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ANNUAL REPORT
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New York (State) Canal commissioners

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THE

ANNUAL REPORT

OF THE

New York (State)

CANAL COMMISSIONERS

OF THE

STATE OF NEW-YORK,

Presented to the Legislature, the 20th February, 1824,

ALBANY :

PRINTED BY LEAKE AND CROSWELL,

PRINTERS TO THE STATE.

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REPORT, &c.

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To the Legislature of the State of New-York, pursuant to the act, entitled "an act, respecting navigable communications between the great western and northern lakes, and the Atlantic Ocean," passed 15th April, 1817, the canal commissioners, most respectfully report:

That during the last year, in consequence, of the falling of unusual quantities of snow, and heavy rains, late in the spring, it was impossible for the canal contractors, on the western parts of the Erie canal to prosecute their works to any advantage, much before the first of June. And deep snows, and severe cold, had materially discouraged and retarded the progress of their labors, through the winter. The summer months were fair: But, with the autumnal equinox, commenced a course of frequent rains, extremely unpropitious to our operations; and this was followed by a very early winter. The season, for profitable labor towards completing the canals, and for navigation upon them, has been uncommonly short. Still the advancement of these works, and the amount of toll arising from their use, we trust, will not disappoint the favorable anticipations of the public. The Champlain canal is finished; and two hundred and eighty miles of the Erie canal, have been actually navigated, from early in October, to the close of the season. Both canals have produced

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and fifty-three thousand nine-
forty-seven cents.

Most important duties devolved upon
our last annual report, was, the final deter-
mination of the question, relating to the connexion of
our works with lake Erie. After hearing all the
suggestions, of fact and inference, offered to us by
persons immediately interested in this subject, and
who, from their business and situation, might be pre-
sumed able to give us useful information concerning
it, and after much personal examination of localities,
and the institution of an important experiment, this
determination has been deliberately made.

We have decided :

1st. That the connexion originally proposed be-
tween the canal and Little Buffalo creek, is to be
effected, and the navigation, to the point of that con-
nexion to be rendered safe and easy ; and,

2d. That a contract should be entered into, for
the construction of a harbor at Black-Rock, in con-
formity with the act of the legislature of 1822.

In order to lessen the expense, as much as possi-
ble, of opening the canal through the lake Erie level,
which extends from Buffalo to Lock port, a distance
of thirty miles, and includes all the deep cutting of
the mountain ridge, it was necessary to take the wa-
ters of the lake, at as high a point as was practica-
ble. And the surface of the lake, at the mouth of
Buffalo creek, is higher than it is at any point ac-
cessible, by a shorter route. To this considera-
tion of economy, was added, that of the valuable
use, which might be made of the waters of Buf

falo creek, as a harbor, in case the canal should be connected with it according to our original proposition. These views which governed our first decision, as to the western termination of the Erie canal, we think are entitled to sufficient weight still, to justify our adherence to that decision.

Without special authority, the canal commissioners were not warranted, in making any appropriation for the construction of a harbour or basin any where. Accordingly they have never contemplated such an appropriation, except under the authority of special statutes. In 1819, a law was passed giving the canal commissioners certain powers, relating to the construction of a harbor, at the mouth of Buffalo creek, and authorising a charge for that purpose, upon the canal fund, of twelve thousand dollars, upon certain conditions: And in 1822, another law was passed, authorising the said commissioners, in their discretion, and upon certain conditions, to contract for the construction of a harbor, at Black-Rock, and to pay therefor, twelve thousand dollars, over and above the amount of their estimate of the expense of an independent canal, along the margin of said harbor, that is, of that part of the Erie canal, for which the said harbor would serve as a substitute. It seems to have been the intention of the legislature, to place these villages, of Buffalo and Black-Rock upon a footing of perfect equality, as to public patronage, towards the construction of their harbors, and to appropriate liberally, in aid of both.

Certain citizens of Black-Rock, having made us a proposition to contract, for the construction of a har-

bor at that place, in all respects conforming with the requisitions of the act last above mentioned, we accepted it. And, in order to determine the consideration, to be inserted, in said contract, we examined the ground, where the canal, along the margin of said harbor, must have been located, and directed one of our engineers to make a new estimate of the expense of constructing it. This was done, and this new estimate, together with two others made at different times, by two other engineers, was laid before us. After inspecting these estimates, and altering the price of some items of labor required in them, we made up our own estimate, at a sum lower than two of the said engineers had made theirs, and higher than one. This estimate of ours, amounted to \$83819, which with the \$12000, mentioned in the act, is the consideration of said contract.

In accepting the proposition made to us by citizens of Black-Rock, we were influenced chiefly by the following considerations :

1st. We believe the harbor at that place, if faithfully constructed upon the plan proposed, will be reasonably safe and permanent.

The opposite and deep interest felt by those who have had the best opportunity of judging as to the real danger to be apprehended to the works necessary in the construction of this harbor, led to such contrariety of statements as afforded us but little satisfaction. From all we heard, and all we saw, however, it was apparent that the principal danger would arise from the current, from the ice, and from the sand.

The force of the current produced by the depth of the water, and its rapidity, was supposed to be so great, as to make it very difficult, so to place and construct the mole, which is to constitute the most expensive and exposed part of the harbor, on the bottom of the river, as to give it, when completed, the necessary stability. The result of some experience on this subject, has removed our fears. A part of this mole, about sixteen rods in length, was constructed in 1822, upon our suggestion, in the rapid and deep waters of the river, by which the practicability of placing and securing the whole was sufficiently demonstrated.

But, our greatest cause of fear was the ice, which, when the lake breaks up, comes down the river, in great quantities, and with great violence, floating with the current, and driven by the winds and waves. In reference to this danger, it is peculiarly favorable to the security of the mole, that it is protected at the upper end by Bird Island, which is a rock rising a little above the surface of the water, except when the lake is uncommonly high, and stretching at right angles with the course of the mole, about forty rods; and it is sustained at the lower end by Squaw Island, which at all times rises several feet above the water. Near the ends of the mole, therefore, there can be no danger from the ice. And, that this danger may be averted from all the intermediate points, we infer from several facts. There are wharves on both sides of the river, which have stood several years, without material injury. And, an old vessel has been known to winter, without being broken into fragments, some-

what exposed to this danger. But our principal ground of confidence, that this danger may be encountered, without much apprehension, is the fact, that a part of the mole, constructed in 1822, as above-mentioned, in a situation calculated to afford a proper test of the practicability of making the whole strong enough to withstand the ice, has remained, to this day, almost without a perceptible effect upon it; and this, although, when the ice broke up, last spring, the quantity was uncommonly great, and it was driven out suddenly by winds of unusual violence. Situated as this part of the mole then was, unsupported at either end, in the deep and rapid water, and exposed to the operation of the current and ice approaching it in a direction most effectual to prostrate all resistance, if it stood secure, in such a spring as the last, we have concluded, that when the whole is completed, from island to island, and the top of it prepared with a slope so gentle, as to let the ice rise upon it, from the moment of its impingement, it will be reasonably permanent; especially, as the current and the ice can then approach it, in no place, except in an angle so acute as most materially to diminish their power.

We have never doubted, that all the other parts of the harbor, may be constructed in such a manner as to be durable.

Without undertaking to decide, from what quarter the sands came, which constitute the beach and bottom of the lake near the shore, between Buffalo creek and Black Rock, we suppose the effect of staying the current along the shore, will be, to cause

the waves, the winds, and the ice, to deposit all those parts of them, which lie within their influence at places higher up, than they would otherwise be; and that the harbor, of course, will not be in much danger from this source.

2d. We believe that the construction of this harbor will facilitate communication between the canal and lake Erie, and will give additional security to the craft employed on both.

A great part of the Niagara river, above the falls, is now a harbor for lake shipping, at all times more easy of access, and more secure than any other. In violent storms it is unsafe for vessels, from the lake, to attempt to enter Buffalo creek, or to pass between Bird island and our shore, in consequence of several reefs of rocks lying above that island. In such emergencies, they are obliged to go down the broad and open channel, between Bird island and Canada, and come in behind the islands further down the Niagara. But this course is now very inconvenient, on account of the difficulty and expense of ascending again into the lake. And it ought here to be mentioned, that this inconvenience would have been very much increased, by constructing an independent canal along the margin of the Black Rock rapids. Vessels driven by stress of weather, down the Niagara, have now, for the most part, no other mode of passing back into the lake, than by the application of the power of oxen, to draw them up. Even the steam-boat is obliged to resort to this power. And as vessels cannot come close to the shore, and the number of oxen required, is from eight to twelve

yoke, much more room is required for the application of this power, than the width of a tow path. Such room could not be had, in case the independant canal should be made, except by placing the oxen on one side of the canal and tow path, and the vessel on the other, which, besides interfering essentially with the proper and necessary use of the canal, would, at all times, render the application of the power much more difficult, tardy, and expensive. And the character of the Canada shore is such, as entirely to forbid the adoption of this method, of passing vessels from the river into the lake, on that side. When the Black Rock harbor is constructed, it will be easy to remove this inconvenience, by connecting it at the lower end, with the Niagara river, by means of a lock of such dimensions as will admit the passage of all lake vessels; and a contract has actually been entered into, for the construction of such a lock, for twelve thousand ninety three dollars and eighty cents, being the engineers' estimate of its reasonable expense.

A connexion will be established, then, between the canal and the lake.

1st. By the harbor at the mouth of Buffalo creek. This will be large enough for all the demands of a very extensive trade; and it will be safe after it is entered, except when the ice of the creek breaks up suddenly, and is forced out into the lake, by a violent current of swelling waters.

2d. By the harbor of Black Rock. This will be more extensive than that at the mouth of Buffalo creek, and less exposed to danger. The connexion

between both of these harbors and the canal, will, at all times, be easy, but they are now, and forever will be, at times, inaccessible from the lake.

3d. By the harbor of the Niagara river. This harbor may be entered, from the east, with ten miles less of canal navigation than Black Rock harbor, and fourteen less than that of Buffalo. It will always have depth of water sufficient for all lake vessels; will be large enough to contain all the shipping of the Atlantic; will be more safe than either of the other; and, as it will have an easy connexion with the lake through the Black Rock harbor, by means of the lock above mentioned, and with the canal by means of another lock, at the mouth of the Tonnawanta creek, we could not help regarding it as a most valuable acquisition to the public. When lake Erie is agitated by tempestuous winds, which are not of infrequent occurrence there, this harbor, always most easy to enter, is the only safe resort for lake vessels; and, when our works are completed, it will always be secure, and of easy access for canal boats. Why may it not, then, become the scene of important transactions? Situated at the place where the most extensive internal natural navigation upon earth, connects, with the longest line of unbroken artificial navigation ever produced by the labors of man, and in the immediate vicinity of the greatest water power, for moving machinery in the world, this immense harbor will be wanted. Our people are vigilant to discover and explore the sources of inland trade. They are sagacious in all the combinations of scientific principles, of mechanical

powers, or of chemical agents, which can subserve the interests of the manufacturer: and they are growing wiser every day, in regard to the proper objects of national policy. Under the most favorable auspices, these people are increasing, their wealth is accumulating, their security is established; and, when our interior seas shall have a population on their borders equal to that on the borders of the Mediterranean,—when our whole territory, between the Atlantic and the Pacific shall be filled with enterprising, prosperous, free, and happy inhabitants, there will be found no spot in the interior of this continent, presenting more motives to industry, more business, or more wealth, than the shores of the Niagara.

4th. The effect of our decision will be, to increase the value of all the land owned by the state, at Black Rock, and of Grand island, which belongs to the canal fund. This island contains about eighteen thousand acres of good land, and lies several miles below the Black Rock rapids, which deprive it, in their present condition, of all the advantages of an easy navigable connexion with lake Erie. By constructing the Black Rock harbor, and uniting it with the Niagara river, by means of a lock, this easy connexion will be effectually secured.

5th. It will give us the most abundant and secure supply of water, in the canal eastward from lake Erie.

The lower end of the Black Rock harbor is more than four miles nearer the long and dry level, between Lock-Port and Rochester, than the nearest part of the Buffalo harbor. And if the works ne-

cessary in its construction are made secure, it will, at that point, offer us all the advantages of the lake Erie supply. When the canal shall be completed, and shall be as extensively used as we anticipate, in dry seasons, it may be of great importance to derive water from this broad, deep, and ample reservoir, rather than to take it from a point four miles further from the place of deficiency, through a canal forty feet wide at the surface, and twenty-eight at the bottom, which, as it must be excavated, for a great part of the way, through rock and deep digging, could not be widened without great expense, so as to admit the passage of a greater quantity of water. And the danger of wanting water, in case the independent canal, from Buffalo harbor, should have been the plan pursued, would always occur precisely at the time of the year, when it would be most difficult to remedy the evil, that is, in the autumn, when the greatest drought prevailed. Whereas, if the mole, or other parts of the Black Rock harbor, should be injured, the injury would occur when there would be ample time to repair it, before any deficiency of water would be experienced. It is only in the spring that danger is apprehended to these works. At that season, and for a great part of the year afterwards, the supply of water would be sufficient for the canal without lake Erie. Indeed, in the early stages of our examination relative to this subject, it was thought probable by one of our principal engineers, that the canal might be permanently supplied without resorting to the lake. And the sources of this supply, though upon mature consid-

ration; that engineer changed his opinion, and we did not choose wholly to rely upon them, are, by no means, inconsiderable. They are found chiefly in Ellicott's creek, Tonnewanta creek, Canastota brook, and the waters constantly flowing into the canal through the sides of the deep digging at the mountain ridge; which last alone, at all times hitherto, have been sufficient to constitute a valuable mill stream. These sources are all above the lake Erie level; and, of course, whatever surplus they should afford, after supplying that level, by making a temporary dam across the canal, below the harbor, would pass into the lower level, east of Lock-Port. And this level, in addition to the supply thus flowing into it, and besides several small streams and springs of a durable description, will receive a valuable feeder, about twenty miles from its western termination, from the Oak Orchard creek, enlarged with all the upper waters of the Tonnewanta; and at its eastern termination, it will be supplied from the Genesee river. These resources of water would probably be found sufficient for the supply of the canal, in all seasons, for three months after the ice should be dissolved in the spring. And it is not to be believed, if unfortunately a breach should be made, under extraordinary circumstances, that it will not be susceptible of complete reparation, much within that time.

The contract for the construction of the Black Rock harbor, has been executed by Peter B. Porter and Sheldon Thompson, who were authorised, for that purpose, by the citizens of Black Rock;

and every part of it is to be completed by the first of December next. In this contract, the said Porter and Thompson have, among other things, covenanted,

1st. That every part of the work comprised in the contract shall be done according to the plan and directions of the commissioners, or either of them, or of their engineers.

2d. That if at any time during the progress of said work, any damages shall be sustained by the operation of ice, water, or any other cause, the same shall be sustained by the said Porter and Thompson.

3d. If said work, in any stage of its progress, shall be abandoned by the said Porter and Thompson they shall refund, on demand, all monies with interest, which they may have received.

4th. That every part of the work comprised in the contract, shall remain in a good and perfect condition during, and at the expiration of five years from the completion thereof.

5th. That they will construct a good and sufficient tow path along the margin of said harbor, to its connexion with the line of the canal, terminating at the little Buffalo creek.

This contract is accompanied by a bond, in the penalty of ninety-five thousand eight hundred and nineteen dollars, conditioned for the faithful performance thereof, in all its covenants and agreements, and executed by thirteen citizens of Black Rock, and its vicinity; two of whom have made oath before a proper officer, that they are severally worth fifty

thousand dollars, over and above all debts whatsoever, owing by them.

The work comprised in this contract, consists of five hundred and sixty rods of mole or pier, namely : five hundred and thirty rods to connect Bird island with Squaw island, and thirty rods to unite Squaw island with the main shore,—two hundred and sixty rods of embankment along the eastern shore of Squaw island ; and a tow path of two miles and twenty-seven chains in length.

The average height of the mole will be about sixteen feet, and the average breadth eighteen feet. The height of the embankment is eight feet, the breadth at the base thirty feet, and at the top six feet.

Ninety-five rods of mole, and about two hundred rods of embankment, are already completed.

To complete what remains to be done, will require about two hundred and twenty thousand feet of square timber, nearly the same quantity of round timber, and eighteen thousand cord of stone. Fifty thousand feet of square of timber, and about two thousand cord of stone were delivered some time ago, and suitable measures had been taken to secure an early supply of the residue. The present state of the work, and the capacity and energy of the company, give us confidence in the belief, that the contract will be completed, and the harbor in a good condition for navigation within the time limited in the contract.

The lock above mentioned to be made for the purpose of opening the communication between the

Black Rock harbor and Niagara river, will be connected with that part of the mole which is to extend from Squaw Island to the main shore. It will be placed where the water is between eight and nine feet deep, and the bottom clay. It is to be made of timber formed into cribs, framed together, and loaded with stone, and lined with plank of suitable thickness, well grooved, and connected so as to prevent leakage. From the size of vessels now sailing on the lake, it was deemed necessary to give it the following dimensions, to wit; Whole length of the lock walls, one hundred and eighty feet; within the chamber, one hundred and twenty feet; width, twenty-eight feet; height, eighteen feet. The ordinary lift of the lock will be about four feet: Occasionally it will be more, in consequence of high water in the lake. This lock will require, for the sides, ends and bottom, thirty-one thousand and forty feet of square oak timber; for the ties, piles, braces, &c. thirty thousand one hundred and sixty feet of round timber; for gates, hollow posts, lock-sills, balances, two thousand feet of square timber of a large size; for lining bottom and sides, &c. &c. fifteen thousand two hundred and forty feet of plank, and about fourteen hundred cord of stone.

The contracts at the Mountain ridge for the rock excavation, have thus far been prosecuted with much energy and perseverance. In our last annual report, we fully set forth the nature of the then existing contracts, and intimated a determination to change them, and contract for a specific price per cubic yard, so soon as the value of the work could be ascertained,

which, from a variety of causes, it was difficult to determine. The indefinite nature of those contracts, connected with the magnitude of the work, has been a subject of much solicitude; and to those who have had the immediate care of their execution and their superintendence, in detail, an ample and prolific source of perplexity. At the commencement of those contracts, a rigid system of accounts and daily examinations, were instituted, and throughout, thoroughly pursued, for the purpose of ascertaining the value of this work; and much credit is due to the fidelity and perseverance of the engineers, to whom these daily and minute examinations were committed.

The contractors who were engaged in this work, were men of good reputation for integrity, responsibility and capacity, suitable to the undertaking of work of such immense magnitude; and they have, throughout, manifested a willingness to conform to such directions as were given, from time to time, relating to the progress and manner of the work, the mode of ascertaining and exhibiting all their monthly expenditures, and have, on all occasions, shown a fairness, which entitle them to our confidence and esteem. After subjecting this work to the best test in our power to devise, in order to arrive at its true value, the whole was placed under contracts for a definite price per cubic yard, varying from one dollar and twenty-five cents to one dollar and seventy-five cents; the average of which nearly conforms to what it cost under the former contracts, and is in our opinion, no more than a reasonable compensation.

The cost of this work has much exceeded our expectations, and the following are the most prominent causes of this excess, to wit: The great quantity of water making into the line of the canal from the adjoining lands, aided by numerous springs, which are constantly found as the work advances, even in the driest season of the year, very much embarrassed the operation of drilling and blasting, and compels the contractors to sink a ditch below their work for the whole extent of nearly two miles, to afford a passage for the water to the brow of the mountain. The additional expense of this is great. The distance the water has to pass, renders it impossible, at all times, to have a ditch so uniformly deep and unobstructed, as not to render much pumping unavoidable; and this operation, though costly, affords only a partial relief. As our excavation has approached the summit, we have found a worse description of rock to operate upon. It consists of a mixture of flint and lime, in irregular layers, dipping in different directions, which is found hard to drill, and after it is drilled and charged, no ingenuity or skill in blasting, is at all times sufficient to produce much effect by the explosion. This work is situated in a place remote from markets, and of difficult access. The neighbouring country has been very recently settled, and most of the inhabitants are yet in ordinary circumstances; the roads are bad, and the number of hands employed, renders the transportation of the necessary provision from a great distance unavoidable.

On the first day of January last, there were exca-

vated, on the several rock sections, the following number of cubic yards, viz :

On section No. one, 74,000, leaving yet to be excavated, 13,000 c. yds.

do. do. two, 36,580, do. 22,500 do.

do. do. three, 60,666, do. 37,400 do.

do. do. four, 26,000, do. 53,200 do.

Before we reach section No. five, the rock sinks about twelve feet below the surface of the earth, which having been removed, a contract has been made for excavating the rock, and measures are taken for a vigorous application of the necessary labor. The quantity of rock on this section, we are unable to ascertain, but we suppose there may be about thirty-six thousand yards; and since our last annual report, considerably more rock has been taken out than now remains to be excavated, on the four first sections, in order to complete the canal; and as a ditch is now sunk to the bottom, for some distance up from the brow of the ridge, and nearly to bottom much further up, the greatest part of the rock to be excavated is in a condition to be blasted much more favorable than it was at the commencement of the last season. It is obvious, from the preceding statement, that sections No. one and two, can be completed early next season. On section No. three, the contractor has engaged to excavate three thousand yards per month, during the winter and spring, which will leave to be excavated, during the most favorable part of the year, in order to have it completed by the first of January next, only three thousand and one hundred and seventy-five cubic yards per

month. On section No. four, arrangements have been made with the contractor, to excavate four thousand yards per month, until the first day of May, when the quantity per month may be so increased as to leave not more than ten or twelve thousand yards for the next winter's operation. On section No. five, no great proportion of the rock can be excavated previous to next May, but the work may be placed in such a situation, that twenty or twenty-five thousand yards can be taken out during the next season.

The foregoing arrangements have been made by the acting commissioner on that part of the line, with a view to its final completion in the month of May, 1825 : and we think experience demonstrates, that it may be all accomplished by that time.

The remaining work on the two ridge sections, No. five and six, comprising nearly five miles in length, is principally earth excavation : and although much remains to be done, measures have been taken, by subdividing these sections into eleven parts, and placing them into the hands of energetic and experienced contractors, to give a reasonable assurance of their being completed as early as the rock excavation.

The contractors who have in charge the building of the locks at the brow of the mountain, have made use of reasonable exertions in the advancement of the work. Fifty thousand feet of face stone have been cut, being nearly all required, and more than one half are delivered. Water lime, of a superior quality, is obtained in abundance at a distance of

about seventeen miles, and the delivery of the whole during this winter, is contracted for. The laying of the two lower locks is commenced, and we are confident, that all the mason work will be done next season.

The tow path, on the bank of the Tonewanta creek was grubbed and cleared during the last winter, while the ice was solid, which materially facilitated the removal of the timber.

A contract has been made, for constructing a lock near the mouth of the Tonewanta creek, and the materials for its construction, are in a forward state of preparation.

The line of the canal, from the Tonewanta creek, westward, to its junction with Black-Rock harbor, was re-surveyed during the latter part of the season, and put under contract, to men of experience. This line is all to be completed by the fifteenth of October next. And that part of the canal, which lies between Black-Rock, and Little Buffalo creek has been let out to new contractors, to be completed next season.

The feeder from the Tonnewanta creek into the Oak Orchard creek, and thence into the canal, is about four and a half miles in length. That part of it which was required after the junction of the two streams, and which was mostly through solid rock is completed. Two and a half miles of the line of this feeder, from Tonnewanta creek are done, and the residue nearly completed.

Between Lock-Port and Rochester, the canal has been prosecuted, with energy, though owing to uncontrollable causes, it has not all been made ready

for navigation. The spring and fall have both afforded very little good weather, during the last season, and we have had to encounter much more rock on this part of the line, than was expected. And there are grounds to believe, that what remains to be done, may be managed more economically during the ensuing season, than it could have been during the last. For, in consequence of the competition for laborers, on so great a length of line as was then in the course of construction, wages were high. And the severe drought of 1822, made it very expensive to obtain the necessary vegetables for men, and the coarse grain and hay for cattle. The completion of the Champlain canal, of the eastern section of the Erie canal, and of a part of the western section thereof, with the more abundant harvests of last season, have now reduced these causes of expense, within moderate limits.

The whole country lying between Genesee river and the Mountain Ridge, where the canal runs, is under laid by rock, but very little sunk beneath the surface of the earth. In several places rock constitutes the surface, and in many others, we come in contact with it considerably above the bottom of the canal. On this section of the canal line, we have met with rock from two to eighteen feet in depth, on thirty-six sections. And the expense of excavating this material, as well as the quantity to be removed, has much exceeded all previous calculation. It has cost from three to ten shillings per cubic yard. And we have almost uniformly found, that wherever rock occurs, the earth around it is uncommonly hard, heavy and

expensive to break up and remove. Of the rock sections, fourteen are entirely completed, and in the aggregate, at least three-fourths of the other sections are excavated.

From Rochester to Brock-Port, the canal was completed and filled with water about the tenth of October; and this part of the line, about twenty miles in length, produced a toll before the season closed, of \$141 13. From Brock-Port to the Mountain Ridge, is about forty-five miles, as measured by the canal. Many of the sections included in this distance are completed. All the heavy mason-work is done; and the four great embankments at Oak-Orchard creek, Fish-creek, Otter creek and Sandy-creek, are nearly done. In the county of Genesee, the canal line passes more numerous ridges and ravines, than it does any where else in the same length. In Murray, Barre, Gaines, and Ridgeway, there are several high ridges to be cut through, and many considerable hollows and ravines are there to be filled up, besides the four above mentioned. And it is a consideration of some interest in reference to all these embankments, that being nearly raised to their utmost height at the close of the last season, they will be rendered more safe for the admission of water, when they shall be finished, by the greater solidity and compactness, which the breaking up of the winter and the rains of the spring will be sure to give them. Sandy creek embankment is the highest on the Erie canal, being about seventy-six feet. The great embankment across the valley of the Irondequot is seventy-two.

From Brock Port to Buffalo, the Erie canal is not yet completed; the distance being about seventy-six miles. And the best estimate we are able to make of the money necessary for its completion, is as follows, viz :

From Brock Port, to the brow of the Mountain Ridge,	\$200,000
For the completion of the five pair of locks at Lock Port,	60,000
From Lock Port to Tonnewanta creek,	430,400
Tow path, along Tonnewanta creek,	13,000
Bridges on said tow path,	1,200
One lift lock, and three guard locks,	25,000
From Tonnewanta creek to Black Rock harbor,	70,000
Black Rock harbor,	75,900
From Black Rock to Buffalo,	40,500
Sloop lock,	12,000
	<hr/>
	\$928,000

This is exclusive of all claims for damages, and all disbursements for superintendence and repair.

The great aqueduct across the Genesee river is completed. It is a structure of admirable solidity and beauty, and is composed of the most durable materials. It is 802 feet in length, and consists of eleven arches supported by the necessary abutments and piers, and surmounted by strong parapet walls properly faced on both sides, and protected on the top by a coping of very large and beautiful limestone. The whole work is laid in good water-proof lime, and thoroughly grouted. The bottom of the

trunk consists of flagging-stone, well fitted together, and bedded in thin mortar, and the towing path is protected, on the out side, by a substantial, but plain iron railing.

This work has cost more than was originally anticipated, for the following reasons :

1st. After the contract was taken, and while the work was going on, there was a great increase, in that part of the state, in the price of the necessities of life, and of course in that of labor. There were two successive contracts executed, for the completion of this work, the first in June, 1821, and the second in the latter part of the same year. The second contract was rendered necessary, by the death of the man, into whose hands the charge of the work fell, under the first. Throughout the year 1821, the price of all articles required for the subsistence of men and cattle, was very low, and the expense of carrying on canal contracts was proportionately reduced. Under the influence of this state of things, propositions were made and received for the construction of the aqueduct. But in 1822, the advantages of the navigation enjoyed, on that part of the Erie canal, which was finished, had a great effect to increase the expense of further operations ; and this effect was augmented in the vicinity of the Genesee river, by the more extended navigation of 1823. This was an effect not realized, when the contracts for the aqueduct were entered into, and it was of our procurement.

2d. The quarries of stone, which were judged suitable for this work, were abandoned on trial, in

consequence of their being found insufficient to resist the power of frost : But before giving them up, considerable expense and labor had been laid out upon them. On searching for other quarries, after great pains had been taken, none could be found containing stone combining all the requisite qualities, which were not very difficult of access, very expensive to quarry, and very hard to cut. And being admonished, by all our observation of the dangers to which this work would be exposed, we thought it our duty to encourage and insist on the using of stone of unusual size, and on having them secured together by more numerous and larger iron clamps let into the stone and securely bolted, than have any where else been thought necessary. The stone chiefly used in the body of the work, are red sand-stone of very fine grain and strong cohesion, and composed of silex and iron. And in quarrying them, which was done by blasting and splitting, it became requisite to remove many thousand cubic yards of hard earth, as the top of the quarry was from six to fourteen feet below the surface of the ground. In the plan of this structure, the elevation of the bottom of the canal above the bed of the river, and the necessity of providing as much space as possible to discharge the abundant floods and float-wood of that stream, made it indispensable to have nearly all the stone cut, and a great proportion of them to a pattern. This circumstance, taking into consideration the hardness of the stone and the wear and tear of tools, has tended greatly to the increase of expense.

3d. The stone above alluded to, were unsuitable for coping. They were found in layers of from two to five feet thick, and they could be detached from the quarry only in very large blocks; and we found it impossible to split them in such a way, as to give them large beds, with no more than the desired thickness. The coping used is of the best quality, and was obtained from Cayuga county. It is one foot thick, and is composed of pieces, each one of which has a large surface; many of them contain forty superficial feet, and the largest still more.

4th. More rock has been excavated in the bottom of the river, for the foundation of the abutments and piers, and for the direction of the float-wood under the centres of the arches, than was expected to be necessary; and experience has shown that the excavation of rock every where, is more expensive than we had calculated.

5th. The arches have, nine of them, a span of fifty feet each, and as their curvature is very gentle, and the stone very heavy, strong centres were required; and as the work of raising and sustaining these was done in the channel of a river, it was sometimes inconvenient to use the necessary machinery, and it was subject to other unfavorable contingencies.

6th. When the contracts were both made, it was believed, from some experiments which had been made, that good water-proof lime might be obtained within a short distance from the aqueduct. But this expectation was disappointed; none could be found and obtained without much greater expense than had been anticipated. And much of it was ac-

tually obtained from a distance of thirty miles, and still more from a distance of seventy miles. The quantity of lime used, was about fifty thousand bushels, and the cost of furnishing it was great.

We have experienced some trouble, from the sand through which we were compelled to carry the canal. There have been several small breaches of the banks in Pittsford, where this kind of earth prevailed, and, in Perrinton swamp, considerable quantities of it have run into the bottom of the canal. These evils have been remedied speedily after they had occurred, and the condition of the banks, has materially improved.

Feeling much anxiety in respect to the great embankment across the Irondequot, we took the precaution early in the last season, to carry in clay to line the bottom and sides of that work within, to the depth of two feet. And from this measure we derived great advantage. Still that embankment was so expensive, and the effect of a breach would be so injurious, that we thought it our duty to have it watched every day, and to have the water drawn off from it entirely, for about six hours every night, for two thirds of the period during which it has been navigated. The latter part of the season, water stood constantly upon it to the depth of upwards of three feet. It leaked much less at the close of the year, than it did at the commencement; and although an alarm was circulated of its being in danger, after the navigation was closed, the result of a careful examination, was a firm conviction that the alarm was groundless.

During some part of the fall, the quicksands in the Cayuga marsh, subjected the navigation there to some inconvenience. When the Seneca river was lowest, heavy loaded boats were not able to pass clear of the bottom; and some of them employed lighters. It will probably be expedient to try the effect of further excavation, with a suitable machine, if the same inconvenience shall occur again. And, if after all, this mode of operation shall prove ineffectual, the evil may be wholly remedied by building a lock with a small lift.

Between the Genesee and Seneca rivers, the following amounts of toll have been collected in the course of the past year, viz :

At Rochester,	\$9802 40
“ Palmyra,	1861 76
“ Lyons,	9289 95

In all	\$20954 11
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In relation to the middle section :

With the exception of the undermining of a small culvert, there has been no breach in the canal, or interruption in the navigation on this section from the opening of it in the spring, until the close of it by the ice on the approach of winter.

The supply of water has been more abundant and the waste by leaks and absorption, has been less the last year, than in any former season.

The locks at Salina, have been completed, and the side cut has been extended and connected with the navigation of the Onondaga lake and the Seneca river.

Exclusive of this work and the improvement at the Oriskany creek, the expense of this section in repairs, and including the construction of some new culverts, and drains, and the compensation of the superintendants and collectors of toll, amounts to the sum of eight thousand nine hundred and ninety-four dollars.

The following statement of articles which have passed the collectors office at Rome, give a general view of the business on this section during the last season.

(B.)

SCHEDULE of property passing on the Erie, Canal, at Rome, in 1823.

Miscellaneous articles not in the monthly returns.

	Tons	C w	r. lbs
Household furniture,	399	11	3 27
Iron castings,	707	11	2 26
Hams,	22	11	2 25
Butter,	67	8	2 7
Cheese,	26	13	0 25
Tallow,	00	17	3 11
Beeswax,	1	4	3 0
Furs and peltry,	42	3	0 1
Stone,	191	7	0 18
Iron ore,	277	0	0 0
Soap,	19	7	2 0
Marble,	3	8	2 0
Wool,	18	17	1 18
Feathers,	00	17	2 17
Rags,	7	14	2 10
Flax,	00	17	1 12
Clay,	54	13	1 1
Honey,	00	2	2 0

	Hides,	11	9	2	24
	Hops,	14	12	3	20
	Oysters and clams,	65	14	0	25
	Middlings and shorts,	19	8	2	0
	Corn meal,	111	18	3	24
	Machinery,	9	9	1	14
	Joiners and smith's tools,	0	10	2	0
	Canal tools,	1	15	0	0
	Wooden ware,	2	16	1	5
	Old copper,	3	13	2	1
	Iron scraps,	4	3	0	0
	Congress water,	5	3	0	21
	Scale boards,	1	5	2	0
	Horn tips,	0	8	0	0
	Maple sugar,	0	12	1	0
	Ginseng,	0	17	0	0
	Pig iron,	1	10	0	0
	Hog's bristles,	0	9	0	0
	Paper,	0	6	0	0
1	Weaver's loom,	0	4	0	0
	Fruit trees,	0	15	0	26
	Brush blocks,	0	4	0	0
	Patent wheel heads,	0	3	0	0
	do. pitchforks,	0	10	0	0
14167	Bbls. water lime,	2361	3	1	0
254	do kelp,	40	17	3	0
618	do oil,	77	5	0	0
88	do cider,	11	0	0	0
314	do beer,	39	5	0	0
27	do. vinegar,	3	7	2	0
6	do cider brandy,	0	15	0	0
64	do crackers,	2	8	0	14
6	do eggs,	0	12	0	0
2	do eels,	0	6	0	0
2	do peach brandy,	0	5	0	0
591	bush. apples,	14	8	2	0
1545	do flax seed,	38	18	2	0
1032	do peaches,	24	17	1	0
51	do potatoes,	1	5	2	0
3625	do coal,	22	16	2	0

26	do	nuts,	0	13	0	0
8	do	pears,	0	4	0	0
172	do	grass seed,	4	3	0	20
40	do	mustard seed,	1	1	1	20
51	do	quinces,	1	5	2	0
11	do	cranberries,	0	2	2	0
6315	boxes	glass,	105	5	0	0
29600	brick and	tile,	52	4	0	0
113	waggons	and carriages,	29	18	0	0
182	ploughs,		6	17	1	0
491	soldiers	and baggage,	47	0	0	0
383	live	hogs,	21	15	0	0
1	pair of	oxen,	0	16	0	0
1	calf,	14 months old,	0	6	0	0
373	empty	casks,	13	5	2	0
180	saddle	trees,	0	6	2	0
3	sheep,		0	5	0	0
310	waggon	hubs,	1	14	0	0
2	still	worms and boilers,	0	6	3	0
7	boxes	peppermint,	0	5	1	5
	Reed	poles,	1	5	0	14
	Types,		0	6	2	6
	Deer's	horns,	0	3	0	0
	Garden	seeds,	0	3	0	12
	Fresh	salmon,	1	12	0	0
	Stone	ware,	3	14	1	0
Tons,			5034	16	3	1

Articles in the monthly returns.

120,742	bbls.	flour,	12074	4	0	0
18,419	do	salt,	2631	3	0	0
8,133	do	provisions,	1161	18	0	0
7,643	do	ashes,	1910	15	0	0
128,703	bush.	wheat,	3447	8	0	4
132,254	galls.	whiskey,	471	19	2	1
5943	bush.	coarse grain,	148	11	2	0
	Gypsum,		917	0	0	0

Lard,
Merchandise,

41	7	2	11
7198	0	0	16

Weight of miscellanies brought up,

30002	6	3	11
5034	16	3	1

Total weight of property on }
which toll is charged by the }
tons, is

35037	3	2	12
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Articles on which toll is charged
by the piece, hundred, or
thousand,

- 2,229 M. ft. boards, scantling, &c.
- 1,950 M. shingles,
- 593 M. staves and heading,
- 18,318 M. spokes,
- 39,034 M. posts and rails,
- 245,300 M. lath,
- 750 cords of wood and bark,
- 72,201 ft. timber,

N. B. There was an error last year in the amount of flour, in making the transcript from the books. It should have been 114,522 bbls. instead of 184,522, which would show an increase this year from the last, of 6220 bbls. The error of tonnage last year being deducted, 7000 tons, will shew an increase of tonnage from the last year, of 6592 5 0 23.

B. B. HYDE, *Coll'r.*

The following amount of tolls, was collected on this section.

Tolls collected at Mentz,	\$26,302 77
Syracuse,	6,481 43
Salina,	143 74

Rome,	4,465 71
Utica,	40,199 61
	<hr/>
	\$77,593 26

In relation to the Eastern section :

Owing to some repairs that had become necessary, the navigation on this section, early in the spring, opened no farther to the eastward than the Little Falls.

In the month of May, it was extended to Spraker's, twenty-two miles below the Falls, where it terminated for several months on account of a deficiency of water between that place and the Schoharie creek.

The Esquaga, Bowmans, and Spraker's creeks, which fall into the line of the canal, at, and above Spraker's, and from which a considerable supply of water had been expected, were at this early period nearly exhausted by the uncommon drought which prevailed in this part of the country.

Under these circumstances, no doubt remained of the necessity of obtaining a more copious feeder from the Mohawk.

Accordingly, a dam was thrown across the river, at Johnsville, in the town of Oppenheim, and the water thereby so much elevated, as to cause it to flow into the canal, by a cut of a mile and a half in length.

While this work was in progress, the opportunity was improved of strengthening the banks along the line, particularly, near the city of Schenectady, where the embankments which had been formed of the alluvion of the flats, were found too light, and porous to sustain the heavy pressure of

more than ten feet head of water which had been thrown upon them. At this place it was necessary to incur a considerable expense, in raising the bottom of the canal, and thus lessening the depth and pressure of the water.

This precaution had been omitted in constructing the canal, in consideration of the difficulty of obtaining earth from the adjoining ground, the damage which it would occasion, the expense of the work, and in the hope that it would not be indispensable.

The dam above mentioned, together with a guard lock, the excavation of the cut, and all the other works, connected with the feeder, were finished in September, and the abundant supply of water derived from that source, after the work was completed, leaves no apprehension of a deficiency in future.

The progress of the work between Schenectady and Albany, was urged with so much effect, that the whole line was prepared for the reception of the water about the first of October.

On this part of the canal are two stupendous aqueducts across the Mohawk whose aggregate length exclusive of the wings, is eighteen hundred and ninety two feet.

And although it was feared by some, that they would not be able to resist the impetus of the ice and current, in the breaking up of the river, by winter freshets; yet they have already been twice subjected to the hazard of such an occurrence without exhibiting the least appearance of injury or damage: And with the precautions which are now taking to secure the lower aqueduct from the impingement

of large masses of floating ice, these works will probably be as permanent as any works of a similar nature on the canal.

Between Schenectady and Albany, are twenty-nine locks, including two at the side cut opposite the city of Troy, most of which were completed during the last season, and it is confidently believed, that some of them for beauty of materials, elegance of workmanship, and symmetry of form, will compare with any locks in the world.

This part of the line, presented a great variety of formidable and appalling obstructions. In some places it occupies the bed of the river, and is overhung with lofty precipices, which seem to threaten the temerity of the navigator below. At others, it is forced through hills and spurs of rock, of more than thirty feet in height, and in its course, ravines are filled up to the depth of forty feet, and vallies are elevated to plains.

The work on all that part of the eastern section which is confined within the narrow valley of the Mohawk, has been obstructed with a greater complication of difficulties than can be found in any other part of the canal.

The river, for considerable distances, is bounded by abrupt shores, rising to great elevation, alternating between rock and slipping clay hills.

These shores are frequently intersected with steep gullies, which seem to have been excavated by mountain torrents. It was necessary sometimes to project the line along the face of steep banks, and in several places, upon the sides of ledges and cliffs,

Where the canal occupies the bed of the river, the outer side of the bank is surmounted by enormous slope walls to protect it from abrasion.

None but those who had examined the line previous to the commencement of the work; who had seen the rude and undulating surface which it traversed, the rocks which were to be blasted, the irregular ledges filled with chasms and fissures which were to form the sides and basis of a water-tight canal; the spungy swamps, and gravel beds, and quick-sands, which were to be made impervious to water; and in short, the huge masses of rough materials, which, with immense labour, were to be reduced to symmetry and form, can duly appreciate the effort which it has required to surmount these various obstacles.

The execution of the various works on this section, has put in requisition all the experience and skill which had been previously acquired.

It has imposed the necessity of constant vigilance in examining and calculating probabilities, in carefully balancing one difficulty against another, and in striving to adopt not only the most judicious plans, but the best mode of effecting them.

And the canal commissioners and their engineers, do not hesitate to admit, that had this section been commenced originally while their information on the subject of constructing canals, was merely theoretical, it is probable that the attempt to complete it, would either have been entirely abortive, or so imperfectly executed as to have defeated, and perhaps postponed, for a century, the accomplishment of the great work of internal improvement, which is already so nearly perfected.

On the eighth day of October, the first boats passed from the west and the north, through the junction canal, into the tide waters of the Hudson at Albany. And this day was celebrated in a manner which evinced the lively satisfaction of thousands of our citizens, at the triumph of art over the formidable impediments, which nature had thrown in the road to prosperity.

From the eighth of October, until the canal was closed by the ice, there was but one small breach, which did not obstruct the navigation but three days; and during this period, from thirty to forty loaded boats were frequently seen to pass in the course of twenty-four hours.

To complete the work on the eastern section, the banks must be raised and strengthened in several places, the fencing must be finished, a number of lock keepers' houses must be built, a great number of drains must be cut, a number of side culverts are required around the locks, to conduct the water from one level to another.

The inside slope of the banks at the foot of the locks, in many instances, must be supported, and protected from the force of the water discharged from the lock gates.

The dam at Bowman's creek, which has been partly carried away by a freshet the present winter, must be repaired; several other dams which cross violent streams, have been found too high, and to endanger the bridges across them, and in some instances the neighbouring buildings.

These must be cut down and secured. Basins gauged, and graduated for the weighing of boats and

their loading, are necessary to be constructed to insure the payment of the full amount of toll. A considerable amount of work is necessary to be done on the Troy side cut, to enable boats to pass from it into the Hudson, and probably a good deal of work, which is not now recollected, and more which cannot be foreseen, must be accomplished.

The damages throughout the greatest part of the section, must be assessed, entered on record, and paid.

The general regulation of the navigation on the canal, and the collection of the tolls which has now become so important, will demand particular attention.

The above mentioned subjects, with the adjustment of suspended claims, and unsettled accounts, comprise the principal duties required of the canal commissioners on on this section the ensuing season, and will probably involve an expenditure, of more than one hundred thousand dollars.

The following amount of tolls, was collected on this section :

Collected at Little Falls,	\$9,213 16
Schenectady,	7,631 02
Watervliet,	10,599 91
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	\$27,444 09

In relation to the Champlain Canal.

The works on this canal, and also the sloop lock and dam were finished during the last season ; so that from the tenth day of September, until the setting in of winter, the whole line was in operation.

In the sudden freshet and breaking up of the river, which took place in the beginning of January last, a breach was made in the old part of the dam which was built ten or twelve years ago.

This breach has lately been examined, and is found to be about one hundred and sixty feet long, and from soundings which have been taken, will contain an average depth of water, when there is no rise in the river of about seventeen feet.

The dam, except a few rods of the west end, rests upon a bed of gravel and pebbles. This gravel bed is underlaid with shistous rock, which gradually rises from the east to the west shore, so that the west end of the dam, for several rods, stands upon the naked rock which appears near the surface of the water.

The breach which took place in the fall of 1822, (and which is described in the last annual report) was near the east end of the dam; and through this breach the water passed with such velocity, as to sweep away the gravel down to the solid rock, and leave a depth of water in one place, of more than thirty-eight feet, and an average depth of thirty-one feet.

The present breach is near the middle of the river, and where the rock, as appears by the soundings, is within seventeen feet of the surface.

Where this breach took place, the dam stood upon a gravel bed, which rose nearly to the surface of the water; and this gravel having been carried away by the current, affords an opportunity of building upon the rock.

As near as can be ascertained, it will cost from six to ten thousand dollars to repair this breach.

When the Champlain canal was first put in operation between Fort Edward and Whitehall, the great quantities of boards, plank and other sawed stuff which moved from the lake to the south was constructed into rafts, and in that manner was towed through the canal.

These rafts were frequently upwards of a thousand feet in length; and in drawing them along with a strong team, their sides would frequently come in contact with the banks by which very considerable injuries were done to the canal.

The attempts to induce those who navigated the canal to keep the rafts clear from the banks, were found to be in a great measure ineffectual. An expedient was finally adopted by the board, which has in a great measure relieved the canal from this evil, and which in a short time will produce a total change in the mode of transporting sawed lumber.

The toll which is charged and collected on this lumber where it is transported in rafts, is double the amount of the toll which is charged on the same article when it is conveyed in boats.

Under this regulation, more than three fourths of the sawed stuff has been conveyed in boats through the canal the last season, and the injury to the banks has been very much diminished.

In eighteen hundred twenty-one, it is understood that not above ten boats were in use on the canal,

and in eighteen hundred twenty-three, the number is said to have exceeded one hundred.

Several small breaches took place on the line, during the last season, but they were so promptly repaired as to interrupt the navigation but a short time.

Between Whitehall and Fort Edward, the canal was thoroughly repaired ; the bottom was cleared out, and the banks were raised and strengthened ; And it is believed that this part of the line has never been in as good repair as it is at present, since its first construction.

The building of a few additional houses, for lock keepers, will be necessary, and it will also be well to construct a tow-path across the Mohawk, in order to facilitate the transportation upon the canal.

In the great pressure and complication of business which has been thrown upon the acting commissioners, the above and several other works of minor importance, have been necessarily postponed,

The new feeder, which is calculated to conduct the water from above Glen's Falls to the canal, was so far finished as to receive the water from the river, and to convey it to the neighbourhood of Sandy-Hill.

That part of the feeder which is composed of limestone rock, and filled with seams and cracks, leaked so much on the admission of the water, that it was found necessary to draw it off, in order to tighten the bottom and sides.

After several attempts, this object was accom-

plished, and the water was conducted farther to the eastward into the sandy part of the line.

After the sand banks had become saturated with water, they settled considerably, and showed strong symptoms of failure in several places: and it will be necessary to line them with clay, for a considerable distance before they will be secure.

This feeder was not finished during the last season, because there was not a sufficiency of funds for that purpose, and also for the completion of the eastern section; and because the Champlain canal is already amply supplied with water by the great dam and feeder at Fort Edward.

The construction however of a navigable feeder from above Glen's Falls, will open to the canal, the lumber and other productions of a considerable tract of country.

The following is a statement of the articles which have passed the Champlain canal:—From Lake Champlain to the south, 514,407 cubic feet of round timber; 665,108 cubic feet of hewn timber; 22,426-067 feet of sawed lumber board measure; 2,820½ thousand shingles; 2500 rails; 853 cedar posts; 21,721 staves; 41,314 bushels of wheat and coarse grain.

	Tons.	Hun	Qrs	lb.
Beans and pease,	21	1	2	14
Flax seed,	3	5	3	13
Mustard seed,	0	1	2	00
Flour,	1	14	2	24
Corn meal,	24	13	1	10
Butter and cheese,	111	16	3	22
Pot ashes,	74	1	1	10

Pork,	3	18	0	00
Whiskey,	41	6	1	05
Baggage,	0	17	0	00
Horn tips,	0	8	2	00
Share moulds,	0	11	1	05
Empty casks,	1	18	0	17
Oysters and clams,	0	12	0	00
Lime,	4	12	0	00
Waggons and sleighs,	0	10	0	00
Feathers,	0	00	3	05
Seal skins,	29	18	2	00
Furs,	22	10	0	00
1 box mineral stones,	0	2	0	00
1 barrel dried bladders,	0	00	1	14
Marble,	40	15	3	16
Furniture,	8	19	0	14
Merchandise,	7	7	3	00
1 church bell,	0	8	0	00
Fish,	0	6	0	00
Black lead,	1	16	0	00
Paints,	0	9	0	00
Nails,	59	14	2	00
Iron,	78	9	3	21
Iron castings,	2	13	0	00
Iron ore,	95	00	0	00
Mill cranks and screws,	2	00	2	02
1 box card wire,	0	2	0	00
Tan bark,	22	6	0	00
Black sand,	7	2	0	00
Box types,	0	5	2	00
Cannon balls and grape shot,	9	0	0	00
1 box U. S. arms,	1	00	0	00
Dried apples,	0	4	0	00
Linseed oil,	1	11	0	00
1 bbl. potatoes,	0	1	2	00
1 anchor,	0	5	3	10
Bread and crackers,	0	6	2	10
Wool,	4	7	3	00
1 box paints,	0	18	3	10
Hops,	1	10	0	00

Brick,	7	0	0	0
Machinery,		2	0	0
3 boxes glass,		0	3	0
1 barrel pitch,		4	0	0
Clay,		9	0	0
1 box hat bodies,		0	1	0

From the south towards Lake Champlain :

Merchandise,	3568	3	3	15
Iron castings,	279	14	1	4
Salt and plaister,	189	8	0	0
Malt beer,	1	19	0	0
Salted hides,	7	2	0	14
Oysters,	3	0	0	0

The following is the amount of tolls collected on the canal :

At Whitehall,	\$14,132 53
Fort Ann,	783 91
Fort Edward,	2,678 35
Fort Miller,	1,581 00
Saratoga,	2,313 63
Waterford,	4,742 62
State Sloop Lock,	734 83
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	\$26,966 87

The amount of transportation on the Champlain canal, during the time the whole line was in operation, gives a much greater promise of its future usefulness than had originally been expected.

To complete the Erie canal west of the Genesee river, will require an expenditure of about one million of dollars.

The remainder of the Erie canal, together with the Champlain canal, will probably require an expenditure of two hundred thousand dollars : and if a canal is made between Fort Edward and Fort Miller, in lieu of the river navigation, the expenditure may be increased to three hundred and fifty thousand dollars.

The damages on a great part of the Champlain canal, are yet to be appraised, as also most of the damages on the eastern and western sections of the Erie canal.

What sum it will be necessary to appropriate for this purpose, the canal commissioners are unable to state ; and it is submitted to the legislature to make such provision as their wisdom shall direct.

The tolls collected on the canals during the last year, have very much exceeded the amount that was expected : And if no material accidents should delay or interrupt the navigation, the ensuing season will probably give not less than two hundred and fifty thousand dollars.

All which is respectfully submitted,

SAMUEL YOUNG,
MYRON HOLLEY,
HENRY SEYMOUR,
WM. C. BOUCK.

20th Feb. 1824.



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