PROPERTY
NEW JERSEY STATE
TRENTON




# THE ATLANTIC INTRA-COASTAL WATERWAY

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THE PROJECT ADVOCATED
BY
THE ATLANTIC
DEEPER WATERWAYS ASSOCIATION

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OFFICIAL SURVEY LINES
AND
PRESENT STATUS OF THE WORK
IN ITS
VARIOUS SECTIONS

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PUBLISHED BY
THE ATLANTIC DEEPER WATERWAYS ASSOCIATION
1914

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# ATLANTIC
# DEEPER WATERWAYS ASSOCIATION

815 CROZER BUILDING, PHILADELPHIA


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COMPILED BY WILFRED H. SCHOFF

PHILADELPHIA, DECEMBER, 1914


# THE ATLANTIC INTRA-COASTAL WATERWAY

## FOREWORD

THE Atlantic Deeper Waterways Association was organized in 1907 to promote the construction of a series of canals linking the natural bays and sounds along the Atlantic seaboard, in order to provide a modern protected free waterway, admitting heavy traffic, owned and operated by the United States government, between New England and Florida.

Pursuant to resolutions adopted by this Association, surveys along the entire route proposed were authorized by various acts of Congress, and these surveys have now been completed by the United States Army Engineer Corps and their recommendations with full details and plans of the surveys in the various sections are now in printed form for consideration by Congress.

Broadly speaking, the Army Engineers have reported favorably on the greater part of the project and have recommended immediate action on several of the links, and early future action on a number of those remaining.

These reports, with full details, have now been printed as government documents and may now be obtained under the following numbers:

Northern section, Boston, Mass., to Beaufort, N. C. 62d Congress, Second Session, Document 391; also 63d Congress, First Session, Document 196.

Improvements in New York Harbor and the East and Harlem Rivers, 63d Congress, First Session, Document 188.

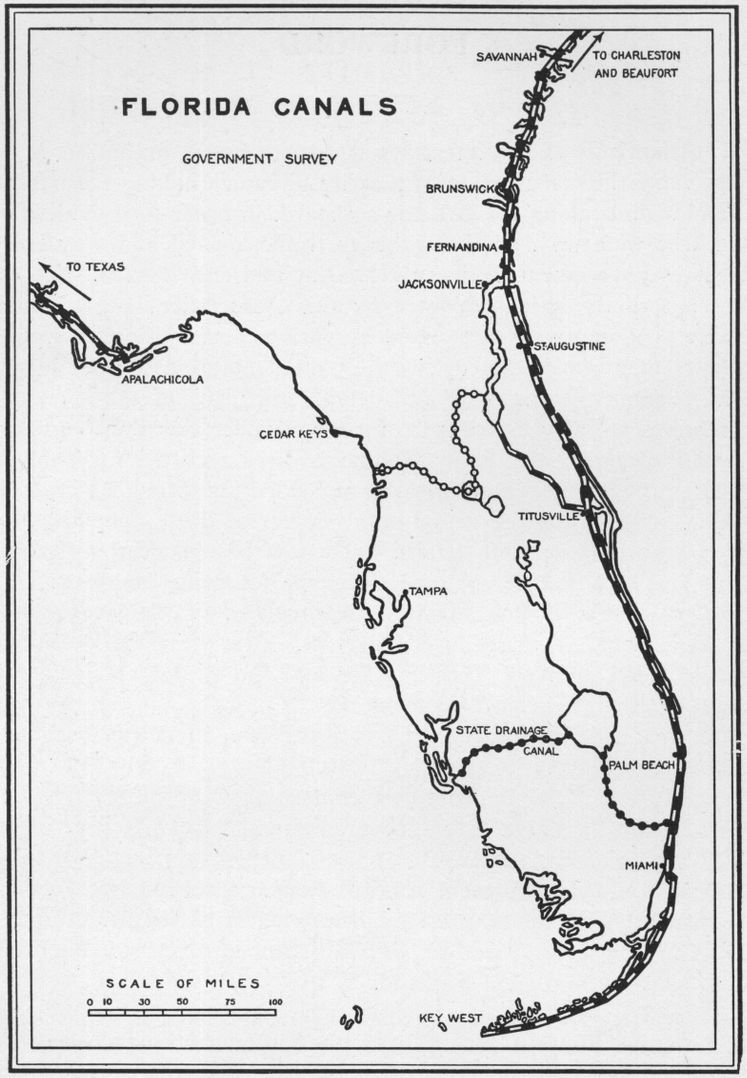
Southern section, Beaufort, N. C., to Key West, Fla. 63d Congress, First Session, Document 229.

Upper Hudson River improvement connecting with the New York Barge Canal system and the Great Lakes, 61st Congress, Second Session, Document 719.

The following pages present a brief summary, section by section of the Atlantic Intracoastal Waterway survey, beginning at its southern terminus and proceeding northwardly, together with adjacent projects of importance in Florida, New York and New England.

It should be noted that the Atlantic intracoastal survey may be connected somewhere in the State of Florida with the Gulf intracoastal survey leading through protected waters to the Mississippi river at New Orleans, and this in turn with a further survey leading from New Orleans through protected waters along the Louisiana and the Texas coast as far as the international boundary at the Rio Grande.

It is suggested that those interested in the details of these surveys apply for the various public documents in which they are contained.







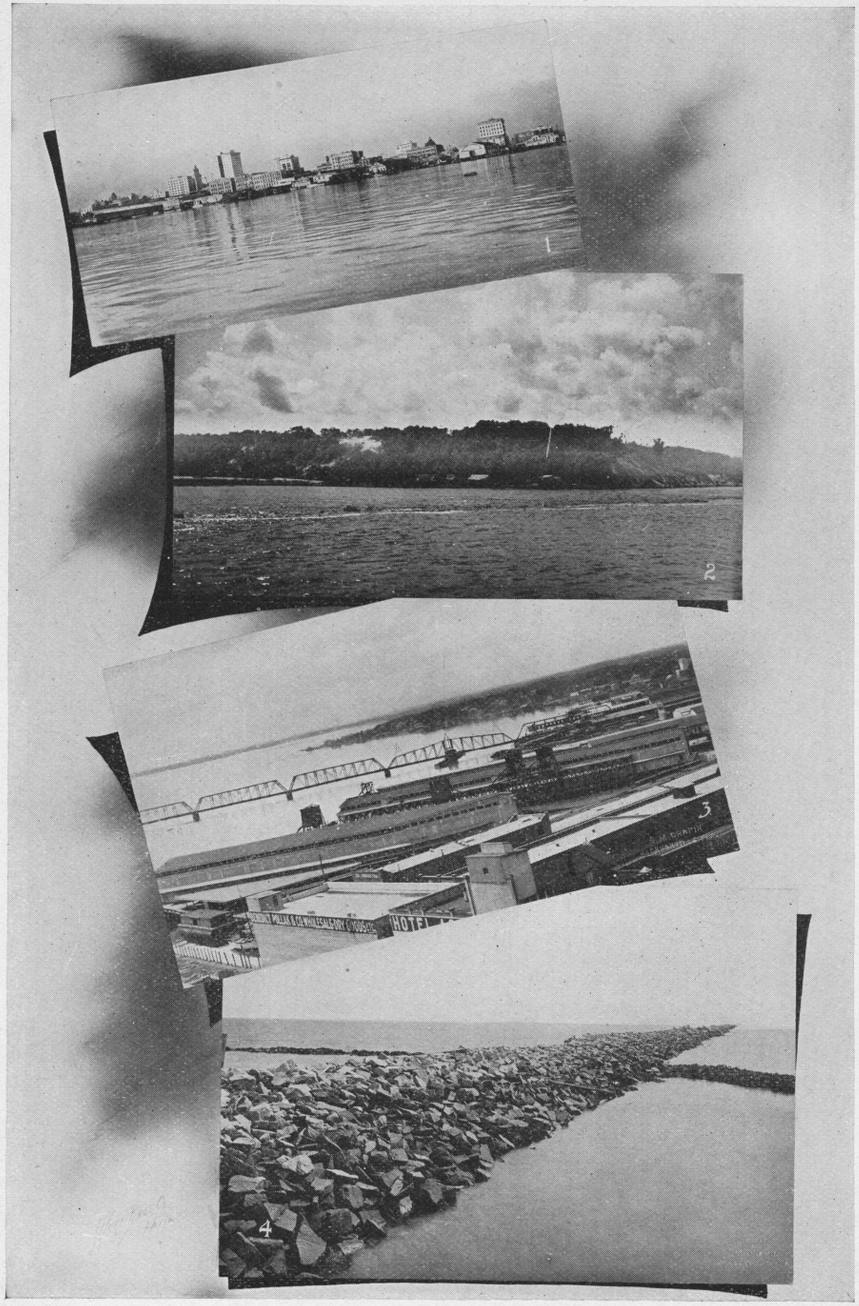

PALMETTO TREES.

## FLORIDA CANALS

The east coast of Florida now possesses a chain of natural protected thoroughfares along the greater part of its length, navigable by vessels of light draft. Connecting canals, constructed by a corporation operating under State charter, are of insufficient dimensions, and a Florida association is urging Federal acquisition and improvement. In the southern portion of the State a series of canals is under construction by a State commission with the object of draining the Everglades, creating a great area of cultivable land as well as providing free passage across the State between the Atlantic and Gulf coasts. Furthermore, the State possesses a magnificent natural waterway in the St. Johns river, leading from the port of Jacksonville far into the interior of the fruit growing district, and it is anticipated that this river may be connected at some point with the Gulf intracoastal survey in order to form one of the links in the intracoastal chain from Florida to New Orleans.

The Engineers' report on the Atlantic intracoastal survey, within the limits of the State of Florida, is, in substance, as follows:

A 7-foot depth is already authorized or under construction between Charleston, S. C., and Jacksonville, Fla. Boats of 8-foot draft, under existing projects, will soon be able to ascend the St. Johns river 170 miles to Sanford on Lake Monroe, which is very near the Everglades basin where the State projects are under way. Along the east coast of Florida, between the St. Johns river and Key West, channels now exist that offer 4-foot draft, and further improvement thereof by the Federal government is not recommended under present conditions. The Engineers anticipate that an improved route between St. Johns river and the Gulf, when constructed, will proceed across the State and not around it.



*Photos from the Jacksonville Board of Trade.*

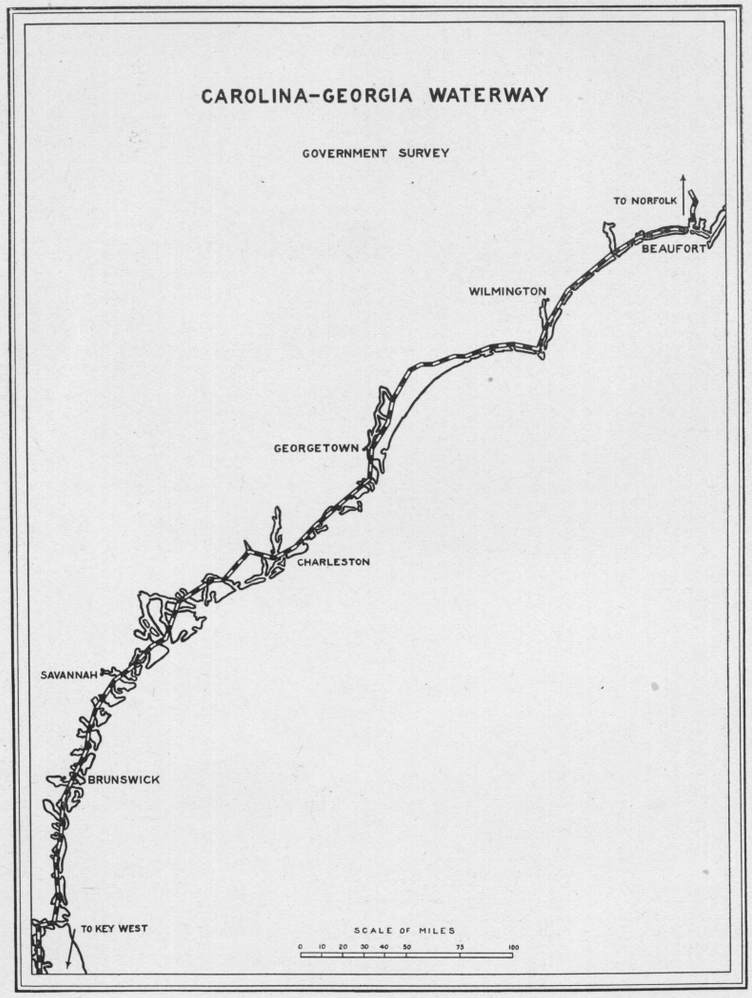
JACKSONVILLE, FLORIDA, AND THE ST. JOHNS RIVER.



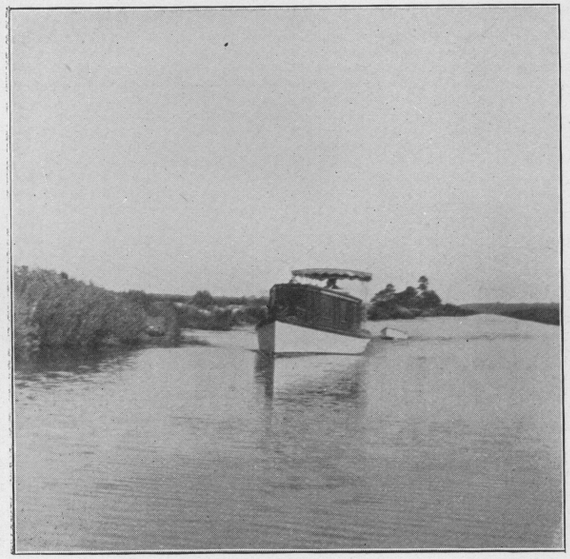


FLORIDA

1. On the Florida section of the Intracoastal Waterway.
2. Old Spanish Fort, St. Augustine, Fla., Inland Waterway in the distance. Photo by Wilfred H. Schoff.
3. At southern end of Atlantic Intracoastal Waterway.
4. Inland Waterway, Florida East Coast. Photo by C. F. Burgman, Daytona, Fla.





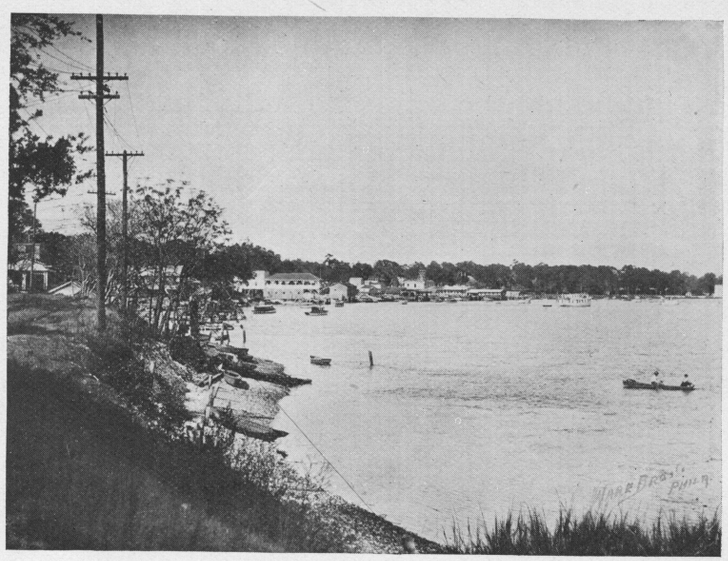



MOTOR BOAT IN SOUTHERN THOROUGHFARES.

## ST. JOHNS RIVER TO BEAUFORT, N. C.

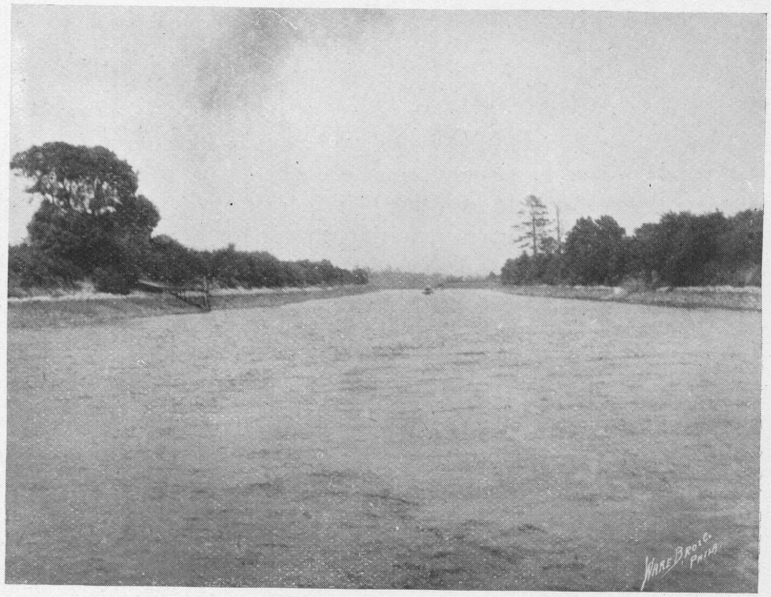
Under existing projects there will soon be available between the St. Johns river, Fernandina and Savannah protected channels affording 6-foot draft, 7-foot depth. Other channels affording 6-foot draft are available to Charleston and Winyah Bay; in some cases requiring a wait for the tides at the shallow places. The present recommendation of the chief of engineers in this section is that the government expend between the St. Johns river and Charleston, $870,000; and between Charleston and Winyah Bay, $1,230,000; total, $2,100,000, "as may be found necessary or desirable in the improvement of existing 6-foot draft routes." Between Winyah Bay, Cape Fear and Beaufort, N. C., a 6-foot draft, 7-foot depth is recommended, and the chief of engineers selects as the first section of this southern route to be completed that between Beaufort, N. C., and Cape Fear, at an estimated cost of $2,900,000. The section between Cape Fear and Winyah Bay to follow at a cost estimated at $9,400,000.

The entire distance between Beaufort, N. C. and the St. Johns river is therefore to be covered under present recommendations by a 6-foot draft, 7-foot depth passage at a total cost of $14,400,000. The "first half of the work to progress at a rate of about $800,000 per year, and progress on the last half to be gauged by the results of the first half."



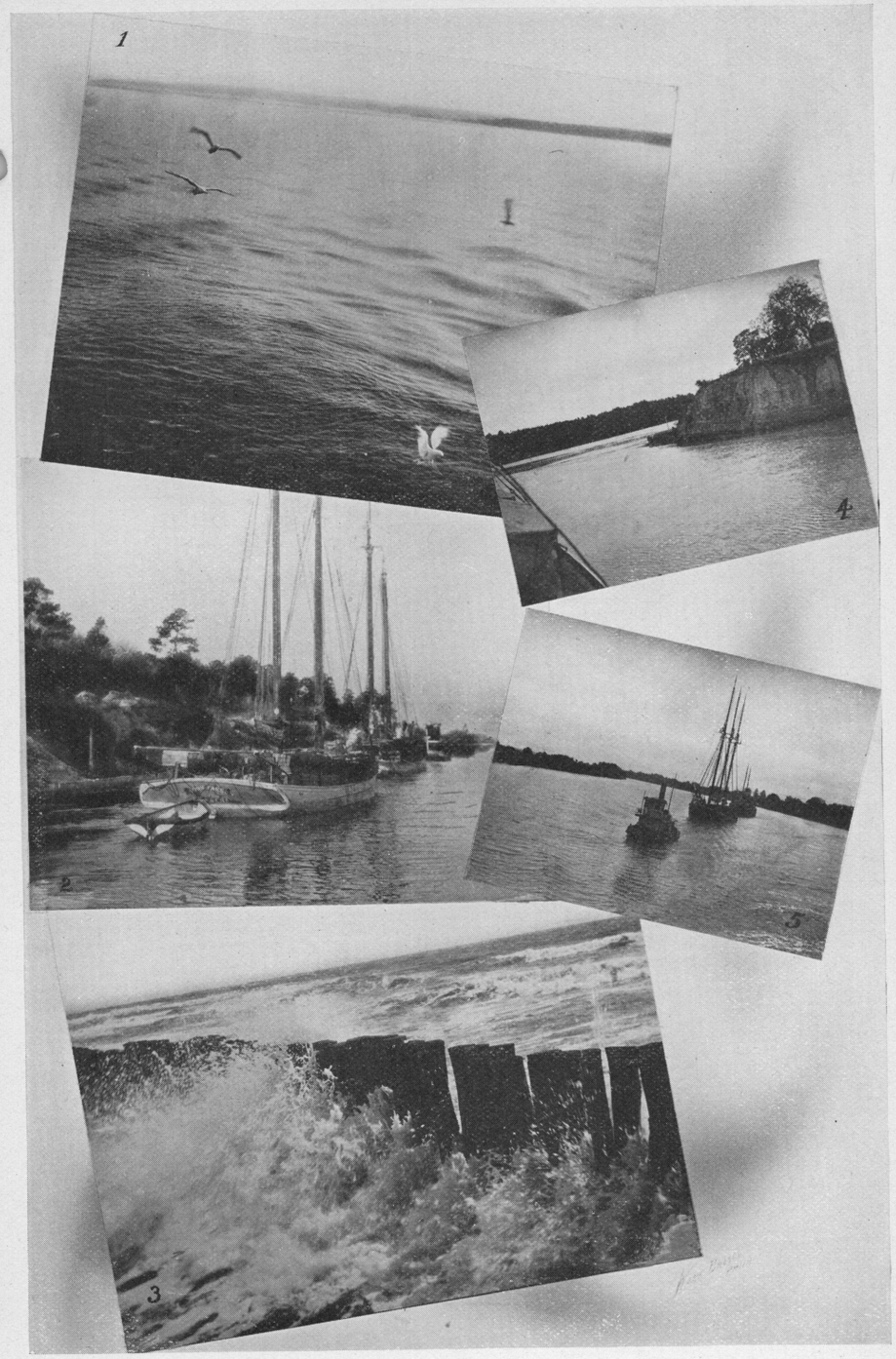
*Photograph by Wilfred H. Schoff.*

PORTION OF ATLANTIC INTRACOASTAL WATERWAY
AT THUNDERBOLT, NEAR SAVANNAH, GA.



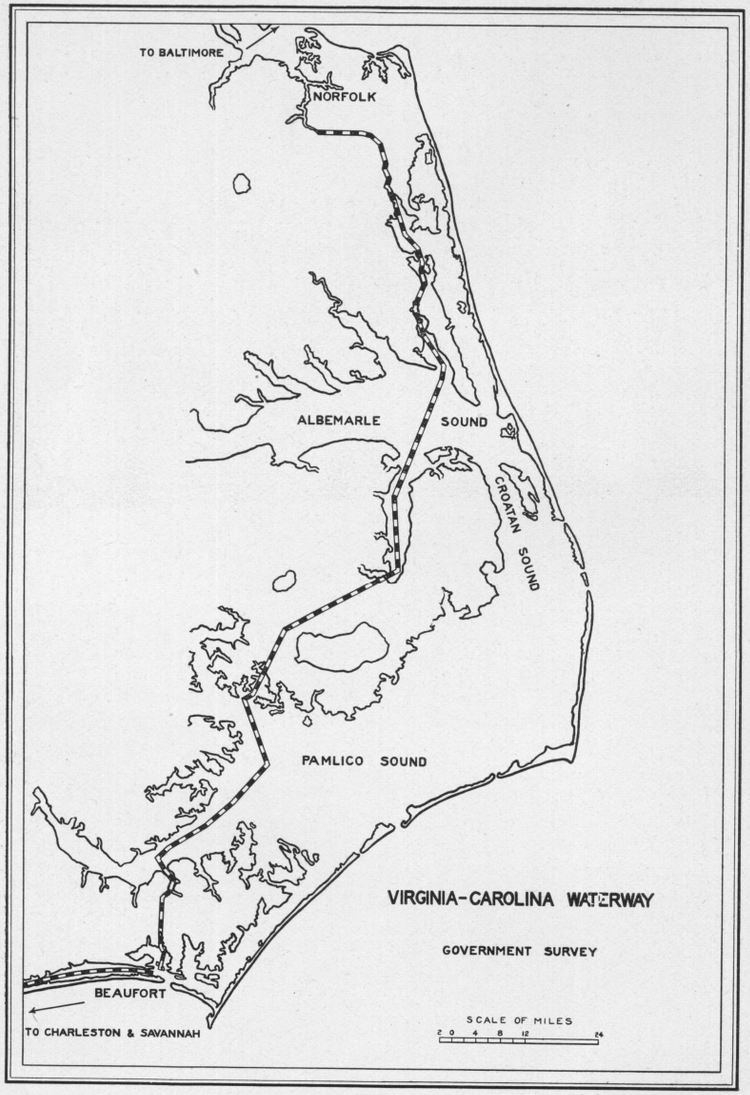
PORTION OF COMPLETED SECTION OF ATLANTIC INTRACOASTAL WATERWAY, CHARLESTON, S. C., TO SAVANNAH, GA.



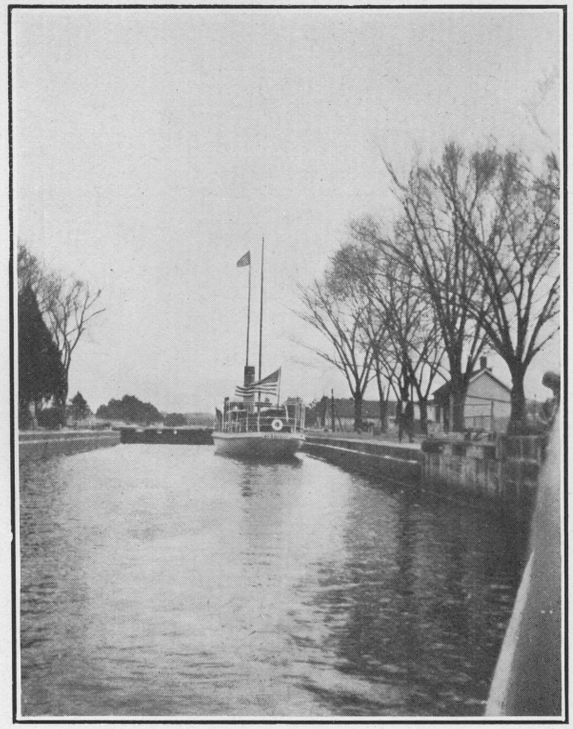



VIRGINIA AND CAROLINA

1. Inside of Cape Hatteras. Photo by Addison B. Burk.
2. Inland Waterway—Norfolk to Albemarle Sound.
3. Outside of Cape Hatteras. Photo by Addison B. Burk.
4. Dutch Gap Canal, James River, Va. Photo by Wilfred H. Schoff.
5. Coal-carrying craft on the James River, Va. Photo by Wilfred H. Schoff.





ENTRANCE TO CHESAPEAKE AND ALBEMARLE CANAL.

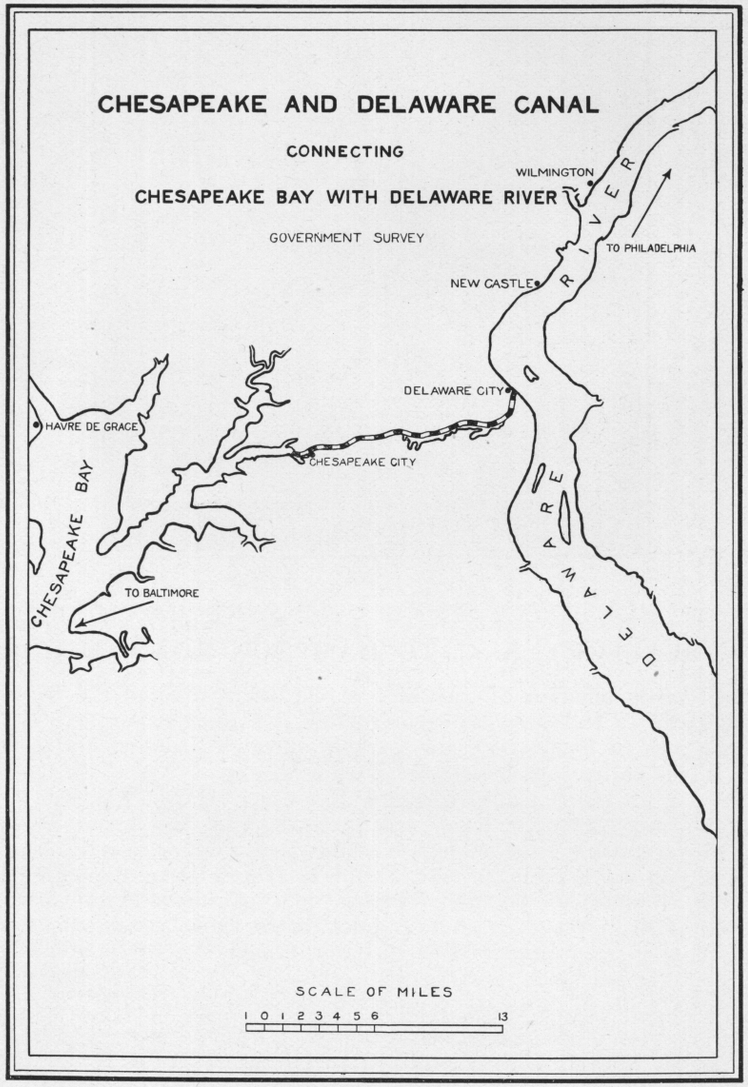
## BEAUFORT, N. C. TO HAMPTON ROADS, VA.

The recommendation of the chief of engineers covered the construction of a waterway 12 feet deep between Norfolk, Va., and Beaufort Inlet, N. C., at a total cost of $5,400,000, and passing through Pamlico and Albemarle Sounds. This entire section is to be at sea level.

Under a provision included in the River and Harbor Act of 1912, the Chesapeake and Albemarle Canal has been acquired and taken over by the Federal Government. Free passage has thus been provided between Hampton Roads and Albemarle Sound by way of the Elizabeth River, the C. & A. Canal and Currituck Sound. Abolition of tolls on this old waterway has already stimulated traffic through it, but a much more rapid development may be anticipated upon the completion of its improvement to project dimensions of 12 feet depth at sea level.

The 12 foot intracoastal connection between Albemarle and Pamlico Sounds will be by way of Alligator River, Rose Bay and Adams Creek, as shown on the diagram, avoiding the passage through Croatan Sound where adverse stream flow and tide conditions would interfere with maintenance of the 12 foot channel depth.

The connection between Pamlico Sound and the ocean at Beaufort Inlet has been completed by the Federal Government to a depth of 10 feet, the passage having been successfully operated for the past four years. Under existing law this depth will be increased to 12 feet in order to provide uniform dimensions from Norfolk to Beaufort.








A Reminiscence—the Philadelphia Delegation to the Baltimore Convention of 1908, Passing Through the Chesapeake & Delaware Canal.

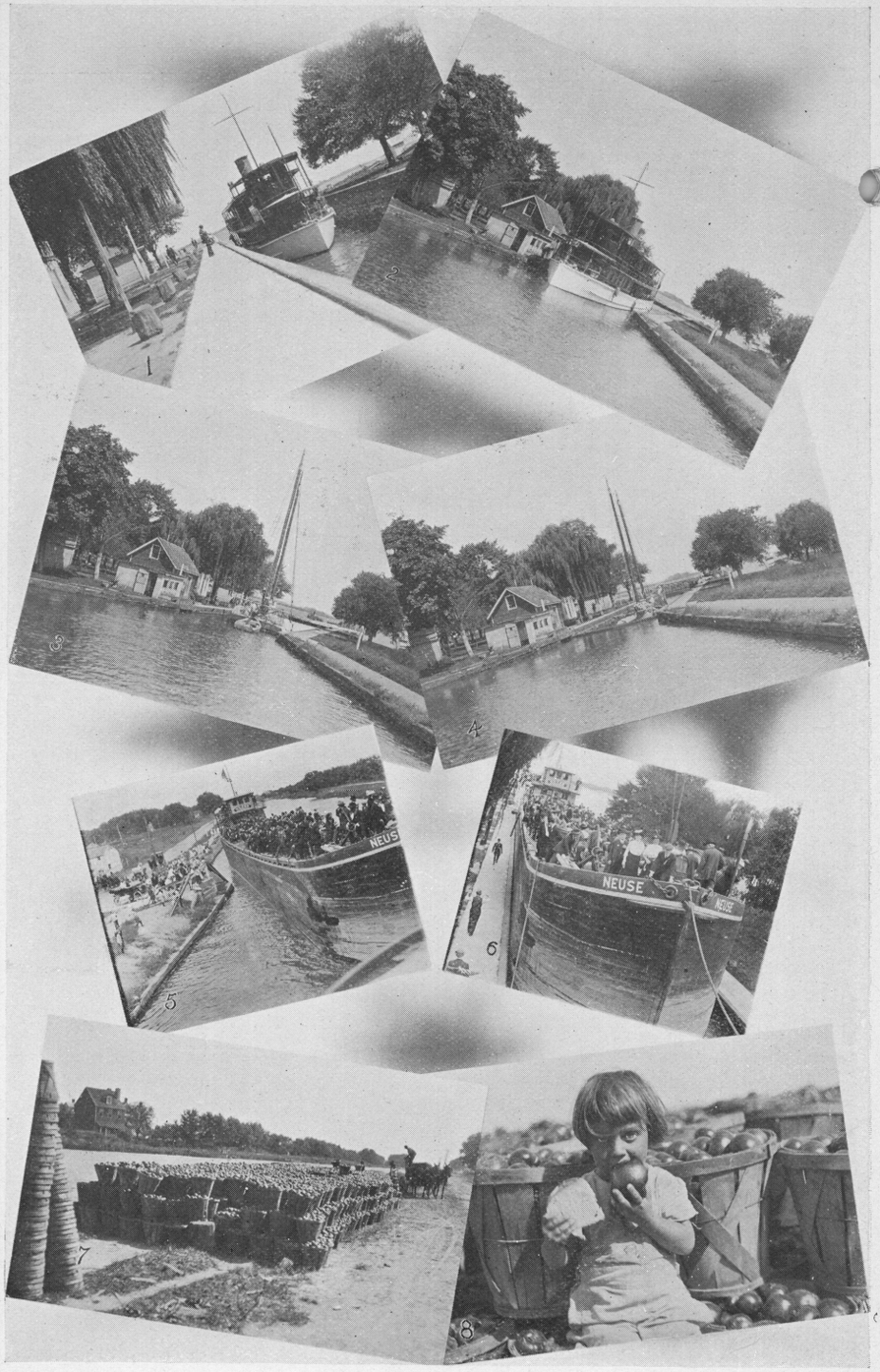
## CHESAPEAKE AND DELAWARE CANAL

The final recommendation of the chief of engineers submitted to Congress August 9, 1913, with reference to the connecting waterway between Chesapeake Bay and Delaware river is as follows:

"It is advisable for the United States to buy the Chesapeake & Delaware Canal at a cost to the United States not exceeding $2,514,290, and to then enlarge it to a sea level canal 12 feet deep and 90 feet bottom width with the least interference practicable to existing traffic . . . . at a cost which amounts in round numbers to $8,000,000, of which $3,000,000 should be made available by the first appropriation, and economical work will then require subsequent appropriations of from $500,000 to $1,000,000 per year.

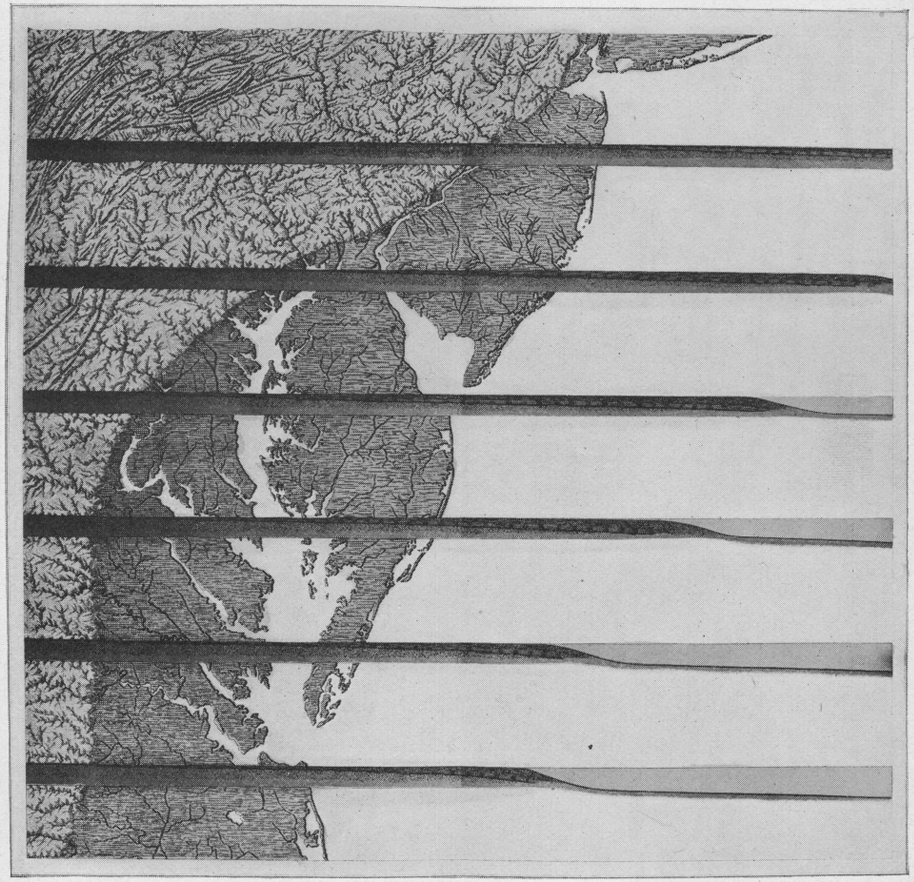
"Further deepening to 25 feet at an extra cost of $4,500,000 should await further observation as to the commercial changes resulting from the first increase in canal depth, and especially the release from canal tolls. . . . . The general public benefit will be that due to the increase of commerce by use of barges in tows and of medium draught boats, and the added benefits accruing from heavy draught boats will be mainly local, and, consequently, should await co-operation by the local States or those most directly benefited. . . . . It will always be possible to increase the depths above 12 feet up to 25 feet as fast as local co-operation furnishes the funds."

The above final report of the chief of engineers makes the Chesapeake and Delaware link the next one in the survey to be pressed to the attention of Congress. Early and favorable action for taking over this canal is earnestly desired, and is essential in order to provide continuous navigation between North and South.




ON THE CHESAPEAKE AND DELAWARE CANAL.

1. Power boat entering lock at Delaware City.
2. Same boat locked into canal.
3. Schooner entering lock.
4. Same schooner ready to leave canal.
5. Modern barge entering St. George's Lock.
6. Same barge in lock, showing limitations of present antiquated canal.
7. Part of Delaware's tomato crop awaiting shipment.
8. Some of it that did not get shipped. Note—Canal toll of 6 cents per 10 baskets was said to have some effect also in discouraging shipment.



STEREOGRAM OF THE MIDDLE ATLANTIC SLOPE.

The dark area is alluvial soil drained at tide level; the light is upland and mountain, soil over rock. The line where the two meet is the Atlantic Fall Line.

The Atlantic Intracoastal Waterway will run through alluvial plains at tide level, under the cheapest and easiest possible conditions of construction.

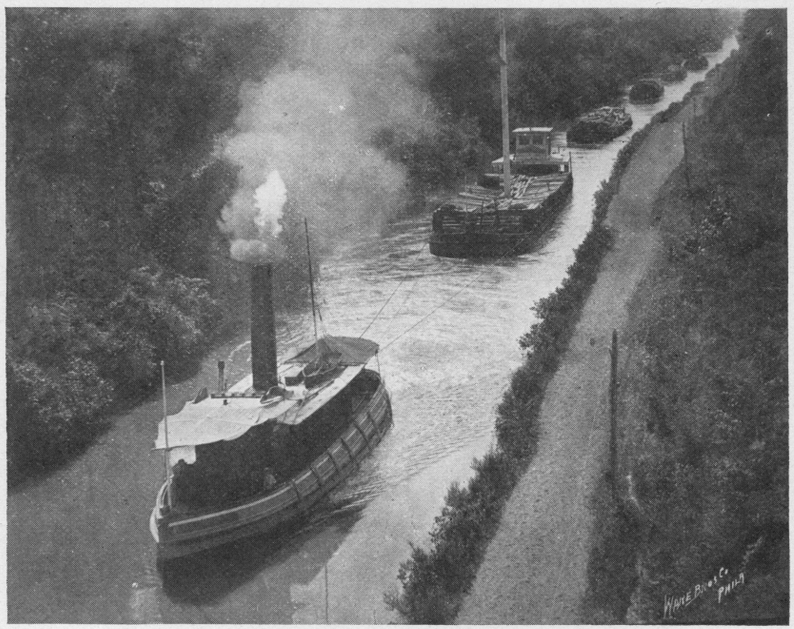
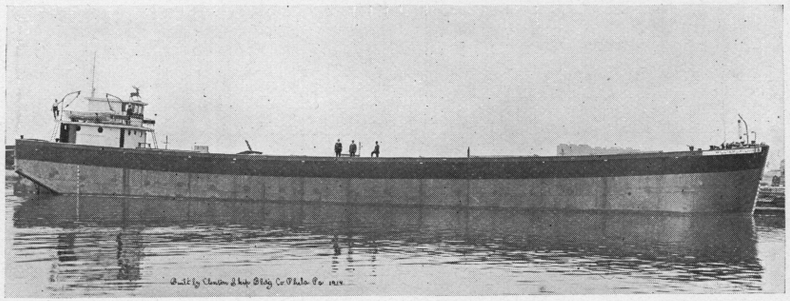


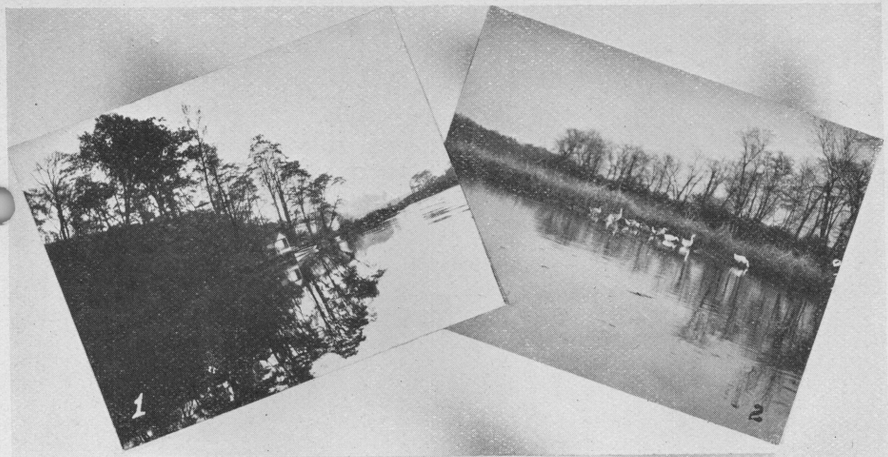
*Photo by Lewis M. Haupt.*

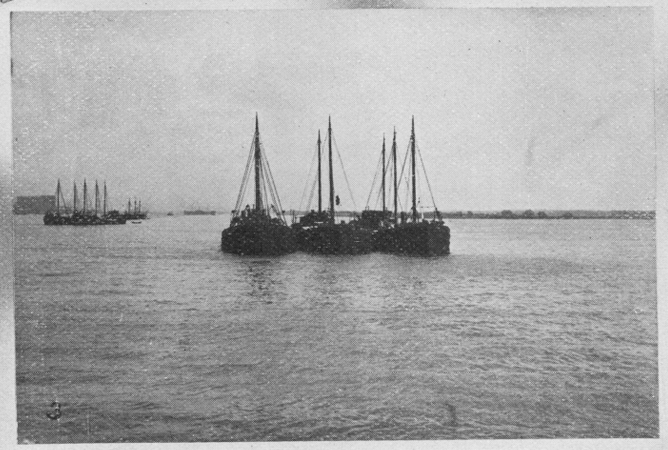
OLD-FASHIONED SMALL BARGES IN THE CHESAPEAKE AND DELAWARE CANAL.

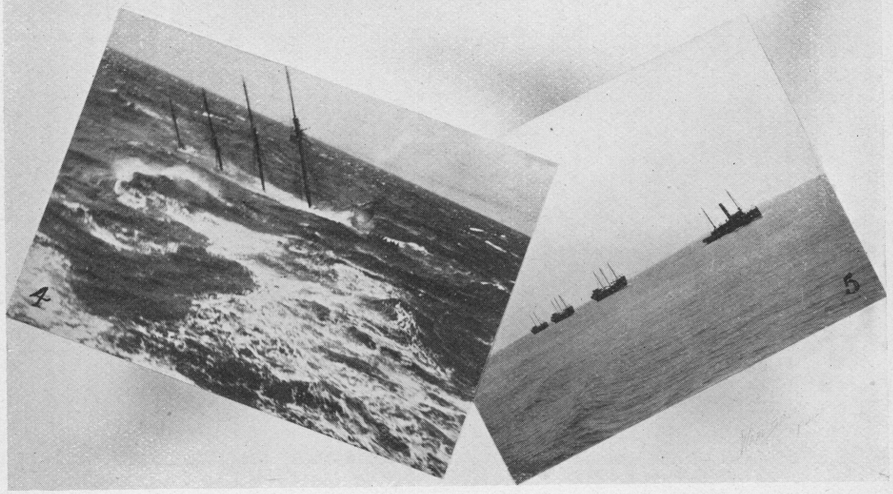


MODERN BARGE FOR CHESAPEAKE AND DELAWARE CANAL TRAFFIC.



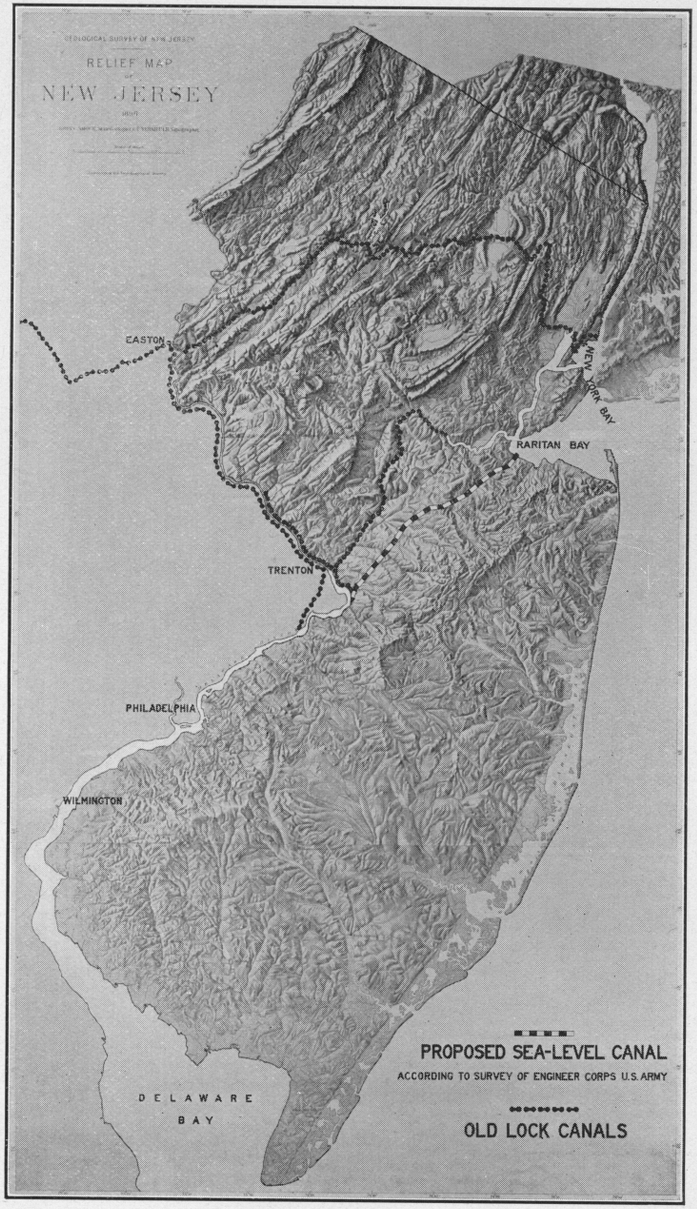



NEW JERSEY.

1. The Bonaparte landing Crosswicks creek near Bordentown, N. J.
2. Crosswicks Creek, N. J. A portion of the route of the New Jersey ship canal. Photos by Wilfred H. Schoff.
3. Coal Barges tied abreast in Delaware River at Philadelphia, awaiting shipment to New England.
4. The fate of the Coastwise Sailing Fleet. Photo by C. W. Ward, Kissimmee, Fla.
5. Coal Barges inward bound.






## THE DELAWARE RIVER

Connection between the terminus of the Chesapeake and Delaware canal and the entrance between the proposed New Jersey canal is afforded by the Delaware river. Under existing projects a depth of 35 feet will soon be available to Allegheny Avenue, Philadelphia, and a depth of 12 feet between Philadelphia and Trenton, N. J., is now available. The entrance to the canal will be at Bordentown, N. J.

## THE NEW JERSEY CANAL

The report of the chief of engineers with respect to this link follows:

"The chief of engineers concurs with the special board in its view that some day a 25 feet depth sea level canal will be advisable across the State of New Jersey from New York Bay to the Delaware River. . . . . Any new canal should be built over a route susceptible of development into a deep draft sea level canal. A less depth than 25 feet will take reasonable care of present demands of commerce . . . . The majority of the increased tonnage will be that of barges of from one thousand to two thousand tons." And the recommendation of the chief of engineers is therefore for "a lock canal of 12 feet depth and 90 feet bottom width, provided the State of New Jersey, or other local parties, will promptly secure and donate to the United States all rights of way necessary for a 125 feet bottom width, 25 feet depth sea level canal along the same route . . . . . and provided that the 12 feet depth canal construction work be carried on . . . . . in such a way as to allow of a greater development to a 25 feet depth canal whenever such development is found advisable."

Estimates of the cost of the various types of canal reported by the chief of engineers is as follows:

| | |
|---|---|
| Lock canal, 12 feet depth | $20,000,000 |
| Lock canal, 25 feet depth | 30,000,000 |
| Sea level canal, 12 feet depth | 33,000,000 |
| Sea level canal, 25 feet depth | 45,000,000 |

The chief of engineers further discusses the possibility of future participation of cost in constructing a sea level canal of 25 feet depth by the States of Pennsylvania and New Jersey, as being interested parties in such an improvement.

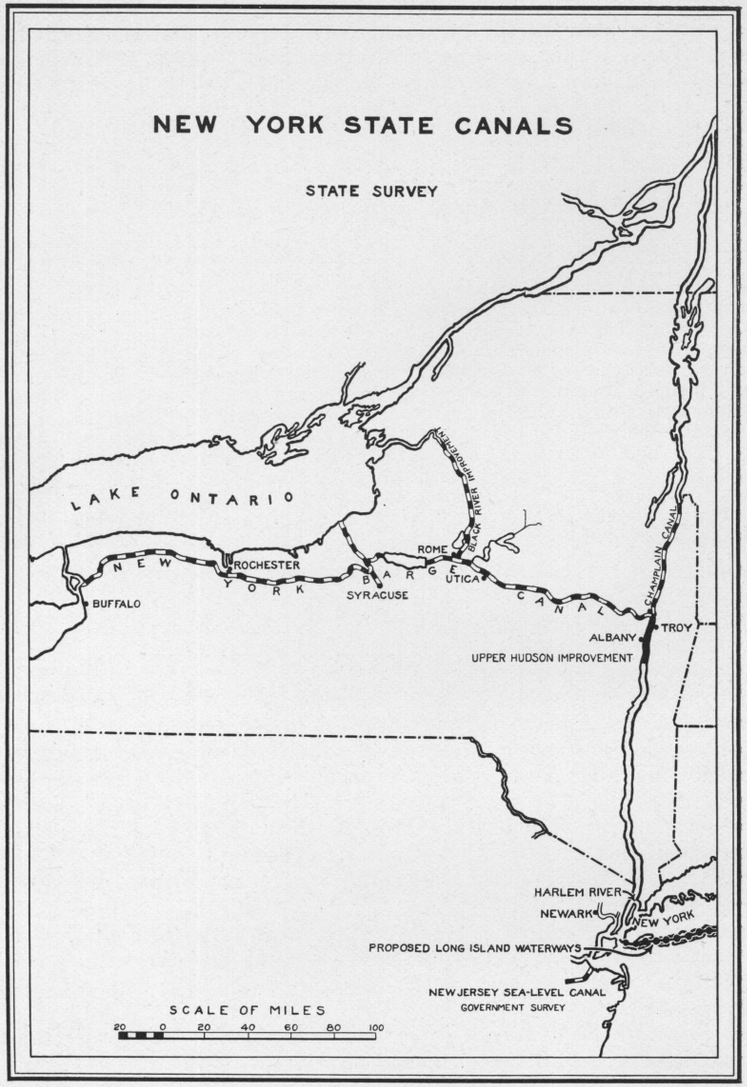
The new survey follows tidal streams through alluvial soil and marshland, and abandons the old Delaware and Raritan Canal route, which traverses rocky and hilly country and could not be modernized except at prohibitive cost.

This New Jersey link is absolutely essential in order to connect the southern waterways with New York and New England, and the early adoption of the project and commencement of the work are to be urged upon Congress at the first possible opportunity.

The State of New Jersey is in full accord with this project and has appropriated $500,000 for the purchase of a right of way for this canal route to be presented to the United States Government, and through a State commission has surveyed the route and charted the real estate to be acquired for the right of way.

## STATEN ISLAND SOUND

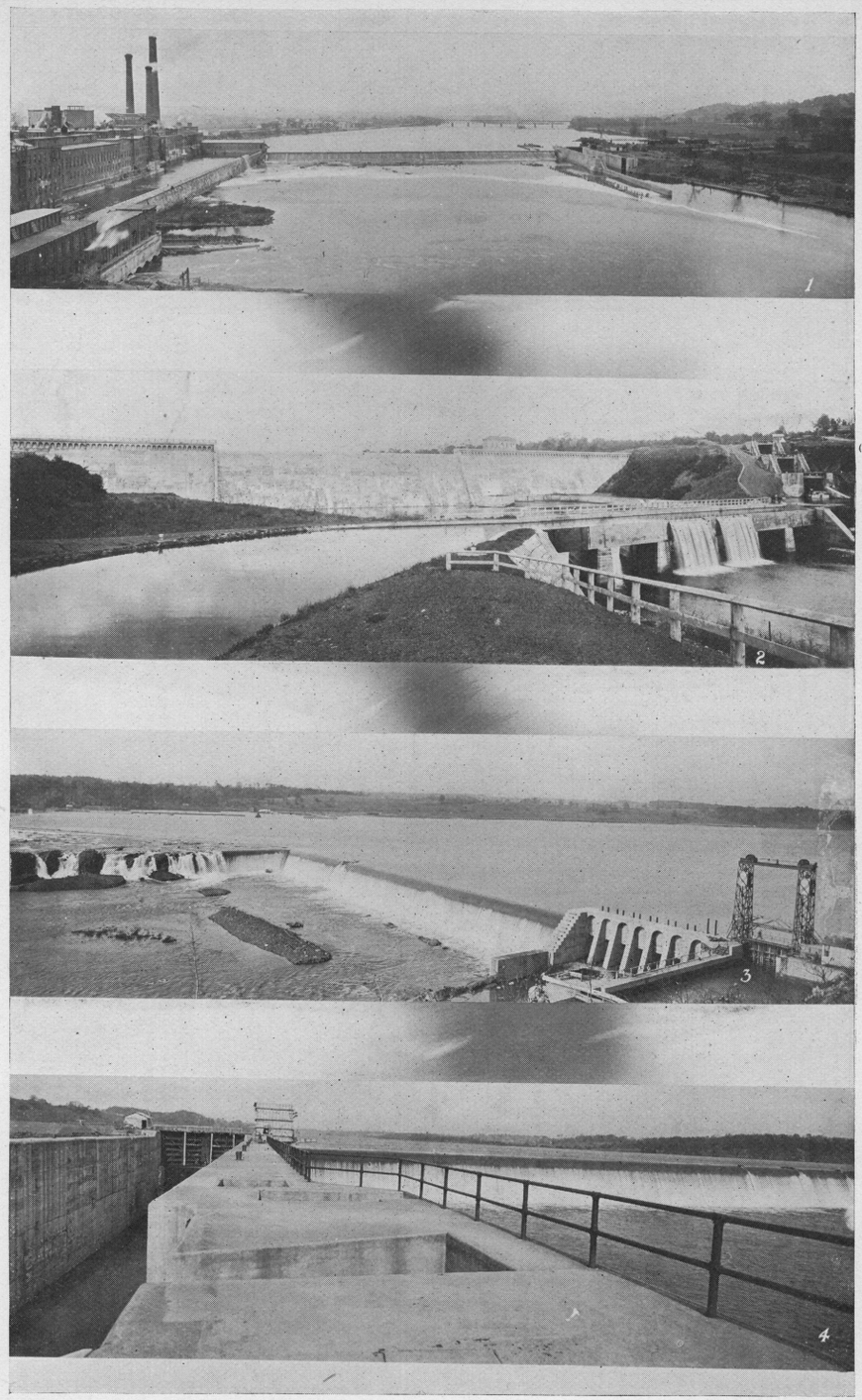
There is a natural protected deep waterway—the Staten Island Sound, comprising the Arthur Kill and the Kill von Kull—connecting Raritan Bay with New York Bay. The development of water front sites along this waterway in recent years for manufacturing purposes and for commercial terminals has been remarkable, and even greater development is expected.




## BETWEEN THE ATLANTIC AND THE GREAT LAKES

Between the Hudson River at Waterford, N. Y., and Lake Erie at North Tonawanda, the State of New York is now bringing to completion one of the most extensive engineering projects ever undertaken in the United States, involving an entire reconstruction of the old Erie canal, by which the State of New York first attained its dominant position in American affairs. Leaving






1. View of lock and dam at Mechanicville. Dam in place before work on canal started. Lock placed at end of existing dam.
2. View of dam at Delta Reservoir; in the foreground, the Black River Canal with the aqueduct and locks.
3. View of the north end of fixed dam across Mohawk River at Vischer's Ferry, showing head gates and small lock.
4. View of lock at part of the fixed dam across Mohawk River at Vischer's Ferry. Power house shown under construction.

*(Photographs from N. Y. State Engineer's Office, Albany.)*

the Hudson River at Waterford the canal rises by a flight of five cement locks to the Mohawk River, which is canalized by a series of movable dams. The central section of the canal is fed by two great dams that impound the waters of the western Adirondack region. The canal then enters Oneida Lake and proceeds thence to Lockport over an excavated route, following in large measure the present Erie Canal route. Connection is provided by branch canals, with Lake Champlain, and with Lake Ontario at Oswego; also with Cayuga and Seneca Lakes; and connecting spurs are afforded the cities of Syracuse and Rochester. Statistics follow:

| | | |
|---|---|---|
| Erie branch | 323.3 | miles |
| Number of locks | 35 | |
| Oneida Lake, forming part of the route | 19 | " |
| Spurs to Syracuse and Rochester | 10.26 | " |
| Champlain branch | 61.5 | " |
| Number of locks | 11 | |
| Oswego branch | 22.8 | " |
| Number of locks | 7 | |
| Cayuga and Seneca branch | 27.3 | " |
| Number of locks | 4 | |
| Cayuga and Seneca Lakes, connected with barge canal | 65 | " |
| Width of channel, land line surface section, bottom, minimum | 75 | feet |
| Width of channel, land line, water surface | 123 to 171 | " |
| Width of channel, land line, lock section, bottom, minimum | 94 | " |
| Width of channel, river line, bottom, general | 200 | " |
| Depth of channel, land line and minimum river line | 12 | " |
| Locks, length between gates | 328 | " |
| Available length | 310 | " |
| Width of chamber | 45 | " |
| Depth of sills | 12 | " |
| Dams, new | 28 | |
| Dams, old with new crests | 6 | |
| Dams, old, without change | 5 | |
| Boats, capacity utilizing full lock width | 3,000 | tons |
| Boats, built for two to pass in most restricted channels, and two for traveling tandem to be locked at one lockage | 1,500 | " |
| Appropriation, Erie, Champlain and Oswego Canals | $101,000,000 | |
| Appropriation, Cayuga and Seneca Canals | 7,000,000 | |

Elaborate plans are under consideration for barge canal termini for Buffalo, Albany, New York City and elsewhere at a cost approximating $20,000,000.

This New York canal system, built by the State exclusively, provides a direct connection from the Atlantic Intracoastal Waterway to the Great Lakes, and by way of Lake Champlain to the St. Lawrence River in Canada.

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The illustrations on the opposite page are of scenes on the New York State Barge Canal. The particular points shown by each picture are as follows:

1. Safety gate closing canal section at Mohawk River, Crescent Dam in distance.

2. Movable bridge dam spanning Mohawk River; 8 such dams canalize the entire river.

3. Mohawk River and Barge Canal at Little Falls.

4. One of five locks by which the canal ascends from the Hudson to the Mohawk at Waterford, N. Y.

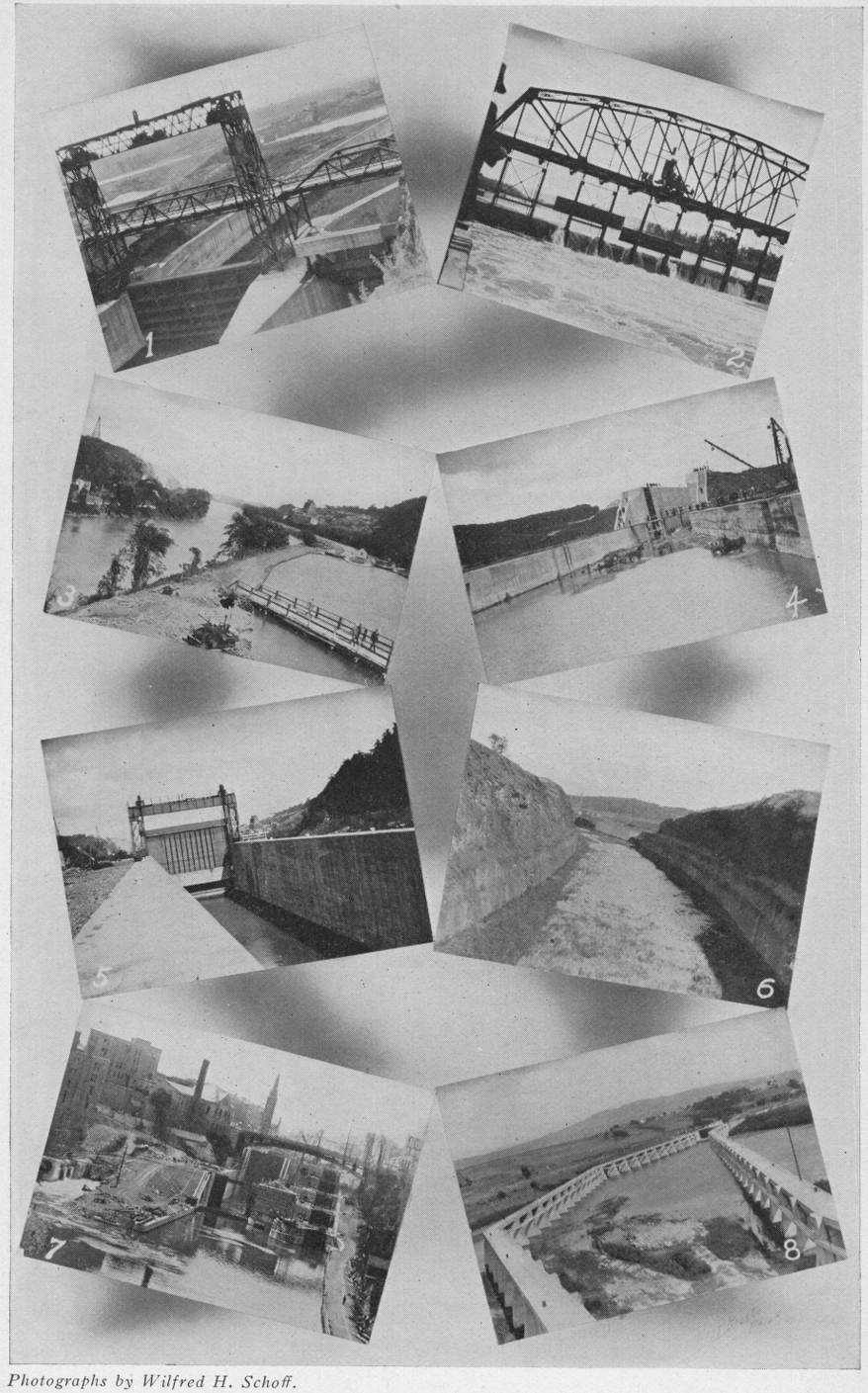
5. Lift lock at Little Falls. Highest in the world—40 ft. 6 in. lift.

6. Cut between Mohawk River and Lock No. 5, New York Barge Canal.

7. Canal locks at Lockport, N. Y., showing 5 Erie Canal locks retained for local traffic, and 2 Barge Canal locks, same height lift for through traffic.

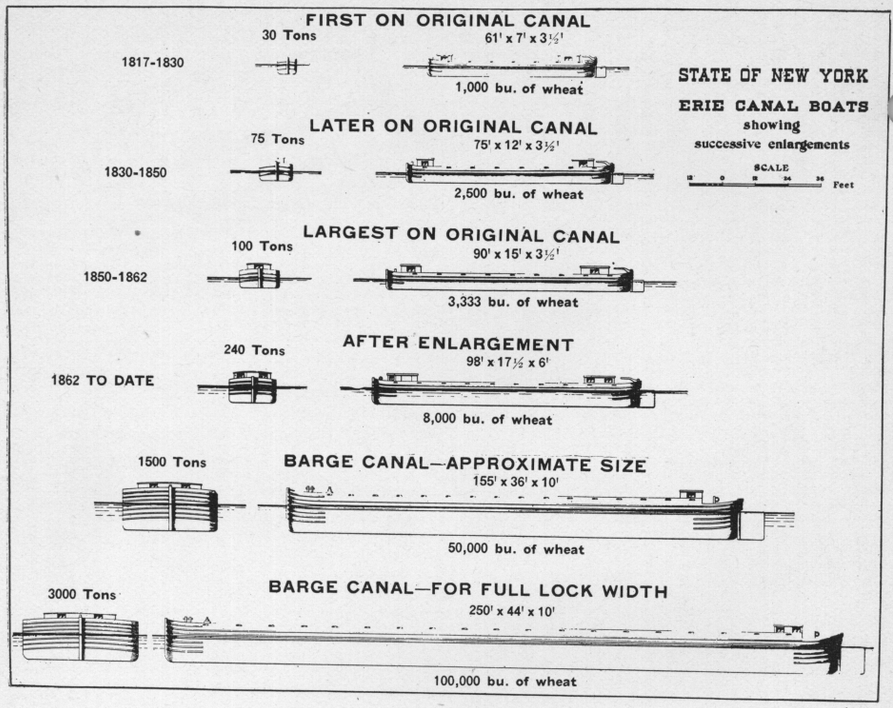
8. Concrete guide ways in pool above lock, Waterford.

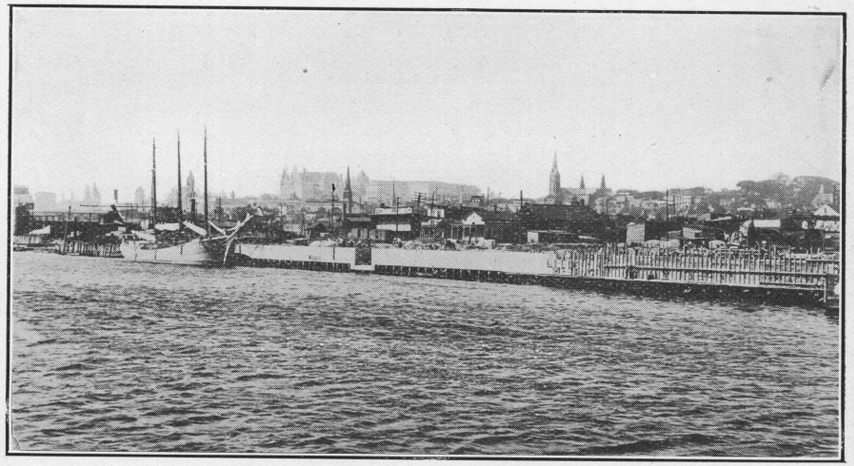





*Photographs by Wilfred H. Schoff.*

VIEWS OF THE NEW YORK STATE BARGE CANAL.
(SEE OPPOSITE PAGE).



*Photographs from N. Y. State Engineer's Office, Albany.*

STATE BARGE CANAL TERMINAL, ALBANY, N. Y.



## LAKE CHAMPLAIN

The connection between the Intracoastal Waterway and Canada is provided by the Champlain Canal (part of the State Barge Canal system), Lake Champlain and the Richelieu River, thus providing direct water communication with Montreal and Quebec, points on the St. Lawrence River, the Saguenay, Ottawa and the great projected system of Canadian internal waterways.

In order to provide adequate connection between the Barge Canal terminus at Whitehall and deep water in Lake Champlain, Federal improvement of the Champlain Narrows, Whitehall to Crown Point, 37 miles, an interstate waterway, will be necessary.

## UPPER HUDSON RIVER

The State Barge Canal System enters the Hudson River at Waterford, N. Y. Between Waterford and Hudson, about 39 miles, the river is in course of improvement by the Federal Government, the present project contemplating a channel depth of 12 feet. The work comprises a great concrete dam and lock with 16 foot lift at Troy, providing slackwater navigation between Troy and Waterford. Between Troy and Hudson, the river is being dredged and the channel controlled by dikes. This channel depth of 12 feet will be uniform with the Barge Canal dimensions. The business interests at Troy and Albany anticipate, however, that large transfers of traffic will take place at the head of the river, and are, therefore, urging provision for a greater channel depth as far as the Troy dam, the depth suggested being 27 feet, and have petitioned Congress to authorize a survey by the Army Engineers. It seems altogether probable that the head of the river will become an important freight transfer point, and that Federal improvement of the stream beyond Barge Canal dimensions will be advisable.

Between Hudson, N. Y., and New York harbor, the Hudson River already possesses sufficient depth for modern traffic, except at a few points such as Haverstraw Bay, where dredging of sandbars is required.

## NEW YORK CITY

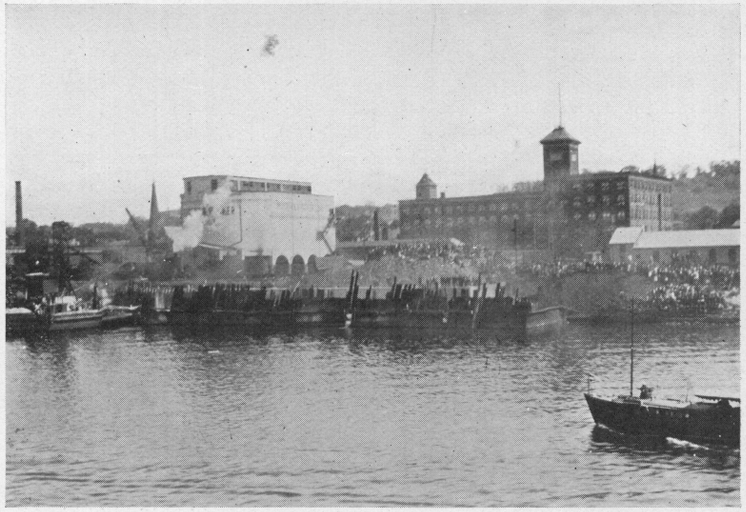
In and about New York City are projects for the improvement of Spuyten Duyvil Creek, the Harlem River, and the Bronx Kills, connecting Hudson River with Long Island Sound without passing around the lower city; also extensive improvements in the East River to attain a greater depth of channel and a less velocity of tide. The recommendation of the chief of engineers is for the construction of the Harlem Kills channel to a depth of 18 feet, and for the completion of a 35-foot channel through the East River,

| | |
|---|---|
| removing dangerous rocks, at a cost of | $ 8,616,780 |
| For further improvements giving access to the wharves on the eastern side of the river, at a cost of | 2,129,458 |
| For improved channel east of Blackwell's Island | 1,877,000 |
| Sundry auxiliary works | 775,281 |
| Or, in round numbers | $13,400,000 |

These improvements once made will be practically permanent. The first appropriation recommended is of $500,000, subsequent appropriations to be not less than $500,000 per annum until completion of the work.



HUDSON RIVER BETWEEN ALBANY AND TROY, SHOWING PORTION OF FEDERAL IMPROVEMENT.

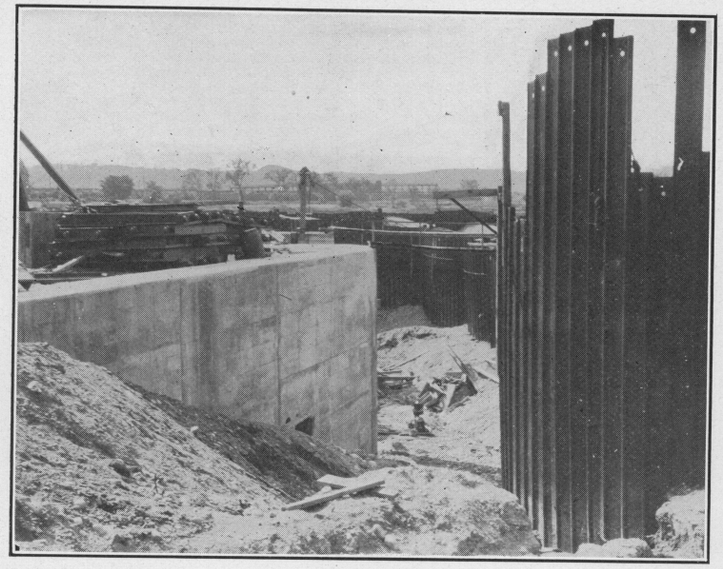


*Photograph by Wilfred H. Schoff.*

SITE OF MUNICIPAL DOCKS, TROY, N. Y.

The crowds on the waterfront are extending the welcome of the city of Troy to the Seventh Annual Convention of the Atlantic Deeper Waterways Association.





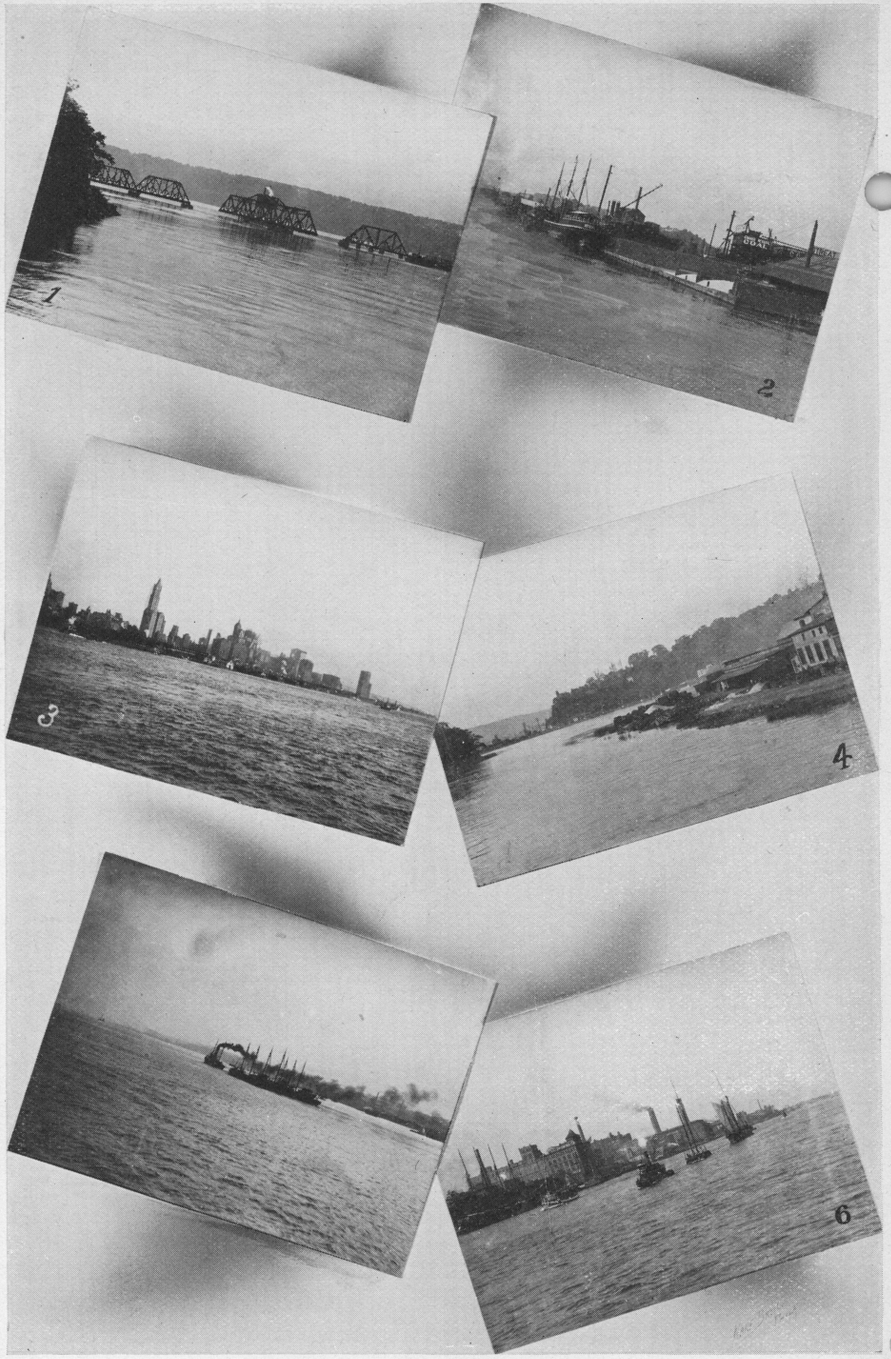
*Photograph by Wilfred H. Schoff.*

GOVERNMENT DAM AT TROY, SHOWING WORK SUSPENDED DURING DEBATE ON RIVER AND HARBOR BILL OF 1914.



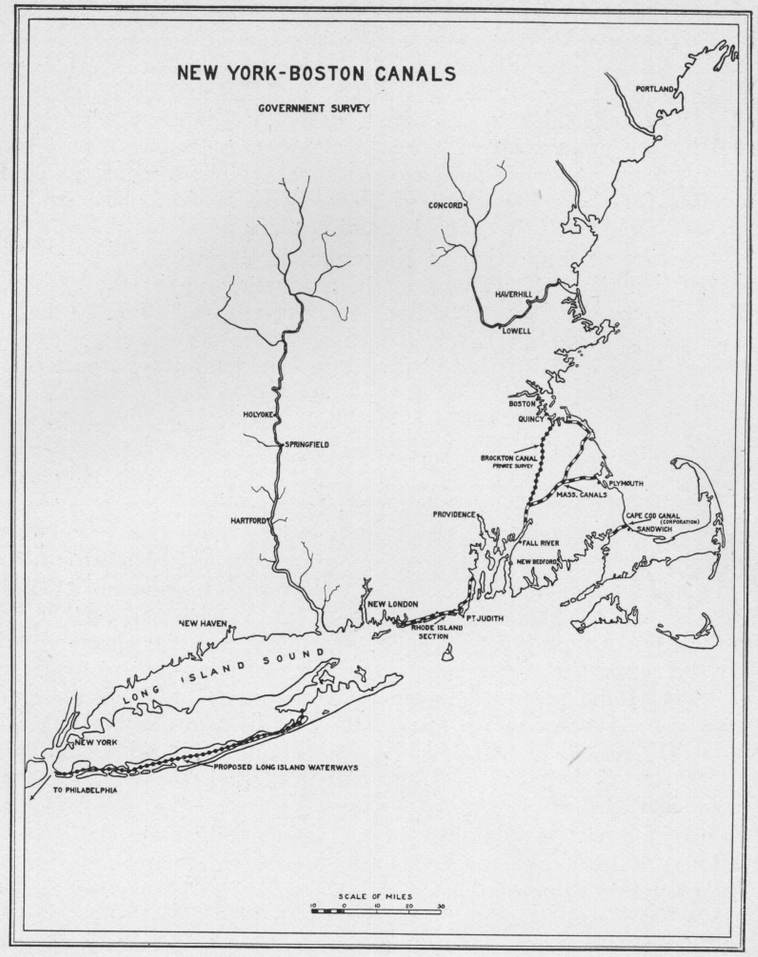
*Photo by Detroit Publishing Co.*

BARGES IN TOW ON THE HUDSON RIVER, WEST POINT, N. Y.



*Photos by Wilfred H. Schoff.* NEW YORK CITY.

1. Spuyten Duyvil Creek at its junction with Hudson River, New York City.
2. Barge traffic in heavy freight, Harlem River, New York City.
3. Manhattan Island, New York City—Meeting point of three great lines of traffic:—(1) Long Island Sound and East River; (2) Hudson River Barge Canal and Great Lakes; (3) Atlantic Intracoastal Waterway as far as Florida waters.
4. Spuyten Duyvil Creek, New York City—Showing portion to be straightened to provide barge passage between Hudson River and Long Island Sound.
5. Barge Tow on Hudson River, Weehawken, N. J.
6. Barge Tow on East River, New York City.




## NEW ENGLAND

The Atlantic Intracoastal Waterway, together with the New York Barge Canal system and its Hudson River connection, will reach New England waters by means of Long Island Sound. This is a natural protected waterway of sufficient depth and width for any purpose of navigation, and requires no improvement.

Two projects are included in the engineers' survey in the New England district: one, a protected waterway through the lagoons of the Rhode Island shore, connecting Fisher's Island Sound with Narragansett Bay and avoiding the dangers of Point Judith; the other, a waterway connecting Narragansett Bay with Massachusetts Bay or Boston harbor.

The special board of survey laid down a canal route between Fisher's Island Sound and Narragansett Bay at a depth of 18 feet, bottom width 125 feet; estimated cost $12,322,000. The State of Rhode Island has undertaken to provide a free right of way for the canal to the extent of an appropriation

of $500,000. The reviewing board and the chief of engineers have not concurred with the survey board and are not convinced that present commercial needs would justify this expenditure. They have not therefore recommended that the work be instituted at the present time. Further agitation of this question may be undertaken at any time by the parties interested, as the surveys completed by the present board are still a matter of public record and may be again taken up under resolution of Congress. The dimensions chosen by the engineers for the route south of New York, 12 feet depth and 90 feet bottom width, would be less expensive and perhaps more feasible.

The question of connection of Narragansett Bay with the port of Boston is somewhat complex. The army engineers, acting under the resolution of Congress, have completed surveys that proceed from Fall River to the head of navigation on the Taunton River, thence across intervening territory to the watershed of the North River, and thence to Hingham Bay, a part of Boston harbor. There is also in operation at the present time, built by a private corporation, a toll canal of 30 feet ultimate depth connecting Buzzards Bay with Barnstable Bay, crossing the peninsula of Cape Cod and known as the Cape Cod Canal.

The special survey board submitted its surveys with estimates of cost varying from $17,453,000 for a canal 18 feet deep, with bottom width of 125 feet, and summit level of 20 feet, by way of Taunton to Plymouth, to $40,047,000 for a canal 25 feet deep, with bottom width of 200 feet, and summit level of 35 feet, by way of Taunton to Hingham Bay. The board further reported that "at the present time there appears to be no commercial necessity sufficient to justify the construction of a canal over either of these inland routes. After other sections of the proposed intracoastal waterway have been constructed, and after the measure of worth to commerce to be afforded by the Cape Cod Ship Canal has been demonstrated, the question of the need for a completely sheltered waterway between Narragansett Bay and Boston should receive further consideration."

The question of the possibility of the acquisition of the Cape Cod Canal by the United States Government was thus considered by the engineers:

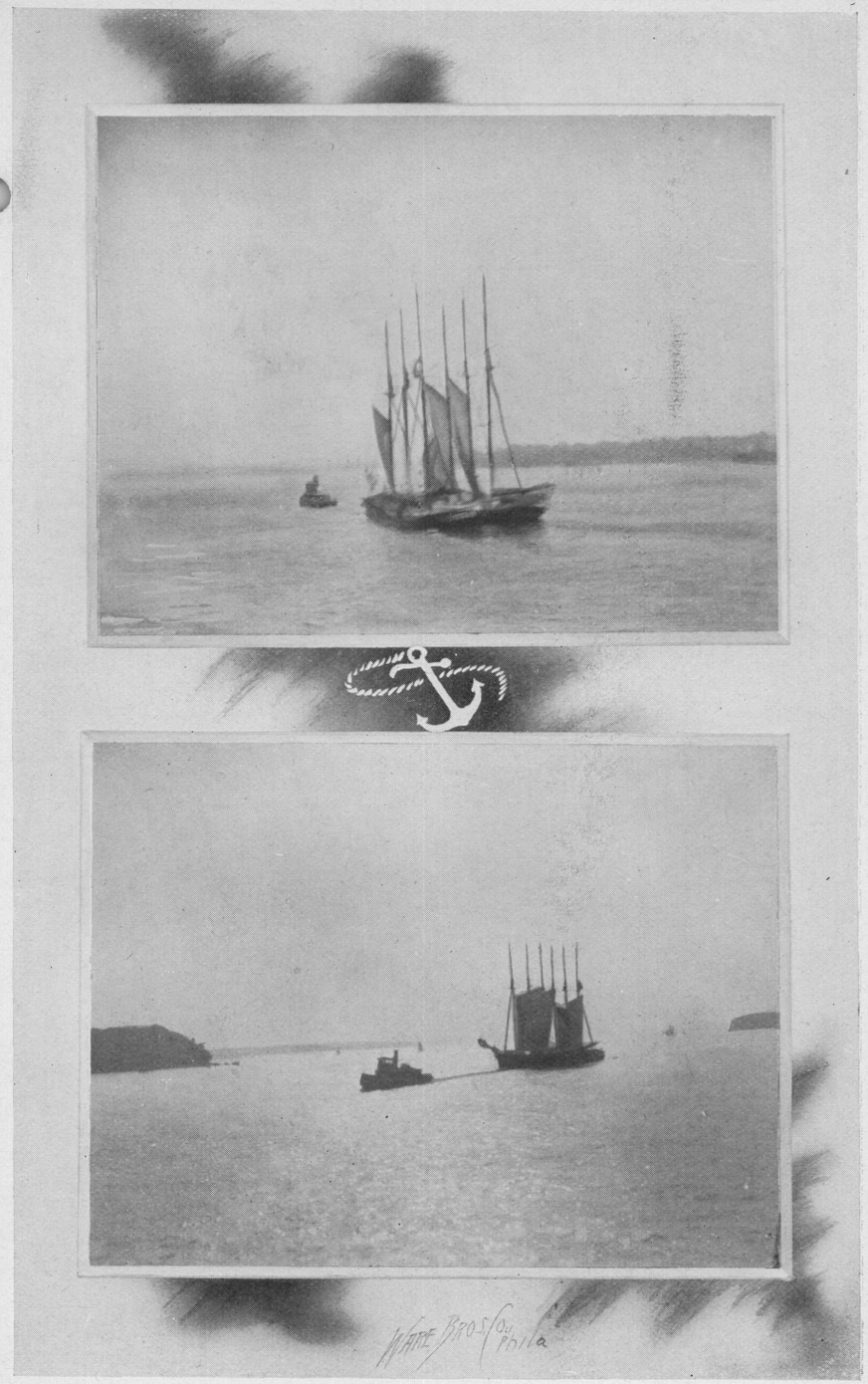
"The economic value of the Cape Cod Canal with its exposed approaches has not yet been established. It has not been considered advisable for the United States to enter into any negotiation looking to the acquisition of this canal at the present time. After its completion the question of its acquirement, based on its value as a going concern, may be worthy of further consideration."

A portion of the engineers' survey between Fall River and Boston follows the Taunton River to the head of navigation, and this river is now in course of improvement under both State and Federal aid.

The Cape Cod Canal will be a ship canal at sea level, 8½ miles in length, and vessels passing through it will entirely avoid the dangers of Cape Cod. There remains, however, the passage between its eastern terminus at Sandwich and Boston harbor, over an exposed ocean route not suited to ordinary canal barge traffic.

The surveys made by the Army Engineers for the Massachusetts section of the intracoastal waterway are still available. The report of the engineers merely postpones final consideration thereof and the subject may again be brought up for consideration at any time by resolution of Congress. As in the case of the Rhode Island link, a survey on the dimensions adopted south of New York might lead to a more favorable report.

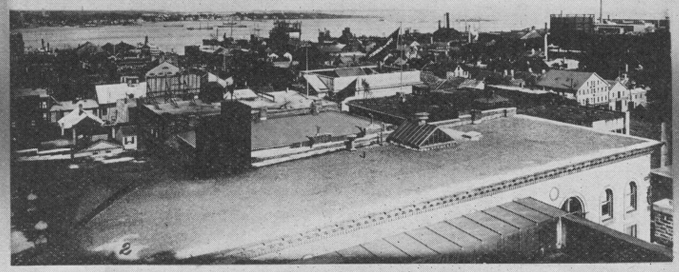




*Photograph by Wilfred H. Schoff.*

SCHOONERS UNDER TOW ON LONG ISLAND SOUND.

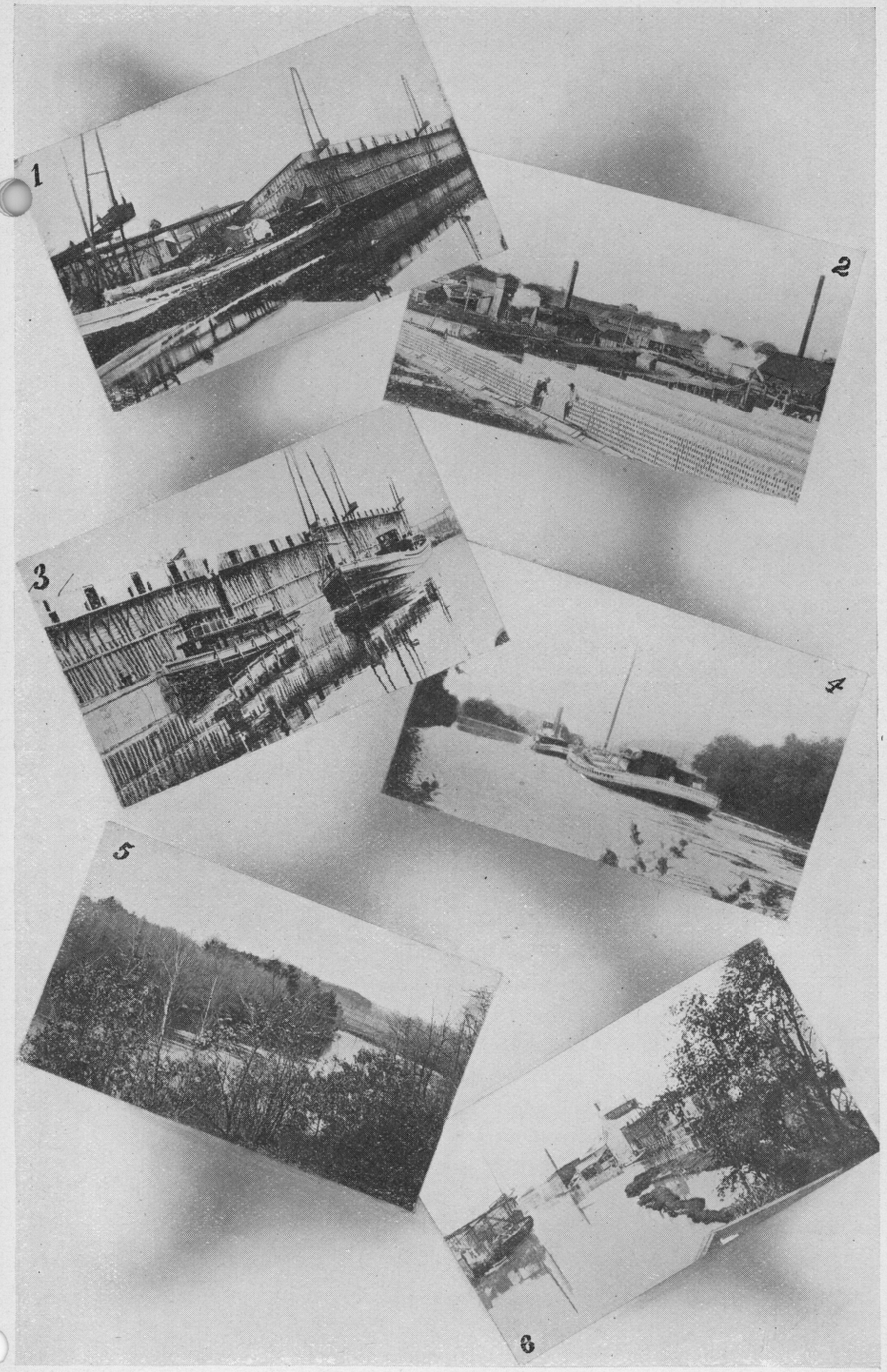






1. PROVIDENCE, R. I. 2. NEW BEDFORD, MASS. 3. FALL RIVER, MASS.





TAUNTON RIVER, MASS.

1 and 3. Coal pockets with barge alongside, Taunton. Heavy freight inbound.
2. Brick yards, Taunton. Heavy freight outbound.
4. Tugboat and barge, Taunton River. Size limited by present channel dimensions.
5. Taunton River north of Taunton—Showing nature of the watercourses followed by the Intracoastal Survey.
6. Taunton, Mass. Head of navigation on the Taunton River.

## SUMMARY

The following are the sections of the Atlantic Intracoastal Waterway route as now recommended by the engineers:

| | |
|---|---|
| St. Johns River, Fla., to Fernandina, Fla., 7 feet depth. Work under way. | $251,726.75 |
| Fernandina, Fla., to Savannah River, Ga., 7 feet depth. Work under way. | 195,000.00 |
| Savannah River, Ga., to Charleston Harbor, S. C., 7 feet depth. Work partly under way. | 427,400.00 |
| Charleston Harbor, S. C., to Winyah Bay, S. C., 7 feet depth. Construction recommended. | 1,227,800.00 |
| Winyah Bay, S. C., to Little River, S. C., 7 feet depth. Construction recommended. | 5,677,800.00 |
| Little River, S. C., to Cape Fear, N. C., 7 feet depth. Construction recommended. | 3,724,219.00 |
| Cape Fear, N. C., to Beaufort, N. C., 7 feet depth. Construction recommended. | 2,872,111.00 |
| Total Southern Section Atlantic Intracoastal Waterway, St. Johns River, Fla., to Beaufort Inlet, N. C., in round numbers | $14,400,000.00 |
| Beaufort Inlet, N. C., to Norfolk, Va., 12 feet depth. Project approved by Congress; work partly completed. Chesapeake and Albemarle Canal purchased. Much of the route lies in Pamlico and Albemarle Sounds, natural waterways requiring no improvement. | 5,400,000.00 |
| Norfolk, Va., to head of Chesapeake Bay, Md. Natural waterway requiring no improvement. | |
| Chesapeake Bay to Delaware River, 12 feet depth. Recommended for immediate action, including purchase or condemnation of existing Chesapeake and Delaware Canal. | 8,000,000.00 |
| Delaware City, Del., to Bordentown, N. J. Route follows channel of the Delaware River, for which present depth is sufficient over the entire distance, assuming a 12 feet project. | |
| Bordentown, N. J., to South Amboy, N. J., 12 feet depth. Immediate construction recommended. | 20,000,000.00 |
| South Amboy, N. J., to New York Bay (and thence to Hudson River and Long Island Sound). Natural waterways requiring no improvement for a 12 feet project. | |
| Total Northern Section Atlantic Intracoastal Waterway, Beaufort Inlet, N. C., to New York Bay, in round numbers | $33,400,000.00 |
| Total cost, Atlantic Intracoastal Waterway, as recommended by the Army Engineers | $47,800,000.00 |



## LENGTH OF CONNECTING CANALS, ATLANTIC INTRACOSTAL WATERWAY

| | | Length of Excavation |
|---|---|---|
| 1. | New Jersey Canal (new project) | 33.7 miles |
| 2. | Chesapeake and Delaware (existing canal to be enlarged) | 13.7 " |
| 3. | Chesapeake and Albemarle (project adopted; existing canal being enlarged) | 11.4 " |
| 4. | Albemarle and Pamlico (Alligator River and Rose Bay) (project adopted) | 26.3 " |
| 5. | Beaufort Cut (project adopted; existing canal to be enlarged) | 6 " |
| 6. | Beaufort to Cape Fear River, N. C. (new project) (about) | 5 " |
| 7. | Cape Fear River to Little River, S. C. (new project) (about) | 20 " |
| 8. | Little River, S. C., to Winyah Bay, S. C. (new project) (about) | 15 " |
| | *Total Intracoastal Waterway links* | 131.1 miles |

| | |
|---|---|
| Total length of continuous navigation made possible by above canals connecting existing waterways (about) | 1800 miles |
| Mileage of 148 rivers interconnected by Intracoastal Waterway | 5365 " |
| New York Barge Canal System, including Central Lakes | 500 " |
| Total length of Great Lakes which will connect with Intracoastal Waterway | 1489 " |
| Lake Champlain, 126 miles; Richelieu River, 65 miles | 191 " |
| St. Lawrence River (about) | 1000 " |
| Canadian Inland Waterway (Georgian Bay Canal) | 400 " |

## AVERAGE TARIFF PER TON MILE

| | |
|---|---|
| Earthen Roads by Animal Power | 25 cents |
| Steam Railroads | 7.8 mills |
| Canals | 2 to 3 mills |
| Rivers, Sounds, etc. | 1 mill |
| Lakes and Ocean | 0.5 mill |

## WHY THE COASTWISE SAILING FLEET IS DISAPPEARING AND THE ADVANTAGES TO COMMERCE AFFORDED BY BARGE TRAFFIC ON PROTECTED WATERWAYS

The coastwise sailing fleet is disappearing from the face of the seas; and while the barge fleet is steadily increasing, this is not being brought about in like proportion and cannot be developed in its full capacity without the creation of inside passages which will make its full advantages available.

TONNAGE CONSTRUCTED IN THE UNITED STATES.

| | Sail | Barge | | Sail | Barge |
|---|---|---|---|---|---|
| 1900 | 116,460 | 40,310 | 1906 | 35,209 | 58,997 |
| 1901 | 126,165 | 74,655 | 1907 | 24,907 | 74,443 |
| 1902 | 97,698 | 58,416 | 1908 | 31,981 | 95,641 |
| 1903 | 89,979 | 72,177 | 1909 | 28,950 | 58,640 |
| 1904 | 64,908 | 55,137 | 1910 | 19,358 | 58,997 |
| 1905 | 79,418 | 49,948 | 1911 | 10,092 | 47,977 |
| | | | 1912 | 21,221 | 54,977 |

The shrinkage in the sailing fleet is not being made good. Coastwise business is therefore declining. The industries and communities which it served must suffer in proportion unless barge traffic can be built up to take its place.

REGISTERED TONNAGE OF THE UNITED STATES.

| | Sail | Barge |
|---|---|---|
| 1870 | 1,324,256 | 240,411 |
| 1875 | 1,362,138 | 390,158 |
| 1880 | 1,206,206 | 383,629 |
| 1885 | 1,101,593 | 299,451 |
| 1890 | 749,065 | 341,042 |
| 1895 | 586,142 | 382,632 |
| 1900 | 485,352 | 548,817 |
| 1905 | 353,333 | 681,512 |
| 1910 | 234,848 | 878,180 |

DISASTERS TO VESSELS, ATLANTIC AND GULF COASTS OF THE UNITED STATES, 10 YEARS, 1900 TO 1909, INCLUSIVE.

| | |
|---|---|
| Number of vessels | 1,715 |
| Loss to vessels (known) | $30,380,915 |
| Loss to cargoes (known) | $10,168,640 |
| Vessels totally lost (known) | 1,675 |
| Vessels damaged (known and unknown) | 4,000 |
| Tonnage totally lost | 483,743 |
| Tonnage damaged | 3,289,200 |
| Lives lost | 2,223 |

The known loss to vessels and cargoes in ten years is almost equal to the total cost of the proposed Atlantic Intracoastal Waterway, the opening of which would prevent a large percentage of that loss of life and property.

**COMPARATIVE COSTS**

| | Schooner | Barge |
|---|---|---|
| Cost of construction | $40,000 | $15,000 |
| Crew and provisions, per month | 445 | 90 |
| Insurance per annum | 2,800 | 637 |
| Depreciation | 2,000 | 750 |

These figures are for the ocean route between Norfolk and Philadelphia. The advantage in favor of the barge is even greater when calculated for the inside route.



# The Atlantic Deeper Waterways Association

815 Crozer Building, Philadelphia, Pa.

## EXTRACTS FROM CONSTITUTION

ARTICLE I.

*Name.*

This organization shall be known as the "Atlantic Deeper Waterways Association."

ARTICLE II.

*Objects.*

*a.* The object of this Association shall be the collection, preparation and presentation to the Congress of the United States of statistics and other information bearing upon the question of the improvement or construction of inland waterways and of the improvement of the rivers and harbors which would form an integral part of such a line of waterways from Massachusetts Bay to the Gulf of Mexico.

*b.* To secure from the Congress appropriations for surveys and work for the systematic improvement of such rivers and harbors and the improvement or construction of inland or interior lines of waterways communicating with the rivers, harbors, bays or sounds, to the end that eventually there shall be an efficient system of waterways permitting the free movement of traffic by water between the various States from Maine to the Gulf.

ARTICLE III.

*Membership.*

The membership of this Association shall consist of commercial, manufacturing and kindred organizations, district waterway improvement associations, municipal and other corporations, companies and individual citizens who may subscribe to this constitution and contribute to the support and prosecution of the objects of the Association.

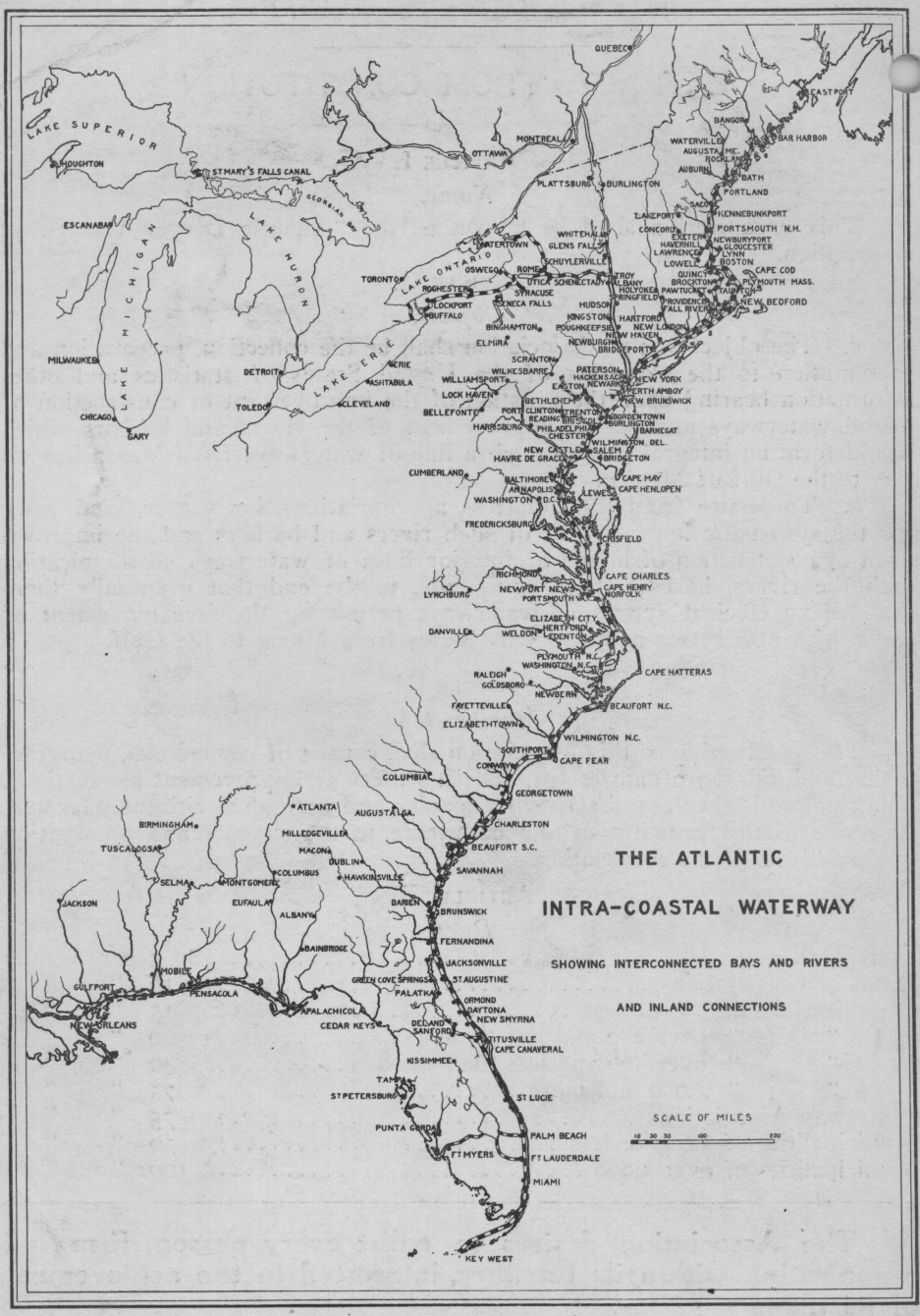
ARTICLE IX.

*Dues.*

| | | |
|---|---|---|
| Individual | $ 5 | per Annum |
| Firms or Corporations | 10 | " " |
| Organizations of 250 or less | 15 | " " |
| " " over 250 and less than 500 | 20 | " " |
| " " over 500 and less than 1,000 | 40 | " " |
| " " 1,000 and more | 75 | " " |
| Waterway Associations | 75 | " " |
| Municipalities of 5,000 or less | 50 | " " |
| Municipalities of over 5,000 | 100 | " " |

**The Association desires to enlist every person, firm and organization within its territory, interested in the achievement of its plans.**

**If any member knows of another whose influence would help the cause, why not urge that friend to join at once?**




WARE BROS. COMPANY, PHILA.