

and as soon as it is made available I propose to apply it to the projects at East Saginaw, Carrollton, and Zilwaukee, in the order named, and following down the river in the order heretofore stated, as far as the appropriation will suffice. I ask for \$17,000 additional to complete the improvement, or \$20,000 if it must be continued through a series of years.

The whole amount appropriated has been \$81,000, and the amount expended upon it has been \$64,296.02.

The reasons for the excess of cost over the original estimate are given in the annual report for 1877.

This work is located in the Huron collection-district, Michigan. The nearest light-house is at the mouth of the river. The nearest port of entry is Port Huron, Mich.

For reasons specified in the statement of the deputy collector at East Saginaw, I append also the statement of the deputy collector at Bay City.

Money statement.

July 1, 1878, amount available .....	\$25,000 00	
Amount appropriated by act approved March 3, 1879.....	8,000 00	\$33,000 09
July 1, 1879, amount expended during fiscal year .....	14,627 70	
July 1, 1879, outstanding liabilities.....	1,668 32	16,296 02
July 1, 1879, amount available.....	16,703 98	
Amount (estimated) required for completion of existing project .....	17,000 00	
Amount that can be profitably expended in fiscal year ending June 30, 1881..	17,000 00	

Abstract of bids received and opened August 10, 1878, by Major F. Harwood, Corps of Engineers, U. S. A., for improving Saginaw River, Michigan, Carrollton Bar.

Names of bidders.	Residence.	Dredging, cubic yard.	Oak piles, linear	Pine timber, M feet, b. m.	Pine lumber, M feet, b. m.	Oak timber, M feet, b. m.	Screw and washer bolts, pound.	Drift-bolts, pound.	Spikes, pound.	Edgings and slabs, cord.	Stone, cord.	Overhauling and refilling compartments.	Total.
O. J. Jennings .....	Dunkirk, N. Y. ....	\$0 17	\$0 16	\$14 00	\$14 00	\$22 00	\$0 04	\$0 03	\$0 03	\$1 20	\$7 00	\$1 75	\$5,924 15
A. McArthur .....	Chicago, Ill. ....	20	18	15 00	15 00	20 00	05	03	05	3 00	7 00	1 00	7,156 75
Farris & Garfield .....	Painesville, Ohio. ....	18	18	17 50	14 00	22 00	09	02	03	1 50	6 00	1 95	5,814 83
Hemenway & Hayes .....	do .....	18	12	18 00	16 00	20 00	09	02	03	1 25	5 50	1 25	5,863 30
Carlin, Stickney & Cram .....	East Saginaw, Mich. ....	14	09	14 50	12 50	18 00	04	02	03	1 60	5 20	1 00	*5,039 60
N. S. Gere .....	Geddes, N. Y. ....	25	20	17 00	15 00	23 00	04	02	03	1 75	5 95	1 00	6,755 95

\* Award recommended.

Abstract of bids received and opened August 10, 1878, by Major F. Harwood, Corps of Engineers, U. S. A., for improving Saginaw River, Michigan, at Zilwaukee Bar.

Names of bidders.	Residence.	Oak piles, linear	Pine timber, M feet, b. m.	Pine lumber, M feet, b. m.	Oak timber, M feet, b. m.	Screw and washer bolts, pound.	Drift-bolts, pound.	Spikes, pound.	Edgings and slabs, cord.	Stone, cord.	Total.
O. J. Jennings .....	Dunkirk, N. Y. ....	\$0 14	\$16 50	\$15 00	\$22 00	\$0 04	\$0 03	\$0 03	\$1 20	\$7 00	\$3,473 78
A. McArthur .....	Chicago, Ill. ....	20	18 00	15 00	25 00	05	03	05	3 00	7 00	4,842 42
Farris & Garfield .....	Painesville, Ohio. ....	18	17 50	14 00	22 00	09	02	03	1 50	6 00	3,940 75
Hemenway & Hayes .....	do .....	12	18 00	16 00	20 00	09	02	03	1 25	5 50	*3,254 52
Carlin, Stickney & Cram .....	East Saginaw, Mich. ....	15	16 00	14 00	20 00	06	03	03	2 50	6 00	3,951 56
Fitzgerald & Chalmers .....	do .....	17	19 00	18 00	25 00	06	04	03	1 50	6 00	4,058 02
N. S. Gere .....	Geddes, N. Y. ....	18	17 00	14 50	21 00	04	02	03	1 50	5 95	3,984 71

\* Award recommended.

Abstract of bids received and opened May 7, 1879, by Major F. Harwood, Corps of Engineers, U. S. A., for improving Saginaw River, Michigan.

Names of bidders.	Residence.	Piles, linear foot.	Pine timber, M feet, b. m.	Pine lumber, M feet, b. m.	Mill-run lumber, M feet, b. m.	Screw and washer bolts, pound.	Cut nails, pound.	Total.	Dredging, cubic yard.
Farris & Garfield...	Painesville, Ohio.....	\$0 15	\$17 00	\$14 00	\$11 00	\$0 04½	\$0 02½	\$7, 248 00	.....
Hemenway & Hayes.....	do.....	15	17 00	15 00	14 00	04½	03½	8, 103 00	.....
U. S. Grant Lynn.....	Rochester, N. Y.....	22	14 00	14 00	10 00	06	06	8, 081 80	\$0 22
Thomas M. Hubbell.....	Saginaw, Mich.....	.....	.....	.....	.....	.....	.....	7, 933 00	.....
O. J. Jennings.....	Dunkirk, N. Y.....	20	15 00	15 00	10 00	07	05	7, 203 10	.....
Castle Sutherland.....	East Saginaw, Mich.....	19	13 00	11 00	10 00	04½	03	7, 447 20	113
Carlin, Stickney & Cram.....	do.....	18	12 50	11 50	11 50	04½	03	.....	.....

\* Award recommended for all except dredging. † Award recommended for dredging.

ABSTRACT OF CONTRACTS.

Contract with Messrs. Carlin, Stickney & Cram, of East Saginaw, Michigan, for furnishing material and labor for repair and completion of Carrollton revetment pier and dredging Carrollton Bar, dated August 27, 1878, to expire December 31, 1878.

Abstract of contract for each class of material and labor.

- Dredging, per cubic yard..... 14 cents.
- Oak piles, driven, per linear foot..... 9 cents.
- Pine timber, in place, per M feet, board measure..... \$14 50
- Pine lumber, in place, per M feet, board measure..... 12 50
- Oak timber, in place, per M feet, board measure..... 18 00
- Screw and washer bolts, chains, and straps, in place, per pound..... 4 cents.
- Drift-bolts, in place, per pound..... 2 cents.
- Spikes, in place, per pound..... 3 cents.
- Edgings and slabs, in place, per cord..... \$1 60
- Stone, in place, per cord..... 5 20
- Overhauling and refilling compartments, per compartment..... 1 00

Contract with Messrs. Hemenway & Hayes, of Painesville, Ohio, for furnishing material and labor for construction of wing-dam at Zihwaukee Bar, dated August 27, 1878, to expire December 31, 1878.

Abstract of contract for each class of material and labor.

- Oak piles driven, per linear foot..... 12 cents.
- Pine timber, in place, per M feet, board measure..... \$18 00
- Pine lumber, in place, per M feet, board measure..... 16 00
- Oak timber, in place, per M feet, board measure..... 20 00
- Screw and washer bolts, chains, and straps, in place, per pound..... 3½ cents.
- Drift-bolts, in place, per pound..... 2½ cents.
- Spikes, in place, per pound..... 3½ cents.
- Edgings and slabs, in place, per cord..... \$1 25
- Stone, in place, per cord..... 5 50

Contract with Castle Sutherland, of South Saginaw, Michigan, for furnishing material and labor for construction of plank-beam training-wall at Carrollton Bar, dated May 27, 1879, to expire December 31, 1879.

Abstract of contract for each class of material and labor.

- Piles, driven, per linear foot..... 19 cents.
- Pine timber, in place, per M feet, board measure..... \$13 00
- Pine lumber, in place, per M feet, board measure..... 11 00
- All lumber (mill-run), in place, per M feet, board measure..... 10 00
- Screw and washer bolts, chains, and straps, in place, per pound..... 4½ cents.
- Cut nails, in place, per pound..... 3 cents.

COMMERCIAL STATISTICS.

PORT OF EAST SAGINAW, MICH., Deputy Collector's Office, July 5, 1879.

DEAR SIR: In compliance with your request, I hand you statistics for the fiscal year ending June 30, 1879, which shows a steady increase from year to year. My remarks of the previous years will apply to the past year as regards cargoes shipped on through clearances and as to cargoes laden at this end of the river where clearances are obtained at the port of Bay City.

Very truly, yours,

A. FERGUSON,  
Deputy Collector.

B. H. MUEHLE,  
United States Assistant Engineer.

Summary statement of vessels in the coasting trade that have entered and cleared from the port of East Saginaw, Mich., showing the tonnage of the same and fees collected, for the fiscal year ending June 30, 1879.

Months.	Entered.	Tonnage.	Cleared.	Tonnage.	Fees.
1878.					
July.....	72	21, 920	78	23, 232	\$227 66
August.....	66	20, 697	68	21, 408	\$ 225 65
September.....	77	21, 531	71	20, 868	76 50 gold.
October.....	78	23, 061	80	23, 389	302 00 gold.
November.....	82	25, 099	65	19, 290	94 60
1879.					
April.....	21	6, 980	26	8, 632	156 45
May.....	77	22, 339	82	23, 337	207 83
June.....	121	35, 402	102	29, 646	257 41

All of which is respectfully submitted.

A. FERGUSON,  
Deputy Collector.

The above shows two items gold duties, amount..... \$378 50  
The above shows currency..... 1, 250 10

1, 628 60

Summary statement of vessels in the coasting trade which have entered into and cleared from the port of Bay City, showing tonnage of same and total amount of fees collected, for the fiscal year ending June 30, 1879.

Months.	Entered.	Tonnage.	Cleared.	Tonnage.	Total fees collected
1878.					
July.....	221	56, 393	204	61, 782	\$801 36
August.....	203	61, 099	217	65, 338	572 89
September.....	180	51, 867	180	52, 377	689 53
October.....	191	49, 600	194	50, 680	492 28
November.....	137	44, 178	152	51, 743	158 90
December.....	15	5, 534	4	2, 474	43 59
1879.					
January.....	.....	.....	.....	.....	1 65
February.....	.....	.....	.....	.....	7 92
March.....	.....	.....	.....	.....	111 46
April.....	70	14, 711	77	16, 543	519 69
May.....	182	53, 265	218	63, 754	1, 040 44
June.....	271	79, 561	260	82, 489	859 26
Total.....	1, 470	416, 208	1, 506	449, 180	5, 298 97

The above does not include vessels which have entered into and departed on through clearances, nor tugboats which are engaged in towing-trade, which would proximate at least one-quarter of the above.

Very respectfully,

J. McDERMOTT,  
Deputy Collector.

## F F 5.

## IMPROVEMENT OF CHEBOYGAN HARBOR, MICHIGAN.

In the Chief of Engineers' report of 1876 will be found the history of the improvement of this harbor to the year 1875. Since that date, by aid of successive appropriations, the project of obtaining a channel 200 feet wide from the mouth of the river to the Straits of Mackinac has been steadily prosecuted. The depth of this channel was originally intended to be 14 feet, but thus far a depth of 13 feet only has been attained. The work last year was done under contract with Messrs. Carkin, Stickney & Cram, the lowest responsible bidders at the letting of August 10 of that year, and the appropriation was exhausted in the course of the working season, with the effect of nearly completing the channel. Fifty-nine thousand three hundred and fifty-six cubic yards of material were dredged from the channel during the season, and work was closed on the 16th of November, the appropriation being exhausted, leaving a stretch of 600 feet in length by 28 in width still undredged. As the appropriation of 1879 would suffice to remove this bench, and as its existence must necessarily tend to the deterioration of the channel, in that it forms a nucleus for silt and sawdust deposit which will eventually encroach on the area already dredged, I respectfully request that the \$3,000 appropriated by act of Congress approved March 3, 1879, be placed at my disposal as soon as possible for the completion of the existing channel project to a depth of 13 feet.

In the course of the past year I have carefully inquired as to what further measures would be necessary to make Cheboygan a complete harbor, adequately providing for all the necessities of the commerce which would naturally seek it. The largest and most deeply loaded vessels which would naturally seek this harbor and have been in the habit of touching there—until this year they are driven away by the prevailing low stage of water—are the steamers of the Western Transportation Company's line. These vessels have heretofore barely been able to make use of the harbor, and in order to give them, as well as other vessels who could load deeper if they would, the requisite facilities of entering, turning, and leaving, the channel for a width of 75 feet about its axis should be dredged to a clear depth of 15 feet, involving 21,000 cubic yards of excavation at 15 cents per cubic yard, \$3,150. With this improvement effected, and the east bank of the river trimmed off a little more at the place where it has already been partially improved in this way, this harbor will be fully provided for so far as channel is concerned; but when the wind blows stiff from the northwest, it throws a light chopping sea across the Cheboygan Channel just sufficient to lift the hull of a heavily laden vessel drawing within a foot of the channel sounding and to let her down on the bottom with a danger of straining her frame work. To obviate this, and to make the harbor a complete one, a protecting pier to break off these seas should be interposed on the western limit of the channel. McArthur, Smith & Co., lumber merchants, have already, with my consent, for commercial purposes, built out on their property-front a long pier bordering on the government channel. To complete the improvement, however, their pier should be extended, with sufficient cross-section to resist the action of the waves from the northwest, until 14 feet soundings is reached. This would involve 2,500 linear feet of pile and edging piling, at a probable cost of \$20,000. Therefore, to complete the improvement of Cheboygan Harbor in a manner to satisfy the present exigencies of commerce, taking into consideration also the contingencies of engineering and surveying, I estimate \$25,000, all of

which could be profitably expended during the working seasons of 1880-'81.

The original estimate of the cost of this work is \$395,000, which was made by Maj. F. U. Farquhar, Corps of Engineers, in 1871. The amounts that have thus far been appropriated for this work are as follows:

1871.....	\$10,000	1875.....	\$15,000
1872.....	15,000	1876.....	10,000
1873.....	15,000	1878.....	8,000
1874.....	15,000	1879.....	3,000
Total.....			91,000

all of which has been expended on the work, excepting \$3,033.05.

This work is located in the Superior collection-district, Michigan. The nearest port of entry is Marquette, Mich. The nearest light-house is Cheboygan light. No account of custom receipts of this port for the fiscal year has been received at this office.

*Money statement.*

July 1 1878, amount available.....	\$8,000 00	
Amount appropriated by act approved March 3, 1879.....	3,000 00	\$11,000 00
July 1, 1879, amount expended during fiscal year.....	7,950 40	
July 1, 1879, outstanding liabilities.....	16 55	
		7,966 95
July 1, 1879, amount available.....		3,033 05
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

*Abstract of bids received and opened August 10, 1878, by Major F. Harwood, Corps of Engineers, U. S. A., for improving harbor at Cheboygan, Mich.*

Names of bidders.	Residence.	Dredging, cubic yard.
T. M. Hubbell.....	Saginaw, Mich.....	\$0 14
C. F. Dunbar.....	Erie, Pa.....	25
A. McArthur.....	Chicago, Ill.....	22
Williams & Upham.....	L'Anse, Mich.....	15
N. S. Gere.....	Geddes, N. Y.....	22
Carkin, Stickney & Cram.....	East Saginaw, Mich.....	*11½
C. H. Starke.....	Milwaukee, Wis.....	14

\* Award recommended.

## ABSTRACT OF CONTRACT.

Contract with Messrs. Carkin, Stickney & Cram, of East Saginaw, Mich., dated August 27, 1878, to expire December 31, 1878, for dredging Cheboygan Harbor, Michigan, 11½ cents per cubic yard, scow measurement.

## COMMERCIAL STATISTICS.

OFFICE OF NORTHERN TRIBUNE,  
Cheboygan, Mich., July 7, 1879.

DEAR SIR: I send you as per your request as correct a statement as can be had of the business of this harbor for the fiscal year ending June 30, 1879. From the books of the custom-house I find that these were—

	Tons.
410 clearances, aggregating.....	136,666
Northern Transportation boats, 194 trips, aggregating.....	84,287
Shore boats, 98 trips, aggregating.....	64,648
Western Transportation Company, 12 trips, aggregating.....	12,213
A. C. Van Raalte, 9 trips, aggregating.....	1,584
Total.....	299,398

The last four results were taken from the receiving books of the two docks, the tonnage of each craft being as given in the government list of merchant vessels as published by the department, so that the result can be relied upon as correct. It must be remembered that the shore boats, with a very few exceptions, enter the harbor twice each trip, which would make the amount of their tonnage nearly double the amount given.

In addition to the crafts included in the statement should be included the tugs plying in and out of the harbor belonging to this port, 6 in number; also vessels loading at the port having through clearances, of which there were quite a number.

Very respectfully,

C. S. RAMSAY,  
*Deputy Collector.*

Maj. F. HARWOOD.

## APPENDIX G G.

### ANNUAL REPORT OF LIEUTENANT-COLONEL N. MICHLER, CORPS OF ENGINEERS, FOR PART OF THE FISCAL YEAR ENDING JUNE 30, 1879.

WASHINGTON CITY, D. C., *July 7, 1879.*

GENERAL: I have the honor to transmit herewith the annual reports upon the various works of harbor improvements under my charge during the first five months of the fiscal year ending June 30, 1879. In accordance with Special Orders No. 257, Headquarters of the Army, Adjutant-General's Office, Washington, November 29, 1878, Maj. John M. Wilson relieved me of this duty, and I proceeded to comply with the order of the War Department, dated November 15, 1878, and of the instructions of the Department of State of the 7th of the same month. A separate report of the special mission to which I was thereby assigned was submitted on the 21st of May, for the information of the government, and until the close of the fiscal year I was engaged upon the same duty.

Very respectfully, your obedient servant,

N. MICHLER,  
*Lieutenant-Colonel of Engineers,  
Bvt. Brig. Gen.*

Brig. Gen. H. G. WRIGHT,  
*Chief of Engineers, U. S. A.*

## G G I.

### IMPROVEMENT OF MONROE HARBOR, MICHIGAN.

A description of this harbor having been given in the previous annual report, it is not deemed necessary to repeat it. At the close of the previous fiscal year there still remained to be completed about 1,500 feet of the renewed revetment on the sides of the United States Ship Canal, and 1,750 feet of the Monroe City Canal. It was estimated that about 600 feet of revetment could be renewed with the amount (\$2,500) appropriated for the year; of this the piles (1,132 linear feet) for 142 feet had already been driven when the work was suspended for the season. The south pier was repaired and will probably continue in good order for some years to come. The north pier was only partially repaired. The work was commenced on the 6th of November, and suspended on the 7th of December; it was executed by the purchase of the material in open market and by day labor. Soundings were taken out into the lake for a distance of 1,000 feet beyond the outer terminus of the United States Ship Canal; through the canals and that part of the Raisin River connecting them; and also along the river above the canal as high up as the head of navigation. There was no noticeable change in the depth