, three and four hundred to dispose of, and what would it be if they were certain of a market? At present it costs one shilling per bushel to send it to Brockville, and I suppose six to nine pence from thence to Montreal, which amounts to a total prohibition to the export of grain from this settlement.

The following is a rough sketch at a low rate, of what our exportation might be. We have forty-seven single lots, exclusive of clergy reserves (and many of them are leased) in each concession. Allow seven bad or vacant lots, and you have

40 lots in each concession,
10 concessions in a township,

400 settlers.
50 bushels of grain each settler,

20,000 bushels at one penny each.

1666 8

£83 6 8 toll for each township.

“ Eight townships in which all the land fit for cultivation is occupied; say Bathurst, Drummond, Beckwith, Goulbourn, two Sherbrookes, Dalhousie, Lanark and Ramsay.

8 at £83 6 8 each, make £666 13 4.

Besides these, there are the whole of the range of townships in the rear of the Lanark settlement, Huntley, Burgess, Elmsley, Marlborough, Montague, North-Gower, part of Nepean, and the townships on the east side of the Rideau river.”

I am informed by another gentleman that in the Lanark settlement there is a fine oak country, with abundance of pine on the Upper streams as yet untouched. He thinks that the export of staves and deals would be immense from the northern side of the canal, as well as from the back part of the Johnstown district.

I have obtained, though not from an official source, the number of boats which passed the locks at the Coteau, in the years 1821 and 1824, which is as follows :

	<i>Durham boats,</i>	<i>Bateaux,</i>
1821	342	634
1824	268	596

Of the Durham boats about one half are owned by American citizens, and it is supposed that on an average one boat out of 8 or 9 sails up the rapids, and does not pay toll at the locks.

Many of the bateaux now in use are built on an improved plan, and will carry 40 barrels of flour down the river, and bring up a return cargo of 5 tons.

Though the foregoing statement gives us the number of boats which passed the Coteau-du-Lac in the years 1821 and 1824, the want of returns for the intermediate years, will prevent us from making a fair average. The year 1824 was a very unfavorable one, owing to the failure of the crops in 1823. Nevertheless, it would appear that my estimate of 405 Durham boats, founded on the returns of the three years ending in 1820, is higher than the state of trade will at present justify. The average of Canadian boats seems on the other hand, to be on the increase.

J. M.

STATEMENT

OF THE BREADTH, DEPTH, &c. OF HIS MAJESTY'S SHIPS AND VESSELS ON LAKE ONTARIO.

SHIP'S NAMES.	Loaded Draught of Water.		Breadth Extreme.	Breadth of Main Channel.	
	AFORE.	ABFT.			
	F. I.	F. I.	F. I.		
NEW SHIPS, Nos. 1 & 2 - -	19—6	20—6	50—8	5—6	
ST. LAWRENCE, - - - -	19—0	20—0	52—5	5—6	
KINGSTON, - - - - -	16—0	17—0	43—1	3—9	
PSYCHE, - - - - -	14—0	15—6	36—7	3—6	
BURLINGTON, - - - - -	14—4	16—4	37—8	2—10	
NIAGARA, - - - - -	10—10	13—11	27—7	1—10	
CHARWELL, - - - - -	10—6	12—0	30—6	1—8	
MONTREAL, - - - - -	9—10	12—4	30—0	2—6	
BROCK, (Schooner) - - - -	7—0	11—0	22—3	1—0	
NETLEY, do. - - - - -	7—6	9—4	21—2	1—0	
STAR, (Brig) - - - - -	10—0	11—0	26—6	2—6	

KINGSTON DOCK-YARD. }
26th NOVEMBER, 1823. }

ROBERT MOORE,
MASTER SHIPWRIGHT.

DR. **GENERAL STATEMENT of Receipts and Payments by the Commissioners of Internal Navigation, commencing on 10th September 1821, and ending on 5th February, 1825.** **CR.**

	832	11	13		1822. January May 1823.	Amount of a Warrant on Receiver General, Ditto, Ditto, Ditto, Ditto, Ditto, Ditto, Ditto, Ditto, Ditto,	250 1000 150 500 700 500 800	0 0 0 0 0 0 0 0
Amount disbursed for Surveys between Lakes Erie & Ontario in 1822, per Abstract, amount disbursed per supplementary Abstract submitted to Parliament	69	3	4½	901	14	53	150	0
Amount disbursed for survey of the channel of Lake Saint Louis				62	16	0	500	0
Amount disbursed in 1823 on Survey of the Rideau Canal, per Abstract	867	0	6				700	0
Amount disbursed in 1824 for completing the survey of Rideau Canal, per Abstract,	608	9	0				500	0
Amount disbursed for measuring the Lakes, &c. on the Line of the Rideau Canal, per Abstract,	156	1	5½	1831	10	11½	800	0
Amount disbursed for boring the Beach at Burlington Bay, per Abstract				73	13	3½		
Amount disbursed for survey of a Canal at Presqu'isle harbour, per Abstract,				88	8	9½		
Contingencies of the Board, including Secretary's salary, travelling expenses, &c. per Abstract, from 10th Sept. 1821, to 15th February, 1823,	400	14	6½					
Contingencies of the Board between 15th February, 1823, & 19th December, 1823.	210	1	2½					
Contingencies of the Board from 19th Decr. 1823, to 5th February, 1825,	391	3	9½	1001	18	11½		
Balance				240	7	5½	1000	0
				1000	0	0	1000	0

*In addition to this balance of £240 3 6½, the sum of £180 has been appropriated by an act of the Legislature passed at its session in 1828, for the engraving of a Map, exhibiting the Survey of the Rideau Canal.

STAT: 2ND. GEO. IV. CAP. 2.

An Act to make provision for the improvement of the INTERNAL NAVIGATION of this Province.

[Passed 14th April, 1821.]

WHEREAS an Act was passed in the fifty-ninth year of His late Majesty's Reigr, entitled "An Act granting to His Majesty a sum of money for the Survey of the Waters of the Saint Lawrence and for other purposes therein mentioned." And whereas it is expedient to provide means for ascertaining the practicability of improving the internal communications of the Province by inland navigation; and also for procuring plans and estimates of the expense necessary to be incurred for that purpose, and also to repeal the said Act: Be it enacted by the King's Most Excellent Majesty, by and with the advice and consent of the Legislative Council and Assembly of the Province of Upper Canada, constituted and assembled by virtue of and under the authority of an Act passed in the Parliament of Great Britain, entitled "An Act to repeal certain parts of an Act passed in the fourteenth year of His Majesty's Reign, entitled 'An Act for making more effectual provision for the Government of the Province of Quebec in North America, and to make further provision for the Government of the said Province,'" and by the authority of the same, That the said first recited Act shall be and the same is hereby repealed.

II.—*And be it further enacted by the authority aforesaid,* That it shall and may be lawful for the Governor, Lieutenant Governor, or person administering the Government of this Province, to appoint five Commissioners, two of whom, with the President, to be a quorum, for the purpose of exploring, surveying and levelling the most practicable routes, for opening a communication by Canals and Locks between Lake Erie and the Eastern boundary of this Province.

III.—*And be it further enacted by the authority aforesaid,* That the said Commissioners shall choose one of their number to be President of the Board, and shall appoint a fit person to be Secretary, who shall be allowed and paid such salary as the said Commissioners shall deem proper and reasonable: and the President of the said Board of Commissioners shall have power to call a meeting of the same, whenever in his opinion the public interests require it; and the said Board may adjourn from time to time, to meet at any time and place they may deem most conducive to the public good: And further, the said Commissioners shall have power to employ such and so many Agents, Engineers, Surveyors, Draftsmen and other persons, as in their opinion may be necessary to enable them to fulfil and discharge the duties imposed upon them by this act, and to allow and pay the said Agents, Engineers, Surveyors, Draftsmen and other persons for their respective services, such sum or sums as may be adequate and reasonable.

IV.—*And be it further enacted by the authority aforesaid,* That it shall be the duty of the said commissioners as soon as may be after the passing of this Act, to cause those parts of this Province, which may lie upon or contiguous to the probable courses and ranges of the said canals, to be explored and examined for the purpose of fixing and determining the most eligible and proper routes for the same, and to cause all necessary surveys and levels to be taken, and accurate maps, field books and drafts thereof to be made; and further, to adopt and recommend proper plans for the construction of and formation of the said canals, and of the locks, dams, embankments, tunnels, and aqueducts which may be necessary for the completion of the same; and to cause all necessary plans, drafts and models thereof to be executed under their direction, and also to devise ways and means for completing the said canals.

V.—*And be it further enacted by the authority aforesaid,* That it shall be the duty of the said Commissioners to make or cause to be made with as much accuracy and minuteness as may be, calculations and estimates of the sum or sums of money which will be necessary for completing the said canals, according to the plan or plans which may be adopted and recommended by them for the construction or formation of the same; and to cause the said calculations and estimates, and all surveys, maps, field books, plans, drafts and models authorised and directed by this Act, or so many thereof;

as may be completed, together with a plain and comprehensive report of all their proceedings under and by virtue of this act, to be transmitted to the Governor, Lieutenant Governor, or person administering the Government of this Province, to be laid before the Provincial Parliament within twenty days after the session, which will be in the year of our Lord one thousand eight hundred and twenty-two.

VI.—*And be it further enacted by the authority aforesaid*, That it shall and may be lawful for the Governor, Lieutenant Governor, or person administering the Government of this Province, from time to time during the continuance of this Act, to issue his warrant to the Receiver General in favour of the said Commissioners for such sum or sums of money not exceeding in the whole the sum of two thousand pounds Currency, to enable them to pay the necessary expenses to be incurred in carrying into effect the provisions of this act, which sum or sums of money shall be paid out of any monies now in the hands of, or which may hereafter come into the hands of, the said Receiver General, and unappropriated, and shall be accounted for to His Majesty through the Lords Commissioners of His Treasury, for the time being, in such manner and form as His Majesty, His Heirs and Successors shall be graciously pleased to direct: *provided always*, that an account in detail of all monies paid under the authority of this act, be transmitted to be laid before the Commons House of Assembly, at the then next ensuing session of Parliament, and *provided also*, that so much of the said sum as shall remain unexpended shall be subject to the future disposition of Parliament.

VII.—*And be it further enacted by the authority aforesaid*, That this act shall continue and be in force for the space of three years and no longer.

STAT: 4TH, GEO. IV. CAP. I.

AN ACT to amend and extend the Provisions of An Act passed in the Second Year of His Majesty's Reign, entitled, " An Act to make provision for the Improvement of the Internal Navigation of this Province."

[PASSED 29TH JANUARY, 1823.]

WHEREAS, An Act was passed in the second year of His Majesty's Reign, entitled, " An Act to make Provision for the Improvement of the Internal Navigation of this Province," and whereas it has become necessary to amend and extend the Provisions of the said Act; Be it therefore enacted by the King's Most Excellent Majesty, by and with the advice and consent of the Legislative Council and Assembly of the Province of Upper Canada, constituted and assembled by virtue of, and under the authority of, An Act passed in the Parliament of Great Britain, entitled, " An Act to repeal certain parts of an Act passed in the fourteenth year of His Majesty's Reign, entitled, ' An Act for making more effectual provision for the Government of the Province of Quebec in North America, and to make further Provision for the Government of the said Province,'" and by the authority of the

In the absence of the President, a Vice President to be elected, who shall have the same powers, like powers and authorities as are vested in the said President in and by virtue of the said Act, any thing to the contrary thereof in the said Act contained, notwithstanding.

And be it further enacted by the authority aforesaid, That for the better enabling the said Commissioners to perform the duties required of them by the said Act, so much thereof as requires the said Commissioners to report their proceedings within twenty days after the Session of One Thousand Eight Hundred and Twenty-two, be and the same is hereby repealed.

Commissioners relieved from Reporting within 20 days after the Session of 1822.

But not to delay their Report beyond 15th Feb. 1823.

Provided always, and be it further enacted by the authority aforesaid, That nothing in this Act contained shall extend, or be construed to extend, to authorise the said Commissioners to delay the delivery of the said report beyond the 15th day

of February next.

STAT: 4TH, GEO. IV. CAP. IX.

AN ACT to make additional Provision for the Improvement of the Inland Navigation of this Province,

[PASSED MARCH 19TH, 1823.]

MOST GRACIOUS SOVEREIGN,

WHEREAS, an Act was passed in the second year of Your Majesty's Reign, entitled, "An Act to make provision for the Improvement of the Inland Navigation of this Province," by which the sum of two thousand pounds was granted for the purpose of obtaining Surveys, Plans, and Estimates for improving the Inland Navigation of this Province; and whereas it is expedient to provide additional means for the said purpose, we, Your Majesty's dutiful and loyal subjects, beseech your Majesty that it may be enacted, and be it enacted by the King's Most Excellent Majesty, by and with the advice and consent of the Legislative Council and Assembly of the Province of Upper Canada, constituted and assembled by virtue of, and under the authority of, an Act passed in the Parliament of Great Britain, entitled, "An Act to repeal certain parts of an Act passed in the fourteenth year of His Majesty's Reign, entitled, 'An Act for making more effectual provision for the Government of the Province of Quebec, in North America, and to make further provision for the Government of the said Province,'" and by the authority of the same, That from and out of the rates and duties raised, levied and collected, or hereafter to be raised, levied or collected, to and for the public uses of this Province, and in the hands of the Receiver General, and unappropriated, there shall be granted to His Majesty the sum of one thousand pounds, which said sum of one thousand pounds shall be in aid of the said sum of two thousand pounds, and shall, with the residue thereof, be applied towards the payment of any expenses that may be incurred under the provisions of the said first recited Act.

The additional sum of £1000 granted in aid of the funds for improving the Inland Navigation,

II *And be it further enacted by the authority aforesaid,* That the said sum of one thousand pounds shall be paid by the Receiver General of this Province in discharge of such warrant or warrants as shall for that purpose be issued by the Governor, Lieutenant Governor, or person administering the Government of this Province, and shall be accounted for to His Majesty through the Lords Commissioners of His Majesty's Treasury for the time being, in such manner and form as His Majesty, his Heirs and Successors, shall be graciously pleased to direct. *Provided always,* That so much of the said sums as shall remain unexpended shall be subject to the future disposition of Parliament.

And paid by warrant from the Governor or to the Receiver General, and be accounted for through the Lords Commissioners of His Majesty's Treasury.

STAT: 4TH, GEO. IV. CAP. XV.

AN ACT to continue for a limited time an Act passed in the Second Year of His Majesty's Reign, entitled, "An Act to make Provision for the Improvement of the Internal Navigation of this Province, as amended by an Act passed in the Third Year of His Majesty's Reign, entitled, 'An Act to amend and extend the Provisions of an Act passed in the Second Year of His Majesty's Reign, entitled, 'An Act to make Provision for the Improvement of the Internal Navigation of this Province, (except so much thereof as is thereby repealed,)' and to grant a further sum of money for such Improvement.'"

[PASSED 19TH JANUARY, 1824.]

MOST GRACIOUS SOVEREIGN,

WHEREAS, an Act of the Parliament of this Province was passed in the second year of His Majesty's Reign, entitled, "An Act to make provision for the Improvement of the Internal Navigation of this Province," which Act was amended by an Act passed in the third year of His Majesty's Reign, entitled, "An Act to Amend and Extend the Provisions of an Act passed in the second year of His Majesty's Reign, entitled, 'An Act to make provision for the Improvement of the Internal Navigation of this Province;'" AND WHEREAS, it is expedient to continue for a limited time the said first-recited Act, as amended by the said second-recited Act, excepting as is herein-after provided for; and also to make further provision for the Improvement of the Internal Navigation of this Province;

We, Your Majesty's dutiful and loyal subjects, the Commons of Upper Canada, in Provincial Parliament assembled, beseech your Majesty that it may be enacted :—and

BE IT THEREFORE ENACTED, by the King's Most Excellent Majesty, by and with the advice and consent of the Legislative Council and Assembly of the Province of Upper Canada, constituted and assembled by virtue of, and under the authority of an Act passed in the Parliament of Great Britain, entitled, "An Act to repeal certain parts of an Act passed in the fourteenth year of His Majesty's Reign, entitled, 'An Act for making more effectual Provision for the Government of the Province of Quebec in North America, and to make further provision for the Government of

2d Geo. IV. ch. 2d,
as amended by 4th Geo.
IV. ch. 1, continued.

of the said Province ;" and by the authority of the same,—That the said first-recited Act, as amended, excepting so much thereof as relates to the sum of Two Thousand Pounds thereby granted for the purposes thereof, be, and the same is hereby continued.

£1000 in addition,
granted for the purposes
of the 2d Geo, IV.
ch. 2.

first-recited Act.

Continuance of this
Act.

Commissioners may
cause a survey of the
Isthmus between
Presqu' Isle Harbour
and Bay of Quinty,
and Estimates of the
sum necessary.

II. And be it further enacted by the authority aforesaid, That there be granted to His Majesty the sum of One Thousand Pounds, to be appropriated, applied, paid, and accounted for, in such manner and form as is provided for in the said

III. And be it further enacted by the authority aforesaid, That this Act shall continue and be in force for two years, and no longer.

IV. And be it further enacted by the authority aforesaid, That the said Commissioners shall have power to cause a survey to be made by competent persons of the isthmus between the Presqu' Isle Harbour, in the Newcastle District, and the head of the Bay of Quinty, and estimates to be prepared of the sum necessary to connect the same by a Navigable Canal.

FINIS.