## H 9.

### IMPROVEMENT OF TAR RIVER, NORTH CAROLINA.

A survey of this river from Washington to Tarboro' was directed by the river and harbor appropriation act, approved June 18, 1878.

The survey was made during the month of December, 1878; and a report upon same accompanied by a plan and estimate of cost of improvement was submitted January 27, 1879, and was printed in Executive Document No. 68, House of Representatives, Forty-fifth Congress, third session.

The improvement proposed consists in removing all obstructions both natural and artificial that now impede navigation during the 8 or 9 "flush-water" months of the year, without dredging or the construction of jetties or other works. The estimated cost of the whole improvement proposed amounted to $10,000.

The act of March 3, 1879, appropriated $3,000 for this work. A project for the expenditure of this amount was submitted to the Chief of Engineers on the 23d of April, 1879, and was by him approved.

It is proposed to devote the appropriation (when available) to cleaning the river of obstructions, as above indicated, commencing at the town of Washington, and proceeding up the river as far as available funds will permit. The work, on account of its varied character, will be conducted by the hire of machinery and labor in open market.

The appropriation referred to above is the only one that has been made for this work. To complete the work proposed will require a further appropriation of $7,000.

The Tar River is in the collection-district of New Berne, N. C.

*Money statement.*

| | |
|---|---|
| Amount appropriated by act approved March 3, 1879 | $3,000 00 |
| July 1, 1879, amount available | 3,000 00 |
| Amount (estimated) required for completion of existing project | 7,000 00 |
| Amount that can be profitably expended in fiscal year ending June 30, 1881 | 7,000 00 |

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### SURVEY OF TAR RIVER, NORTH CAROLINA, FROM WASHINGTON TO TARBORO'.

UNITED STATES ENGINEER OFFICE,
*Norfolk, Va., January 27, 1879.*

GENERAL: An examination or survey of the Tar River, North Carolina, from Washington to Tarboro', was called for by the river and harbor appropriation act, approved June 18, 1878. This survey having been assigned to my charge, I placed the field-work in the hands of Mr. W. G. Williamson, who was energetically assisted by Messrs. Moncure and Blow. The survey occupied from the 16th to the 28th of December last. The survey was not as much in detail as could have been desired, on account of the high stage of water in the river. While the party was at Tarboro', the water was fully 25 feet above ordinary summer low-water, and the banks were submerged. Mr. Williamson states in detail the portions of the river accurately surveyed, and the portion of the river which was examined as carefully as circumstances would permit. Mr. Williamson has since plotted his notes, and a tracing showing the result of his work, accompanied by his report upon the survey, is transmitted herewith.



The Tar River rises in Person County, North Carolina, and flows in a general southeasterly direction, until at Washington it assumes the name of the Pamlico, and finally empties into the sound of the same name. Between Washington and Tarboro' the river is quite narrow and very tortuous, and generally very shoal. Between Tarboro' and Greenville, a distance of 29 miles, the river can be easily waded at many points at an extreme low summer stage of water. Steamers drawing about 3 feet of water, however, can reach Tarboro' during about 8 "flush-water" months of the year. Three or four steamers of the above-mentioned draught find profitable employment in trading with Tarboro'. The principal obstructions to navigation are snags, fallen trees, a few old wrecks of vessels and barges, and two rows of piles which were placed across the river above Washington by the Confederates during the late war. Portions of the latter have since been removed.

Mr. Williamson's plan is to do no more at present than merely to remove all obstructions, both natural and artificial, that now impede navigation during about 8 or 9 months of the year, without dredging or the construction of jetties or locks and dams. In fact, before dredging, or the construction of any such works as mentioned above, a careful instrumental survey of the river would be necessitated, and I cannot believe that the commerce, both present and prospective, would warrant the outlay which such works would require. I think that Mr. Williamson's project for clearing the river of obstructions a good one, and that it would be judicious on the part of the government to take up the work. Mr. Williamson's estimate for the whole of the proposed improvement amounts to $7,500. Considering the length of the portion of the river proposed to be improved, and the varied character of the work to be performed, I think that his estimate might well be increased by 33⅓ per cent., making the total amount required for the work $10,000. All this amount can be expended to advantage during a single fiscal year, and it will be to the advantage of the work, if undertaken, if the whole amount is given in one appropriation.

The Tar River is in the collection-district of New Berne, N. C.

I am, general, very respectfully, your obedient servant,

CHAS. B. PHILLIPS,
*Captain of Engineers.*

Brig. Gen. A. A. HUMPHREYS,
*Chief of Engineers, U. S. A.*

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REPORT OF MR. W. G. WILLIAMSON, ASSISTANT ENGINEER.

NORFOLK, VA., *January* 24, 1879.

CAPTAIN: I have the honor to submit the following report of the survey of the Tar River, N. C.:

We commenced the survey at Washington, N. C., December 16, 1878. We were driven in on the 17th by snow, rain, and hail, having accomplished very little that day.

On the 18th and 19th we did good work, but found it impossible to continue on account of a rise in the river, which flooded the banks. On the 20th we started for Tarboro', hoping to find the banks on the upper portion of the river sufficiently above water to enable us to make a rapid survey by running a compass line down the banks, and suspecting the river might fall so as to permit our making a junction with the survey below. It rained very hard the night of the 20th, and all day the 21st.

The consequence was, when we arrived at Tarboro' at 12 m., on the 21st, we found the river steadily rising and very little below the tops of the banks.

We went to work and succeeded in running 4½ miles, when we were stopped by high water. To give you an idea of the rise, the water at Tarboro' landing was 27 feet deep, where, in the summer, at low-water one can wade across it. You can readily conceive, then, that a continuation of the instrumental survey was impossible. I was informed that it was not at all probable the river would be low enough for the continuation of the survey before next May or June. The only thing which could be done was to get all the information we could from pilots and river-men, and to verify this by examining the river in boats between Tarboro' and Washington. Of course, this was not very satisfactory. I shall endeavor to embody in this report all the information acquired from these river-men, as well as that obtained from the instrumental survey.

The Tar River has its source in Person County, North Carolina. It runs through the counties of Granville, Franklin, Nash, Edgecombe, and Pitt, to Washington, in Beaufort County. Our survey was to extend from Washington to Tarboro', in accordance with your orders. The river is navigable from Washington to Tarboro' for from 6 to 8 months during the year, for boats drawing from 2½ to 3 feet water, and at times of extraordinary high-water, due to long-continued rainy seasons, for boats drawing from 5 to 6 feet water. During the summer the water is very low, especially between Greenville and Tarboro'. To make it navigable, during this dry season, would require expensive works, the plan and cost of which I am not prepared to give nor even to suggest, as it would require a very accurate survey to determine what was the most practicable plan. I am inclined to believe it is not necessary to make expensive improvements, as the high-water season is long enough to admit all the freight which the country will afford being carried out before the dry season sets in.

The following table shows the distances of the principal towns and landings along the river from Tarboro' to Washington:

From Tarboro'—

To Sparta, 8 miles; to Boyd's Ferry, 43.
To Penny Hill, 12 miles; to Washington, 52.
To Pillboro', 18 miles.
To Centre Bluff, 20 miles.
To Greenville, 29 miles.
To Taftson, 36 miles.
To Pactolus, 40 miles.

There are about 23,000 bales of cotton shipped from different points along the river to Washington every year, and that trade seems to be on the increase. Besides this, there are a great many goods and stores shipped from Washington to Tarboro', and other towns and landings along the river.

The lumber trade is of considerable importance, consisting of shingles, staves, spokes, and lumber of various kinds. The varieties of timber produced in the counties of Pitt and Edgecombe are pine, oak, cypress, hickory, ash, poplar, and gum. The products of the two counties are corn, cotton, pease, potatoes, wheat, rye, and oats. Marl banks are abundant along the river.

There are, at present, three or four steamers running from Washington to Tarboro', and they all do a good business during the season of high water, which occurs, generally, at the very time the crops are ready for shipment. The bed of the river consists generally of sand and soft material. The obstructions consist mostly of snags, stumps, and trees, which have fallen or been washed into the river. There are, however, some old wrecks and some artificial obstructions. The first wreck met with coming down the river from Tarboro' is that of the steamer Oregon, about a mile below the town. The next are two lighters, sunk about one-fourth of a mile below Sparta. The artificial obstructions consist of two rows of piles driven across the river above Washington a short distance, and about one-fourth of a mile apart. Portions of these have been removed from the channel, but those which remain are obstructions which both interfere with navigation and have a tendency to create shoals. There are numbers of quick, sharp bends in the river, which are very troublesome, but I am not an advocate for shortening the course of rapid streams by cutting off these bends, except under very peculiar circumstances. Generally, it is not advisable. By far the greater number of these obstructions are produced by snags and trees, which, having lodged on sand-banks, form sand-bars.

In view of the above facts, I would recommend clearing the river of snags and other obstructions, so as to enable boats to run during the high-water season. I would not dredge the bars, as many of them will shift their positions when other obstructions causing them to form are removed. I feel satisfied the trade of this river will fully justify the expense of such an improvement, and believe it is all the people of that section of country would ask or expect. I therefore submit an estimate of the probable cost of removing such obstructions as I was enabled to see under very unfavorable circumstances.



ESTIMATE FOR IMPROVEMENT.

| | |
|---|---|
| From Tarboro' to Washington: | |
| 400 snags and trees to be removed, at $5 | $2,000 |
| 1 wreck of steamer Oregon, 1 mile below Tarboro' | 500 |
| 2 wrecks, lumber barges, one-fourth of a mile below Sparta | 500 |
| 600 piles, Confederate obstruction above Washington | 3,000 |
| | 6,000 |
| Adding 25 per cent. for engineering and contingencies | 1,500 |
| Total | 7,500 |

The maps accompanying this report will show the locality of the obstructions.
New Berne is the port of entry.

Very respectfully, your obedient servant,

W. G. WILLIAMSON,
*Assistant Engineer.*

Capt. CHAS. B. PHILLIPS,
*Corps of Engineers, U. S. A.*

## H 10.

### IMPROVEMENT OF PAMLICO RIVER, NORTH CAROLINA.

Mr. S. T. Abert, United States civil engineer, was in charge of this work until May 7, 1879, when he was relieved by Capt. Charles B. Phillips, Corps of Engineers.

At the commencement of operations in August, in 1877, there were three obstructions to the navigation of this river, viz, 1st, a blockade of pile obstructions across the channel near Hill's Point, about 6 miles below the town of Washington, N. C.; 2d, a sand-bar immediately below the town; and, 3d, a stumpy shoal about 1,500 feet in length and located about a mile lower down the river. At the date of the last annual report the pile obstructions had been entirely removed, a channel 175 feet in width and 9 feet in depth had been excavated through the upper bar, and a channel through the stumpy bar below had been commenced.

Work at the latter point was suspended on the 22d of June, 1878, on account of the near exhaustion of funds. At this date three cuts had been made across the lower bar, making a total width of 70 feet, the depth being a trifle over 9 feet. An examination of the dredged channels was made during July last, since which time all operations have remained suspended.

The work remaining to be done is to give an increased width to the channel across the lower bar; and it is proposed to devote the whole of the appropriation ($3,000) of March 3, 1879, to this purpose.

Numerous stumps, roots, and cypress knees are encountered at this point, making the dredging very tedious and costly. It is estimated, however, that the amount of the new appropriation (when available), together with the balance on hand from the old appropriation, will be sufficient to provide for an increased width of from 55 to 60 feet, making a total width of from 125 to 130 feet. It is proposed to do this work by the hire of machinery and labor in open market. Ultimately this channel should be made 200 feet wide, as should also the channel through the bar immediately below the town. The appropriations for this work have been two in number, viz:

| | |
|---|---|
| August 14, 1876 | $15,000 |
| March 3, 1879 | 3,000 |

The Pamlico River is in the collection-district of New Berne, N. C.

In the last annual report some statistics of the trade of Washington were given. The value of cotton shipments alone is $1,400,000, and of naval stores and lumber over $400,000; so that the improvement has been a decided benefit to the interest of commerce and navigation.

*Money statement.*

| | | |
|---|---|---|
| July 1, 1878, amount available | $2,070 57 | |
| Amount appropriated by act approved March 3, 1879 | 3,000 00 | |
| | | $5,070 57 |
| July 1, 1879, amount expended during fiscal year | | 1,209 80 |
| July 1, 1879, amount available | | 3,860 77 |
| Amount (estimated) required for completion of existing project | | 10,000 00 |
| Amount that can be profitably expended in fiscal year ending June 30, 1881 | | 10,000 00 |

## H 11.

### IMPROVEMENT OF NEUSE RIVER, NORTH CAROLINA.

An appropriation of $40,000 was made for the improvement of this river by act of Congress approved June 18, 1878. A survey of the river below Goldsborough, N. C., was ordered in the river and harbor act of March 3, 1871, and was executed under the direction of Maj. W. P. Craighill, Corps of Engineers, during the spring of 1871.

Major Craighill's report upon the survey was submitted on the 30th of December, 1871, and will be found in the report of the Chief of Engineers for the year 1872, page 734.

The improvement proposed by Major Craighill consisted in the removal of obstructions both natural and artificial, such as snags, logs, fallen and overhanging trees, sunken vessels, stone-cribs, &c. The above for the immediate relief of navigation, but farther improvements in the way of cutting off certain abrupt bends in the river were also contemplated. The estimated cost of the entire improvement proposed amounted to $153,000, of which amount $51,000 was the estimate for the removal of obstructions alone.

The appropriation falling considerably within this amount, the approved project for its expenditure contemplated the removal of obstructions, commencing at the mouth of the river and working up as far toward Goldsborough as funds would permit. Active operations were commenced in October, 1878, at the Fort Point Blockade, about 3 miles below New Berne, N. C. At this point 550 feet were added to the available width of the channel by the removal of one sunken brig 110 feet in length, 1 schooner 80 feet in length, and about 50 "Yankee-catchers." At Johnson's Point below, about 160 "Yankee-catchers" were removed, adding over 500 feet to the available width of channel.

To the east of New Berne a channel 150 yards in length and 100 feet wide was excavated to a depth of 8 feet at an ordinary stage of water, thus cutting off a long point and shortening the distance around fully 1½ miles.

At the blockade, immediately above New Berne, 5 vessels of various sizes were removed from the Linkfield channel. This completed all that was proposed to be done during the fiscal year at the artificial obstructions, the more complete removal of some being left to the future, the upper river now appearing to be most in need of attention.

In November the force was divided into two parties, each provided



with a steam-hoister capable of lifting 15 tons, with one diver and apparatus to be used with either party as occasion required, and the work of clearing the river of snags, logs, and other obstructions was carried on up the river as rapidly as circumstances would permit. This work has continued up to the close of the fiscal year, the river meanwhile having been cleared to a point about 15 miles above the town of Kinston, leaving a distance of 31 miles yet to be cleared before reaching the railroad bridge near Goldsborough, which is the highest point to which the work will be carried. The work above Kinston has proved to be very difficult and tedious, embracing the portion of the river known as the "Let Alones." Here, for a distance of about 7 miles, a series of abrupt bends occur which were found to be badly obstructed with heavy logs and fallen trees. This portion of the river has been passed, and the work above proves to be much less difficult.

Aside from the above operations, 5 perpendicular jetties have been constructed at the long, straight reach immediately below the town of Kinston. The jetties are of sheet piling and average about 100 feet in length. Their beneficial action was manifested at once, and the water along the entire reach has deepened about 18 inches since their construction.

Piles have been driven at the approaches to both the railroad and the county bridges below Kinston.

A steam-hoister for the work has been commenced, and at this date is nearly completed.

By act of Congress approved March 3, 1879, an appropriation of $45,000 was made for continuing this work. The approved project for its expenditure contemplates the completion of the clearing of the river as far as Goldsborough, N. C.; the completion of the removal of the artificial obstructions both above and below New Berne; the construction of sheet-pile jetties aggregating about 2,600 feet in length; and the trimming off of points at "Pitch Kettle" and at the Southwest Bends, all below the town of Kinston. Some attempts will also be made to check the washing of the concave banks above Kinston. As the clearing of obstructions goes on, this washing has in some instances become quite serious, and if allowed to continue, many large trees will be undermined and fall into the river.

Work during the year has been done by the hire of labor and machinery and the purchase of material in open market. It is proposed to follow the same plan during the next fiscal year.

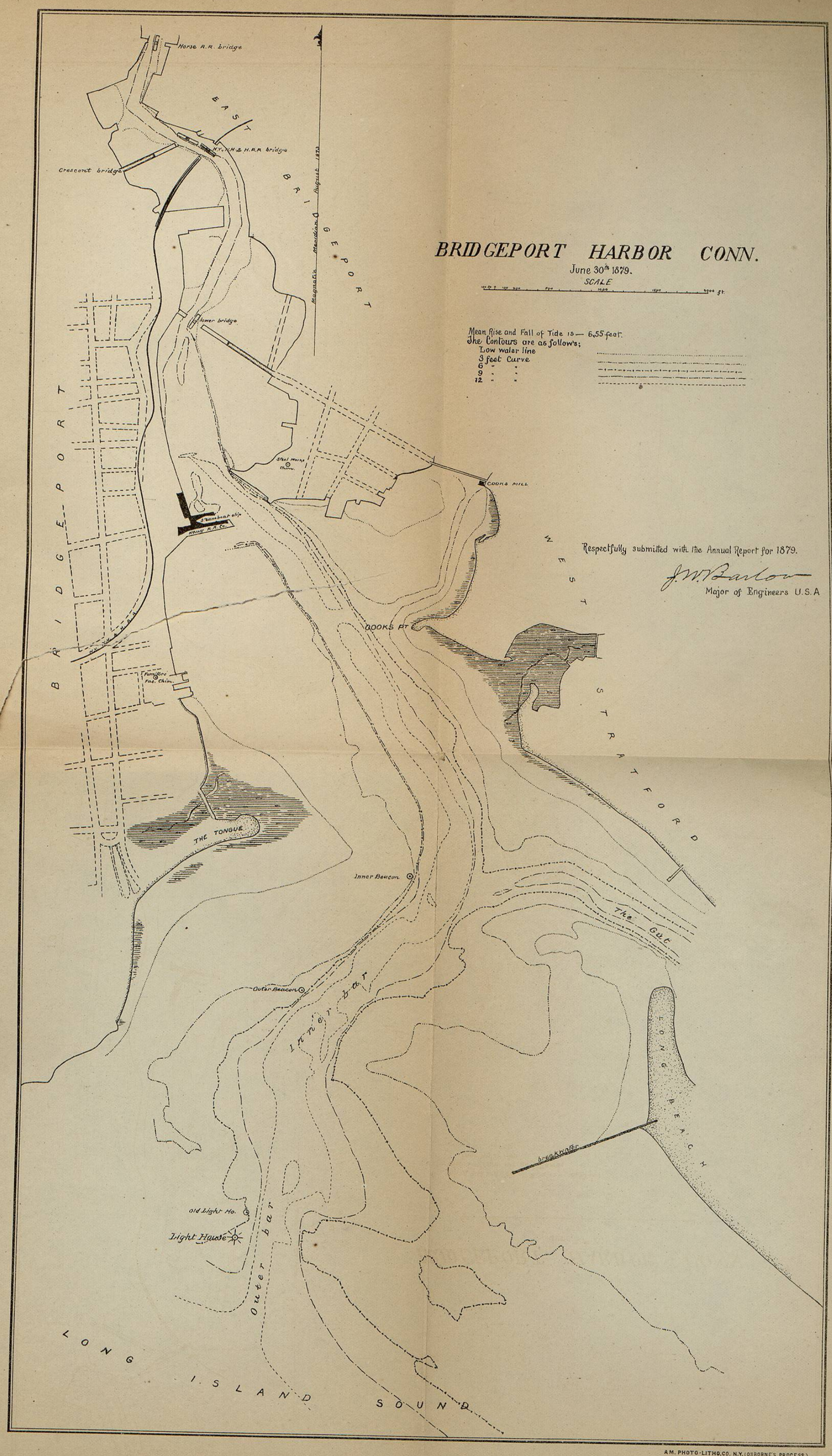
The work has been in the immediate charge of General Robert Ransom, assistant engineer, to whom my thanks are due for his energetic and faithful conduct of the improvement. His detailed report for the year, accompanied by commercial statistics, is appended hereto.

The appropriations for the work have been two, viz:

| | |
|---|---|
| June 18, 1878 | $40,000 |
| March 3, 1879 | 45,000 |

*Money statement.*

| | | |
|---|---|---|
| July 1, 1878 amount available | $40,000 00 | |
| Amount appropriated by act approved March 3, 1879 | 45,000 00 | |
| | | $85,000 00 |
| July 1, 1879 amount expended during fiscal year | 26,626 19 | |
| July 1, 1879, outstanding liabilities | 2,694 92 | |
| | | 29,321 11 |
| July 1, 1879, amount available | | 55,678 89 |
| Amount (estimated) required for completion of existing project | | 68,000 00 |
| Amount that can be profitably expended in fiscal year ending June 30, 1881 | | 68,000 00 |




A.M. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS.)

By act of Congress approved June 18, 1878, $10,000 was appropriated for continuing the improvement, $5,000 of which should be expended in deepening the channel between the lower bridge and the horse-railroad bridge.

*Money statement.*

| | | |
|---|---|---|
| July 1, 1878, amount available | $10,132 73 | |
| Amount appropriated by act approved March 3, 1879 | 10,000 00 | |
| | | $20,132 73 |
| July 1, 1879, amount expended during fiscal year | | 10,074 15 |
| July 1, 1879, amount available | | 10,058 58 |
| Amount (estimated) required for completion of existing project | | 25,000 00 |
| Amount that can be profitably expended in fiscal year ending June 30, 1881 | | 25,000 00 |

COMMERCIAL STATISTICS.

CUSTOM-HOUSE, BRIDGEPORT, CONN.,
*Collector's Office, July* 8, 1879.

SIR: I have the honor to acknowledge the receipt of your letter of the 2d instant, and inclose herewith statistics relating to the commerce of this port as requested. I have to say in addition that the improvements already made in the harbor of Bridgeport have most materially increased its use both as a harbor of refuge and every other way. I believe that an annual appropriation judiciously expended for a few years would make Bridgeport one of the most easily accessible and desirable harbors for the carrying on of foreign trade, as well as for a refuge for coasting vessels, of any between New York and Boston; and, as I said in my last year's report, I think there should, and probably the time is not far distant when there will be an extensive foreign trade carried on here. I would respectfully refer you to my report of last year as containing other suggestions pertaining to the subject.

Very respectfully, your obedient servant,

J. D. HANOVER,
*Collector.*

Col. J. W. BARLOW, *U. S. A.*

COLLECTIONS.

| | |
|---|---|
| Duties on imports | $2,282 19 |
| Tonnage dues | $354 00 |
| Hospital-tax | $1,488 65 |
| Miscellaneous receipts | $1,310 36 |
| Number of foreign vessels arrived from foreign ports | 32 |
| Number of foreign vessels cleared for foreign ports | 28 |
| American vessels arrived from foreign ports | 2 |
| American vessels cleared for foreign ports | 0 |
| Total number of vessels of all classes entered and cleared during the fiscal year ending June 30, 1879 | 6,738 |
| Total tonnage | 1,288,432 |
| Estimated value of cargoes received | $25,672,600 00 |
| Estimated value of cargoes exported | $27,310,000 00 |
| Number of vessels of all classes entering the harbor for refuge during the year | 1,200 to 1,500 |

NOTE.—The above are necessarily approximate estimates, but are as nearly correct as can be made at this date.

## C 7.

### IMPROVEMENT OF SOUTHPORT HARBOR, CONNECTICUT.

No appropriation since that of August 14, 1876, has been made for the improvement of this harbor. As stated in the last annual report, a channel 60 feet wide and 4 feet deep at mean low-water was dredged from the outer beacon to above the end of the breakwater.



This is a valuable improvement, but, as heretofore recommended, the channel should be made 100 feet wide, and should be extended about 800 feet farther up the harbor. This additional work accomplished, it is believed the commercial interests of Southport would be entirely satisfied for an indefinite period. The sum of $5,000 is recommended to complete the improvement. This could be profitably expended during the next fiscal year.

Following are the amounts appropriated for the harbor since 1838:

| | |
|---|---|
| March 3, 1875 | $5,000 |
| August 14, 1876 | 5,000 |

Southport is in the Fairfield collection district of which Bridgeport is the port of entry. The amount of revenue collected there for the fiscal year ending June 30, 1879, was $5,436.20. The nearest light-house is on Penfield Reef, 3½ miles from the harbor. Fort Hale, New Haven Harbor, the nearest work of defense, is 24 miles distant.

### HISTORY OF THE IMPROVEMENT TO 1879.

In 1826, by direction of Major-General Macomb, Chief Engineer, Lieut. Col. John Anderson, United States Engineers, made a survey of Mill River for the purpose of ascertaining the "expediency of removing the obstructions to navigation thereof and of protecting the same." Under date of February 19, 1827, Colonel Anderson submitted a report recommending a breakwater of stone running southward from the high-water line on the sand-spit opposite Southport to the low-water line, a distance of about 1,420 feet; a dike of earth, 1,450 feet long, extending northward from the sand-spit along the edge of the "sunken ground," and the excavation of about 11,000 cubic yards of earth from the channel The whole work was estimated to cost $6,096.18.

By act of Congress of March 2, 1829, $6,097 was appropriated "for improving the navigation of Mill River by removing obstructions in the said river, and constructing such works as will prevent the sand from filling up the channel of the same." The plans for the improvement of the harbor as recommended by Colonels Anderson and Totten were substantially carried out during the summer of 1829, and were as follows:

First, the construction of a breakwater 1,320 feet long. This was built of long and large stones, quarried on the neighboring shore, laid as headers, the interior filled with stone of all sizes compactly laid, and the whole capped with large stones reaching entirely across the breakwater. The dimensions were 14 feet wide at bottom, 8 feet at top, and 8½ feet high above common low-water.

Second, the construction of a dike 1,350 feet long. This was built of marsh sods laid with a batter of about 1 to 1, the interior being formed of alternate thin layers of brush and mud. Where the bottom was soft and low a foundation was secured by laying fascines until the level of the adjacent marsh was reached. The width of the dike at top was 5 feet.

In 1830 Colonel Totten reported that "both the dike and breakwater have been finished to the altitude first determined upon, and seem well to fulfill their object. The channel has been deepened by dredging throughout its whole length, and the improvement of the navigation is universally acknowledged to be very great."

By act of Congress of July 3, 1832, $4,490.23 was appropriated "for completing the breakwater and dike, and deepening the channel in the harbor of Mill River, Connecticut." By act of Congress of July 4, 1836, $1,500 was appropriated "for securing the public works at Southport, Conn.," and by the act of March 3, 1837, $1,000 was appropriated "for