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Speech by Hon. Ezra Cornell
on the question of a ship
1864.

New York

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S P E E C H

BY

HON. EZRA CORNELL,

ON THE

QUESTION OF A SHIP CANAL

CONNECTING

CAYUGA LAKE WITH LAKE ONTARIO,

DELIVERED

Before the Committee of the whole Senate of the
State of New York, March 14th, 1864.

ALBANY:

WEED, PARSONS AND COMPANY, PRINTERS.

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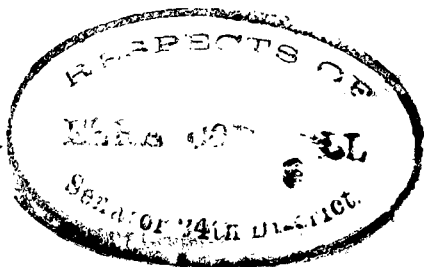
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ITHACA, NEW YORK 14850

S P E E C H .

MR. CHAIRMAN: At the close of the last sitting of the committee upon this bill, the honorable senator from the 15th offered the following resolution of inquiry, which was adopted by the senate:

“*Resolved*, That the bill entitled ‘An act to incorporate the Cayuga and Ontario Ship Canal Company,’ be referred to the Canal Board, for their opinion on the propriety of granting the surplus waters of the Erie canal to said company, and that they be requested to report their opinion to the senate.”

In the report submitted by the Canal Board in response to the above resolution, it will be observed that instead of answering the questions asked them by the senate, they inform the senate that there is no “available surplus water upon the Montezuma level.” They however point out a source from whence a supply of water may be obtained, and this brings the whole question of water before the committee, and I desire that they shall give it such attention as to enable them to understand the subject.

The report of the Canal Board reads as follows:

STATE OF NEW YORK:
CANAL DEPARTMENT, }
ALBANY, *March 3, 1864.* }

To the President of the Senate:

Sir—By direction of the Canal Board, I herewith transmit to the senate the report of that board in reply to the resolution of the senate of the 16th of February last.

Respectfully, your obedient servant,
N. S. BENTON, *Auditor.*

CANAL DEPARTMENT, }
ALBANY, *March 2, 1864.* }

To the Senate:

The Canal Board, to whom was referred the following senate resolution,

Resolved, That the bill entitled, 'An act to incorporate the Cayuga and Ontario Ship Canal Company,' be referred to the Canal Board, for their opinion on the propriety of granting the surplus waters of the Erie canal to said company, and that they be requested to report their opinion to the senate.

By order of the senate.

JAMES TERWILLIGER, *Clerk.*

Respectfully submit the following

REPORT ·

That at present there is no available surplus water upon the Montezuma level; and from the sources now in use, no more water can be obtained except by feeding an additional quantity from Lake Erie.

It would be preferable to avoid, if possible, feeding the quantity of water now desired from the lake, and thereby decrease the current in the canal, which is so rapid as at times to very materially interfere with the towing of boats going west, particularly between Lockport and Buffalo.

Therefore, in the opinion of the board, it would be exceedingly improper to grant any water from the Montezuma level to be taken from present supplies.

This board is decidedly of the opinion that no grant of water should be permitted from the level mentioned, until a supply at least equal to the quantity to be drawn from it has been furnished to the state.

The only source now known to the Canal Board sufficient for such supply, is *Owasco Lake*, which would require an expenditure of \$25,000, as demonstrated by usual surveys and estimates. If this supply should be furnished, the *most* serious objection to the use of water from the level would be removed.

The proposed canal will cross the Erie in such a manner as to require water from both sides thereof, by locking up to the surface water in the same, and by locking down on the opposite side, receiving the entire supply from the Erie canal.

From a careful examination of the subject, the Canal Board cannot, with propriety, recommend that any portion of the present waters on the Montezuma level of the Erie

canal be granted for the purpose indicated by the resolution of the senate.

CANAL DEPARTMENT, }
ALBANY, *March 2, 1864.* }

Resolved, That the foregoing report be transmitted to the senate as the answer of this board to the resolution of reference. The above are true copies of the proceedings of the Canal Board.

N. S. BENTON, *Auditor.*

Mr. CHAIRMAN: In answer to the first branch of this report, it is sufficient to say, that we do not ask an additional supply of water from Lake Erie, as there is no necessity for it. If, however, there was any such necessity, I should not shrink from the task of proving, as I believe I can prove, that an additional supply could be obtained from Lake Erie, without injury to the movement of tonnage on the Erie canal, or without increasing the rapidity of the current between Lockport and Buffalo.

I will only call one witness in reference to an additional supply of water from Lake Erie. This witness is one of the gentlemen Canal Commissioners, who is a member of the Canal Board, and who has the western division of the canal in charge.

In his last annual report he urges the enlargement of the lockage facilities of the Erie canal, and says:

“Experienced canal men assert that the present trunk, when complete, seventy feet wide by seven feet deep, has the capacity to do three times the amount of business now done with the present class of boats, if sufficient lockage capacity of the present size is afforded. The supply of water is worthy of consideration in discussing this subject. Of the supply upon the other divisions of the canal, the undersigned cannot, with confidence, express an opinion; but in reference to the western division he has no hesitation in asserting the supply is adequate, and will require no additional resources.”

That is, to do three times the amount of business now done with the present class of boats. You will perceive that this could only be done by increasing the number of lockages to at least double what it has been, say 50,000 in the season, instead of 25,000 as in 1862. To do this it

would require double the quantity of water, and the commissioner says the supply is adequate for this additional business.

This, Mr. Chairman, is the Canal Board's own witness, and a witness who understands the subject he is discussing, having had that division of the canal under his charge for several years.

We will pass to the consideration of the second branch of the report, which is served up in the following sentence :

“The board is decidedly of the opinion that no grant of water should be permitted from the level mentioned, *until* a supply at least equal to the quantity to be drawn from it, has been furnished to the state.

The only source now known to the Canal Board sufficient for such supply, is *Owasco Lake*, which would require an expenditure of \$25,000. If this supply should be furnished, the *most serious objection* to the use of water from the level would be removed.”

This, sir, is decidedly business like, and perhaps I should not complain, even though the board is found to be in fault as to the facts.

As far as the board studies the true interest of the state in their dealings with the canals, I am with them. And if this committee is governed by the same principle, as I have no doubt it is, we shall find no ground of difference when we come to understand the question before us. And, with a view to such understanding, I will now refer to the Canal Commissioners' report of the 8th January, 1863, published before the commissioners knew anything of the application for the charter of this company. It is as follows:

“In determining the question of feeders for the western levels enumerated above, the Owasco outlet was suggested when our canals were enlarged, but the large price demanded for the diversion of this stream at Port Byron—some \$86,000—probably settled the question against its appropriation. It could be used as an auxiliary in feeding the Port Byron, the Montezuma, and the Cayuga levels, *and thus relieve the Skaneateles and turn its waters mostly to the east.* It is understood that this property, including the race of about two miles in length, can now be purchased for less than one-eighth of the sum formerly demanded.

The race could be put in order, the bulkhead rebuilt, and a new feeder brought in at Port Byron (*above the lock*) through iron or cement pipes, for about \$12,000. It is respectfully recommended that this improvement be authorized, provided the property can be purchased at this reduced rate."

Here, then, it is shown that the additional supply of water from the Owasco outlet was required for the Erie canal, and its purchase recommended by the commissioner in charge of this division of the canal, before the Canal Board had ever heard of the Cayuga and Ontario canal, or before the bill was drawn for its incorporation; and it could be had for \$12,000, instead of \$25,000, as stated by the Canal Board.

And why did the necessity exist for this additional supply of water for the Erie canal? Was it to feed the Cayuga and Ontario canal? Was it because more water was required on the Montezuma level "to provide for unavoidable depression from high winds," as suggested by the report of the Canal Board last year? I have heard boatmen spin exciting yarns in setting forth the dangers of navigating "the raging canawl," but I must confess that I was not prepared to appreciate the full sum of danger that high winds subjected the canal to. Or was it because the Cayuga level required more water? Or was it required for the use of the state in any way, on the Montezuma level? It was not required for any of those purposes.

The best evidence that it was not so required, and that an available surplus did exist, is found in the fact that a flouring mill at Montezuma, located within a few rods of the mouth of the Cayuga and Seneca canal, and within half a mile of the aqueduct, where the wind is supposed to play such pranks with the water, was supplied with water from the Montezuma level of the Erie canal, drawing 180 square inches under eight or nine feet head; a quantity sufficient to supply the locks of the Cayuga and Ontario canal.

Where, then, was the necessity for the purchase of the Owasco outlet, which Commissioner Wright respectfully recommended, in 1863? I will show you, sir. By referring

to Commissioner Wright's report for 1862, you will perceive that the Owasco outlet can be "brought in at Port Byron *above the lock*," "and thus relieve the Skaneateles, and turn its waters mostly to the east."

Here, sir, you will have the answer to the whole question. The Skaneateles required the relief, so that its waters could be turned to the east. The Skaneateles is the principal feeder to the Jordan level, and the Jordan is a summit level, locking eastward through lock No. 50, with $6\frac{1}{2}$ feet lift, and westward through lock No. 51, with $5\frac{1}{2}$ feet lift, and on this summit level there is water enough to supply locks Nos. 50 and 51; and now we reach the trouble. Lock No. 52, at Port Byron, has eleven feet lift, just twice as much lift as lock No. 51 has, and thus requires twice as much water to fill it, and being supplied with water from the Jordan summit level, it is apparent that twice as much water must be drawn from the west end of Jordan level as is required to supply lock No. 51, and this extra draft the level cannot supply in dry seasons from its present sources. And this difficulty is sought to be supplied by turning the Owasco outlet into the Erie canal on the Port Byron level, *above lock No. 52*, and relieve the Jordan summit from the extra draft of water above the requirements of the locks at each end of the level—Nos. 50 and 51.

Supposing it possible that this question of water might have some bearing upon the subject before the legislature, I proposed, last summer, to the owners of the water power in question, to buy it, with a condition attached to the purchase, that the state should have the use of it free of charge for the purpose of feeding the Port Byron level, from whence it would flow to the Montezuma level, where I desired its use to supply lockage water for the Cayuga and Ontario canal. I suggested to Commissioner Wright this proposition, and understood him to approve of it, and he remarked that my proposition secured to the state all the use of water that the Port Byron level required.

Commissioner Wright, however, held the refusal of the property for the state, and the owners could not accept my

proposition until the state's refusal was acted upon, which was finally decided against me, by Mr. Wright notifying the owners that he should appropriate the water to the use of the state. The owners thereupon notified me that they regarded Mr. Wright's answer as an acceptance, on the part of the state, of their proposition to sell the property to the state, and there the matter rested.

So much for the Owasco outlet.

Now we will examine the question as to the quantity of water on the Montezuma level, and see where the water comes from which runs the Montezuma mill, if there is no available surplus as the Canal Board reports.

And let me here remark, that I have inquired of the Auditor, and other gentlemen of the Canal Board, if the state leased any surplus water to any mill owner on this level, and they all assure me that no such lease existed, and that no knowledge existed, in Albany at least, that any such water was drawn from the canal.

It would seem as though somebody would have found it out, if there really had been a deficiency of water on the Montezuma level, for 180 square inches of water under eight or nine feet head is a large stream.

By reference to the Canal Commissioners' report, we find that lock No. 52 east end of the Montezuma level, and having eleven feet lift, made 31,019 lockages during the season of navigation in 1862. Also, that lock No. 56, of ten feet lift west of Clyde, made 25,000 lockages during the same season. The quantity of water thus discharged into the Montezuma level, which is the lowest level on the western division of the Erie canal, is as follows:

Lock No. 52 is 110 feet long by 18 feet broad and 11 feet deep, requires 21,780 cubic feet of water to fill it; this multiplied by 31,019, the number of times filled and emptied in the season, is 675,591,820 cubic feet, discharged from the east into the Montezuma level.

Lock No. 56 is same length and width, with one foot less lift, contains 19,800 cubic feet of water; this 25,000 times is 495,000,000 of cubic feet of water discharged into the west

end of the same level, making a total of 1,170,591,820 cubic feet of water discharged upon the Montezuma level. To this quantity should be added a large amount which flows around each lock, and the leakage at each lock, which I have no means of computing to determine the quantity. The only further use the state has for this vast quantity of water, is to keep up a supply on the Montezuma level of seven feet deep in the canal, and supply the Cayuga and Seneca canal with its lockage and leakage water.

At lock No. 9 on the Cayuga and Seneca canal, same size lock as No. 56, we find 6,898 lockages, requiring 136,580,400 cubic feet of water, which, deducted from the sum above, leaves 1,034,011,420 cubic feet of water, to be wasted by evaporation or to be discharged on the Cayuga marshes by filtration, and flow from waste weirs or over the sides of the aqueduct.

The evaporation, upon the data given by the state engineer, is $3\frac{1}{2}$ cubic feet to each square foot of surface, during the season of navigation. We thus have for 22 miles of canal, the length of the Cayuga and the Montezuma levels, with 70 feet of water surface, 28,459,200 cubic feet, for the loss by evaporation. For soakage or filtration we will assume the waste to be 70 cubic feet per mile per minute, which is an overestimate for the greater part of the distance; this gives us a loss of 340,579,600 cubic feet for the season, making the total waste by evaporation and filtration equal to 369,038,800 cubic feet, which deducted from the sum total of water left on the level, after supplying the Cayuga and Seneca canal, we have 664,972,620 cubic feet of available surplus water, applicable to the supply of the Cayuga and Ontario canal, which is equal to 2,968,627 cubic feet per day during the season of navigation, and adequate to the lockage of 24 vessels per day over the Erie canal, through locks 26 feet by 220 feet, and 12 feet lift, the size proposed for the gunboat locks on the Erie canal.

Here then are official data, to show that there is a large available surplus of water on the Montezuma level, and of necessity must continue to be as long as the Erie canal

continues to be the channel through which such a large amount of the produce of the west is conveyed to market.

Now let us see how the navigation of the Erie canal will be affected by the temporary draft upon the level for water to fill the locks of the Cayuga and Ontario canal, in depressing the water-level of the canal.

The locks of the Cayuga and Ontario canal being 26 feet wide, 220 feet long, and 12 feet lift, will contain 68,540 cubic feet of water. It will require one such lock each side the Erie canal, one to ascend from the level of Clyde river to the level of Erie canal, and the other to descend on the opposite side to a like level, the two locks will require 137,080 cubic feet of water to pass a boat over the Erie canal. These locks will be situated half a mile at least from the Erie canal, on either side, to secure the necessary basin room for the Cayuga and Ontario canal. This basin room should be 200 feet broad. One inch in depth of the surface of this basin would furnish 88,000 cubic feet of water. Therefore, we should require to draw this basin down less than one inch to lock a vessel up to the level of the Erie canal, and this crossing would be three or more miles from the west end of the Erie level, and hence, would draw water from the Erie canal each way, thus increasing the surface to be drawn from. If the water flows from an equal distance on each canal, the effect will be to depress the surface of the Erie canal a fraction over the half of one inch, and before the vessel can reach the other lock, the level will be restored and ready to supply the other, so that, practically, the draft of water for passing vessels over the Erie canal, will not perceptibly depress the surface level of the Erie canal, if this lockage was continued once an hour during the entire day. The fear, therefore, that the Erie canal is to be injured, is an idle one. And that question was well understood by the Canal Board of 1850, who in reporting on this same subject, and in answer to a resolution of inquiry from the Assembly, says, "The board are of opinion that the surplus waters of the enlarged canal drawn from Lake Erie, may be discharged from the Montezuma level

at the contemplated point of intersection of the Sodus canal without diminishing the water of the Seneca river or its tributaries."

Mr. CHAIRMAN: The figures which I have given above, and the conclusions which they irresistibly lead to, are sustained by the fact, that a mill at Montezuma has been drawing largely from this level without lessening the supply sufficiently to lead to detection. For no man will doubt, but what the boatmen would have detected this robbery of water, if there had been a short supply on the level, if the Canal Commissioners did not.

In justice to the present commissioner, Gen. Bruce, it is proper to say, that he has discovered the mill that draws the water from the Montezuma level, and he has informed me, that he has commenced a suit against the owner thereof to vindicate the rights of the state.

Notwithstanding my conviction that there is an abundance of water here for our canal, which it is the interest of the state that we should use and convey off to Lake Ontario before it floods the marshes, if, in the opinion of senators, greater caution should be observed, I shall not resist such an amendment to this bill as the report of the Canal Board suggests, requiring the company to furnish an amount of water equal to that which they may draw from the Montezuma level of the Erie canal.

Mr. CHAIRMAN: Believing that the official and statistical evidence which I have presented, will remove all doubts from the minds of senators, and satisfy them that there is a large quantity of water on the Montezuma level, to be disposed of in some way, I will invite their attention to the efforts the state has made to remove this water after its discharge from the canal, and to relieve itself from the claims for damage which the water gives rise to, by overflowing large tracts of land on the Seneca river, known as the Cayuga marshes.

The improvement provided for in the bill under consideration, will open a channel through which this water may

be removed, and, therefore, very important advantages will accrue to the state from the construction of this canal.

The state is now discharging from the Erie canal an average of 4,184,523 cubic feet of water per day, into the Cayuga marshes, during the entire season of navigation of 224 days.

In addition to the above quantity of water from the Erie canal, the state has turned the Chemung river from its original course through Pennsylvania, northward, to and for the purpose of feeding the Chemung canal, and thence through the Seneca lake to the Cayuga marshes.

The exact amount of this last quantity of water, I have not computed. It will, however, exceed one million of cubic feet per day. It will be seen, therefore, that the state has diverted water from its natural channels for the purposes of supplying the canals, which it discharges into the Cayuga marshes to an amount exceeding 5,000,000 of cubic feet per day.

This water is a source of great damage to a large number of individuals, and a large section of the state.

That the state is responsible for the damages resulting from this discharge of water upon those lands, is clearly attested by the acts of the legislature during the past forty years.

Directly after the decision of the Canal Board, to divert water from Lake Erie to supply the canal eastward to Montezuma, the legislature, seeing the necessity of providing some means of escape for the water thus to be turned from Lake Erie and the Genesee river, passed an act, making provision for deepening the Seneca river and draining the Cayuga marshes.

That act was passed in 1824, providing for the appointment of commissioners to examine the subject, make surveys and report to the next legislature.

The legislature in 1825, following up the subject, appropriated \$80,000 for draining the Cayuga marshes, which was expended during that and the next two years. In 1828 \$20,000 more was appropriated for the same object. From 1828 to 1853 various smaller sums were expended in this

work, mainly in closing up old contracts, making examinations, &c. These sums I have not been able to ascertain, but they amounted to several thousands of dollars.

In 1853, when the enlargement of the Erie canal increased the evil by a large increase of water, the legislature again took hold of this work in earnest, and appropriated \$100,000 for draining the Cayuga marshes. In 1856, we find \$25,000 appropriated, and in 1857 \$109,000 is added; in 1858, \$30,000; 1859, \$13,380. In 1860, \$30,000 more was appropriated, with a proviso that it should not be expended by the Canal Commissioners, unless they could make a contract for the completion of the work for that sum.

The commissioner learning that he could not make a contract to finish the job for \$30,000, makes a report in 1863, giving a brief history of the operations for draining the Cayuga marshes, in which he shows that the work done has lowered the water in the Seneca river at Montezuma $\frac{3}{10}$ of a foot, or about one-fourth of an inch. This is rather a close calculation, Mr. Chairman, but the commissioner was shrewd enough to know that if he did not "report progress," he could not expect further appropriations. He, therefore, reports that the half million of dollars expended in draining the Cayuga marshes, had lowered the water of the river at a point six miles below the outlet of the Cayuga Lake, full one-fourth of an inch, and respectfully recommends, that the appropriation of the last session be increased, and the restriction in the act be repealed.

If the commissioner's advice had been adopted by the legislature, the drainage of the Cayuga marshes could have gone on, and the comptroller would have reported more inches of depression in the treasury than the Canal Commissioner could find in the water on the marshes.

This outlay by the state to correct the mischief done by its own legislation, in throwing this large amount of water upon those marshes, and to relieve the state from liability for damages, has exceeded four hundred thousand dollars, and if all the items could be gathered together which have been thus spent, I doubt not it would reach the enormous

sum of half a million of dollars; and, thus far, nothing has been accomplished in the way of removing the water. The area of marsh has been increased from year to year, and thus a larger surface is exposed to evaporation, and a greater quantity of miasma generated, spreading pestilence and disease throughout that section of the state.

The contemplated enlargement of the Erie locks, whether for the passage of gunboats, or for the accommodation of commerce, will add largely to the quantity of water to be thrown upon the Cayuga marshes, and another half million of dollars may be fruitlessly expended in trying to force this water through the crooked and sluggish channel of the Seneca river, which has a descent of only 12 feet in 38 miles from the Cayuga Lake to Baldwinsville, less than four inches in a mile, and it is only two inches to the mile in the first 28 miles of the distance.

Mr. CHAIRMAN: If the legislature passes this bill, authorizing the construction of the Cayuga and Ontario canal, the question of draining the Cayuga marshes is solved, as far as the liability of the state is concerned.

This canal, Sir, will furnish a straight and direct channel from the Erie canal to Lake Ontario, of from 10 to 15 miles in length, dependent in distance upon which route is taken through which this surplus water can be passed, stimulating the commercial enterprise of the state, at the same time that it removes an incubus of no small magnitude from the public treasury, and purifies the air through which now float the seeds of sickness and death.

Mr. CHAIRMAN: We have dealt with this subject thus far without alluding to the sanitary aspect of the question, but we should not dismiss the subject without reflecting upon the benefits this improvement will confer upon all that district, embracing parts of Cayuga, Wayne and Seneca counties, which borders upon those marshes, by removing the causes of malaria, and thus purifying the atmosphere, and driving the agues and fevers from the dwellings of the people.

We should remove this plague spot from sight, if for no other reason than to preserve the good name of the state.

We have now two railroads passing through those swamps, exhibiting their *curse* daily to thousands of people who pass through our state seeking for homes. Can we afford to present such a picture to the millions who travel upon our railroads? Would it not be more to the credit and the interest of the state, if those lands were reclaimed, and highly cultivated fields should occupy the places now known only to muskrats, tadpoles and mosquitoes? You can send this surplus water off to Lake Ontario through a straight channel of the Cayuga and Ontario canal, of 10 to 15 miles in length, with 140 feet fall, but you cannot send it off through a channel of 70 miles in length, the first 28 miles of which has a fall of only two inches to the mile, as the state has attempted to do for the last forty years, at a cost of half a million of dollars to the treasury, so as to drain the Cayuga marshes. Health and prosperity to the people who live on the borders of those marshes, will follow the passage of this bill.

Diversion of Trade.

Mr. CHAIRMAN: The next question raised, by the honorable senator from the 15th, is, will not the Cayuga and Ontario canal, if constructed, divert business from the Erie canal?

I answer the honorable senator, that it will not. It will have the opposite effect. With the facilities this canal will give us for reaching the granaries of Chicago and Milwaukee, and the rich deposits of iron and copper ore of Lake Superior, we shall build up a manufacturing interest at Ithaca that will furnish vastly more traffic to the Erie canal, than the entire amount of our present traffic by the canal between Ithaca and Buffalo, which is the only traffic that can be affected by the proposed improvement.

At present, Sir, we are ruled out from the use of the Erie canal as far as a supply of western grain for our mills is concerned, by the press of through business on the canals. Our millers cannot purchase a boat load of wheat at Buf-

falo, between harvest and the close of navigation, and get it shipped to Ithaca, without going to Buffalo in person and watch their opportunity for a chance boat that can be diverted from the through traffic between Buffalo and New York, by the temptation of excessive rates of freight, which precludes all attempt at the employment of our water power in milling for the New York market.

The only other traffic that can be regarded as in danger of diversion from the Erie canal, by the construction of the Cayuga and Ontario canal, is that in coal shipped from Ithaca to Oswego and Buffalo. That traffic for the last five years has been as follows: The gross amount of coal shipped at Ithaca in 1859, was 30,624 tons; in 1860, 33,631 tons; in 1861, 29,127 tons; in 1862, 40,375 tons, and in 1863, 48,313 tons, making a total amount of 182,070 tons, or an average of 36,414 tons per annum, of which twenty per cent goes to Buffalo or Oswego, mostly to Buffalo, as Oswego is mainly supplied from Syracuse. Here we have a traffic of 7,283 tons per annum as the sum total of tonnage, which can be supposed to be in danger, and this finds ample protection in the fact, that it is mainly carried in return boats from New York, which, leaving the Erie canal at Montezuma, go up to Ithaca and load with coal for Buffalo, which lengthens their round trip only three days, and they carry the coal at less rates than it could be carried for, through the contemplated improvement.

The tolls on this coal amounts to 37½ cents per ton from Ithaca to Buffalo. The diversion, therefore, of this entire traffic from the Erie canal (if it were possible to divert it), would only involve an annual loss to the state of \$2,294.

When, Mr. Chairman, have such trifling considerations influenced legislative action, upon great and important public questions?

You would search the records of New York legislation in vain for an answer to the question.

This canal would stimulate and bring into existence much new traffic, which the Erie canal cannot accommodate. The vast and inexhaustible gypsum quarries of

Cayuga, would furnish a quarter of a million of tons of freight to this canal, the first year after it is open, not a ton of which passes beyond the state over the Erie canal. The area of this traffic would be so extended, that the Cayuga plaster would meet the Nova Scotia plaster at Montreal, and the Michigan plaster at Detroit, and compete successfully with it on Lake Michigan, where it would go as ballast for return freight. Ohio, Indiana, Western Canada and much of Lake Michigan country, can be supplied with gypsum cheaper from Cayuga Lake through this canal, than from any other source, and the farmers of those states will soon find it their interest to use this cheapest of all fertilizers.

Mr. CHAIRMAN: The question before us is, will the bill under consideration, if passed to a law, authorize the erection of a work that will prove injurious to the Erie canal by diverting traffic therefrom?

Are senators serious in raising this question? If their fears for the prosperity of the Erie canal are so easily excited, how is it that they have overlooked the gigantic operations of the New York Central and the New York and Erie railroads? Works which not only divert traffic from the Erie canal, but are formidable rivals of that great work. Those companies have both been incorporated by the legislature of New York since the state built the Erie canal, with powers to build roads from Lake Erie to tide water, parallel with the canal, and to carry freight thereon without paying tolls to the state.

Now let us see what those roads have done in the line of diverting traffic from the Erie canal.

We find a table in the annual report of the auditor, which shows the separate tonnage of the canals and the two railroads, and the aggregate of both for ten years, from 1853 to 1862, inclusive, from which I make the following extracts:

YEARS.	Tonnage by Canals. Aggregate of each year.	Do. by N. Y. Cen- tral Railroad.	Do. by N. Y. & Erie Railway.
	Tons.	Tons.	Tons.
1853,	4, 247, 853	360, 000	631, 039
1854,	4, 165, 862	549, 804	743, 250
1855,	4, 022, 617	670, 073	842, 048
1856,	4, 116, 082	776, 112	943, 215
1857,	3, 334, 061	838, 791	978, 066
1858,	3, 665, 192	765, 407	816, 954
1859,	3, 781, 684	834, 319	869, 073
1860,	4, 650, 214	1, 028, 183	1, 139, 554
1861,	4, 507, 635	1, 167, 302	1, 253, 418
1862,	5, 598, 785	1, 384, 433	1, 632, 955

Thus we see, that while the Erie canal has fallen below in the average tonnage of the last ten years, the tonnage it enjoyed in 1853, to the amount of 40,000 tons per annum, the New York Central railroad has increased its tonnage from 360,000 tons in 1853, to 1,384,433 tons in 1862; and the New York and Erie railway has increased its tonnage in the same period, from 631,039 tons in 1853, to 1,632,955 tons in 1862. The two roads increasing their average tonnage at the rate of 831,360 tons per annum for the period of ten years, while the canals have lost an average of 40,000 tons per annum in the same period.

Here is a diversion of business from the canal that is worthy the attention of senators. And I think it will be found that the Erie canal is more indebted to the extraordinary growth of the western states, than to the guardianship of the legislature for its present prosperity.

During the ten years of the last decade, eight of those states increased in population from 5,403,595 to 9,063,149; in improved lands from 26,680,351 acres to 51,862,395 acres, and in the production of wheat and corn from 266,050,540 bushels to 491,199,050 bushels. Here is an increase of tonnage in ten years of 6,819,651 tons per annum, which explains the small diversion of business from the Erie canal by the fierce competition of the railroads; and in this

western growth of country and increase of agricultural products rests the future hope of the Erie canal; for even the railroads will not be hindered from diverting business from the Erie canal, as long as the commercial prosperity of the state is thereby promoted. If, however, the Erie canal is to remain with its present capacity, we may safely dismiss this subject from further consideration, for it must be evident to any person who will reflect upon the subject, that the increase of trade will greatly exceed the carrying capacity of all the avenues through our state.

Notwithstanding the rapid growth of the states above alluded to, only one-eighth of their tillable land had been brought under cultivation in 1860; and that work of increase is still going on, and will continue to go on until the products of the western states are ten-fold greater than they were in 1860, and additional millions of tonnage will seek an eastern market through our state or around it, as the wisdom of legislation shall determine.

I therefore concede the importance of the question of diverting business from the Erie canal; but, Mr. Chairman, it is not the petty diversion that will possibly flow from the Erie canal into the Cayuga lake, but the wholesale diversion that may send cargoes of wheat from Chicago to Liverpool, without breaking bulk, and not coming within hailing distance of the Erie canal, or of the state of New York, which senators should consider. It is such a diversion as that which I had in mind, when I voted in the other branch of the legislature last winter, for enlarging the locks on the Erie canal, between Montezuma and Rochester; and that question of increased lockage capacity of the Erie canal, we shall soon have to meet and decide, if we mean to retain the business of the west for the benefit of New York.

With the expenditure of a few millions of dollars, perhaps not to exceed five millions, the capacity of the Erie canal can be increased sufficient to pass boats of 500 tons burthen, and do a business of ten millions of tons per annum, reducing the cost of freight and tolls to three dollars per ton, which is half the cost of freight and toll in

1862, increase the revenue from five to ten millions of dollars, and set at rest for ever all fears of diverting business from the Erie canal, or from the city of New York.

Security to the Erie Canal.

MR. CHAIRMAN: Having shown that the Erie canal is not in the least danger of suffering injury from the construction of the Cayuga and Ontario canal; I will now show the committee that the commerce of the Erie canal will derive additional security from said improvement.

In the Canal Commissioners' report of Jan. 8, 1863, we find the following warning of the insecurity of the Erie canal across the Cayuga marshes:

“During the past year, the embankment across the Cayuga marshes has been fully completed. The light and unstable nature of the soil on which it stands has warned the commissioner, and others in charge, of the necessity of the utmost vigilance in providing against any movement or failure of the earthen walls on this portion of the canal, more especially as they cannot be replaced, without ruinous delay, during the season of navigation, and without heavy cost at any time.

“In the month of August last, a most alarming sinking of the towing path bank occurred, about ten chains west of the aqueduct. For the distance of about five chains, the entire bank seemed suddenly to settle into its frail foundation, leaving scarcely four feet of the remaining bank to hold the water, and this being nearly vertical on its outer slope for six feet in depth. The cavity was promptly filled with proper materials, and the toe of the bank secured by the use of brush and stone. Under a construction contract about 4,700 yards of this material was laid on.

“The work is not yet deemed entirely safe; and it is earnestly recommended, in view of the disastrous consequences which must ensue from the failure of any portion of it, it should be thoroughly secured wherever indications of similar weakness are presented. The additional expense of this improvement is estimated at \$15,500.”

Again we find in the Canal Commissioners' report, of the 22d January, 1864, the following sound of alarm:

“During the summer and fall a further heavy expenditure has been rendered necessary, to provide for the permanency of the canal banks on the Cayuga marshes.

“The premonitory symptoms of breaks occurred at different points, and as soon as they were discovered, means were promptly taken to secure the embankment by additional banks of stone and brush at the toe thereof.

“The following remarks in the report of last year, referring to these marshes, have an import which would seem to justify their repetition.”

And here follows the extract I have quoted above.

Mr. CHAIRMAN: I will now make a brief extract from the State Engineer's report, on the canals in 1863, to show the general character of this portion of the canal, which the commissioners have shown to be so hazardous. It is as follows:

“The level extends from Port Byron to Clyde, 16 miles, 7 of which the canal is carried over the Cayuga marshes and low timbered lands, three feet below canal bottom—the banks rise 13 feet above the marsh, and the canal 10 feet. The average amount of filling per mile, carried into the work with an average haul of $\frac{3}{4}$ of a mile, was 250,000 cubic yards. The material was deposited without any preparation upon the natural surface, consisting entirely of vegetable mould, the depth of which to firm bottom is from 30 to 60 feet.”

“The canal is carried over the Seneca river at the east side of the marsh by the Richmond aqueduct, a beautiful stone structure 894½ feet long, supported by 4,464 bearing piles, ranging in length from 20 to 30 feet.”

Mr. CHAIRMAN: I submit in all seriousness to senators, if here is not a plain case of hazardous and insecure work, and whether it is not the duty of the legislature to embrace any reasonable project which offers security against the disasters that must result from a break in the canal on this marsh, where the embankment is 13 feet high, on a vegetable mould 60 feet deep to hard bottom, where the “premonitory symptoms of breaks occurred at different points” last season, and where a section of the towing path, five chains in length, sank to the depth of six feet in this soft bottom the season before.

If a break should occur in any part of the three miles of embankment across those marshes, at a time when the Cayuga Lake is swollen by floods as it was in June, 1857,

it would scarcely be within the power of man to prevent the loss of the entire canal, the whole width of the marsh.

At the time referred to, the water rose on the marsh to near the top of the aqueduct. Such a disaster would interrupt the navigation of the canal the entire balance of the season, as it would require many months to reconstruct such an embankment.

Mr. CHAIRMAN: The question, how can we protect the Erie canal against the disastrous consequences which would result from such possible interruption of its traffic? must involuntarily rise in the minds of all who have given the least reflection to the subject.

I will endeavor, Sir, to answer this question, by explaining to the committee, how the Cayuga and Ontario canal, when constructed, could be used to pass the boats navigating the Erie canal, around a break occurring in the Erie canal on the Cayuga marshes.

By reference to the map, you will see that the Cayuga and Seneca canal branches off from the Erie canal at Montezuma, which is east of the Seneca river and Cayuga marshes, and runs thence to Cayuga, a distance of 8 miles south where boats lock into Cayuga lake.

The proposed Cayuga and Ontario canal, passes from the Cayuga lake down the outlet of the lake or Seneca river, to within $\frac{1}{2}$ or $\frac{3}{4}$ of a mile of the aqueduct, a point where the Clyde river intersects the Seneca, thence up the Clyde river to the village of Clyde, or in that neighborhood, where it will cross the Erie canal some ten or twelve miles west of Montezuma, where the Cayuga and Seneca canal branches off. So that boats passing from the Erie canal at Clyde into the Cayuga and Ontario canal, and through it to Cayuga lake, there lock into the Cayuga and Seneca canal, and through it to Montezuma, where they would again enter the Erie canal, after a voyage of less than 25 miles, and having passed around ten miles of the Erie canal, on which navigation is suspended by the supposed break. Thus the Cayuga and Ontario, in conjunction with the Cayuga and

Seneca canal, forms a continuous line of navigation around this dangerous, marshy section of the Erie canal, and its use by the state as provided by section 23 of the bill under consideration, will relieve the commerce of the Erie canal from this extraordinary hazard.

Mr. CHAIRMAN: I have no hesitation in asserting, that the security thus offered to the commerce of the Erie canal, is a full and ample equivalent (if an equivalent is to be exacted) for all the privileges that the state is asked to confer upon the corporation proposed to be created by this bill.

Natural Flow of the Seneca River, and its Additions.

Mr. CHAIRMAN: Our enterprising neighbors at Oswego are watching with a jealous eye, to see what effect the improvement contemplated by this bill will have upon the prosperity of their flourishing city.

That is all very proper, Sir, it is well for them to watch, and it is equally important that they should be watched.

I am happy, however, to believe, that they can find nothing in this bill which can in the least degree excite their fears, or give any just ground for opposition from that quarter.

Any stimulus, that this improvement will give to the prosperity and growth of Ithaca, should not excite alarm at Oswego, for there cannot be a doubt that the connection between the two lakes will be mutually beneficial to both localities. Oswego has a sufficient start in commercial and manufacturing prosperity, to look back with pride and indifference upon those younger aspirants for such honors, who may yet take the field.

Oswego is on the great water line of commerce from the western lakes to New York, she already enjoys a trade from and to other states which passes through her warehouses, of over 600,000 tons per annum, nearly one-third as large as the tonnage passing Buffalo.

Ithaca is an interior town, nestled away back in the heart of the state, with large undeveloped manufacturing re-

sources, but so situated that she can never expect to see the golden stream of commerce from the great west flowing through her lines of communication in pursuit of an eastern market. Oswego already enjoys the rich boon.

Ithaca only seeks such avenues of trade as will tend to the development of her dormant manufacturing resources. She possesses water power equal to the most favored localities in the state. It leaps from her hill-sides to the bosom of the Cayuga, sporting in unrestrained freedom. Give us this improvement, and it will soon be harnessed to the busy spindle, furnishing employment to thousands of willing hands, and performing the labor of hundreds of thousands, and make the homes of industry cheerful and happy.

At Ithaca we receive the coals of Pennsylvania at a less cost than they can be furnished at any other point on the lakes. Give us this improvement and we can procure the copper and iron of Superior, and the iron ores of St. Lawrence, Franklin and Clinton, Lewis and Hamilton, on equally favorable terms; limestone we have in abundance. With this concentration of materials, we have the elements of a prosperous manufacturing industry.

Our forests furnish vast quantities of the best timber for ship building and other uses which this improvement would open to a ready market. We are in the center of 100,000 agricultural population, possessed of fertile lands, who must look in future to the manufacturing industry in their midst for a market. The rich prairies of the west, opened by the commercial interest of our own state, create a competition which they cannot stand against. A barrel of flour is carried from Chicago to New York at the same or less price than it frequently costs from Ithaca to New York. Give us this improvement, and we will create a market for the agricultural products which surround us, and not complain when you further cheapen the cost of carrying the products of the west to New York, as you must and will do, for the benefit of Oswego, Buffalo, New York, and the commercial interests of the state.

Our people have borne taxation patiently for the purposes of building up this oppressive rivalry which they don't complain of now, but against which they must now seek protection. They do ask, however, that they may be permitted to employ their own capital in digging out from their present isolation, and opening such avenues as shall tend to develop the peculiar resources of their locality. This they expect, and they will not rest contented until they receive it. Give us this, and we will work out our own prosperity, and be able to contribute more largely to the prosperity of the state.

If our Oswego friends feel constrained to oppose the passage of this bill, they will probably seek an excuse, in the assumption that their water power will be injured by the diversion of so much water, as it will require to do the lockage on the Cayuga and Ontario canal.

This position, however, is untenable, as I shall endeavor to show.

By building the Cayuga and Ontario canal, and the drainage of the Cayuga marshes, which can thereby be effected, and is sure to follow, the Seneca river would be confined to its channel, and the loss of water by evaporation would be greatly diminished.

This source of saving, alone, will more than compensate for the lockage water of the Cayuga and Ontario canal, as may be seen by recurring to the operations of the well known natural laws of evaporation.

By reference to the State Engineer's report, you will find it demonstrated by experiments, made at Ogdensburgh, N. Y., in 1838, that the loss of water by evaporation, during the seven months of canal navigation, is equal to $3\frac{1}{2}$ feet in depth on a given surface.

In senate documents for 1852, you will find attached to the report of Mr. George Geddes, who made a survey and gives a detailed statement of the whole question of draining the Cayuga marshes, a list of the owners of this swamp land, and amount of acres owned by each, and its estimated value. You will find that the Cayuga marshes embrace

an area of 28,578 acres, above Baldwinsville, or on that portion of the river that has less than four inches to the mile average descent.

The loss of water by evaporation, on such an area of surface, by the standard furnished us by the State Engineer, is 4,357,001,880 cubic feet, during the season of canal navigation, or 19,450,901 cubic feet per day, which is more than six times the quantity of water required for the Cayuga and Ontario canal.

Or, in other words, we secure all the water we require for the Cayuga and Ontario canal by draining the marshes and arresting the waste by evaporation.

While at this point, Mr. Chairman, let me call the attention of senators to the benefits the state will derive from the drainage and improvement of this land. The report above referred to shows, that 28,578 acres is assessed at a less average than one dollar per acre. If this land was drained, so as to be susceptible of tillage, it would be cheap at \$1.00 per acre, thus adding nearly three millions of dollars to the wealth of the three counties in which it is situated.

Returning to the Oswego water power, we must not overlook the fact, that the volume of water flowing into the Oswego river, is very largely increased by the state improvements, leaving entirely out of the question the amount brought from Lake Erie and the Genesee river, to feed the canal west of Clyde. In the first place we have the supply of the Chemung canal turned north from the Chemung river, one of the tributaries of the Susquehanna, which flows through Pennsylvania. From this source Oswego gets 1,000,000 of cubic feet per day, at least during navigation.

The Skaneateles lake has been converted into a reservoir, and can be drawn down some four or five feet, thus largely increasing the natural supply, and holding it in reserve for the dry season, when most wanted by the milling interest of Oswego. A like improvement has quadrupled the supply of water from the Owasco lake in the dry portion of the

season, as this lake was improved to increase the water power of the Auburn prison.

The DeRuyter reservoir operates in the same way for the advantage of Oswego, its waters flowing through Oswego to Lake Ontario, and it contains 500,000,000 of cubic feet of water, equal to a daily supply of 2,200,000 cubic feet.

On the Black river canal, we find Chub lake, Wood Hull lake, South Branch lake and North Branch lake, tributaries of Black river, which flows into Lake Ontario, at Sackett's Harbor, all doing the same kindly office for Oswego. The state having converted them into reservoirs, and diverted their waters from the Black river into the canal at Boonville, and thence to the Erie canal at Rome, from whence it departs in part for Oswego. The waters of the Cazenovia lake, and several other lesser streams, are improved in the same way, all to the inevitable benefit of Oswego.

* From these various sources, the water of Oswego river is increased by millions of cubic feet per day, aside from the pittance we ask to supply the locks of the Cayuga and Ontario canal,

This is not all, Mr. Chairman. If in the progress of events we should find our neighbors at Oswego suffering for the want of water, we should undoubtedly consent to let them draw down the Cayuga lake, say one foot, which could be done without injury to its surrounding population, and would furnish Oswego with 7,467,420 cubic feet of water per day. And I doubt not that our friends on the Seneca would furnish them another like amount, rather than see the prosperity of Oswego wane for the want of a supply of water.

This is not all. Every future improvement and enlargement of our state canals, will necessarily be attended with an increase in the supply of water to feed them, and the same relative proportion of that increased supply of water must go to Oswego. It is therefore apparent that the water power of Oswego is not only largely benefited and increased by the state improvement, but will be rendered more stable and valuable by each future improvement

made by the state, and all objections from Oswego, therefore, should be ruled out.

National Importance of the Canal.

MR. CHAIRMAN: The improvement contemplated by the bill under consideration has a national importance which we should not overlook. We have, thus far, examined it as a state or local improvement.

I therefore propose to refer briefly to the military and naval value of the Cayuga and Ontario canal as an auxiliary defensive work for the protection of our northern frontier, and the vast commerce which flows along that exposed line.

Perhaps the most efficient mode of bringing this branch of the question before the committee, is to make some extracts from the memorial of the National Canal Convention, assembled at Chicago in June, 1863, to the President and Congress of the United States. Alluding to the military importance of the works they recommend, they say:

“We have arrived at that period in our history in which the Government should adopt a well-considered and systematic plan of defending the northern frontier. Indeed, the best means of doing this has long engaged the attention of the Government. Reports from the War Department, and surveys from the topographical corps, in great numbers, have been made. A large number of forts have been projected and surveyed, but little has yet been done.

“The importance of having command of the lakes, in case of a war with Great Britain, cannot be over-estimated.

“In 1814, the Duke of Wellington declared that ‘a naval superiority on the Lakes is a *sine qua non* of success in war on the frontier of Canada.’ The great military importance of the command of the lakes was illustrated in the war of 1812; and the victory of Perry, on Lake Erie, and of McDonough, on Lake Champlain, was decisive of the fate of the war on the northern border.

“In our past history, in the old colonial and revolutionary wars, and in the late war with Great Britain, the principal attacks our country had to sustain were made from the Canadian frontier. But the defense of the northern

frontier (always of great moment) has become, by the growth of the west, of incalculable importance. Certainly not less than one-third in value of the entire commerce of the nation passes over the lakes. Ten millions of people live upon their borders, and are directly interested in their security. The great cities which have grown up on their shores have become the largest grain depots of the world. Nowhere on earth are collected and distributed such vast amounts of food, and yet this commerce, vast as it is, these great cities and food producing states, with their great granaries, lie entirely exposed, and invite, by their helpless condition, ravage and devastation."

"We say confidently that this condition of things will not be permitted to continue. The voice of the northwest and all of the northern frontier will ask (and their just request will be cheerfully granted) adequate protection."

The above extract very fairly shows our defenseless condition on our northern frontier, and the vast magnitude of the interests requiring protection.

I will now allude to causes which have, in part at least, led to the neglect of all naval defense on the part of the United States Government.

In 1817, while the borders of the great lakes were yet a wilderness, and their forests only traversed by the war path of the savage, our Government entered into the following treaty with Great Britain :—

"Agreement between the United States and Great Britain, between Richard Rush, Esq., acting as Secretary of the Department of State, and Charles Bagot, His Britannic Majesty's Envoy Extraordinary, &c.

"The naval force to be maintained upon the American lakes, by his majesty and the Government of the United States, shall henceforth be confined to the following vessels on each side : that is—

"On Lake Ontario, to one vessel not exceeding one hundred tons burden, and armed with one eighteen pound cannon.

"On the upper lakes, to two vessels not exceeding like burden each, and armed with like force.

"On the waters of Lake Champlain, to one vessel not exceeding like burden, and armed with like force.

"All other armed vessels on these lakes shall be forthwith dismantled, and no other vessels of war shall be there built

or armed. If either party shall, hereafter, be desirous of annulling this stipulation, and shall give notice to that effect to the other party, it shall cease to be binding after the expiration of six months from the date of such notice.

“The naval force so to be limited shall be restricted to such services as will, in no respect, interfere with the proper duties of the armed vessels of the other party.”

Since this treaty was made, Great Britain has never lost sight of the security of her American colonial empire. Debarred by the treaty from maintaining an adequate naval force for protection on the lakes, England at once entered upon the work of opening those lakes to the admission of her gunboats, at any time when the emergency should demand their use. She thus constructed military canals at all points requisite to connect the ocean with the lakes through the St. Lawrence, and between Ontario and Lake Erie.

That such works were planned and executed by Great Britain as military works, and so understood by Canada, is shown by the following preamble of the act of the Canadian parliament authorizing the taking of lands for one of those canals as follows :

“His Majesty has been pleased to direct measures to be immediately taken under the superintendence of the proper *military department*, for the construction of a canal connecting the waters of Lake Ontario with the Ottawa river, and affording a convenient navigation for the transport of *naval* and military stores.”

In 1831, Colonel Dumford of the Royal Engineers stated to a committee of the English parliament, that the canal being intended as a military work, its entrance should be protected by fortifications in the vicinity of Kingston, and this advice has not been unheeded. A fortress of considerable strength has been built at Kingston.

And this state of preparation, on the part of England, who in peace prepares for war, emboldened the London Times to publish the following article, during the excitement of the Trent affair :

“ARMING THE NORTHERN FRONTIER AND THE LAKES.—The worst part of the struggle, however, will not be on the

Atlantic seaboard, but on the great lakes of Upper Canada and North America. We are glad, therefore, to be able to tell our readers *that this danger has been foreseen*, and amply provided against, and that within a week after the breaking of the ice, a whole fleet of gunboats, with the most powerful of screw corvettes, sent out to Admiral Milne, will carry the protection of the British flag from Montreal to Detroit."

Can this be misunderstood, Mr. Chairman?

"The worst part of the struggle, however, will not be on the Atlantic seaboard."

No sir, it would not. And why not? The answer is, sir, that on the Atlantic seaboard the most powerful navy in the world flies the American flag; and the London Times had no relish for locating the struggle there. On the lakes, the situation is different. Uncle Sam has rested in calm security, relying, in good faith, upon the stipulations of his treaty, that the lakes should remain unarmed by naval force, not suspecting that Johnny Bull meant anything by digging a few canals away off in Canada.

The Times saw at a glance that here was a pleasanter field of operations, more to the taste of the once vaunted "mistress of the seas" (thank God she has since found a master), where she could strike, and receive no blows in return. Oswego, Buffalo, Cleveland, Detroit, Milwaukee and Chicago, could all be laid in ashes in ten days from the time her gunboats entered the lakes, and before a particle of naval resistance could be made.

This is no fancy sketch; it is a practical operation. England has the gunboats, and she has the canals through which they can pass to the lakes. We have no such means of reaching the lakes with our naval vessels, and are restricted from building and arming them on those lakes.

The Cayuga and Seneca lakes are outside of the line of treaty prohibition, and with the Cayuga and Ontario canal, those lakes would be so connected to the frontier chain of lakes, that they could be used for naval purposes and defensive preparations, without in the least infringing upon the provisions of the treaty with Great Britain.

The Cayuga and Seneca lakes, each forty miles long, and

from one to three miles broad, with deep water, which remains unfrozen during winter, lying in the heart of the state, and surrounded by six counties of the most fertile lands of the state, containing a quarter of a million of population, present the finest harbor and shelter for naval vessels of any waters of the state; and by the proposed canal will connect with the northern lakes through the finest and most capacious bay and secure harbor on Lake Ontario.

Those lakes are connected at their northern extremities with the Central Railroad, and at the southern with the Erie and with the railroads of Pennsylvania.

Iron, coal, ship timber, naval stores and provisions can be more readily concentrated upon those lakes, and at less cost than upon any other water in the interior or along the northern frontier of the state.

In a word, they possess all the facilities desirable for naval depots, secure inland harbors connected by several lines of interior railroads with the capital of the Union, the commercial and financial emporium of the nation, the mineral deposits of Pennsylvania, and the granaries of the west.

While the Erie canal is commanded by the guns of a foreign power, and its navigation may be interrupted in case of a war, those lakes possess avenues connecting with all parts of the country, and out of the reach of an enemy.

It may be, sir, that congress will not deem it expedient for the nation to avail itself of the facilities that this improvement presents for making preparations for the defense of the northern frontier and our lake and canal commerce, by the erection of a naval depot on either, or both, of those lakes, as it may regard the risk of interruption much less imminent than it is represented to be by those who desire the enlargement of canals at the national expense.

Be that as it may, the fact, nevertheless, exists that all needful preparations for the naval defense of our northern borders could be provided on the Cayuga lake at less cost

to the government than at any other locality, be more secure at all times, and more efficient in case of war ; and the very fact of connecting the Cayuga with Lake Ontario by such a canal as this bill authorizes, is itself a matter of national importance, and would be regarded by the governments of the United States and of Great Britain as an important defensive work.

For the various reasons that I have thus crudely presented for the consideration of the committee, I hope this bill may find favor with senators, and become a law.