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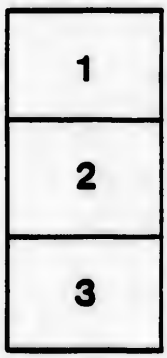

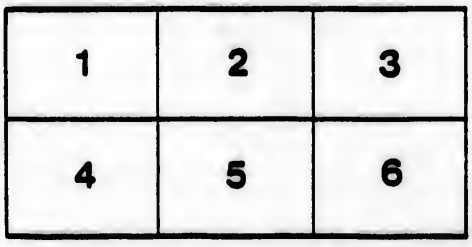

PROCEEDINGS

OF THE

BOARD OF TRADE

OF THE CITY OF BOSTON,

RELATIVE TO A

CANAL FROM THE LAKES TO THE MISSISSIPPI,

AND THE

CAUGHNAWAGA SHIP CANAL

FROM THE ST. LAWRENCE TO LAKE CHAMPLAIN.

MAY 20, 1870.

BOSTON:
WRIGHT & POTTER, PRINTERS, 79 MILK STREET,
(CORNER OF FEDERAL STREET).
1870.

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PROCEEDINGS.

A meeting of the Board of Trade of the City of Boston was held at their rooms, on Friday, May 20, 1870, for the purpose of considering the subject of the construction of a ship canal to secure water communication between the Mississippi and the Lakes, and also a proposition for constructing a ship canal from the St. Lawrence to Lake Champlain.

The President of the Board, Hon. ALEXANDER H. RICE, occupied the chair, and introduced Gov. FAIRCHILD, of Wisconsin.

Gov. Fairchild remarked that he should not have presumed to come before the Board had he not felt that the subject of cheap transportation between the East and the West was as much the business of the people of the East as of the people of the West. The plan proposed was the improvement of the Fox and Wisconsin Rivers. The Wisconsin River emptied into the Mississippi at Prairie du Chien, passing near Portage City. The Fox River emptied into Lake Michigan at Green Bay, running within a mile and a half of the Wisconsin River at Portage City, when it turned in an easterly direction. Thus Providence had almost completed this water route between the Mississippi and the Lakes, a distance of 278 miles. The Fox River was now navigable to Portage City, and a canal connected the two rivers, a mile and a half long. The Fox River, some years ago, was put into the possession of a private company, and was now navi-

gable for boats drawing from five to eight feet of water more than half the distance to the city of Portage, and boats drawing three and a half feet would pass the remaining distance at low water. It was proposed that the government should take this company out of the way, giving it a sum which might be found in justice due, to be determined by a board of arbitration. The Wisconsin River could be improved by a canal from Portage City to Prairie du Chien, 118 miles, 70 feet at the bottom and 80 feet at the top, capable of passing steamers drawing five feet of water, at an expense of $4,164,270. A bill was now before Congress for the improvement of the two rivers to a depth of four feet at low water. To put the Upper Fox in a condition to give four feet at low water would cost about $400,000, so that the whole cost of a water route, to be four feet deep, between Prairie du Chien and Green Bay, connecting the Mississippi with Lake Michigan, would be $4,400,000. To that must be added whatever sum should be found in justice due the private company, the highest estimate of which was $200,000. This company was perfectly willing to take any sum which was in justice due them.

The question had sometimes been asked him, why the government of the United States should not take charge of this work. His reply was, that it was as nearly a purely national work as any work of the kind in the country. It connected the navigable waters of the Mississippi Valley with the navigable waters of the Lakes, connecting nearly three-quarters of the navigable waters of the Union. He did not desire that the State of Wisconsin should own this work, because he did not desire that this State should have any right to fix the tolls upon the route. The State of Wisconsin, like other States, might feel the influence of corporations that would compel the State to put up the rates of toll, and thus defeat the great object, namely, securing water competition with railroads.

Gov. Fairchild then read from the memorial to Congress of the Prairie du Chien Canal Convention, to show that the saving would be amply sufficient to justify the expenditure. It would reduce the freight charges upon every ton of coarse freight moved from the Mississippi eastward, or from Lake Michigan westward, by water or rail. Statistics, he claimed, showed that the receipts and cost of transportation by rail are each about three times as great as by canal, and about eight times as great as by river. The quantity of grain to be transported was about 2,500,000 tons. There would be a saving upon this vast amount of $4.26 per ton over the cost of transportation by the present means of conveyance, which would amount to $10,650,000, a sum more than twice the estimated cost of the proposed work, to be saved upon the movement eastward of a single grain crop.

The people of the West were selling their wheat for forty cents a bushel, and it cost the price of two bushels more to get that bushel to New York. The people of the West would not raise wheat many years at that rate; they would enter upon some other line of farming. The people of the East could no more afford to have a short crop of wheat, than the people of the West; nor could they afford to pay a high rate for the transportation of that wheat between the farm of the West and the granary of the East, any more than the western people could. Hence he had ventured to lay this subject before the Board, in the hope that by so doing he might induce some of them to investigate it more carefully in future. Congress was not asked now for any appropriation, but simply to take the first step, and find out how much it will cost to take this company out of the way, Congress not binding itself to do so, but the company binding itself to take whatever was awarded. When that was done, he hoped the people of the East would join the people of the North-West, and they would go together to Congress and ask them to loan five millions to the people of this

whole country, for a period not exceeding five years, so that they might have this first link between the Mississippi and the Lakes, and reduce the cost of transportation. [Applause.]

Hon. F. W. Lincoln then offered the following Resolution:

Resolved, That the Boston Board of Trade has heard with pleasure, the statement of Gov. Fairchild of Wisconsin, in reference to connecting the waters of the Mississippi with Lake Michigan, by the improvement of the Fox and Wisconsin Rivers, and hereby expresses its hearty sympathy in this and every other measure by which it is proposed to cheapen and to increase the means of communication between the North-Western and Atlantic States.

The Resolution was adopted unanimously.

The President (Hon. Alexander H. Rice). We shall now have the pleasure of listening to the distinguished gentlemen whom we have present with us from Vermont and Canada, in reference to the construction of the proposed canal connecting the waters of Lake Champlain with the River St. Lawrence, a subject which has been already considered at sundry times by this Board, in one or another of its aspects, and which, without any further introduction, I know will commend itself to your interest and attention.

I have the honor to present to you Gov. Underwood, of Vermont.

Remarks of Hon. Levi Underwood.

Mr. President and Gentlemen of the Boston Board of Trade:

I am here by the kind permission of the President and Secretary of your Board, not for the purpose of asking any definite action of the Board of Trade upon the subject which I desire to present, nor am I here for the purpose of informing the gentlemen of the Boston Board of Trade of the vast importance of improving the modes of transportation of the products of the West to the Atlantic coast, or the products of the industry of New England to the markets of the West. Already, the inter-

est of Massachusetts, and of Boston, in these objects, has been demonstrated by the liberal advances that the State of Massachusetts has made for the purpose of improving the different routes between the East and the West, and the different lines of transportation. Therefore you need no light on the subject of the vast importance that it is to New England, as well as to the West, to improve the modes of transporting the products of the one portion of the country to the other.

We all know very well that the manufacturing regions and grain-growing regions must be kept close together. As you widen the gap between them, you create commercial disadvantages and inconveniences which must result in political disturbances, unless they can be remedied. We all know very well, that if New England is to suffer an inconvenience greater than any other portion of the country, her industrial interests must suffer in proportion, and this must be relieved, or the people of New England will be compelled to emigrate, and seek a place where their labor will produce a result more to their advantage.

I come before you for the purpose of presenting the subject of a new route for the transportation of the produce of the West to New England and to the Atlantic States generally, and for the transportation of the products of the manufacturing regions of the Atlantic States to the markets of the West.

Already Massachusetts is exerting a wonderful power upon the subject of transportation. She has undertaken the task of tunnelling the Hoosac mountain, and has engaged the energies of the Hon. Walter Shanly, (who is now present by my invitation,) in that work—one which is without a parallel in the world in its vast importance, and in the expense necessary for the accomplishment of the result. I do not come here for the purpose of making any assault upon railroad transportation. Railroads are an absolute necessity. But when there is commerce between one section of a country and another, there is a certain class of products that cannot afford to be transported by

rail; they must come by water. There are some descriptions of goods that must go by rail, because speed is of the utmost consequence. Where there is no interchange of products, there will be no interchange of men. Therefore, the passenger transportation between one section of a country and another depends upon the amount of products interchanged between the two sections. Hence, if the expense of the transportation of commodities between different sections of a country is so great as to be a prohibition upon it, or, in other words, when they cannot afford to be transported, then you have no transportation of passengers and no transportation that can support a railroad at all. Hence water transportation is just as necessary to railway communication as railway transportation is necessary to water communication; and therefore, when you are developing the water communications of a country, you are not lessening the value of railroads, but increasing it. Every railroad that traverses a country which has water communications is able to pay its expenses and earn fair dividends, whereas, railroads that traverse sections of country destitute of water communications have little business. The reason is, because cumbrous articles of freight cannot be transported on railroads for great distances at a profit to the producer.

In 1846, the Hon. John Young, of Montreal, (who is now present, also at my suggestion, with the permission of the President and Secretary of the Board of Trade,) strongly urged upon the Canadian government the importance of improving the water communication between the great Lakes and Lake Champlain. He then demonstrated, to his own satisfaction, and to the satisfaction of the most intelligent men connected with the commercial interests of the country, that with an expenditure of less than seven millions of dollars, communication could be opened between Lakes Superior and Michigan and Lake Champlain, so that vessels of 850 tons, laden at Chicago, could come down into Lake Champlain, within 234 miles of

Boston by rail, without breaking bulk, carrying 50,000 bushels of grain, at a speed of eight miles an hour. The distance between Chicago and Burlington is 1,471 miles, so that the time required for the transportation of 40,000 bushels of grain between Chicago and a point within 234 miles of Boston would be less than the time required for the transportation of 200 tons through the Erie Canal, from Buffalo to Albany.

I need not go into any calculation as to the advantages of carrying grain by water in vessels of large capacity. It will be readily recognized as a proposition that needs no enforcement. As you increase the size of your vessels you lessen the cost of transportation. It will be borne in mind, also, that this route is one that has very little canal navigation. The Welland Canal, from Lake Erie to Lake Ontario, will now pass vessels of about 400 tons. It is proposed to enlarge and improve it to the capacity of 850 tons, and already authority has been granted to a company for that purpose. The distance from Port Colborne, on Lake Erie, to Port Dalhousie, on Lake Ontario, is less than 28 miles. From Chicago to that point it is open, free navigation; no tolls required. From Port Dalhousie to the entrance of the Caughnawaga Canal, at the Indian village of Caughnawaga, on the St. Lawrence, above the Lachine rapids the channels, according to the report of Canadian engineers, can be cleared at small expense, so that no further canaling will be required for the descent of boats. The length of the Caughnawaga Canal will be 30 miles. Add the length of the Welland Canal and you have 57 miles of canal between Chicago and Burlington, so far as respects the descending freight. The returning freight will go through the St. Lawrence canals. These are small canals, the precise dimensions of which I have not in my mind, and will not attempt to state them. But the advantages of this route can be readily seen. It is a route through cold water; it can be traversed by steam at the rate of eight miles an hour, while the rate on the Erie Canal, by horse

power, is less than two miles an hour. The time required to pass from Buffalo to Albany, on the Erie Canal, will average ten or fifteen days, a distance of 361 miles. Its advantages, therefore, are apparent if the route is feasible.

The question is, Can the canal be made? This subject was pressed upon the Canadian Parliament in 1847–48, and a charter was granted, reserving to the Canadian Government the power to determine the point of departure from the St. Lawrence River. The interests of Montreal were all-powerful, and they determined that the point of departure should be below the Lachine rapids, at Longueil, which required a lockage of 100 feet, down and up, for a very long distance. That was a condition that could not be accepted. The desired route required a lockage of 22 to 25 feet only and a distance of less than thirty miles from the St. Lawrence to Lake Champlain.

I became interested in this subject as early as 1853, and from that time to this I have been more or less pressing the matter, for the purpose of procuring the necessary legislation, which would enable private individuals to open this route for the accommodation of the commerce of New England. In 1860 a bill was prepared by myself and the Hon. John Young, and presented to the Canadian ministers for their consideration. While it was under consideration the rebellion occurred, which caused a suspension of our operations, and the thing rested until 1866, when we again commenced the agitation of this subject, and have pressed it until, at the last session of Parliament, a charter was granted for the construction of a ship canal, called the "Caughnawaga Canal," which enables us to depart from a point on the river St. Lawrence, on Lake St. Louis, and come out on some point on the river Richelieu, on Lake Champlain, or on the Chambly Canal. I have the pleasure of handing several copies of that charter to the President of the Board. I regard this charter as one of the most favorable character. It will protect the interests of those who engage in

the enter e as fully as any charter which could be granted by any legislative body.

I desire now to say a few words as to the cost of constructing this canal, as to the advantage of this route over any other, not only as relates to economy in its construction, but as to the dividends that it may earn for its stockholders, and as to the length of time that it may be open for use during the year, and then submit this matter to the consideration of the gentlemen of Boston, who are certainly of the highest order of intelligence and of the first order of liberality in regard to all measures designed to improve the facilities for transporting the commodities of the country.

I hold in my hand a table which is taken from the official reports of the commissioners of public works in Canada, and in the State of New York, showing the days when the Welland Canal has been open and closed during each year, from 1848 to 1868, inclusive; and also the days when the Erie Canal has been open and closed during the same period of time; the number of navigable days in each year on the Welland Canal and the Erie Canal, and the difference in favor of the Welland Canal, each and every year during that period of twenty-one years. In no year has the difference been less than five days in favor of the Welland Canal, as compared with the Erie, in respect to the time of opening; and the Welland Canal and the St. Lawrence route into Lake Champlain have been navigable twenty-one days longer each year, on the average for the twenty-one years, than the route from Buffalo to Albany through the Erie Canal. That I regard as of vast importance in the matter of the transportation of breadstuffs.

In addition to that, I desire to state another important fact in relation to the transportation of breadstuffs, which bears on the question of heat. The length of time required for the transportation of a cargo of 40,000 bushels of grain from Chicago to Burlington, will be less than will be required from Buffalo to

Albany in boats of two hundred tons. Two hundred and ten tons is the capacity of the enlarged Erie Canal. Every man who is engaged in the transportation of grain, knows very well that this matter of heat is an important one, especially if the voyage is very long; and when you consider the fact, that the Erie Canal is three hundred and sixty-one miles long, and the time required for transportation is more than ten days, after the grain has been brought from Chicago to Buffalo; that it is through a shallow stream of water, heated to a temperature of about seventy-five degrees, it is evident that the amount of grain destroyed by the heat must be enormous. In fact, it is so large, that there are dealers at Albany and also at Buffalo, whose business it is to buy damaged grain. The other route is through cool water, by open navigation, where it is not exposed to that heat. You do not have the heat, and you save the time; and time is saved during the last days of the transportation, when you would expect the grain to be the most heated. I regard the avoidance of this exposure to warm water as of vast importance. The question is, whether the people are to be fed with damaged grain or the purchaser subjected to the loss, or whether grain can be transported in such time and in such way as to relieve you from this evil. These points I regard as of vast importance, and it is apparent to everybody that the advantages are greatly in favor of this route which is proposed to be opened.

The Caughnawaga Canal is proposed to be a trifle less than thirty miles long. The number of locks will be two. It will be fed from Lake Champlain into the St. Lawrence River at the village of Caughnawaga. It is a limestone region,—the same kind of stone of which Montreal is built,—and the cuttings will furnish the necessary material for the locks and the stone-work upon the line. It is proposed to build the canal to accommodate vessels of eight hundred and fifty tons. I suggested to Mr. Mills, who is an engineer of great ability, that it should be one hundred and fifty feet wide at the surface of the water, and

at least one hundred feet wide at the bottom, and the depth ten feet six inches. I suggested that this would accommodate vessels of eight hundred and fifty tons. Mr. Mills is an engineer of the State of New York, who has been very largely engaged in the hydrographical surveys of that State, which have so largely engaged the attention of the people of New York, in relation to their canals. He is a topographical engineer of the first order. He made a survey of this canal, and made the estimates, both topographical and hydrographical, and they were submitted to the Canadian government sometime ago. I called on him and asked him to revise his surveys, and to make estimates of the cost of this canal, enlarging it from a capacity of six hundred tons and locks two hundred feet long, to locks three hundred feet long and forty-six feet wide, to accommodate vessels of eight hundred and fifty tons. I have the pleasure of submitting his letter, addressed to me on that subject. (See Appendix.)

I have thus presented to you the fact of the incorporation of a stock company for the opening of steamship navigation from the river St. Lawrence to Lake Champlain, with the estimates of one of the ablest engineers in the country, from actual surveys, and I think you will bear me out in saying that his estimate in relation to the 20 per cent. is very liberal, when you consider the fact that at the present time labor in Canada is quite as cheap as at the time when he made his original estimate. The Canadians present can answer for that. The Dominion Parliament having also granted to a private company the right to enlarge the Welland Canal, in which other gentlemen have taken a deep interest, that work is progressing; so that it is hoped that if the people take the interest in this subject which its importance demands, within two years, or, at most, within three years from the present time, there will be steamship navigation between the East and the West, from Lake Champlain into Lake Michigan and Lake Superior, and a route established

which will connect with the great improvement suggested by the distinguished gentleman from Wisconsin, and double its value; and its importance is pressed all the more from the urgent necessity which exists for some outlet for the produce of the West beyond what it now enjoys.

At some future time I may think best to present in some other form to the general commercial interests of Boston this subject more at length, but I think that now, as no definite action is solicited, you have heard enough from me to direct your attention to it. The Hon. JOHN YOUNG, who has been very urgent in this matter, and has pressed it from the outset, until it has received the necessary legislation, and until all that remains to be done is simply to procure the small capital necessary to accomplish the work,—being present, and being very familiar with all the details of this matter, I will ask that he may have an opportunity to speak fully on the subject. [Applause.]

REMARKS OF HON. JOHN YOUNG.

After the able and exhaustive statement made by my friend, Gov. Underwood, I have but little more to say. This matter of transportation is exciting the attention of governments and statesmen everywhere. In Europe, the last evidence of this is the opening up to trade and commerce the Suez Canal, adding facilities and cheapening freight to India. In the United States and Canada, the subject of lessening the cost of freight between one part of this great continent and another commanded the attention of the people at an early day. The great De Witt Clinton, of New York, saw the importance of connecting the interior lakes with the Hudson, and although his schemes were ridiculed, he lived to see the day, two years after the opening of the Erie Canal in 1827, when all his anticipations of trade, which had been derided, were not one-fourth of the actual trade, and the canal was scarcely completed, when it was seen that an enlargement of it was necessary.

In this question of cheap transportation, the size of the vessel carrying the freight is all-important. A large vessel can carry cheaper than a small one. This has been verified in every way, and the fact is universally recognized. It has been exemplified on the Erie Canal. That canal was enlarged from boats of 78 tons to those of 210 tons, and the result was a reduction of 50 per cent. on cost of freight. It is proposed to enlarge it for vessels of 500 tons, and the most eminent engineers declare that a reduction of 50 per cent. below present rates will follow this. Both in the United States and Canada mistakes have been made in all public works destined for Western trade by making the canals too small. In Canada we began with locks of 19 feet; we enlarged them to 26 feet; again we enlarged most of them to 45 feet. This is the size of the locks on the St. Lawrence canals, with a length of 200 feet. But on the Welland Canal the locks have been left at 26 feet, and this governs and controls the size of the vessel on all the canals between the upper lakes on that route and the ocean below Montreal. Until the Canadian system of canals we never had any connection with the Eastern States, the great consuming markets of the West, and it is to point out the advantage of this connection that I have accepted your kind invitation to be present here to-day. Some twenty-three years ago I suggested that a canal should be made to connect Lake Champlain with the St. Lawrence at a point near Montreal. Differences arose as to the best point of departure from the St. Lawrence, and nothing could be done. The government of Canada have, however, solved all these difficulties by as many as six surveys of the canal by the most eminent engineers, and at the last session of Parliament at Ottawa, a charter was granted to a company to construct this canal. A charter has also been granted to a company to enlarge the Welland Canal and adapt the whole navigation to vessels of 850 tons, capable of carrying 40,000 bushels of grain; and what I desire to show you is the impor-

tant fact that with the construction of this Caughnawaga Canal of thirty miles long, with a lockage of twenty-five feet only, this 850 ton vessel can sail from the head of Lake Superior or Michigan with this 40,000 bushels of grain, without breaking bulk, to the eastern side of Lake Champlain, at Burlington, and there discharge into elevators for distribution by rail throughout New England. Yes, this vessel of 850 tons can come to Burlington, with less than 57 miles of canal, from the head of Lake Superior or Michigan, while on no other route is there less than 354 miles of canal navigation, with 695 feet of lockage. Can there be a doubt that by such means, freight in such vessels can be carried at rates from the West never yet dreamed of, and as the distance from Burlington to Boston is only 234 miles by rail, it is most evident that freight for export can be put down in Boston as cheap as in New York. Examine this matter and you will find I am right; and if so, what employment it will give to every railroad connecting Boston with Lake Champlain. It seems to me every man who owns a dollar in real estate in Boston, and throughout New England, should examine this subject. Every one is interested, because this saving in freight between the East and the West is so much added to the value of every bushel of grain produced in the West, or the same is cheapened to the consumer. I commend the whole matter to the earnest attention of the gentlemen of the Boston Board of Trade. [Applause.]

The PRESIDENT. Gentlemen, I am sure you are not weary of listening to this subject. We have other distinguished gentlemen present, who, I understand, will favor us with some further light upon it. I have the pleasure of introducing to you the Hon. WALTER SHANLY, of Canada.

REMARKS OF HON. WALTER SHANLY.

Mr. Chairman and Gentlemen,—I am a civil engineer, and I will say that I have been acquainted from my boyhood with the

subject of transportation. I have had something to do with the canal system now under discussion, and I have always, ever since I understood the importance of the subject, urged upon the government of Canada, in season and out of season, the construction of the Caughnawaga Ship Canal.

Our canals in Canada, as probably some gentlemen here may know, are all on a very grand scale; but nevertheless, the results of those canals have not been such, by any means, as we anticipated. But I have always thought that it was owing, not so much to the fact that they are not all of the same size, as to the want of proper connections.

I think I can prove to you that you can lay down cereals at Burlington, cheaper than at Albany; and not only that, but it is a self-evident fact that if this line of water communication is opened, very much larger vessels can be employed than are now used on the Erie Canal, or ever can be, and for this reason: that the Erie Canal may be said to have almost reached its limit of capacity, because the supply of water is not sufficient for the purposes of enlargement. The next improvement required is one that will enable vessels to leave the ports of the western lakes, and pass uninterrupted into Lake Champlain, which will place the people of Boston and of New England generally in this position,—that the cereals of the West will be laid down at some point on Lake Champlain, much cheaper than they can be laid down at Albany. And in point of time, it is important to bear in mind that you can transport the cereals of the West to Burlington, supposing the Caughnawaga Canal is built, in less time than it now takes to get those same cereals from Buffalo to Albany. Taking the rule laid down by engineers for transportation by water, so many miles per hour through lakes, so many through canals, and so much time to be allowed for lockage, it is quite clear to me, that the time from Chicago to Burlington will be less than under the most favorable circumstances is required for transportation from Buffalo to Albany.

I think it takes about ten days, under the most favorable circumstances. I have seen blocks there, towards the close of navigation, when the time would be nearer fifteen days than ten from Buffalo to Albany.

If the Welland Canal is enlarged, and the Caughnawaga Canal constructed, I venture to say, that in the course of a few years, a city as large, active, and prosperous as Buffalo, will spring up there, which will be to Boston, what Buffalo is to New York. It will be the great lake depot, whence Boston will draw her supplies for transhipment across the ocean. It will be the great market for the products of the West. I feel as confident that a great city will grow up there, either at Burlington or some other place on the lake, as I do of anything in the future; and the growth of a city there could not fail to conduce greatly to the advancement of Boston. Already one hundred and twenty millions of bushels of grain are moved on the lakes.

In an engineering point of view, there is no difficulty whatever in the construction of the Caughnawaga Canal. The gentleman whose letter was read to us just now, is a gentleman well-known in New York as a civil engineer. I might almost say I served my time under him. He was the engineer of several canals in Canada on which I was engaged, and with his views and figures I entirely concur. [Applause.]

Mayor SHURTLEFF. I have risen, sir, not to attempt to say anything on a subject with which I am so little acquainted, but simply to express my great gratification in what has been said by these distinguished gentlemen from abroad, in regard to matters which relate so preëminently to our own special advancement and prosperity. With your indulgence, I will submit a Resolution:—

Resolved, That the thanks of the Board are hereby tendered to the Hon. Levi Underwood, the Hon. John Young, and the Hon.

Walter Shanly, for the very interesting statements made by them on this occasion, in reference to the proposed very important connection which is to be effected between Lake Champlain and the St. Lawrence River, by the Caughnawaga Canal.

The Resolution was adopted, unanimously.

Remarks of Hon. E. H. Derby.

I am very happy, in behalf of the railroads of Northern Massachusetts, and I might add, of New England generally, to respond to the gentlemen who have addressed the meeting, and welcome this ship canal now presented as an acquisition to the railroad world. It is not a railroad, but it is a feeder to railroads. A railroad derives its support more or less from the ocean, from the lakes, and from the great rivers. This plan is designed to bring the great rivers and the great lakes down into contact with railroads, that we may carry the traffic of these great waters down to the city of Boston, and, I trust, eventually, across the ocean, from Boston to the old world.

We live at a period when great movements are made, both upon land and water. One of the gentlemen who has addressed you to-night has said that one hundred and twenty millions of bushels of wheat and other cereals are moved upon the lakes in a single year. I happen to have read, within a few days, that a hundred and twenty millions of bushels are imported annually into Great Britain. That will probably be the importation of the present year. Here, on one side, is a production of one hundred and twenty millions of bushels, which are set in motion and a large portion sent to the other side of the ocean, in addition to what we consume ourselves in our manufacturing districts; there is a consumption at home and abroad of this hundred and twenty millions of bushels. There is a strange coincidence in the figures.

Well, sir, the question is, what portion of that consumption abroad is furnished by America? The United States, in connec-

tion with Canada, during the year commencing in June last, and terminating with June of the present year, will have sent abroad sixty millions of bushels; an amount equal to one-half of the deliveries on the lakes of this country will have been sent across the ocean, and nearly all to Great Britain. This year, to the astonishment of every one who has examined the subject,—and I believe very few have,—instead of supplying one-fourteenth of the consumption of Great Britain of foreign grain, we are supplying nearly one-half the entire consumption of that country. This increase has taken place in the compass of four or five years, and I believe this trade is but in its infancy.

Our friends propose, as I understand it, to extend Lake Champlain into the St. Lawrence, on the one hand, and the great lakes into the Mississippi, on the other.

The great desideratum of Boston, and indeed of New England, Canada and the West, is a direct ship canal from Lake Champlain to the St. Lawrence, at the mouth of the Ottawa, by which steamships of 800 to 1,000 tons may descend from the heads of Lakes Michigan and Superior, without breaking bulk, to the eastern shores of Vermont, and by which the pines of Canada may flow down the Ottawa and strike the railways which point the way to Boston, through a region studded with factories.

On the open sea, the cost of transportation on long voyages is but one mill per ton a mile. On lakes and rivers, for long distances, but two mills and a half per ton. On a ship canal, like that proposed, which is but a link between the lakes and navigable rivers, it is but five mills per ton; while by Mr. McAlpine's computation, it ranges on a canal like the Erie, without counting profits from tolls, from seven to nine mills per ton. On railways the rate ranges with the length and gradients from six to sixteen mills per ton a mile, exclusive of tolls and depot charges.

The effect of the ship canal and of the enlargement of a few

locks, will be to bring the great lakes and their outlets within two hundred and ten miles of Boston; to create at Burlington another Albany; to lower the price of lumber to New England nearly a dollar per thousand; to reduce one-half the time in which the water-borne freight of the West now reaches the Atlantic coast, and to double the means for reaching that sea-coast. This ship canal offers also great facilities to Montreal, connecting it with both Boston and New York. It commences on Lake St. Louis, within nine miles of the exchange of Montreal, is easily accessible by both canal and railway, and gives to that city other routes to the ocean and to the coal mines of Pennsylvania.

The tendency of such enterprises must be to break down the barrier of duties and tolls which repress the trade of Canada, and raise the cost of food, shelter and raw material to the artisans of New England.

The plan is to carry Champlain into the waters of the St. Lawrence. Now, what is this Lake Champlain? Why, it has been a canal from time immemorial; the best of canals, on account of its width and its placid waters; so placid, that in the time of the French wars, before our fathers reached the interior of the country, the French and Indians came up in their bateaux, in their birch canoes, to Ticonderoga and Whitehall, and so invaded this section. But, sir, instead of an invasion, we will have treasure floating in by the argosies of the canal. The extension of this communication will do more to conciliate Canada and promote our intercourse with that country than any other measure which could be adopted, for it is the extension of a ship canal into the St. Lawrence.

And what do you find in the St. Lawrence? You have before you the Hon. John Young, who has made a seaport of an inland city—Montreal—by deepening the channel of the river. A few years since, nothing more than a schooner or a brig could pass from the ocean up to Montreal, but to-day a steamship of 3,200

tons can come there from Liverpool, land her cargo upon the piers of the city, and take in a return cargo of grain, to be delivered in England. That has been the achievement of a single individual. All I ask is, that the same energy and spirit which have been displayed in improving the navigation of the St. Lawrence may be bestowed upon this work, for it is not only to bring a vast amount of trade from that region into New England, but is to be literally a bond of union between the United States and Canada. [Applause.]

It is commerce that breaks down the barriers between nation and nation.

> "Lands intersected by a narrow frith
> Abhor each other."

It is commerce that overleaps this "narrow frith."

> "Mountains interposed make enemies of nations."

But, sir, the gentleman on my left [Mr. Shanly,] is tunnelling the Hoosac Mountain; and very small mountains only are to be removed to open a way for this canal. It is nearly dead level between the lake and the river, I am told; but if there is any mountain there, these gentlemen propose to remove it, and carry Lake Champlain into the St. Lawrence.

We speak of the Mississippi as the "Father of Waters;" but the St. Lawrence is the great outlet of the region in which we are most interested. The water of that stream, which comes down in a vast volume, is cold. Unlike the waters of the Mississippi, unlike the waters of the Erie Canal, which injure the produce carried through them, this mighty stream preserves, like the ocean, the wheat, provisions, and other commodities which are borne upon it. Here are a few locks and a few short canals, so short, and of so little importance, that I am told the steamers that come down with pleasure travellers, run almost all the rapids, passing by almost all the locks of the St. Law-

rence; passing down by the river, which is navigable, notwithstanding its difficulties, and come down to Montreal. When they reach Montreal, there is already a great shipment of grain from that city to Europe. Six millions of bushels are sent annually by that route to Europe—a very large portion of the sixty millions which we transport across the ocean. There is more wheat moved in one year from Montreal across the ocean than we send from Boston in six years; and what we lack, and what we require here, is the introduction of wheat and provisions from the West. The city of Boston is admirably adapted for ocean steam navigation. We have here a large consumption of the articles which are imported from abroad. We have relieved the traveller from head money. Steamships come here laden with freight from Europe, with many passengers, with full cargo lists. When they have discharged their cargo here, what do they find? There is no freight for the return voyage; there is nothing to carry back; and, sir, we have the mortification of seeing from week to week, the "Inman Line" and the "Cunard Line" send their steamers with but a small part of a cargo, directly back to the city of New York, to load with freight to be taken to England, because we are deficient. But these gentlemen come and proffer to us this great traffic. They are going to make a canal which will bring to us the grain, provisions and other commodities of the West; and they will carry our manufactures, by means of this canal, to Chicago, and to Duluth, at the head of Lake Superior, and there they find railways to St. Paul, in the heart of Minnesota, to the Red River of the North, away up into that new region, so admirably adapted for winter wheat. They carry us to the Northern Pacific and to the Union Pacific Railways, by the shortest route from the lakes. From the Union Pacific, a little above Omaha, across to Duluth is a hundred miles less in distance than the railway route to Chicago. It is for our interest to receive freight far to the north. If we take it at Chicago

or further south, Philadelphia comes in with her lines, Baltimore comes in with hers, New York comes in with hers; but if we take it at Duluth, and take it down the Sault St. Marie, and deliver it on Lake Champlain, we have the first chance. Let us, then, take this freight both from the Northern Pacific and from the Union Pacific. That road, I am told, is adopting a low tariff—two and one-half cents a pound from the Pacific Ocean to the seacoast at Boston. Let it bring that freight at *pro rata* charges, and deliver it at Duluth, and by means of this connection with the great lakes, we will bring it from Duluth for half a cent a pound, nearly half as far, from Lake Superior to Boston. We shall then receive it where we want to receive it. We will bring it at a profit, and to the benefit of our commerce, directly into Boston.

Great changes are being introduced into the commerce of the lakes. When the Erie Canal was first opened, the merchandise that was going west was charged two or three prices. There was less of it than of the downward freight, the goods were more valuable, and it was then thought the traffic would pay a higher price. But now it is found politic to send the return freight from the East at very low prices, almost as ballast, because the boats must go back, and otherwise they might be obliged to go back empty. We are reversing the process. We are, in the Bay State, creating goods to an immense amount, I think $500,000,000 annually, and we are going to send them to the West rather as ballast than as merchandise, by means of steamers to pass up the lakes far back into the interior.

But there is one branch of traffic to which I have not alluded, which is of importance to this enterprise, and which alone, I believe, would be sufficient to sustain it. I allude to the lumber traffic. Canada is to be, in the future, the great lumber region of the United States. We are exhausting the lumber of the North. On the vast prairies and plains of the West there

is no lumber, not a tree growing. They will require the lumber of Canada. Now, how is it? You will find to-day in Canada 300,000 square miles covered with pine trees. Recollect that our State of Massachusetts has but 7,000 square miles. This territory to which I refer is 42 times the size of Massachusetts. Then there are spruce trees, cedar, hemlock and hackmatack. There is an immense supply for all future time in Canada, and we go into the now almost inaccessible forests by means of this canal, which leads into the basin of Lake St. Louis in the St. Lawrence River, directly opposite the mouth of the Ottawa. The Ottawa is lined with these pine trees. They will float down to the mouth of this canal.

Even now, half the lumber that is cut in Canada comes into this country. How does it get here? It descends the rapids and runs down to the city of Montreal; then goes half way down to Quebec, and then comes up the Richelieu River, by a circuit of 120 miles, and a change of elevation of 120 feet, until it gets up to St. John, and is floated to the outlet of this canal. There is an extra expense of a dollar a thousand and great delay to bring it to this point, which would be saved by this canal. I venture to say that the transportation of lumber alone would be sufficient to enable this canal to pay six per cent. on its cost. I know that when Mr. Jarvis made his survey, fifteen or twenty years ago, he predicted that the amount of freight, chiefly lumber, would be two millions of tons. That was in February, 1855. He said at the same time that the lake traffic doubled once in four or five years. He showed what the traffic of the Erie Canal would be to-day, and it has been verified by the result.

Now, here is the lumber which will sustain this canal. We have in this country another canal which resembles it. It is true that in Massachusetts we have used up the Blackstone Canal, and we have used up other canals; but those were shallow and unsuitable for their purpose. But here is a ship

canal. We have one like it in the country. Where is it? Perhaps you and other gentlemen present have invested in the Philadelphia, Wilmington and Baltimore Railroad, running from Philadelphia to Baltimore, one of the most successful enterprises in the country, one hundred miles long, almost an air line, with a magnificent bridge across the Susquehannah. Parallel with that is the Chesapeake and Delaware Canal. It was thought by some it would come to nothing. I have received from Mr. Fraley, the President of the National Board of Trade, the report for the past year of that canal, 14 miles long, costing a little more than this will cost, because it had a mountain to cut through, which we have not here. The revenue on that canal has been $368,000 for the past year, on a capital of $3,250,000. Taking out the expense of repairs and managing it, it has returned ten per cent. on its capital, and is increasing its business 22 or 24 per cent. per annum. There is proof that a steamship canal can be made successful. I venture to say that the traffic in this region will surpass the traffic upon the Chesapeake and Delaware Canal. That has a business of a million and a quarter of tons a year. Mr. Jarvis, fifteen years ago, predicted that this canal would have two millions of tons by 1860. Since he wrote, the tonnage of the New York canals and of the Central and Erie railroads has grown from three millions to twelve and a half millions of tons. Therefore I feel confident that we shall get this important connection with the West, and that it will pay, for Mr. Mills thinks it will cost but two millions and a half of dollars.

I have occupied the attention of the meeting longer than I intended, but I desire to make one further call. You have heard from Mr. Shanly on the subject of the canal. He is in charge of another gigantic enterprise. Like New York, we are to have two important railroad lines to the West, possibly four. I allude to the Boston and Albany, and the line through the Hoosac mountain, to the Grand Trunk and the Boston, Hart-

ford and Erie. We are to have our four railroads, but we have no Erie Canal. Now, these gentlemen tender us a canal which is superior to the Erie. I propose that Boston shall have her four railroads and her canal also. Her Hoosac Railroad is unfinished, but we are at work upon it, and Mr. Shanly, who is a member of the firm which has taken charge of this great work, (and I feel some pride in having introduced him to it,) is here, and he can tell you all about it. I believe he will tell you that in two years and a few months the work will be finished. At all events, I call upon him for a response. [Applause.]

REMARKS OF HON. WALTER SHANLY.

I feel a little delicate about making any extraordinary promises about the Hoosac Tunnel, because I see His Excellency the Governor of the State here. Nevertheless, I will state to you the condition of the Tunnel at this time.

We have been at work upon the Tunnel a little more than a year, and the progress we have made is such, that we feel perfectly confident, that unless some extraordinary circumstance should occur, which we cannot possibly foretell or foresee, and have no reason to anticipate, within three years it will be completed. Our contract gives us something over four years. Yet we have hoped and expected that we could accomplish it in three, and have reason now to think that we can. The Tunnel will be very nearly five miles long. It is the greatest enterprise of the kind in the world but one; the Mount Cenis Tunnel is somewhat longer.

The Hoosac Tunnel has penetrated a mile and a half on the east side, and upwards of a mile on the west side. We are now working upon two faces, and we are sinking in the middle what is called the central shaft, upwards of a thousand feet deep. We are now within ninety feet of the grade line of the railroad, at the central shaft. We think at the end of three months we

shall be ready to start two more faces from the centre. In that way, the work will be considerably expedited; and having got our machinery in very perfect order, I trust that many of the members of this honorable Board, and other Boston gentlemen, will come up, during the ensuing summer, and see for themselves the Hoosac Tunnel, upon which a great many doubts have been cast during the last eight, ten or fifteen months. I think if they should come there and see the thing going on as it is, they would believe that it is to be completed. No exertions will be spared on our part. We feel that the honor of ourselves and our country is involved in our completing the road. We have not the slightest doubt in our minds, that in three years from now we can run a train, almost on a dead level, from here to the Hudson. [Applause.]

The meeting then adjourned.

APPENDIX.

PEEKSKILL, May 14, 1870.

To the Hon. LEVI UNDERWOOD.

SIR:—Your favor of the 12th is in hand. You suggest that the estimate of the cost of the Caughnawaga Canal be so modified as to contemplate the same to be 150 feet wide, (which I conclude is the width of the surface of the water, the canal being full,) which will require 30 feet additional width at bottom, making the canal 110 feet wide at bottom. Also to increase the length of the locks 100 feet, making the same 300 feet in length.

I have made an approximate estimate of said modifications, and present them in bulk form, excluding details. My estimate of the cost of said canal, made 22 years ago, was 1,814,408 dollars; the canal to be 80 feet wide at bottom, and the locks to be 200 feet in length.

The enlargement of the prism of the canal, as suggested, will cost 211,200 dollars, and the lengthening of the locks will cost 120,000 dollars.

Then we have—

Former estimate, ...	$1,814,408 00
Enlargement of prism, ...	210,200 00
Lengthening of locks, ...	120,000 00
Making, ...	$2,145,608 00

In view of the present state of things, in a financial point of view, as distinguished from the state of the same 22 years ago, I conclude there should be a certain percentage added to the estimate of the cost of the canal to make the same better conform to the present state of the affairs in the country. This is simply a financial question of which you can judge as well as I. But I think we ought to add at least 20 per cent. to the estimate as above, which will be 429,121 dollars, making the whole estimated cost 2,574,729 dollars, which I think will perform the work. Such a canal and locks as you suggest will well accommodate a vessel of 1,000 tons cargo,

and in accordance with all estimates of the progress, advancement and increase of the business of the country, she will have enough to do. I remain, sir,

Your ob't servant,

J. B. MILLS.

BURLINGTON, June 3, 1870.

Hon. E. H. DERBY.

DEAR SIR:—I find from the examination of official documents that the distance from Chicago to Burlington via Erie Canal is 1,542 miles, of which about 392 miles is canal, with $834\frac{3}{10}$ feet of lockage. Capacity of enlarged Erie Canal boats of 210 tons. Champlain Canal 80 tons. Time required to move grain upon an average of the year from Chicago to Albany, exclusive of time required to transfer cargo from propellers to canal boats at Buffalo—at the rate of 10 miles per hour by steam propellers on the Lakes and the reported time of 10 days from Buffalo to Albany—$14\frac{1}{3}$ days, at a cost of $20\frac{79}{100}$ cents per bushel.

The distance from Burlington to Chicago via the proposed Caughnawaga Canal, 1,471 miles, of which 57 miles of canal only will be used on down trips and 85 on up trips, with lockage on Welland Canal 330. Caughnawaga proposed lockage 25 feet. St. Lawrence Canal used on up trips 27 miles and $161\frac{3}{4}$ feet lockage.

Capacity of present Welland Canal 400 tons, proposed enlargement 850 tons; St. Lawrence Canal 600 tons, proposed enlargement 850 tons; Caughnawaga Canal proposed 850 tons. Cost of transportation not computed. Time from Chicago to Burlington alone, (36 hours to pass through Welland and Caughnawaga Canals,) $6\frac{1}{2}$ days. Distance from Burlington to Duluth, at head of Lake Superior, 1,475 miles. Sault St. Marie Canal about one mile, capacity 2,000 tons, lockage 12 feet. Time from Duluth to Burlington $6\frac{3}{4}$ days.

The amount of wheat and flour transported from Buffalo to Albany in 1868 by canal was 13,015,371 bushels, computing a barrel of flour equal to five bushels of wheat, valued at $29,871,363. I am informed that grain and flour are damaged in the long transit of the Erie Canal by heating and souring fully five per cent. upon an average, which makes a loss on the wheat and flour alone transported through the Erie Canal of 650,768 bushels, valued at $1,293,568, which is half the estimated cost of the Caughnawaga Canal.

You thus perceive that from the short time required in transports from Chicago and Duluth, and the fact that the route is through cold water, there is little exposure to this loss.

A cargo of grain from Chicago or Duluth can reach Boston in eight days, allowing ample time to transfer through elevators from propellers to cars; while it will take more than sixteen days to reach Boston via the Erie Canal and Boston and Albany Railroad, allowing for one transfer, when, in fact, there must be one at Buffalo and another at Albany.

The capacity of a propeller of 850 tons is 8,500 barrels of flour,—equal to 85 carloads; and upwards of 40,000 bushels of grain in bulk, notwithstanding 28,000 bushels of wheat will weight about 850 tons at 60 pounds to the bushel.

It is apparent that grain can be transported to Burlington in these large vessels, by the Caughnawaga route, at about half the cost of the transport to Albany via the Erie Canal, in addition to immense saving of time and the damage to grain by being long detained in the hot water of the Erie Canal.

The Company, therefore, cannot fail to greatly cheapen transport while it will earn large profits to the stockholders.

I am yours truly,

LEVI UNDERWOOD.

YEARS.	Welland Canal. Opened.	Welland Canal. Closed.	Erie Canal. Opened.	Erie Canal. Closed.	Welland Canal. No. of days of navigation in each year.	Erie Canal. No. of days of navigation in each year.	No. of days difference in favor of Welland.
1848,	Apr. 10,	Dec. 19,	May 1,	Dec. 9,	254	223	31
1849,	3,	7,	1,	5,	249	219	30
1850,	1,	12,	Apr. 22,	11,	256	234	22
1851,	Mar. 25,	12,	15,	5,	263	235	28
1852,	Apr. 13,	14,	20,	16,	246	241	5
1853,	1,	17,	20,	20,	261	245	16
1854,	3,	4,	May 1,	3,	246	217	29
1855,	16,	12,	1,	10,	241	224	17
1856,	26,	13,	5,	4,	232	213	19
1857,	May 1,	15,	6,	15,	229	224	5
1858,	Apr. 7,	7,	Apr. 28,	8,	245	226	19
1859,	1,	8,	May 15,	12,	252	212	40
1860,	1,	6,	Apr. 25,	12,	250	232	18
1861,	8,	12,	May 1,	10,	249	224	25
1862,	15,	15,	1,	10,	245	224	21
1863,	13,	13,	1,	9,	245	223	22
1864,	13,	11,	Apr. 30,	8,	243	223	20
1865,	17,	15,	May 1,	12,	243	226	17
1866,	17,	11,	1,	12,	239	226	13
1867,	17,	11,	1,	10,	239	224	15
1868,	17,	11,	4,	7,	239	218	21
Totals,					5,166	4,733	433
Average number of days navigable each year,					246	225	21

Annual average in favor of Welland Canal, ... 21 days.

[Extract from Annual Report of Auditor of New York Canal Department for 1869.]

The following Statement shows the Number of Tons of each Class of Property carried on the Canals during the Season of Navigation in the year 1869, *and on the Erie and Central Railroads, from October* 1, 1868, *to September* 30, 1869.

DESCRIPTION OF PROPERTY.	Tons of each class carried on the Canals.	Tons of each class carried on the Railroads.	Total tons of each class carried on the Canals and Railroads.
Products of the forests,	1,855,930	314,065	2,169,995
Products of animals,	8,691	679,165	687,856
Vegetable food,	1,302,613	1,087,809	2,390,422
Other agricultural products,	2,767	64,275	67,042
Manufactures,	342,239	598,485	940,724
Merchandise,	268,970	751,571	1,020,541
Other articles,	2,077,870	3,098,724	5,176,594
Total tons carried,	5,859,080	6,594,094	12,453,174

ESTIMATES OF TRAFFIC ON THE CAUGHNAWAGA SHIP CANAL,

Submitted to the Legislative Assembly of Canada, by John B. Jarvis, Esq., Civil Engineer, in his Report of February 15th, 1855.

First Estimate.—Based upon the probable completion of the Canal in three years, simultaneously with the completion of the enlarged Erie Canal, but without any enlargement of the Champlain Canal:—

250,000 tons of lumber at 10 cents per ton, . .	$25,000 00
370,000 tons Lake Champlain trade at 35 cts. a ton,	129,500 00
300,000 tons Hudson River trade at 35 cts. per ton,	105,000 00
100,000 tons improvement of general trade, . .	25,000 00
1,020,000 tons, ...	$284,500 00

Second Estimate of Mr. Jarvis in his Report of 1855, based on enlargement of Champlain Canal to the present size of Erie Canal:

500,000 tons of lumber at 10 cents, ...	$50,000 00
370,000 tons Lake Champlain trade at 35 cts. per ton,	129,500 00
1,080,000 tons Hudson River trade at 35 cts. a ton, .	378,000 00
100,000 tons improvement of general trade, at 25 cts. a ton, ...	25,000 00
2,050,000 tons, ...	$582,500 00

In 1853 Mr. Jarvis reports the tonnage of the Lakes passing East, through the Erie Canal, as . . . . 1,213,690 tons.
Do. passing West, ... 261,752 "

He computes that this tonnage doubles once in four years.

The aggregate tonnage of the Erie Canal and Erie and Central Railways now exceeds twelve millions of tons.

In 1869 the tonnage on the Champlain Canal was	1,059,334	tons.
In 1858, " " " "	608,918	"
Tonnage of all the products of the forest in 1869, on all the New York Canals,	1,855,930	"
Aggregate tonnage in 1869 of New York Canals and Erie and Central Railroads,	12,453,174	"

Average freight in 1869 on a bushel of wheat, including tolls:	
From Chicago to Buffalo,	$0 06.8
From Buffalo to New York,	16.3
	$0 23.1
Freight on Hudson,	02
From Buffalo to Albany,	$0 21.1
Do. on same from Chicago to Oswego,	11.3

Average freight in 1869, inclusive of tolls, per 100 lbs. by canal:	
Albany to Buffalo,	$0 13
Do., do., from 1830 to 1833,	94

Distance — Buffalo to Burlington, by Lake Ontario and St. Lawrence — by lake and river, 407; canal, 57,	464 miles.

The enlargement of the Champlain Canal is in progress but not yet completed.

[From Annual Report of Auditor of New York Canal Department for 1869.]

STATEMENT showing the Total Tons and Value, the Tolls paid, and the Relative Proportion of Tons, Value and Tolls of each Class of Property transported on all the New York Canals during the year 1869.

[From Annual Report of Auditor of New York Canal Department for 1869.]

STATEMENT showing the Total Tons and Value, the Tolls paid, and the Relative Proportion of Tons, Value and Tolls of each Class of Property transported on all the New York Canals during the year 1869.

CLASS OF PROPERTY.	QUANTITY.		VALUE.		TOLLS.	
	Tons.	Rate per cent.	Amount.	Rate per cent.	Amount.	Rate per cent.
Boats and passengers,	– –	–	– –	–	$170,634 00	4.52
Products of the forest,	1,855,930	31.68	$21,930,655 00	8.79	1,041,395 00	27.57
Product of animals,	8,691	.15	3,501,985 00	1.40	3,140 00	.08
Vegetable food,	1,302,613	22.23	51,416,240 00	20.53	1,755,554 00	46.46
All other agricultural products,	2,767	.05	610,600 00	.24	787 00	.02
Manufactures,	342,239	5.85	13,595,892 00	5.45	104,389 00	2.76
Merchandise,	268,970	4.58	103,464,505 00	40.21	166,160 00	4.39
Other articles,	2,077,870	35.46	54,761,407 00	23.38	536,442 00	14.20
Totals,	5,859,080	100.00	$249,281,284 00	100.00	$3,778,501 00	100.00

[From Annual Report of Auditor of New York Canal Department for 1869.]

***STATEMENT** showing the Average Rate of Lake Freight on Wheat and Corn between Chicago, Buffalo and Oswego; also the Average Rate of Canal Freight on the same articles between Buffalo, Oswego and New York, for each Month during the season of Canal Navigation*, 1869.

PERIOD.	From Chicago to Buffalo.		From Buffalo to New York.		From Chicago to Oswego.		From Oswego to New York.	
	Wheat per bushel, 60 lbs.	Corn per bushel, 56 lbs.	Wheat per bushel, 60 lbs.	Corn per bushel, 56 lbs.	Wheat per bushel, 60 lbs.	Corn per bushel, 56 lbs.	Wheat per bushel, 60 lbs.	Corn per bushel, 56 lbs.
May,	$0 05.83	$0 05.5	$0 13.75	$0 11.62	$0 10	$0 09.67	$0 09.25	$0 08
June,	07.5	07.19	13.69	11.69	12.25	11.5	08.56	07.5
July,	04.75	04.38	12.94	10.94	08.94	08.44	08.75	07.75
August,	05.25	04.62	13.75	11.75	09.5	08.88	09.06	08.06
September,	06.56	06	16	13.75	10.44	09.81	11.13	09.75
October,	07.56	07.06	21.69	18.44	12.63	11.81	18.75	16.38
November,	10.25	09.17	22.34	18.84	15.5	14	17.19	14.69
Average for the season,	$0 06.81	$0 06.27	$0 16.31	$0 13.86	$0 11.32	$0 10.59	$0 11.81	$0 10.3

The above rates include canal tolls, as follows:—

On wheat, per bushel, from Buffalo to Troy,	$0 06.21
On corn, per bushel, from Buffalo to Troy, to September 19,	04.83
On corn, per bushel, from Buffalo to Troy, from September 20,	03.86
On wheat, per bushel, from Oswego to Troy,	03 54
On corn, per bushel, from Oswego to Troy, to September 19,	02.75
On corn, per bushel, from Oswego to Troy, from September 20,	$0 02.2
Highest rate, lake freight, from Chicago to Buffalo,—wheat,	12
Highest rate, lake freight, from Chicago to Oswego,—wheat,	12.5
Highest rate, canal freight, from Buffalo to New York,—wheat,	25
Highest rate, canal freight, from Oswego to New York,—wheat,	20