SAVANNAH: COMMERCIAL RELATIONS BETWEEN THE WEST AND SAVANNAH. COMMERCIAL HISTORY OF SAVANNAH. APPENDICES

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SAVANNAH.

COMMERCIAL RELATIONS BETWEEN THE WEST AND SAVANNAH.

COMMERCIAL HISTORY OF SAVANNAH.

PLEAS FOR DEEP WATER AT SAVANNAH.

APPENDICES.

SAVANNAH:
BRAID & HUTTON, PRINTERS AND BINDERS.
1891.

"I think the South is the most interesting field of study to be found at present in any part of the world. It is endowed by nature with greater advantages than any similar area in the world. It contains all the materials for new industries in great profusion. Its coal and iron are not only unlimited in quantity, but so placed in contiguity as to make their development both easy and profitable. The South has a practical monopoly of cotton, which now secures for her exchanges with the rest of the world to the extent of three hundred and fifty millions of dollars annually.* There is no country in the world, the industrial prosperity of which is planted on a foundation so stable as this. Georgia well deserves her title of 'Empire State of the South.'"

[*Extract from an interview with Hon. A. S. Hewitt.*]

*Now $400,000,000 annually.

SAVANNAH.

Savannah is situated on a plateau about 45 feet high at the head of ocean navigation on the Savannah River, and is 18 miles by water from the sea.

It is in the 32° parallel of north latitude, and has an average annual temperature of about 66° F.

It is healthful, and is one of the handsomest and most desirable residence cities in the South. Its location and natural advantages as a commercial port are unsurpassed.

It was founded by Oglethorpe in 1733, and is now the most important city on the South Atlantic coast, having a population of about 50,000.

It covers an area of 4,000 acres, has an assessed property valuation of $20,000,000, and had in 1890 an ocean commerce of $152,813,000.

The city has 110 miles of streets, 65 acres of public parks, 25 miles of street railway, and nearly 5 miles of wharves, with more than twice that length of water front available and yet to be developed.

THE HARBOR OF SAVANNAH.

The Harbor of Savannah consists of the Savannah River from the city to Tybee Roads, and comprises an anchorage, with depths of 26 feet and upward, of 1,861 acres, which will be increased to 2,328 when the proposed improvements are completed. For a commercial port, however, a large area for anchorage is not demanded so much as abundant dock facilities with convenient

approaches. These Savannah possesses in an eminent degree, and the construction of docks at private and corporate expense will keep pace with the increasing demands of commerce. The Harbor has long been noted for its immunity from storms, and for the excellent quality of the river water, which will keep without deterioration in the holds of vessels for an indefinite length of time. The ocean bar is one of the deepest and best on the South Atlantic coast. The depth of water in the bar channel has not sensibly changed in a century, there being 26 feet at mean high tide.

In 1874, when the United States Engineer Department resumed charge of the improvement of the harbor, the usual high water draught of vessels to the city was about 14.5 feet. The improvements executed up to date have resulted in securing a navigable channel 22 feet deep at mean high tide from Savannah to the sea. On July 22, 1890, the Secretary of War approved a project having for its object the obtaining of a depth of 26 feet of water in the river from the city to the sea, and on September 19, 1890, Congress appropriated $350,000 with which to inaugurate the work.

REVISED PROJECT OF IMPROVEMENT FOR SAVANNAH HARBOR AND RIVER, WITH A VIEW TO OBTAINING A CHANNEL DEPTH OF TWENTY-SIX FEET.

UNITED STATES ENGINEER OFFICE,
Baltimore, Md., July 16, 1890.

GENERAL: I have the honor to send forward the report of Lieutenant Carter, dated June 30, 1890, with accompanying papers and maps, all relating to a revised project of improvement for the Savannah River near and below Savannah, Ga., with a view of obtaining a depth of 26 feet at mean high water from the city to the ocean.

This project and preceding survey are understood to be the result of the instructions of the Chief of Engineers, dated January 11, 1889. The work and the discussion of it are believed to be the best yet done for this river.

The project is approved, subject to such minor modifications as the progress of the work will surely suggest.

The estimate is also approved. If the money for the execution of the project were supplied as fast as it could be economically expended, the cost could be much reduced.

Very respectfully, your obedient servant,

WM. P. CRAIGHILL,
Colonel, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

[First indorsement.]

OFFICE CHIEF OF ENGINEERS,
U. S. ARMY,
July 21, 1890.

Respectfully submitted to the Secretary of War.

The plan of improvement under which operations have been carried on up to date provides for the establishment of a channel from Tybee Roads to the City of Savannah practicable at high tide for vessels drawing 22 feet of water, and the widening of the channel of the river opposite the city to 600 feet, of uniform depth with the balance of the channel.

To comply with the provisions of the River and Harbor Act of August 5, 1886, a survey was made, under the direction of Col. Q. A. Gillmore, Corps of Engineers, of the "Savannah River from cross-tides above Savannah to the bar, with a view to obtaining 28 feet of water in the channel," and an estimate for the improvement was submitted amounting to $6,660,000 (Annual Report Chief of Engineers, 1888, Part II., pages 1,059-1,073). As no action has been taken on this report, and a mean high-water depth of 22 feet being insufficient to accommodate the large and rapidly-growing commerce on the Savannah River, and the project for securing a depth of 28 feet requiring so large an expenditure, I directed Lieutenant Carter to prepare and submit a project with an estimate of the cost of obtaining a channel of 26 feet at high water, and it is in compliance with these instructions that the within project is submitted. It is recommended that the future operations on this river be directed to securing a depth of 26 feet, as within proposed, and that the project be amended in that particular.

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

[Second indorsement.]

JULY 22, 1890.

The recommendations of the Chief of Engineers in his indorsement are approved.

L. A. GRANT,
Assistant Secretary of War.

PROJECT OF LIEUTENANT O. M. CARTER, CORPS OF ENGINEERS.

UNITED STATES ENGINEER OFFICE,
Savannah, Ga., June 30, 1890.

GENERAL: I have the honor to submit herewith a revised project of improvement for Savannah Harbor and River with a view to obtaining a channel depth of 26 feet at mean high water from the city to the sea. The basis of this report is formed by the project submitted by me under date of August 25, 1887, the revision having been made in the light of the information obtained by the survey executed under my direction in 1889 and 1890.

This survey was in charge of Mr. E. A. Gieseler, assistant engineer, and his reports and appendices, which are submitted herewith as a part of this report, give a full description of the methods employed and the results obtained.

Apart from the development of the present form of the river bed from Cross Tides to the sea, by means of careful and numerous soundings, the aims of the survey were in the main directed toward a systematic investigation of the tidal conditions, and of the ebb and flood flow in the various channels, and it appears that this object has been attained.

The result of the gauging operations as far as the volumes in motion under mean conditions of tide and of fresh water flow are concerned may be summed up as follows:

Nearly equal volumes of flood enter the two openings north and south of Oyster Bed, viz., respectively, about 1,100,000,000 and 1,000,000,000 cubic feet, about 300,000,000 cubic feet of the former passing off into Wright's River. Savannah River proper is entered by a flood volume of about 1,850,000,000 cubic feet, of which one-fourth passes into South Channel while three-fourths enter the mouth of North Channel at the lower end of Jones's Island. Immediately below St. Augustine Creek the flood volume of South Channel has diminished to about 180,000,000 cubic feet, but is increased immediately above the flood inflow of said creek to 414,000,000 cubic feet. The volume of North Channel at about the same distance from the mouth (center of Spirit Island) is 770,000,000 cubic feet, of which somewhat more than one-tenth moves through Duck Puddle. The head of Elba Island is reached with an entire flood volume in North and South Channels of about 1,100,000,000 cubic feet, of which amount about 760,000,000 cubic feet enter Back River and about 310,000,000 cubic feet enter Front River.

After having turned about 65,000,000 cubic feet over Cross Tides Dam into Front River the Back River flood arrives at Reeves plantation with about 125,000,000 cubic feet. The Front River flood has decreased to 114,000,000 cubic feet immediately below King's Island, but is increased by the inflow through Cross Tides to a volume of 140,000,000 cubic feet immediately above the latter place.

The ebb flow of Savannah River is increased by the accumulation of half a lunar day's fresh water flow, amounting to about 700,000,000 cubic feet. In Front River immediately above Cross Tides the ebb volume amounts to 856,000,000 cubic feet, of which nearly 600,000,000 cubic feet remains in Front

River, while about 300,000,000 cubic feet pass over the dam into Back River. The ebb volume of the latter which, 1¼ miles further up at Reeves plantation, is only 165,000,000 cubic feet is thus considerably increased, so that at the junction of Back River and Front River in the vicinity of Barnwell Islands it amounts to about 1,000,000,000 cubic feet, most of which doubtless passes through the opening south of the upper Barnwell Island. Front River, in the same vicinity, discharges about 700,000,000 cubic feet through the mouth of Wrecks Channel.

About the same amounts are turned respectively into North and South Channels, so that half way down Spirit Island we find a total volume of about 1,160,000,000 cubic feet for the two openings of the North Channel, and in the same vicinity, immediately above St. Augustine Creek, about 770,000,000 cubic feet in South Channel. The flow in the latter is then weakened to the amount of nearly 350,000,000 cubic feet, passing off through St. Augustine Creek and at its mouth near Lazaretto Creek; we therefore find a discharge of only about 870,000,000 cubic feet, while about 1,700,000,000 cubic feet are discharged through the mouth of North Channel at the lower end of Jones's Island, rendering in all an ebb volume at the two mouths of the river of about 2,570,000,000 cubic feet.

Finally about 1,450,000,000 cubic feet pass south and about 935,000,000 cubic feet pass north of Oyster Bed, in which latter is included a volume of about 300,000,000 cubic feet coming from Wright's River.

Such are the general outlines of the movement of volumes in the lower Savannah River as deduced from the present survey. As compared with former gauging operations a fairly good coincidence of results is found in the upper portion, while in the lower portion the present volumes are very considerably smaller than the former ones, possibly an indication of a decrease of the tidal volume and therefore a warning to proceed with the utmost caution in the construction of all future improvement works.

The effect of Cross Tides dam is strikingly illustrated by the above.

Previous to its construction two-thirds of the entire volume of Savannah River passed through Cross Tides into Back River, and only one-third passed down Front River. Now the situation is precisely reversed.

The relative size of volumes passing north and south of Oyster Bed is somewhat of a surprise, the importance of the northern opening being demonstrated by the survey to be much greater than was supposed. We should then proceed cautiously in the construction of such works as may be intended to partially close this opening.

The results of the survey appear to indicate that a mean ebb velocity of about 2 feet per second is required to secure permanence of the channel. The general aim of the revised project will be to mold the river bed from Cross Tides to the sea in such a way as to allow the free ascent of the flood tide, and to secure throughout, as far as practicable, the above uniform mean velocity of ebb flow. For Front River this leads us to cross-sectional areas for mean ebb outflow, in-