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Report of the Committee Appointed to Procure a Survey for the Route of the Contemplated Cumberland & Oxford Canal to which is added the Report of the Engineer, Containing an Estimate of the Expence of Making the Canal

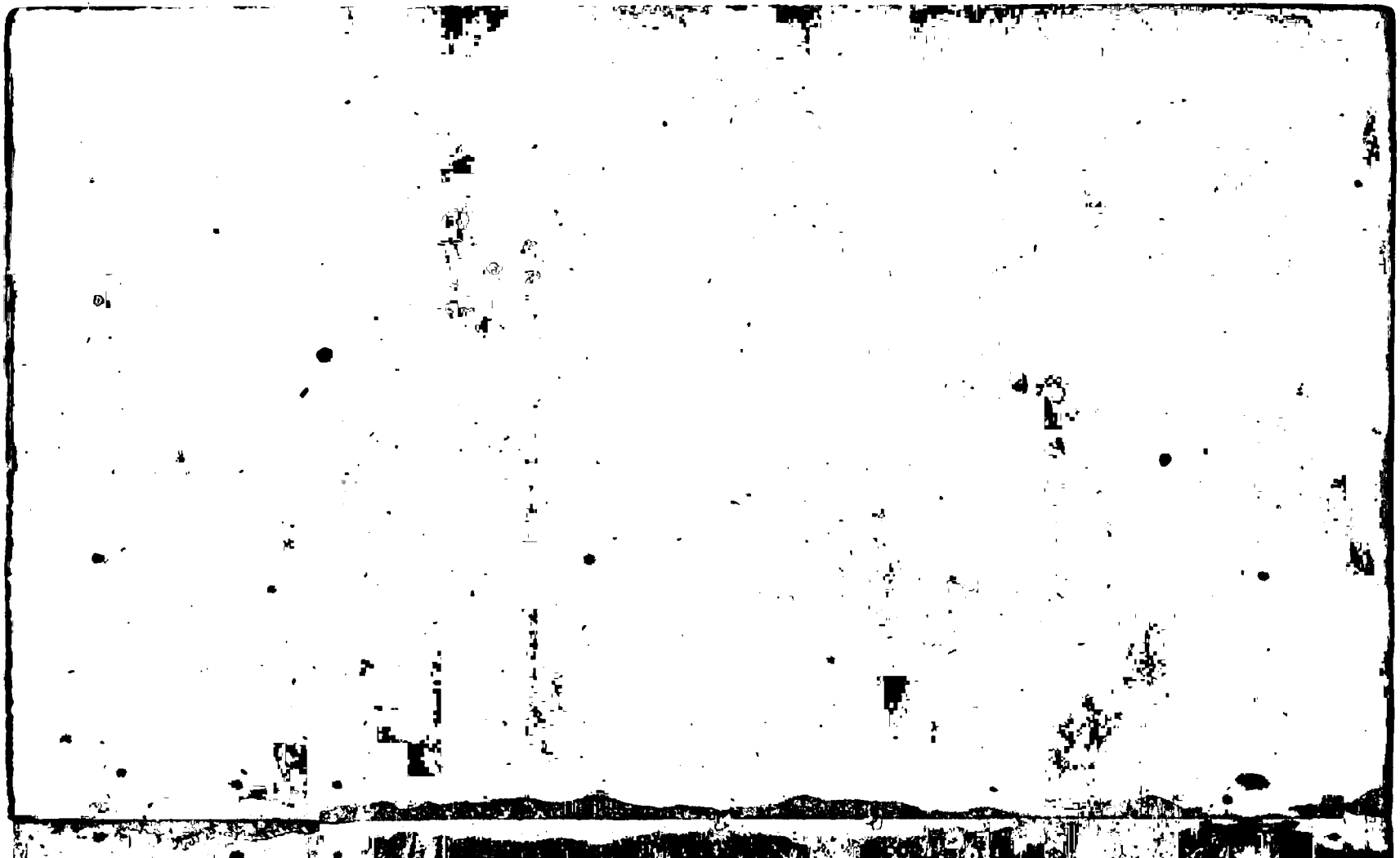
Cumberland & Oxford Canal Operation

Woodbury Storer

John Perly

Phinehas Varnum

Eli Longley



1823.

REPORT

OF THE

COMMITTEE APPOINTED TO PROCURE A

SURVEY

FOR THE ROUTE OF THE CONTEMPLATED

CUMBERLAND & OXFORD CANAL

TO WHICH IS ADDED

The Report

OF THE

ENGINEER,

CONTAINING AN ESTIMATE OF THE EXPENCE OF MAKING THE

CANAL.

Published by order of the Corporation.

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CUMBERLAND & OXFORD CANAL CORPORATION.

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THE Committee chosen for the purpose of procuring a Survey to be made, of the Route of the contemplated Cumberland and Oxford Canal, and of causing an estimate of the probable amount necessary for carrying the design into full effect, have performed the services assigned them, and now present the annexed Report and Estimate of the Engineer, which will in part, exhibit the result of their labours. The difficulties attendant on procuring an experienced and judicious Engineer, conspired to delay the survey to a later period in the season, than were the wish and design of the Committee. But it is believed that though an interested and anxious public have been kept in suspense, no serious inconvenience has or will result from such delay.

The Committee in the onset, feel it to be their indispensible duty to acknowledge the aid and assistance afforded them in the execution of their official duties, by individual gentlemen who were not immediately interested in the undertaking. Among them, they take the liberty of naming the Hon. De Witt Clinton, late Governor of New-York, to whose zeal, distinguished talents and comprehensive mind, that great and powerful State is principally indebted for her rapid advancement in the stupendous works of internal improvement, which justly entitle her to the first rank among her sister States. Mr. Wright, Chief Engineer of the Erie Canal, is likewise entitled to their grateful notice. It gives the Committee pleasure, thus to have it in their power to bear testimony of the frankness with which these gentlemen afforded them every species of information in their power, and of the solicitude which they manifested to further their views; all which shows that their minds are devoted to the improvement not of a section, but of a common country. It was through the instrumentality of these gentlemen, that the Committee were enabled to avail themselves of the services of Mr. Hutchinson who has been employed with Mr. Wright on the Erie Canal for several years, as also on a survey of the Route for a contemplated Canal from Worcester to Providence. Mr. Hutchinson was recommended by Gov. Clinton, Mr. Wright and by several of the Directors of the Canal last alluded to, in the most flattering terms, as an Engineer of judgment and experience, and amply competent to his task. So far as the Committee have it in their power to judge, they must in justice to their own feelings declare, that he has fully justified their high-wrought anticipations. His Report and Estimate of the expense of the contemplated Canal, are therefore entitled to the unqualified confidence of his employers.

The Estimate of actual expense is $130,804,89; to which is added 5 pr. cent. or $6,540,24, lest in any event that sum should prove insufficient for the completion of the work. Although this sum falls far short of what was anticipated by many, still if the nature of the land through which the route is pursued, the facility with which the excavations can generally be made, and the kind and cheapness of the materials required

for Locks and Culverts, are for a moment taken into consideration, no doubt can possibly exist that the sum is amply sufficient. That there are some individuals in the community who may be led to doubt its truth, is obvious; but the Committee do not deem it their duty to spend time or paper in argument to convince the sceptical, for a slight knowledge of facts will show the feasibility of execution within the limits of the sum assigned.

As its practicability, therefore, is placed beyond a doubt, and that too for a sum comparatively small, and within the reach of an extensive community who are destined to reap from its operation a rich reward, the only question that remains to be settled is, whether it is *expedient?* Those who are best acquainted with the advantages accruing to a commercial and agricultural community from similar works, and who have most carefully and deliberately canvassed the subject in its bearings in this particular case, will not hesitate to give an affirmative answer to this question. The Committee, however, cannot dismiss the subject, without offering a few of the many considerations that have had an influence on their minds, and brought them to the conclusion they have made; since an extended and comprehensive view of things is always necessary, to afford the occasional observer a just and accurate idea of the question offered for his consideration.

By a mere glance at the important advantages of internal navigation, and the innumerable benefits resulting from public works calculated for the saving of labour, to an enterprising and sagacious people, collectively as well as individually, a subject of primary consideration is presented. No section of the State perhaps feels a severer check on the enterprise of its inhabitants from the high charges of transportation on tonnage, than does that which the proposed Canal is intended to relieve and benefit. These charges are so extravagant and fall with so much weight on the agriculturalist, that the produce of his farm over and above what he wants for his own consumption, is justly considered of but little value. This operates as a great check on the agricultural interest, and a real loss is sustained which is felt not by the farmer alone, but by the whole community. These inconveniences are by no means confined to this particular class of our citizens, but are felt in some good degree by others who have equal claims for relief from the burthens they now sustain. The profit for which every individual of whatever occupation, may toil, is at this particular juncture, necessarily small; and whatever expense can be saved by an abridgment of labour, by taking away the necessity of employing men and teams which devour the income of the merchant, the mechanic, the lumberman and farmer, will of course be added to the profits. Were it not for the many inventions in machinery which have been effected within the last half century, for saving the labor of man and beast, we should long since have been under the necessity of relinquishing our most valuable manufactures which reflect so much honor on the country, in favor of nations of overgrown population, where the laborer toils for his penny a day. In fine, the convenience and the interests of every class are embraced in the object of this great scheme. Nor is it to the counties of Cumberland and Oxford alone the benefits are designed to be extended; they are intended to enrich and

aggrandize an infant State, and will reflect on its Legislature a lasting honor.

The general calculation has been that the expense of transportation on a Canal, exclusive of tolls, amounts to *one dollar* a ton for one hundred miles, while on a general average, the cost of conveyance by land, is *one dollar and fifty cents* per cwt. or *thirty dollars* per ton, for the like distance. "The celerity and certainty of this mode of conveyance are evident. A loaded boat can be towed, by one or two horses, at the rate of twenty-five or thirty miles a day. Hence the seller or buyer can calculate with sufficient precision, on his sales or purchases—the period of their arrival, the amount of their avails, and the extent of their value. A vessel on a Canal is independent of winds, tides and currents, and is not exposed to the delays attending conveyances by land; with regard to safety there can be no competition. The injuries to which commodities are exposed when transported by land, and the damages to which they are liable, when conveyed by natural waters, are rarely experienced on Canals. In the latter way, comparatively speaking, no waste is incurred, no risk is encountered, and no insurance is required. Hence it follows, that Canals operate upon the general interests of society, in the same way that machines for saving labor do, in manufactures. They enable the farmer, the mechanic and the merchant, to convey their commodities to market, and to receive a return at least *twenty-four* times cheaper, than by roads, (exclusive of tolls which are usually very moderate.) As to all the purposes of beneficial communication, they *diminish* the distance between places, and therefore encourage the cultivation of the most extensive and remote parts of the country. They create new sources of internal trade, and augment the old channels; for more cheap the transportation, the more expanded will be its operation; and the greater the mass of the products of the country for sale, the greater will be the commercial exchange of returning merchandize, and the greater the encouragement to Manufacturers by the increased economy and comfort of living, together with the cheapness and abundance of provisions and raw materials. Consequently Canals are advantageous to towns & villages, and to the whole Country, by increasing population, augmenting individual and aggregate wealth, and extending foreign commerce."

These observations on internal Navigation will in the present instance, apply with peculiar force. Their application can with the greatest facility, be illustrated. By effecting the completion of the proposed Canal, the whole extent of which is but *fifteen and three quarters* miles, a water communication is extended more than *forty-five* miles into the interior, and connects with one of the first markets on the Continent, a fertile and extensive country occupied by a persevering and industrious yeomanry, capable of yielding much beyond its present products and of sustaining a far greater population; luxuriant forests abounding in all the various growths necessary for fuel and the different kinds of lumber wanted for exportation to foreign markets, and for home consumption; numerous and eligible streams suited to the purposes of manufacturing establishments, which under present circumstances, are of no value to the owners; presenting great privileges for an extensive manufacture of bricks and the hewing of stone, for which there is an

inexhaustible stock of material, and in fine, other no less important advantages too numerous here to be recounted.

Of the vast quantities of fuel and lumber of all kinds that will necessarily be brought down the Canal, Portland will be the grand receptacle. A considerable quantity of the former article will be necessary for consumption in this town. It is estimated by competent judges, that no less than 20,000 cords of wood are annually consumed in the town of Portland, which at an avarage price of $4 per cord amounts to $80,000. This article may be purchased, when the Canal shall have been completed, & can be afforded in Standish & on the banks of the Sabago Pond, at *one dollar* per cord. Admitting these premises to be correct, and no one it is presumed will deny it; and admitting also that wood may be afforded and delivered in Portland at $3 per cord, (at which price a very handsome profit would undoubtedly accrue to the vender) a saving of $20,000 annually in one single article would be effected, a sum amounting to the interest of $333,333. This item will suffice as an example of the numerous benefits offered to the inhabitants of Portland. In Westbrook an immense saving of expense will be effected. The committee have before them an estimate by some of the best judges in the village of Saccarappa, of the quantity of boards annually manufactured in that place, which amounts *to one hundred and fifty hundred thousand feet.* These gentlemen have gone into a minute calculation with the view of arriving at the actual average expense of conveyance by land, the result of which shows that eight shillings per thousand feet, is a fair price. The amount of expense for hauling that quantity of Boards to Portland market, is $20,000, while the conveyance of the same on the Canal, would cost only $11,250. To this may be added the sum arising from the increased value of their pine wood made from slabs, of 3,375, making in the aggregate an annual saving to that village of $12,125, the interest of $202,083*. A saving of expense which is now incurred by the town of Westbrook in the repair of roads, is not brought into the account of benefits that will accrue to that town, but is justly entitled to some consideration from its inhabitants.

The committee in extending their views into the interior, so numerous and so inviting are the advantages presented in prospect on every hand, that it becomes an arduous duty to particularize. The farmer may safely calculate on great and efficient advantages which this new channel presents, of conveying the products of his farm to market, as well as the facilities of procuring manure, especially Plaister, to the use of which our lands with few exceptions, are extremely well adapted. On the immediate borders of the Canal, and for several miles back, Agriculture generally will receive a powerful impulse—Farmers will be stimulated to increase their efforts—the quantity of produce will be augmented, and many branches of tillage will be attended to, as sources of profit, which hitherto have remained neglected. Thus will individual industry be excited, the demands for labor increased and its value enhanced. The population will increase, and private enterprise promote public wealth.

Real Estate will rise in value, and those lands which have hitherto been considered waste, and indeed worthless, will be valuable to a cer-

* See page 7.

tain degree, for the wood they produce, if for nothing else. No one will presume to doubt that the Canal will produce this effect. If so, a moments reflection will remove it.

It will not be denied that the Canal will have a direct tendency to increase business, and that business a consequent demand for Real Estate: For wherever business concentrates, Real Estate is in greater demand, and consequently of higher value. A reduction of the expense of transportation will produce the same effect. If the Farmer has a quantity of produce to sell, annually, and the expense of conveying the same by land to market, be $10, and he can transport it by water for $4, he will save $6, and consequently the value of his farm will be enhanced $100, ; for $6 is the interest of that sum, and it will continue thus, so long as he shall have that quantity to sell. The reduced price at which Plaister and Muscles will come to the Farmers through the medium of the Canal, will have an additional effect in producing the rise in value, of Real Estate.

It has been ascertained from undoubted authority that the lands on both sides of the Middlesex Canal, for several miles in width, have advanced in value ; and that the farms within the reach of its influence, have been benefited more than two millions of dollars.

Of the amount of tonnage that is annually transported by land to that vast section of country into which the Canal will extend, it is impossible to speak with any degree of precision. It must necessarily be very considerable, and will in all probability, be quadrupled, in the event of the success of this scheme.

The committee have corresponded with gentlemen of the first information in the towns of Brownfield, Fryeburg, Denmark, Bridgton and Waterford, on this subject, and have received the strongest assurances of a ready co-operation from those parts. The people of those towns are unanimous in the opinion that their interests will be essentially promoted, and are sanguine in the belief that great and substantial benefits will accrue to that whole section of country. There are numerous streams on which may be erected all kinds of machinery and mills for the manufacturing of the different kinds of lumber. The country abounds in the various discriptions of timber suitable for this purpose. At this time it is of but little value ; but should the proposed Canal go into operation, it will become an inexhaustible source of wealth to the inhabitants.

The cautious capitalist may inquire whether Stock in the proposed Canal will be productive. From the most unfavourable view that can be taken of the subject, no efficient reason can be offered which will cast a doubt on this point. The business of the district is sufficient to afford a profit. But says he, will not the old channels of intercourse command the preference ? To this quere a word in reply, is sufficient. However powerfully the habits of business may operate on the mind, the allurements of gain have a mightier influence. The saving will be too great and too enticing to escape the keen discernment of the economist.

Another view of this subject may be taken. The Legislature impressed with a just sense of the importance of the undertaking, and which reflects the highest honor on their policy, have provided means for de-

fraying the expense, to the amount of $50,000, amounting to considerably more than *one third* part of the whole sum required. Hence the person who pays sixty three cents, becomes a proprietor of one dollar of the Stock.

No country in the world can boast such a vast and extensive system of Canals, as England ; and in no country has the scheme met with such decided and strenuous opposition. Prejudice and superstition were finally compelled to yield to the just views of an enlightened policy. No stock in that great empire is now so valuable, and produces so great an income, as does that of Canals. From the speech of Mr. Hemphill delivered in the British Parliament in January last, it appears that the stock in Canals, on a general average, which cost £1525, is now worth £9257, and produces a net annual income of *thirty-two* per cent on the sum originally expended. Any opposition that may be made to the Cumberland and Oxford Canal, from whatever source it shall come, will appear equally as futile in the view of the coming generation, as does now to us the prejudice that arose in England, to a similar policy.

Should the stock in this Canal be assumed, and of this there is little or no doubt, the Committee feel the strongest assurances, that the whole work can be completed in the course of the approaching season. Nothing will be wanting but to give a proper direction to the energy, perseverance and industry peculiar to the inhabitants of these Counties.

Under these inviting circumstances shall a further time be given, at this late hour, for deliberation ? Shall the visionary fancy of the speculator be gratified by a protracted delay ? Shall the drowsing sluggard be permitted to plead for "a little more sleep and a little more slumber ?"

Works of this stupendous character are not merely designed for the convenience & comfort of the passingage, but to endure beyond the ravages of time and of revolution, and are of infinite value to posterity. If the present generation of men can be made sensible of their true interests, and awakened to a just sense of social duties, they will not only secure a plentiful harvest for their exertions and toils, but will establish a claim of gratitude on the coming age, that shall insure them an imperishable fame. In no country are public works of a like nature called for, with a louder voice, than in our own, where every accession to the number must be regarded as an additional link in that great chain of mutual interests, that unites us in the bonds of a social and political fraternity. The genius of a Republican Government requires, that discordant and heterogeneous interests created by a widely scattered population, should be amalgamated, and that the views of the whole should verge to a common centre. This object is only to be attained by multiplying and extending the channels of intercourse. It was by a system of internal improvements, of which Canals were the most efficient, that Peter the Great reclaimed the untutored and uncultivated Russian, and established an active intercourse with the different parts of that vast empire. It was by an expanded system of internal intercourse, that a Napoleon acquired the better part of his fame, and rendered France wealthy and powerful.

There is one subject more that will add some importance to that un-

der consideration, which the Committee would beg leave to submit, though it does not, strictly speaking, come within the sphere of their present duties. One of their number has taken the trouble to view the Route for a branch Canal, leading from the Sabago to Painter's Pond, from that to Great Rattlesnake Pond, and thence to Thompson's Pond. It appears that by a comparatively small expense, a water communication may be extended from the Sabago to Craig's Mills, so called, in Hebron, a distance of about *twenty* miles. For the most part the excavations can be made with ease, and an opening effected with a vast tract of land abounding in timber of almost every kind.

Portland, Nov. 27, 1823.

WOODBURY STORER,
JOHN PERLY,
PHINEHAS VARNUM,
ELI LONGLEY.
} *Committee.*

Note referred to in page 6.

It is suggested by these gentlemen that *one eighth part* of this quantity, will be hauled in the winter season; but by even allowing one *fourth part* to be thus conveyed, the saving then accruing, will amount to the sum of $9,093, 75.

Report of the Engineer.

GENTLEMEN,

Accompanied by some of the Gentlemen of the Committee, I have levelled over the ground for the purpose of ascertaining the practicability, and probable expense of constructing a navigable Canal from the Sabago Pond to the tide waters of Portland harbour, at Stroudwater village.

The distance as the Canal would be located, is 15 3-4 miles, and the descent $248\frac{60}{100}$ feet.

In making the examination, an object of considerable importance was to ascertain whether a sufficient supply of water could be obtained, without diminishing the quantity that usually flows down the Presumpscot river, during the summer season.

The Sabago Pond contains by computation a surface of 30 square miles, and by raising a Dam across the outlet near White's bridge, or at the foot of the basin 1 mile lower down, of 4 feet above the ordinary low water in the Pond, no doubt can be entertained but that the waters thus reserved from the spring floods, might be drawn off in summer, and not only furnish an abundant supply for the Canal, but make a great addition to the outlet.

The line surveyed commencing at the foot of the Sabago Pond, and through the Little and Great Otter Ponds, and with a good direction of 2 1-2 miles, extends to the valley of the north branch of Little River. The line then continues on the northerly side of the above valley, to within a half mile of Crockett's bridge (so called.) At this point the line crosses the river, and continues upon the southerly side to the valley of Presumpscot river. From this place the line has a course along the south bank of the River, passing a fourth of a mile south of the Saccarappa village, and terminating in the tide water at Stroudwater. The ground is generally favorable for the construction of a Canal, the soil is of the best kind and is easy to excavate. The estimates are based on a supposition, that the Canal will be constructed of the following dimentions: to have 32 feet surface of water, 18 feet wide at the bottom, and $3\frac{1}{2}$ feet deep; the Locks to be constructed of wood, with the necessary Stone wall, having a length of 70 feet between the Gates, and 10 feet wide in the clear.

MILE ONE,

Commences at the south end of Sabago Pond in the township of Standish, and extends to the great swamp. There are three pieces of deep cutting to be encountered in this mile.—The first between the Sabago Pond and the Otter Pond, the next in connecting the two Otter Ponds, and the third on leaving the Great Otter Pond.—The soil appears to be sand, sandy loam and gravel.—The excavation may be done at a low price, by making use of scows with false bottoms, taking the earth from the ridges and depositing it in the bottom of the Ponds; and requires the moving of

75,098$\frac{43}{100}$ cubic yds. of Excavation, at 12½ cts.	$9,387,30
14,317"92 " " of Embankment, at 14 cts.	2,004,50
2 Road Bridges,	200,00
1 Guard and Lift Lock,	1,700,00
Grubbing and Clearing,	575,00
Descent of 60 feet by 6 Locks.	
	$13,866,80

MILE TWO,

Has good soil for the construction of a Canal. The first 50 chains is through woods, the remaining distance is in cleared fields. A large Culvert of 4 feet span will be necessary, and an embankment to cross Spring Brook, near the north end of the mile, and 1 small Culvert.

21,226"60 cubic yds. of Excavation, at 10 cts.	$2,122,66
8,256 " " of Embankment, at 14 cts.	1,155,84
1 Large and 1 Small Culvert,	400,00
1 Road and 1 Farm Bridge,	175,00
Grubbing and Clearing,	650,00
Descent of 40 feet by 4 Locks.	
	$4,503,50

MILE THREE,

Is generally uneven, requiring some deep cutting through the points of ridges, and embankments between them, to give a good direction to the line.—And also a large embankment in the Valley, and across Camp's brook.—The last half mile is in the valley of the North branch of Little River.—A new bed for the River is necessary, and a dam to turn the course of the stream.

20,245, cubic yds. of Excavation, at 10 cts.	$2,024,50
13,646"24 " " of Embankment, at 14 cts.	1,910,47
1 Culvert 6 feet span to pass Camp's brook,	500,00
Dam and New Bed for River,	400,00
2 Farm Bridges,	150,00
Grubbing and Clearing,	320,00
Descent of 50 feet by 5 Locks.	
	$5,304,97

MILE FOUR,

Continues in the valley of Little River, and generally on the Alluvial flats.—The direction is circuitous—and has steep and high banks upon each side of the stream—requires a new bed for the River, and a dam across its present channel.

15,654"25 cubic yds. of Excavation, at 10 cts.	$1,565,42
8,981"30 " " of Embankment, at 14 cts.	1,257,38
Dam and New Bed for River,	300,00
1 Road and 1 Farm Bridge,	175,00
2 Small Culverts,	350,00
Allowance for Rock, say	250,00
Grubbing and Clearing,	300,00
	4,197,80

MILE FIVE,

Passes along on the side of the north bank of the River, having three places of deep cutting. For a short distance, the line is carried along on the side of a steep ledge of rocks, and requires a wall to support the embankment, at the River.

21,261"20 cubic yds. of Excavation, at 10 cts.	$2,126,12
15,681 " " " of Embankment, at 14 cts.	2,195,34
1,200 " " " of Rock Excavation, at 50 cts.	600,00
500 " " " of Stone Wall, at 40 cts.	200,00
3 Small Culverts,	500,00
1 Road and 2 Farm Bridges,	250,00
Grubbing and Clearing,	675,00
Descent of 10 feet by 1 Lock.	
	$6,546,46

MILE SIX,

Commences with a high embankment against a steep hill of clay loam. A new bed must be excavated for the River, of 10 chains in length, and an average depth of excavation of 8 feet, with a Dam to secure the embankment against the freshets.—The remainder of the mile is good excavation.

26,341"20 cubic yds. of Excavation, at 10 cts.	$2,634,12
12,163"46 " " of Embankment, at 14 cts.	1,702,88
Dam across River,	300,00
1 Culvert,	300,00
2 Farm Bridges,	150,00
Grubbing and Clearing,	270,00
	$5,357,00

MILE SEVEN.

The first part of the mile requires an embankment; then by a piece of deep cutting of 25 chains in length, the line has a good direction, and avoids two heavy and expensive embankments in the River.—The Lock of 8 feet should be located at the end of the deep cutting; and then by crossing a brook 6,$\frac{85}{100}$ below the bottom of the Canal, the line would gain the bank of the River—and is continued upon the flat to the end of the mile.

36,340,00 cubic yds. of Excavation, at 12½ cts.	$4,542,50
4,686 " " of Embankment, at 14 cts.	656,04
1 Culvert,	200,00

1 Road and 2 Farm Bridges,	250,00
Grubbing and Clearing,	360,00
Descent 8 ft by 1 Lock.	$6,008,54

MILE EIGHT.

It is proposed to cross the River at the beginning of this mile by a wood acqueduct, to be supported by stone abutments and pier laid in mortar.—The line then continues upon the west side of the River, with some embankment and deep cutting—and for a short distance, is on the side of a steep ledge of rocks; then by the side of a steep hill of clay and gravel, to the bridge at the new road.

25,041"36 cubic yds. of Excavation, at 10 cts.	$2,504,13
18,148"27 " " of Embankment, at 14 cts.	2,540,75
Acqueduct across the River,	2,800,00
1 Culvert,	200,00
800 cubic yds. of Rock, at 50 cts.	400,00
600 " " of Stone Wall, at 40 cts.	240,00
1 Road and 1 Farm Bridge,	175,00
Grubbing and Clearing,	250,00
	$9,109,88

MILE NINE.

The first fourth of the mile extends to the Valley of the Presumpscot River, and the Canal then passes along on the west bank—the remainder of the distance having some deep cutting and embankment.

26,396"30 cubic yds. of Excavation, at 10 cts.	$2,639,63
15,581"46 " " of Embankment, at 14 cts.	2,181,40
Extra for Rock,	200,00
2 Culverts,	500,00
1 Road and 1 Farm Bridge,	175,00
Grubbing and Clearing,	350,00
	$5,046,03

MILE TEN,

Continues along near the bank of the River, principally through woods.—The land is sidelying, descending at an angle of from 4 to 20°, with some deep cutting through ridges, and three large embankments over ravines requiring culverts.

21,494"60 cubic yds. of Excavation, at 10 cts.	$2,149,46
28,141 " " " of Embankment, at 15 cts.	4,221,15
600, " " of Rock Excavation, at 50 cts.	300.00
3 Culverts,	650,00
2 Farm Bridges,	150,00
Grubbing and Clearing,	750,00
	$8,220,61

MILE ELEVEN,

Has a good course on the second flat, with a gentle descent towards the River. An embankment across a narrow ravine and against a steep

bank, will be necessary for a distance of 8 chains; and also a short piece of deep cutting through a ridge.—Soil sandy loam and clay.

18,564 cubic yds. of Excavation, at 10 cts.	$1,856,40
12,240 " " of Embankment, at 14 cts.	1,713,62
1 Small Culvert,	150,00
2 Farm Bridges,	150,00
Grubbing and Clearing,	300,00
	$4,170,02

MILE TWELVE.

By a piece of deep cutting the Canal line leaves the River, and pursues a course north of a place called the Old Cellar," and extends to a road in the rear of Saccarappa Village.—The soil is clay loam.

21,264"31 cubic yds. of Excavation at 10 cts.	$2,126,43
4,000 " " " of Embankment, at 14 cts.	560,00
2 Road Bridges,	200,00
1 Small Culvert,	150,00
Grubbing and Clearing,	160,00
	$3,196,43

MILE THIRTEEN,

Is on the summit of land dividing the waters of Presumpscot & Stroudwater Rivers.—There is a decent of 8 feet in this mile by one Lock.—Soil excellent, sandy loam, and easy to excavate.

20,320 cubic yds. of Excavation, at 9 cts.	$1,828,80
3,460 " " of Embankment, at 14 cts.	484,40
1 Small Culvert,	150,00
1 Road and 1 Farm Bridge,	175,00
Grubbing and Clearing,	250,00
Decent 8 ft by 1 Lock.	$2,888,20

MILE FOURTEEN,

Passes over lands well situated for the location of a Canal.—The soil is clay loam, having a gentle declivity to the west, mostly in cleared fields.

19,256 cubic yds. of Excavation, at 10 cts.	$1,925,60
1,240 " " of Embankment, at 14 cts.	173,60
3 Farm Bridges,	210,00
Grubbing, moving Rubbish, &c.	180,00
	$2,489,20

MILE FIFTEEN.

A Lock is placed at the beginning of this mile.—The Canal would then cross and pursue a course parallel and near the road leading from Saccarappa to Stroudwater.—Soil clay loam.

21,396 cubic yds. of Excavation, at 10 cts.	$2,139,60
3,000 " " of Embankment, at 14 cts.	420,00

1 Road and 2 Farm Bridges,	250,00
Grubbing and Clearing,	150,00
Descent . 1 Lock	$2,959,65

The remaining 56 chains extend to tide waters below Stroudwater Bridge.—Eight Locks will be necessary to bring the Canal on a level with the low water at low tides.—These Locks should be so placed, as to have a sufficient pond between them, to pass boats, and to spare 2 or 3 lock-falls of water, without too much diminishing the depth for loaded Boats.

15,380 cubic yds. of Excavation, at 10 cts.	$1,538,00
21,620 " " of Embankment, at 14 cts.	3,026,80
1 Road and 1 Farm Bridge,	225,00
1 Small Culvert,	150,00
	$4,939,80
Making an Aggregate sum of	$88,804,89
15 Locks of 10 feet lift each to be constructed of wood with necessary Stone Wall, at $1,600	$24,000,00
12 Locks of 8 feet lift each, at $1,500	$18,000,00
Add 5 per cent for contingencies, &c.	$6,540,24
	$137,345,13

This sum may be set down as the cost of the work, if wooden Locks are erected, and exclusive of pay for Superintendance, Engineers, &c. The 5 per cent is added according to custom in such estimates.

I have also passed over the ground between Sabago and Long Ponds. The navigation may be good by constructing a Dam across the Songo River, of 5 feet in height, below the Rapids near the mouth of Crooked River, and making a Lock of equal lift to pass Boats. The expense of these structures would not exceed $5000.

Respectfully, Gentlemen, Your
Most Obedient Servant,
HOLMES HUTCHINSON.

To WOODBURY STORER,
PHINEHAS VARNUM,
ELI LONGLEY and
JOHN PERLEY, Esqrs. } *Committee,*

Appointed to cause a Survey and Estimate to be made, for a Navigable Canal from Sabago Pond to the Tide Waters of Portland Harbour.
Dated Portland, October 13th, 1823.