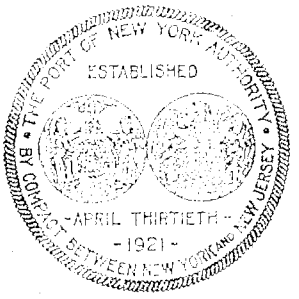
THE PORT OF NEW YORK AUTHORITY

Created by Compact Between The States of New York and New Jersey and Ratified by Congress



EIGHTH ANNUAL REPORT

DECEMBER 31, 1928

JOHN F. GALVIN
Chairman

FRANK C. FERGUSON
Vice-Chairman

HOWARD S. CULLMAN

SCHUYLER N. RICE

(VACANCY)

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IN MEMORY

of

HERBERT K. TWITCHELL

At a regular meeting of the Commissioners of The Port of New York Authority held in the City of New York on the twelfth day of July, nineteen hundred twenty-eight, the following tribute to the memory of Mr. Herbert K. Twitchell was offered and unanimously adopted:

"RESOLVED, That the Commissioners of The Port of New York Authority hereby record their poignant sorrow and their sense of the public loss in the death of

HERBERT K. TWITCHELL

a member of this body since July 1, 1924. Throughout his entire period of service Herbert K. Twitchell was distinguished by his broad conception of the port problem as a whole and his keen grasp of its manifold complexities. Possessing marked aptitude for and experience in finance, devoted to duty and unselfish in his sacrifices therefor, he was an ideal public servant. In personal as well as official relations his modesty, sincerity, courage and consideration shone forth. A true friend and a most valuable official, he endeared himself to all with whom he was associated.

"RESOLVED FURTHER, That a copy of this resolution, suitably engrossed, be presented to the members of the family of our late fellow member as a slight token of sympathy with them in their bereavement."

THE PORT OF NEW YORK AUTHORITY

75 West Street, New York City

COMMISSIONERS

JOHN F. GALVIN
Chairman

FRANK C. FERGUSON
Vice-Chairman

HOWARD S. CULLMAN

SCHUYLER N. RICE

(VACANCY)

WILLIAM C. HEPPENHEIMER

JOHN E. RAMSEY
Chief Executive Officer

JULIUS HENRY COHEN
General Counsel

WILSON J. VANCE, Secretary
WILLIAM LEARY, Treasurer
DAVIS L. WATERS, Asst. Treasurer
MARION RODGERS, Auditor
L. J. KEEFE, Director, Bureau of Public Information
JOHN J. MULCAHY, Asst. to Chief Executive Officer

TECHNICAL STAFF

BILLINGS WILSON, Deputy Manager
W. W. DRINKER, Chief Consulting Engineer
OTHMAR H. AMMANN, Chief Engineer of Bridges
WILLIAM H. BURR, Consulting Engineer on Bridges
GLENN S. REEVES, Transit Engineer

S. D. LEIDESDORF & CO.
CERTIFIED PUBLIC ACCOUNTANTS
125 PARK AVENUE
AT 42ND STREET,
NEW YORK

NEW YORK
CHICAGO
WASHINGTON
ST. LOUIS

TELEPHONE ASHLAND 0950

February 11, 1929

HON. JOHN F. GALVIN, *Chairman,*
The Port of New York Authority,
New York City, New York

DEAR SIR:

We have made an audit of the books and accounts of The Port of New York Authority for the period commenced March 1, 1926, and ended December 31, 1928.

Cash on Hand was verified by actual count, and Cash in Bank and Securities were verified with certificates received from the various depositories. All disbursements were verified with the exception of those made from funds in custody of the Treasurers of the States of New York and New Jersey, and we are informed that the latter are audited by the Comptrollers of the States named.

We hereby certify that the within Balance Sheet, in our opinion, correctly sets forth the true financial position of The Port of New York Authority as at December 31, 1928.

Very truly yours,

S. D. LEIDESDORF & CO.
Certified Public Accountants.

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SUMMARY OF ANNUAL REPORT FOR YEAR 1928

NEW YORK, February 15, 1929

To the Governor and Legislature of the State of New York:
To the Governor and Legislature of the State of New Jersey:

The Port of New York Authority herewith submits its annual report for the calendar year 1928, and respectfully directs your attention to the work done during the last twelve months.

Considerable progress has been made toward the solution of the many problems involved in the multiphased task presented by the Statutory Plan; in the protection and furthering of the commerce of the Port; in the construction and operation of interstate bridges; and in other assigned duties.

As predicted in the preceding annual report, the two bridges over the Arthur Kill were opened to traffic ahead of schedule and at a cost well within estimates.

Consistent and energetic action has been taken in resisting the unfair efforts of other ports to secure differentials or other advantages; toward the providing of facilities necessary for additional port commerce; toward acquainting shipping agencies, manufacturers and others with the existing advantages to be found in the Port of New York; and toward the coordination of the various units of the port as a whole.

It is confidently believed that the subcommittee of the railroad Presidents Conference Committee which has been cooperating closely with the staff of the Port Authority will soon be prepared to submit a report and recommendations which will result in starting this year the actual construction of the initial inland freight terminal.

Elaborate and detailed studies are being made by the Suburban Transit Engineering Board in an effort to solve the commuter problem, and gratifying progress can be reported. The interested railroads, the New York Board of Transportation, the North Jersey Transit Commission,

and other governmental agencies involved—have assisted by donating men or money, and otherwise cooperating in this work.

This transmittal letter attempts to summarize some of the more important subjects — the details concerning them being set forth in the report itself.

Arthur Kill Bridges

On June 20, 1928, the two bridges over the Arthur Kill (the first projects to be undertaken by the Port Authority under the direction of the States of New York and New Jersey), were formally dedicated, and on June 29, 1928, they were opened to traffic.

On March 4, 1926, the first issue of Port Authority bonds, totaling fourteen million dollars, was sold and the proceeds applied to this work. The first contracts were awarded on July 29, 1926. Less than two years after the first contracts were let, and approximately nine months ahead of schedule, the bridges had been opened to traffic at a cost of more than one million dollars less than was estimated.

The revenues for the six months ended December 31, 1928, totaled $176,813.05 on the Goethals Bridge and $179,904.85 on the Outerbridge Crossing, or a grand total of $356,717.90. The net revenues, after deducting operating expenses of $88,814.78, amounted to $269,903.12.

Hudson River Bridge

Initial financing of the Hudson River Bridge was completed in December, 1926, by the sale of twenty million dollars of a total authorized issue of Sixty Million Dollars Port of New York Authority Four Per Cent Gold Bonds. It is expected that this bridge will be completed and opened to traffic not later than the spring of 1932, at a cost of approximately sixty million dollars.

Contracts for construction work, aggregating approximately twenty-six million dollars, have been awarded. This amount represents sixty-two per cent of the cost of all *construction work* which will be required to open the bridge to traffic.

The tower foundations have been completed and the towers have been constructed to a height of five hundred

feet, or within one hundred and thirty-five feet of their ultimate height. Practically all excavation work for the New Jersey anchorage and approach, east of Hudson Terrace, has been completed, and the New York anchorage is about fifty-eight per cent complete. However, about ninety-three per cent of the first stage of this latter structure is now completed, which embraces all work which will be done until after cables are in position. Considerable progress has been made in manufacturing the cables, and the contractor for this work is now installing supports for the anchorage steelwork in the tunnels of the New Jersey anchorage.

There has been expended, to December 31, 1928, for construction, cost of land, interest and discount on indebtedness, engineering and other costs, $18,631,377.99. Approximately eighty-eight per cent of all real estate required for plazas and approaches has been acquired.

A separate report on the progress of this project is now being prepared.

Kill Van Kull Bridge

This structure is designed for both vehicular traffic and rapid transit by rail. The bridge will span the Kill van Kull between Bayonne, N. J., and Port Richmond, Staten Island, N. Y.

The estimated cost of the bridge is sixteen million dollars, which will be met by proceeds of Port Authority bonds, and by advances of the States of New York and New Jersey, aggregating four million dollars.

Contract for the main span abutments was let on July 12, 1928, and at the end of the year, the cofferdam on the Staten Island side had been completed and excavation started. The cofferdam on the Bayonne side is complete. On November 22, 1928, the contract for the steelwork was awarded to the American Bridge Company. Practically ninety-three per cent of the property required for approaches and plazas has been purchased.

Financing was completed with the sale of Twelve Million Dollars of Port of New York Authority Four Per cent Gold Bonds, on January 5, 1928.

Additional Interstate Crossings

Within the District, there are now three interstate vehicular connections—the two Arthur Kill Bridges and the Holland Tunnel. Two other crossings—the Kill van Kull Bridge and the Hudson River Bridge—will be ready for operation in about three years. If other crossings are to be provided (and the Port Authority has advised that there is need for additional improved transportation facilities; such as all-rail communication and additional bridges and tunnels), they should not be considered as individual projects and dealt with separately, but rather as a general comprehensive coordinated plan. If they are properly planned and located, these crossings may be built through the utilization of Port Authority credit. Division of responsibility in planning future interstate crossings, whether for use by motor vehicles or for rail transportation, and whether built over or under the waters separating the two States, may prove detrimental to the public interest.

Protecting the Port

Attacks of rival ports have as their purpose the obtaining of artificial advantages which would injure the continued supremacy of the Port of New York. It was necessary to appear and intervene in a series of proceedings before Federal and State regulatory bodies and elsewhere. A staff of experts must be maintained to secure essential data and marshal facts for presentation to such regulatory bodies. A few of the cases in which the Port Authority is now appearing before the Interstate Commerce Commission are:

Eastern Class Rate Investigation
Boston Ocean Differential Case
Maybrook Case
Baltimore Differential Case
Off-track Station Trucking Investigation

These attacks had become so numerous that on November 27, 1928, the Port Authority called a hearing, at which were represented trade bodies from various sections of the

Port, for the purpose of considering the best methods to pursue. A Committee of Fifteen was appointed and is now working on a plan of organization and action to unite the interests of the two States.

Union Live Poultry Terminal

Final negotiations are now under way for the early establishment of a union live poultry terminal. Progress in this direction has been made largely as a result of a survey by the Port Authority at the request of the trade. A Poultry Exchange was placed in operation September 7, 1928.

Brooklyn-New Jersey Ferry

Early in 1927, the Port Authority, after extensive traffic studies, advocated the establishment of a direct ferry route between Jersey City and Brooklyn. The inauguration of this service depended upon the use of a municipal ferry slip at Atlantic Avenue, Brooklyn. The Commissioner of Plant and Structures of the City of New York recommended the granting of a franchise for this slip to the Pennsylvania Railroad, and operations commenced January 19, 1929.

Inland Terminals

Very substantial progress has been made in connection with the establishing of inland freight terminals. Negotiations with the carriers have been carried on through the subcommittee of the Presidents' Conference Committee, and it is felt that some definite action will be taken early this year. Wishing to progress this matter with all possible speed, we have reached an agreement with representatives of the subcommittee of the Presidents' Conference Committee to concentrate on this project, and while it is under consideration, to defer efforts toward effectuating other major projects involved in the Comprehensive Plan and affecting the railroads.

Financing

A sound credit is essential to the Port Authority's success. The Port Authority does not possess the power

to levy taxes or assess for benefits, and any funds required for construction enterprises must be secured by the sale of its own securities.

The Port Authority has issued and sold to the public forty-six million dollars of its bonds. To finance the Arthur Kill Bridges, an issue of Fourteen Million Dollars of Four and One-half Per Cent Gold Bonds was sold to the public March 4, 1926, at a cost of 4.77%. An issue of Twenty Million Dollars of Four Per Cent Gold Bonds, to finance the Hudson River Bridge, was sold to the public December 9, 1927, at a cost of 4.24%. Shortly after the close of 1927, a Twelve Million Dollar issue of Four Per Cent Gold Bonds, to finance the Kill van Kull Bridge, was sold at a cost of 4.01%. This superb credit standing of the Port Authority is one which enables the two States to achieve great economies through this agency.

Suburban Transit

Study and planning of suburban transit facilities to relieve present congestion and provide adequately for the commuter in the future, have been pursued. The study was inaugurated pursuant to authorization from the State of New Jersey under Chapter 277 of the Laws of 1927. It remains for the New York Legislature to enact legislation concurring with the State of New Jersey in authorizing the Port Authority to proceed.

Miscellaneous Studies

The Port Authority has been of service to a number of municipalities in aiding with studies to determine the economic practicability of various proposed local improvements. It has also given similar aid in the matter of improving channels and waterways in various sections of the Port.

Respectfully submitted,

THE PORT OF NEW YORK AUTHORITY

JOHN F. GALVIN,
FRANK C. FERGUSON,
HOWARD S. CULLMAN,
SCHUYLER N. RICE,
WM. C. HEPPENHEIMER,
Commissioners.

ANNUAL REPORT, YEAR 1928

SECTION I—DEVELOPMENT AND PROTECTION OF THE PORT

Part I—Port Development

We have entered upon a new era in our relations with the railroads of the Port District. Rapid effectuation of any part of the Comprehensive Plan is dependent upon achieving two prerequisites; first, the establishing of a sound Port Authority credit; and, second, cooperation between the Port Authority and the trunk line railroads. The latter requires, as its basis, mutual confidence and good will.

The soundness of the Port Authority's credit and its ability to finance any project embraced within the scope of the statutory plan, when proven economically practicable, is now an established fact.

Evidence of harmonious relations with the railroads, and the practical cooperation resulting therefrom, will be discussed in those parts of this report relating to "Inland Freight Terminals for Manhattan" and "Suburban Transit." It should be stated here, however, that in conference early last summer with the Chairman of the Presidents' Conference Committee of the railroads, an agreement was reached that the wise policy of the immediate future would be to concentrate on a particular project and to defer consideration of other projects involving railroad cooperation until a determination of economic practicability should have been reached in the matters then being jointly studied. This policy is now being followed and although the day-to-day accomplishments may be less spectacular than the public looks for, the benefits are more far-reaching and will result in more real progress for the Port.

West Side Improvement

During the year, the New York Transit Commission held a series of hearings on the elimination of grade crossings as provided for in the West Side Improvement Plan of the New York Central Railroad. The purpose of these hearings was to determine the necessity, manner and cost of the grade crossing elimination of the existing tracks involved in the enlarged plan.

This enlarged plan was prepared and submitted by the West Side Improvement Engineering Committee, appointed by Mayor Walker, on which Committee the Port Authority was represented. The Committee's report as submitted, dealt only with the physical aspects of the problem, and did not pass upon its economic merits.

Subsequent to action by the Transit Commission, the Board of Estimate and Apportionment will resume public hearings on the enlarged plan and the necessary agreement with the Railroad Company. At these hearings the Port Authority will appear and request an opportunity to be heard on the economic phases of the plan.

Channel Improvements, Etc.

In line with its established policy of cooperation with federal authorities, the staff of the Port Authority investigated and reported upon numerous projects in connection with channel improvements, pier and bulkhead line modifications, changes in anchorage, and other matters before the United States Army Engineers. Among the more important are the following:

1. Modification of existing, and establishment of new pier and bulkhead lines between Rikers and South Brother Islands, East River, New York.
2. Improvements to Eastchester Creek, New York.
3. Modification of existing bulkhead line on the East River between East 54th and East 57th Streets, Manhattan.
4. Improvements to Woodbridge Creek, with a view to securing a 10-foot channel.
5. Modification of existing United States pier and bulk-

head lines along the northerly shore of Sheepshead Bay, Brooklyn, New York.

6. Changes in Upper New York Bay anchorage grounds, and regulations pertaining thereto.

7. Passaic River—Establishment of a channel 30 feet deep, 3,000 feet immediately north of the Lincoln Highway Crossing, and establishment of anchorage grounds for Port Newark.

Bridges Over Navigable Waterways

Applications made to the War Department by various agencies for approval of plans for bridges across navigable waterways in the Port District, have been investigated with regard to the sufficiency of the clearances proposed for the water traffic. Our conclusions in each case were submitted to the Army Engineers. There follows a list of the applications:

Applicant	*Proposed Crossing*
State Highway Commission of New Jersey.	Hackensack River—Route No. 1 Extension.
State Highway Commission of New Jersey.	Hackensack River—Route No. 6.
State Highway Commission of New Jersey.	Overpeck Creek—Route No. 6.
State Highway Commission of New Jersey.	Hackensack River—Route No. 3.
State Highway Commission of New Jersey.	Passaic River—Route No. 1 Extension.
State Highway Commission of New Jersey.	Rahway River—Route No. 25.
Pennsylvania Railroad Company.....	Passaic River—Main Line Bridges.
Department of Plant and Structures, City of New York.....	English Kills—Metropolitan Avenue, Brooklyn, New York.

These advices and recommendations have been made at the request of the Army Engineers.

Live Poultry

The matter of improved facilities for receipt, sale and distribution of live poultry in the metropolitan area presents a dual problem of coordination of terminals and reorganization of trading practices. As noted in the 1927 Annual Report, the staff has acted in an advisory capacity to the trade in negotiating for a union terminal. During 1928, the final details of a satisfactory site, open to all carriers, and a method of financing, were agreed upon between a committee of the trade and one of the trunk line railroads. The project is now awaiting the signing of a lease by commission merchants for the property involved.

A Poultry Exchange was placed in operation on September 7, 1928, in a temporary trading room at 835 Washington Street, New York City. The trading floor is connected by private telephone wires with each of the terminals, so that operations include the terminals as well as the floor of the Exchange.

The Port Authority's representative on the Exchange is serving upon the committee which formulates the rules for the conduct of trading. Since the methods of trading and terminal facilities are closely interwoven, the Port Authority can be helpful in guiding the conduct of Exchange operations with a view to ultimate coordination in the union terminal program. The opening of Exchange operations has strengthened the belief among the membership that a union terminal is the next logical step.

Fruits and Vegetables

There have been important improvements in facilities for the receipt of fresh fruits and vegetables. The principal elements in the program for improved terminals for perishables are:

1. Stabilization of the location of the primary delivery terminals.
2. Redesign of terminals to reduce handling and trucking costs.

We believe that the location has been definitely stabilized on the Manhattan waterfront between Piers 20 and 29. Following the reconstruction of Piers 27, 28 and 29 by the Pennsylvania Railroad in 1927, the Erie Railroad completed the reconstruction of Pier 21 and the adjacent bulkhead, and now contemplates the early improvement of Pier 20. The Pennsylvania and Erie improvements combined have added 200,000 square feet of space to the perishable terminal facilities of the Port.

The Erie Railroad is using space on the adjoining Baltimore & Ohio Pier 22, and on the Old Dominion Steamship Company's Pier 25, thereby taking care of the peak season traffic without undue congestion. The Pennsylvania Railroad is permitting steamships handling Porto Rico fruit to dock at Pier 27, thus further aiding in centralizing

receipts. It is our belief that eventually the entire section between Piers 20 and 29 will be used for perishable terminal purposes.

Marked improvements have been made in the reconstruction of the produce piers referred to, by widening the platform space over the inshore end of the slips, and by the installation of heating plants and auction rooms. Rebuilding and paving of the platform at street level throughout, and the providing of numerous doors, have facilitated trucking operations. Several millions of dollars have been invested in these new terminals by the carriers, and they are to be commended for the aggressive manner in which these improvements are being carried out.

The program for gradual decentralization of bulk commodities and commodities of uniform character sold in large units, has been advanced within the year by the extension and improvement of team-track yards in The Bronx, New Jersey and Long Island areas. An increasing volume of perishable foodstuffs is being delivered direct to these points at considerable savings to dealers.

Food-Handling Research

The Port Authority continues its cooperation with the United States Department of Agriculture and seven public agencies and educational institutions in maintaining headquarters for the New York Food Marketing Research Council. The principal aim of the Council is to promote and coordinate studies of the marketing problems of the Port District, and to disseminate this information among shippers, carriers, dealers and public officials.

Largely through the efforts of the Council, reports of receipts of fresh fruits and vegetables by motor trucks are now gathered and published by the Department of Agriculture. A number of special studies have been carried on under the supervision of the Council, having to do with carlot receipts of perishables by chain stores, loans to

shippers made by distributors, and demand and price factors for eggs, oranges and watermelons. A special study of the milk supply of the New York District, particularly the possibilities of increased all-rail movement to the Long Island section of the Port, has been made by the staff of the Port Authority in cooperation with the Council.

Belt Lines

The belt line system of the Comprehensive Plan has three major purposes:

1. The coordination of railroad service in the Port District.
2. The minimization of handling.
3. The development of deep-water shore frontage.

Some of the belt lines are matters for the remote future. Some are desirable now. Most of them await sufficient growth in local traffic to justify themselves as economically practicable.

Belt Line No. 1

Following the 1927 field survey of the middle section of this line in New Jersey, a reconnaissance of its adjoining and most southerly section has been made. A preliminary study of the present-day traffic which could advantageously follow this route via a Greenville-Bay Ridge Tunnel to and from Long Island, together with an approximation of the cost of the middle and southerly sections of the belt line, the tunnel and the necessary connections, has been made during the current year. This study leads to the belief that the economies which could be effected by its establishment would sustain the debt service upon its cost.

This facility cannot be provided except through closest carrier cooperation, particularly with the railroads which

would be directly affected. The furthering of plans for this facility is, moreover, related to the national question of railroad consolidations, and further progress toward actual realization of the project may have to wait until the broader question here mentioned, insofar as it relates to the railroads serving the Port District, has been determined.

Belt Line No. 13

During the year, contacts have been maintained with industries on this line and periodic checks have been made of rail service furnished by carriers operating each portion of the belt line. Readjustments of the rate structure between points on the belt line and points within the Port District have been fully carried out in tariff publications. Efforts will be continued toward the establishment of a full line of joint rates between the belt line and points outside of the Port District.

More favorable treatment of Belt Line No. 13 territory, with respect to rates to and from New England, has been recommended by the Examiner for the Interstate Commerce Commission in the Eastern Class Rate Investigation, Docket No. 15879. He advocates rates on a parity with those applying from Manhattan and Brooklyn,—an equitable adjustment for New Jersey industrial interests long sought by the Port Authority.

Inland Freight Terminals for Manhattan

Plans of the Port Authority for the establishment of universal inland freight stations on Manhattan, as a solution to the Manhattan freight problem, have been modified from time to time in the light of the most recent facts developed by constant study and consideration otherwise of the terminal situation.

Under date of May 28, 1928, we advertised a form of contract for operation of the first of a series of inland

terminal units. This contract provided that a prospective operator would be given consideration as a bidder if he should be able to guarantee the use of a station as a railroad terminal by as many as two railroads. In advertising this contract, the Port Authority gave public notice that it would provide the first inland terminal unit as soon as two or more railroads would agree to use it; that the Port Authority would not require the use of the facility by all of the railroads, i. e., universal use, but would construct and cause it to be operated as a union station. This contract called for bids as of October 4, 1928, which date was extended to December 13, 1928. The invitation for bids was rescinded on December 6, 1928, on account of objections by prospective bidders to certain material provisions contained in the proposed form of contract.

The plan to proceed with a single terminal is in the nature of an experiment, in that the provision by which the facility operated may be as a union terminal rather than as a universal terminal, constitutes a material departure from plans originally submitted to the carriers for their consideration.

On July 31, 1928, the Port Authority received notice that the Presidents Conference Committee of the railroads had appointed a sub-committee of operating and traffic representatives of the carriers to confer with the Port Authority for the purpose of studying the latest plan, in order to determine its merits. Members of the staff of the Port Authority participated in the first joint conference with members of the sub-committee of the Presidents Conference Committee the same afternoon (July 31), and presented to the sub-committee an outline of the results of previous studies of the terminal matter on the basis of the modified plan.

Subsequent conferences developed the point of view in committee that the first terminal should be primarily for handling less-carload freight and should be so located that it could be used by all railroads at the outset, to preserve the competitive relationship now existing. A location on the West Side of Manhattan between Christopher and

West 23d Streets (which territory is not now served by railroad station facilities) is being considered as best adapted to requirements.

The results of further joint conferences between the sub-committee of the Presidents Conference Committee and the staff of the Port Authority are represented by preliminary plans and estimated cost of a structure to be located on a suitable block within the area specified. These plans are now being considered by the sub-committee of the Presidents Conference Committee which is also determining the per ton and total costs of present freight-handling operations and what the estimated costs would be if less-carload merchandise freight, originating or terminating within the limits of the area described, were handled through an inland freight station in the general location indicated.

The sub-committee of the Presidents Conferenc Committee, cooperating closely with the staff of the Port Authority, has made real progress in connection with this important proposition; and it is confidently believed that the Committee will be prepared to submit to the Presidents of the carriers in the near future a report and recommendations which will result in the starting soon thereafter of the actual construction of the initial terminal to be used on a universal basis as stated for experimental purposes.

Brooklyn-New Jersey Ferry

After extensive studies of the traffic, operating and financial possibilities of a ferry between the Brooklyn shore and New Jersey, the Port Authority applied to the City of New York in January, 1927, for a permit to use the municipal ferry slip at the foot of Atlantic Avenue, Brooklyn, for the purpose of inaugurating such interstate service, primarily for freight traffic. In further communications and conferences with city officials in the early part of 1927, it was made clear that the principal interest of the Port Authority was in seeing that this ferry service was established as soon as possible, and operated in a satis-

factory manner. On December 5, 1928, the Commissioner of Plant and Structures of the City of New York recommended the granting of a franchise to the Pennsylvania Railroad to operate between Atlantic Avenue, Brooklyn, and Exchange Place, Jersey City,—and the Sinking Fund Commission adopted his report on January 9, 1929.

The Pennsylvania Railroad inaugurated this service on January 19, 1929, with two boats, and is maintaining a thirty-minute sailing schedule.

Carfloat and Lighterage Service

Private operators of lighterage equipment have shown considerable interest in the possibilities of coordinating the marine operations of the independent companies and there is some activity in this direction.

The information gained in our studies has been very helpful in analyzing the costs of carfloating and lighterage to various parts of the Harbor in connection with working out plans for the substitution of truck and belt line service for present methods of delivery.

Progress in Construction of Port Facilities

In order to keep informed of the improvements in docks, warehouses, freight terminals and other port facilities which are continually in progress within the confines of the Port District, a summary was made of the leading public and private projects completed within the year 1928.

In doing so, the Port Authority claims no credit for these additions and betterments to port facilities, but merely desires to make their existence more widely known because of widespread stories that the Port of New York is not progressing.

It is almost impossible in such an extensive area as the Port District to catalogue all work contributing to the development of the Port, but the following list gives some idea of the expansion of facilities now under way.

Freight Yards and Stations

The New York Central opened a team-track yard for fruit and produce at 41st Street, Manhattan, between 11th

Avenue and the Hudson River. Tracks and driveways at the Port Morris yard in The Bronx were also expanded. The New York, New Haven & Hartford Railroad has increased its terminal capacity for handling perishable freight by opening a new team-track yard east of the Hell Gate approach. The facilities of the Lehigh Valley Railroad at 149th Street station in The Bronx were increased by the completion of a shed for the unloading of automobiles. The Erie Railroad has reconstructed Pier 21, North River, and the adjoining bulkhead, increasing by 72,000 square feet the space for the handling of fruits and vegetables and westbound merchandise freight. The New York Dock, Company (one of the Brooklyn contract terminals), has completed a new loft building in which a universal L. C. L. freight station occupies the ground floor with the upper floors available to industrial tenants.

Docks and Bulkheads

The City of New York has rebuilt Pier 46, North River, and the resulting thoroughly modern property has been leased to the Savannah Line. Canarsie Pier, Jamaica Bay, has been completed as a public pier. One mile of bulkhead has been constructed by Jersey City at Droyers Point on the easterly side of Newark Bay, in connection with the municipal port development at that point. The New York Dock Company has completed the extension of Pier 27, Brooklyn, to 750 feet.

Warehousing

The Treasury Department of the United States has erected a new Appraisers Stores at West, Houston, Varick and Hudson Streets, with a total gross area of one million square feet. This is twice the amount of space formerly available for examination of goods subject to duty at the Port of New York.

Public warehousing space in the Port District was augmented by completion of 215,500 square feet of dry storage space, and 167,500 square feet of refrigerated storage space.

Miscellaneous Handling Facilities

The Erie Railroad has installed two electrically-operated floatbridges in Jersey City, and has constructed a modern coaling plant for tug and steamboat trade on Pier B, Weehawken. The Lehigh Valley Railroad has installed a new gantry crane at West 27th Street, Manhattan, for handling steel freight containers. At Pier L, Jersey City, the Lehigh Valley has placed in operation an electric, revolving traveling crane of twenty-tons capacity, for handling heavy export and harbor freight; and at Grand Street Station, Jersey City, a new electro-magnet crane of three-tons capacity has been installed. Coal Dock No. 2 of the Baltimore & Ohio Railroad at St. George, has been leased to the Bay of New York Coal and Supply Corporation, and there has been installed mechanical equipment for direct bunkering to ocean steamships at a rate of one hundred fifty to two hundred tons per hour.

These improvements, totaling several millions of dollars spent in the past year, are the very best evidence that the Port is awake to the needs of commerce and is constantly equipping itself with the latest devices and facilities for promptly and efficiently taking care of its trade.

SECTION I—DEVELOPMENT AND PROTECTION OF THE PORT

Part 2—Port Protection

During the year, active steps were taken to meet the many vigorous attempts on the part of outports to divert traffic from the Port of New York by means of propaganda, preferential rate adjustments, hostile legislation and similar measures.

A Bureau of Commerce was established to coordinate the work of protecting the Port. The activities of this bureau include not only assistance in the work of assembling data for use in formal cases before the Interstate Commerce Commission, the United State Shipping Board, etc., but also constructive efforts in the building up and coordinating of transportation services within the Port. The Bureau collects and disseminates information regarding port facilities, and endeavors in every way possible to make the Port District more attractive to industry and commerce. Through its Bureau of Commerce, the Port Authority will be in a position to work more closely with existing commercial bodies in maintaining and building up the trade of the Port.

As a result of a conference of trade bodies from all sections of the Port District, called on November 27, 1928, an Advisory Committee of Fifteen has been created, under the chairmanship of former Commissioner Eugenius H. Outerbridge. It is now laying out a broad program of education and unified action in matters affecting the Port as a whole. The establishing of a "port consciousness" in all matters relating to the common welfare of the District is a necessary element in the development of the Port.

There are at present nine proceedings before the Interstate Commerce Commission and the United States Ship-

ping Board in which the Port Authority has intervened. Seven of these proceedings are continuations of cases which have been before the Federal tribunals for more than a year, while two are new cases.

A brief statement of the developments in the more important cases follows:

Off-track Station and Trucking Investigations: **(ICC Number 19554 and ICC Number 19715)**

Important investigations of the practice of railroads in receiving and delivering freight by motor truck to and from inland and constructive stations, both in New York and St. Louis, advanced to the point where the Examiner for the Interstate Commerce Commission has made his preliminary report and recommendations. The Port Authority intervened in the St. Louis case because of the similarity of conditions and the necessity for protecting the principle of the economical use of the motor truck. A brief was filed and oral argument made before the Commission.

The New York case heard in May, 1928, lasted for twelve days and necessitated the taking of over 2300 pages of testimony. The carriers, with one exception, proposed to discontinue their trucking services on account of competitive difficulties. These trucking services had demonstrated their values to both carriers and shippers in reducing the cost of handling freight from various railroads in Manhattan; in releasing desirable waterfrontage from railroad occupancy; and in curtailing losses from breakage, pilferage and delay previously incurred in pier station operations. The use of the motor truck is a cardinal feature of the statutory plan for immediate relief in handling freight to various parts of the Port District.

The Examiner for the Interstate Commerce Commission has recommended that the New York railroads be urged by the Commission to work out a plan of delivery by truck to universal inland stations, and direct to store door, along the lines of the port plan. He further recommends that, in the absence of adequate power under the present terms of the Transportation Act to require the carriers to equip them-

selves with motor trucks, the Interstate Commerce Commission ask Congress for new legislation granting such power. In a brief filed January 31, 1929, the Port Authority expressed the opinion that the Interstate Commerce Commission now has the power to prevent the carriers from discontinuing these desirable trucking services. Final decision of the Commission has not yet been made.

Baltimore Differential Case: **(ICC Number 18715)**

As reported in the 1927 report, the commercial interests of the Port of Baltimore petitioned the Interstate Commerce Commission to increase by one hundred per cent the freight rate differentials already favoring Baltimore on import and export traffic to and from points in central territory. At further hearings held in 1928, Philadelphia and Boston joined the petition. The Examiner for the Commission in his preliminary report recommended the adjustment advocated by Baltimore, Philadelphia and Boston, on the theory that the relative cost between car and shipside at the different ports should be reflected in the through rates. The Port Authority has taken vigorous exception to these conclusions. It is hoped that the Commission in passing upon the Examiner's report now pending, will reverse the unsound theories recommended by the Examiner.

Eastern Class Rate Investigation: **(ICC Number 15879)**

As a result of an investigation initiated in 1924 by the Interstate Commerce Commission, their Examiner has recommended a revised basis for class rates on domestic traffic in the territory east of Buffalo and Pittsburgh. A number of recommendations of the Port Authority (highly important to the statutory port plan), have been embodied by the Examiner in his report, wherein he also says, with reference to the Port Authority: "The views of the latter body on this question are entitled to great weight, since it has been specifically authorized by the laws of the States of New York and New Jersey to participate in commerce cases involving the commerce of the Port District. It may therefore be presumed to voice the collective opinion of indus-

trial interests in the district." The proceedings will be continued pending a test of carrier revenue produced under the proposed adjustment, following which exceptions to the Examiner's recommendations will be filed and argued.

Baltimore Intercoastal Case: **(ICC Number 20306)**

The equalization of combined rail and water rates through all ports is now in effect on intercoastal traffic, under a rule adopted by the United States Intercoastal Steamship Conference permitting steamship companies to equalize in their water rate any advance in inland rail differentials to an Atlantic port up to three cents per hundred pounds. This rule of the conference has been attacked in a complaint to the Interstate Commerce Commission by the Baltimore port interests. In intervening in this proceeding, the Port Authority pointed out the lack of jurisdiction of the Interstate Commerce Commisison over water rates, and confirmed the beneficial results of the practice to interior shippers and port interests generally. A report of the Examiner for the Interstate Commerce Commission, dated September 10, 1928, sustains the Port Authority's contentions and recommends dismissal of the complaint. On December 27, 1928, the Baltimore Association of Commerce withdrew its complaint and the Commission cancelled the proceedings, ending the matter to our satisfaction.

Gulf Import and Export Rates: **(ICC F. S. A. 2040)**

Attempts to place New York at a competitive disadvantage from a rate standpoint is not confined to the North Atlantic outports. The carriers serving the Gulf and South Atlantic, at the request of southern steamship and port interests, have applied to the Interstate Commerce Commission to maintain a scale of import and export rates far below the rates maintained on domestic traffic, and from $3.60 to $13.00 per ton below the rates applicable to competitive central territory via New York. The proposal of the Southern lines has as its object the tapping of territory as far east as Cleveland, Ohio, maintaining rates from that

city to New Orleans at the same level as to New York despite the fact that the distance is twice as great to the Southern port. These drastic proposals if carried into effect would divert tonnage from New York to southern ports.

At hearings held in Chicago, Savannah, New Orleans and Washington, the Port Authority, working in cooperation with other north Atlantic interests, presented evidence showing the unfairness of the proposals and asked that the application to establish these rates be denied. Briefs summing up the evidence and the argument have been filed, and the recommendations of the Examiner are now awaited.

Discriminatory Grain Storage Arrangements: **(ICC; I & S Number 3209)**

In the late autumn one of the railroads entering Philadelphia filed a tariff with the Interstate Commerce Commission proposing to grant free storage on grain at Philadelphia and Baltimore throughout the winter. It was our understanding that this action was induced by an arrangement alleged to have been adopted by the Western Maryland Railway, under which its elevators at Baltimore would be leased to certain interests at a nominal charge. The value of this accessorial service, for which a charge is normally assessed at all ports, amounts to about five cents per bushel in four months' time. Free storage at Baltimore and Philadelphia would cause heavy diversion of grain from normal channels, particularly New York. The Port Authority petitioned the Interstate Commerce Commission to investigate these tariffs on the ground that they are discriminatory and prejudicial to the commerce of the Port of New York. The Interstate Commerce Commission suspended these tariffs and set them down for investigation on January 4, 1929. On December 27, the tariffs were withdrawn and the discrimination removed.

Port Charges Investigation: **(ICC Number 12681)**

The proposal to segregate all charges for terminal delivery between car and shipside, advocated in the Port

Charges Investigation, was fully discussed in the 1927 report. The original issues of this case, relating to the practice of the railroads of absorbing in the freight rate such accessorial services as warehousing, wharfage and steamship dockage, were very largely obscured by the concentrated effort on the part of outports to secure a segregation of lighterage charges in order to put the Port of New York at a competitive disadvantage. In a report dated December 5, 1928, the Examiner for the Interstate Commerce Commission found the segregation of terminal delivery charges not justified and recommended the maintenance of through rates to shipside. He does, however, stress the alleged high lighterage costs at New York and gives some support to the fallacious theory that lighterage but not switching costs should be considered in making rates. The case is to be argued in April.

Hell Gate Route

The Port Authority found some time ago that to open up the Hell Gate Bridge Route to other carriers would be in the public interest and meet a need of Long Island, Queens and Brooklyn shippers. The matter was laid before the Interstate Commerce Commission and the Public Service Commission of New York in a series of joint hearings during the early part of 1926.

On June 11, 1928, the Interstate Commerce Commission rendered its decision rejecting the petition of the Port Authority for the establishment of all-rail through routes and joint rates by way of the Hell Gate Bridge.

The Commission found that the Long Island Railroad is part of the Pennsylvania System, and that joint rates via the Hell Gate Bridge to the west would unlawfully deprive it of traffic to which it was legally entitled. Recognizing the importance of this all-rail route, the Commission makes provision for its use in time of congestion or emergency, and the tariffs of the New York Central have been amended so that this might be done.

On January 10, 1928, the Public Service Commission issued a decision concurring in that of the Interstate Commerce Commission.

Charged as the Port Authority is with the duty of safeguarding the interests of the entire Port District and making available the best possible transportation service for each part of the District, it must regard this decision by the Interstate Commerce Commission, binding though it be, as only a temporary postponement of the ultimate relief in providing adequate freight service for Queens and Brooklyn.

In reference to the situation on Long Island, which had been the direct cause of the Port Authority's petition, efforts will be continued to supply its needs.

Ocean Differential Case: **(United States Shipping Board)**

In addition to their activity before the Interstate Commerce Commission, certain competing outports are seeking, by petitions to the United States Shipping Board, to secure preferential ocean rates. The Boston Chamber of Commerce has requested the United States Shipping Board to reduce ocean rates between Boston and European ports to the extent of two cents per hundred pounds lower than the level applying to the entire north Atlantic range. The Boston interests in asking for a reduction in the ocean rates in order to meet their higher inland rates, deviate from the principle of equalization through all ports by seeking to leave New York's combined rail and water rates at a level higher than any other port on the North Atlantic seaboard. The Port Authority participated in hearings before the North Atlantic-United Kingdom Shipping Conference and the United States Shipping Board, reaffirming the desirability of complete equalization, but opposing any attempt to adjust rates from Boston without corresponding reduction from New York. The United States Shipping Board has postponed indefinitely any action on the petition.

Differentials on Jute Shipments (United States Shipping Board)

In another case, the Port of New Orleans and other Gulf and South Atlantic ports petitioned the United States Shipping Board to reduce ocean rates on burlap from Cal-

cutta to the same level as those applying to New York, despite an additional steaming distance of 1,350 miles to New Orleans. Up to 1927, the American Flag Lines serving New Orleans had always maintained a rate on burlap sixty cents a ton higher to New Orleans than to New York on account of this additional steaming distance. Since the inland all-rail rates to interior points are $1.20 per ton less from New Orleans than from New York, the petition to the Shipping Board would have resulted in giving the Gulf ports a further material advantage in reduced through rates which would result in substantial diversions of the important burlap business from New York. Our annual trade in this commodity approximates 100,000 tons.

The Port Authority appeared before the Shipping Board, presented the true facts and urged that no undue preference be given New Orleans in its through rail and water rates. The attention of New York and New Jersey Senators and Congressmen was also called to the formation of a coalition of southern and western Congressmen to press the interests of New Orleans before the Shipping Board—a most unusual procedure after a formal docket is closed. The Shipping Board fully sustained our contentions by a vote of 5 to 2 on December 12, 1928.

Miscellaneous Investigations, Etc.

During the year, a number of informal matters regarding service, rates and traffic have been investigated and carried to a satisfactory conclusion. A brief description of some of these follows:

Cotton Futures Legislation

Proposals to transfer the point of physical delivery of cotton, sold on future contracts, from New York to southern ports were made both in the New York Cotton Exchange and in Congress. The discrimination against the Port of New York in certain bills pending before the 69th Congress was pointed out and a strong protest made against their passage with the result that the bills remained

in committee. On November 16, 1928, the New York Cotton Exchange adopted, by a referendum, an amendment to their trading rules providing for delivery at five southern ports *in addition to New York;* but safeguarded the interests of New York by recognizing the additional value of the cotton delivered at this Port, through a clause adding a differential of thirty-five cents per hundred pounds to the value of New York deliveries. We believe, and have advocated, that these new trading rules should be allowed a trial period before any further legislative action is taken.

Additional Handling Facilities at Harlem River

A change in the method of assembling manure fertilizer in shipments from New York to New England points threatened to result in a higher transportation cost because of lack of handling facilities at the Harlem River terminal of the New Haven Railroad. After informal negotiations with the carriers and the Interstate Commerce Commission, satisfactory handling equipment was installed and the lower rates maintained.

Customs House Bonds

The Treasury Department suddenly and unexpectedly served notice in May, 1928, that importers must file surety bonds, thereby adding to the cost of importing goods through the Port of New York. The matter was investigated in cooperation with several trade interests, and as a result of a protest, the effective date of the order was indefinitely postponed.

Lumber Loading Charges

The railroad practice of absorbing the cost of loading lumber at Philadelphia and Baltimore but not at terminals on the New Jersey side of the Port (particularly Port Newark), is placing these sections of the Port at a competitive disadvantage in reaching such interior points as Rochester and Buffalo. The matter was called to the attention of the lumber trade and Newark Terminal interests, and has been discussed informally with the railroads. It

will be docketed with the Trunk Line Association for adjustment at an early date.

Diversion of American Grain via Canada

A steady diversion of American grain continues through Canadian ports, particularly Montreal, by reason of preferential rates and grading requirements. The matter is now under investigation by the federal government. The Port Authority has offered to cooperate with the government, and is assembling information on the subject.

Comment

These matters affect the Port vitally. They require constant vigilance, day to day action, careful knowledge of the facts, and a staff ready for action at all times on instant notice.

SECTION II—INTERSTATE VEHICULAR CROSSINGS

Part I—Bridge Construction

Very substantial progress has been made during the year 1928 in the construction of the four interstate bridges with which The Port of New York Authority has been charged by the Legislatures of the two States.

The four bridges include one across the Arthur Kill between Perth Amboy, N. J., and Tottenville, Staten Island, N. Y., named "The Outerbridge Crossing"; another over the Arthur Kill between Elizabeth, N. J., and Howland Hook, Staten Island, N. Y., named "The Goethals Bridge"; a bridge to span the Kill van Kull between Bayonne, N. J., and Port Richmond, Staten Island, N. Y.; and, finally, the Hudson River Bridge between Fort Washington in Manhattan, City of New York, and Fort Lee, N. J.

All work on the initial construction of the two Arthur Kill Bridges is substantially complete, and they have been opened to traffic. The Kill van Kull and Hudson River bridges are progressing well within schedule.

The four bridges, when all are opened to traffic, will represent an investment of approximately one hundred million dollars, of which amount more than half has been already expended or obligated under contract.

Arthur Kill Bridges

Such speedy progress was made in the construction of the Arthur Kill Bridges that, while the original program called for their completion in 1929, formal dedication exercises were held for both bridges on June 20, 1928, and the bridges were actually thrown open to traffic at 5 A. M. on June 29, 1928. At that time all construction work was not completed but the remaining work was so conducted that

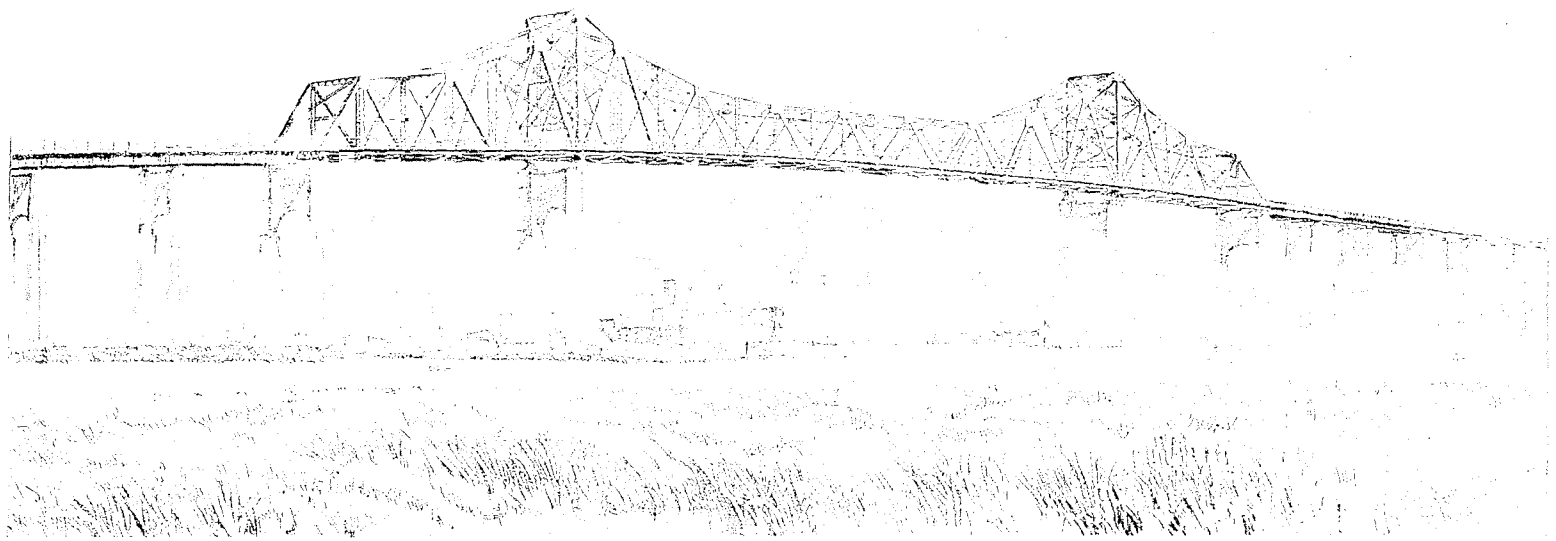
traffic could be safely and conveniently handled without interruption. Since that date all initial stages of construction work have progressed rapidly and are now practically complete.

Money for the construction of these bridges became available early in March, 1926, by the sale of the first issue of Port Authority bonds. This issue was for $14,000,000 which, with the $4,000,000 made available by the two States, comprised the total available fund of $18,000,000. Five months later, on July 29, 1926, the first four construction contracts, involving work estimated to cost approximately $5,300,000, were executed for the piers and foundations of both bridges. All four contracts were completed about four months ahead of the scheduled time. In the latter part of August, 1926, two further contracts, involving an estimated cost of approximately $4,600,000, were let for the steelwork of the two bridges. In other words, within six months of the time when money for construction became available, construction work to the value of eighty-five per cent of the total construction cost (exclusive of real estate, engineering, interest during construction and the like), was under contract. The contracts for the steelwork were completed about five months ahead of schedule.

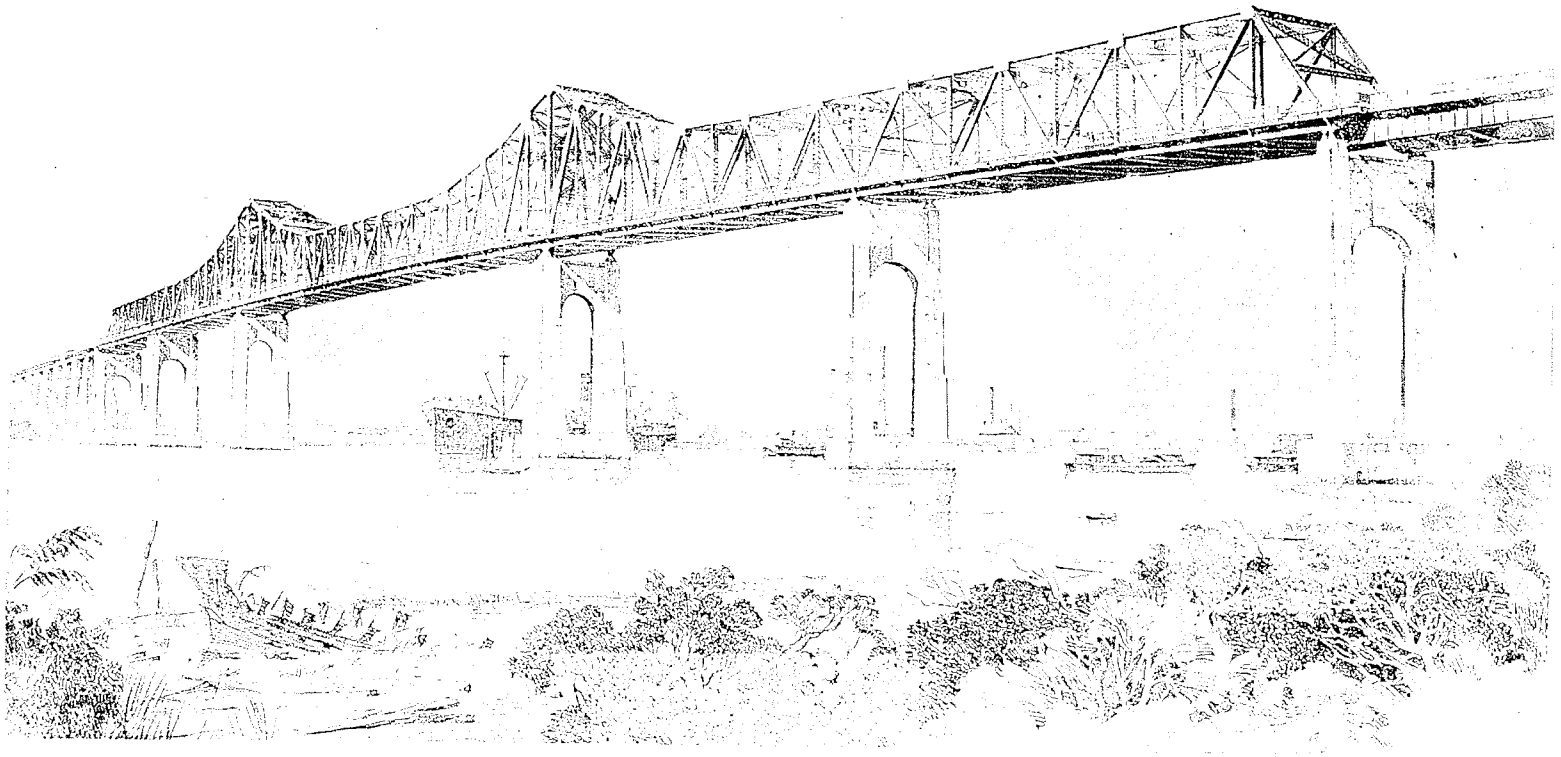
With like promptness and speed the acquisition of property for the two bridges proceeded simultaneously without interference with or delay to the construction work.

Although no property could be acquired or even the negotiations opened before the money had become available and the final plans had been determined upon, as much as sixty-eight per cent of the total required land had been acquired or agreements for acquisition reached by September 1, 1926, when construction was started. The remainder was acquired as speedily as progress on construction required. Practically all of the property was acquired by direct negotiation, and only in two cases was it necessary to resort to condemnation.

No further construction contracts were let until the fall of 1927, but there then followed in rapid succession the



The Goethals Bridge, connecting Elizabeth, New Jersey, with Howland Hook, Staten Island. New York



The Outerbridge Crossing, connecting Perth Amboy, New Jersey, with Tottenville, Staten Island, New York

contracts for the construction of the abutments and fills for the plazas, the construction of the concrete decks on the bridges, the electric lighting, the paving and drainage of the plazas, the toll booths and field offices, and finally the field painting and miscellaneous steelwork. Between October 1, 1927, and May 16, 1928, seven separate construction contracts of greater or less magnitude were let on each of the bridges. These contracts provided for various dates of completion, the latest of which was the first of August, 1928. By carefully coordinating all of the numerous operations which were going on toward the end of the work, and with the cooperation of the contractors in speeding the work, it was possible to open the bridges to traffic about nine months ahead of the time originally contemplated when the work was undertaken.

While the work was thus speeded to an early completion, there was no sacrifice in the quality of materials and workmanship, and the same thorough inspection and supervision was maintained throughout the period of construction. All materials—sand, gravel and cement—involved in the 180,000 cubic yards of concrete in the structure were carefully inspected and tested both before shipment and as they were proportioned, mixed and placed at the site. Thorough inspection of the 35,000 tons of steel involved in the superstructures of the bridges was maintained by competent inspectors at the mills during the manufacture and rolling of the steel, at the various shops during fabrication, and in the field during the erection of the entire structure. All of the many other miscellaneous materials entering into the construction of the bridges, such as timber piles, castings, granite, electrical equipment of all kinds and paint materials, received the same careful and thorough inspection at the source and at the bridge site.

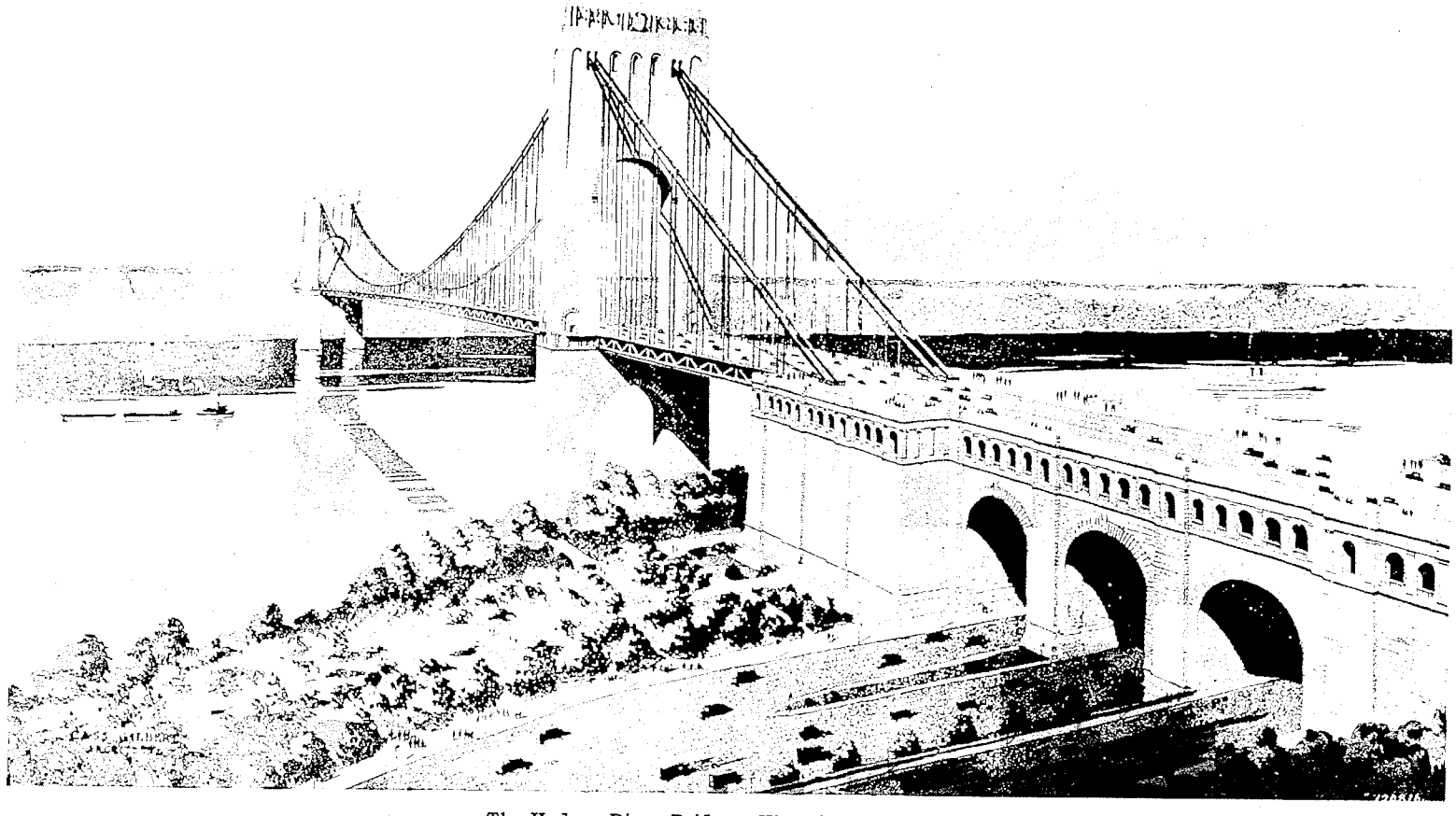
The first tentative estimates of cost of the two bridges, as reported in the preliminary report of February 2, 1925, was $16,706,565.

Before the financing by the sale of bonds was undertaken it was realized that certain additions to the tentative plans would become necessary, such as the raising and lengthening of the approach at Elizabeth, to take care of future grade changes of the railroad; more adequate plazas and street connections; facilities for toll collection; and provision for carrying electric conduits across the bridges.

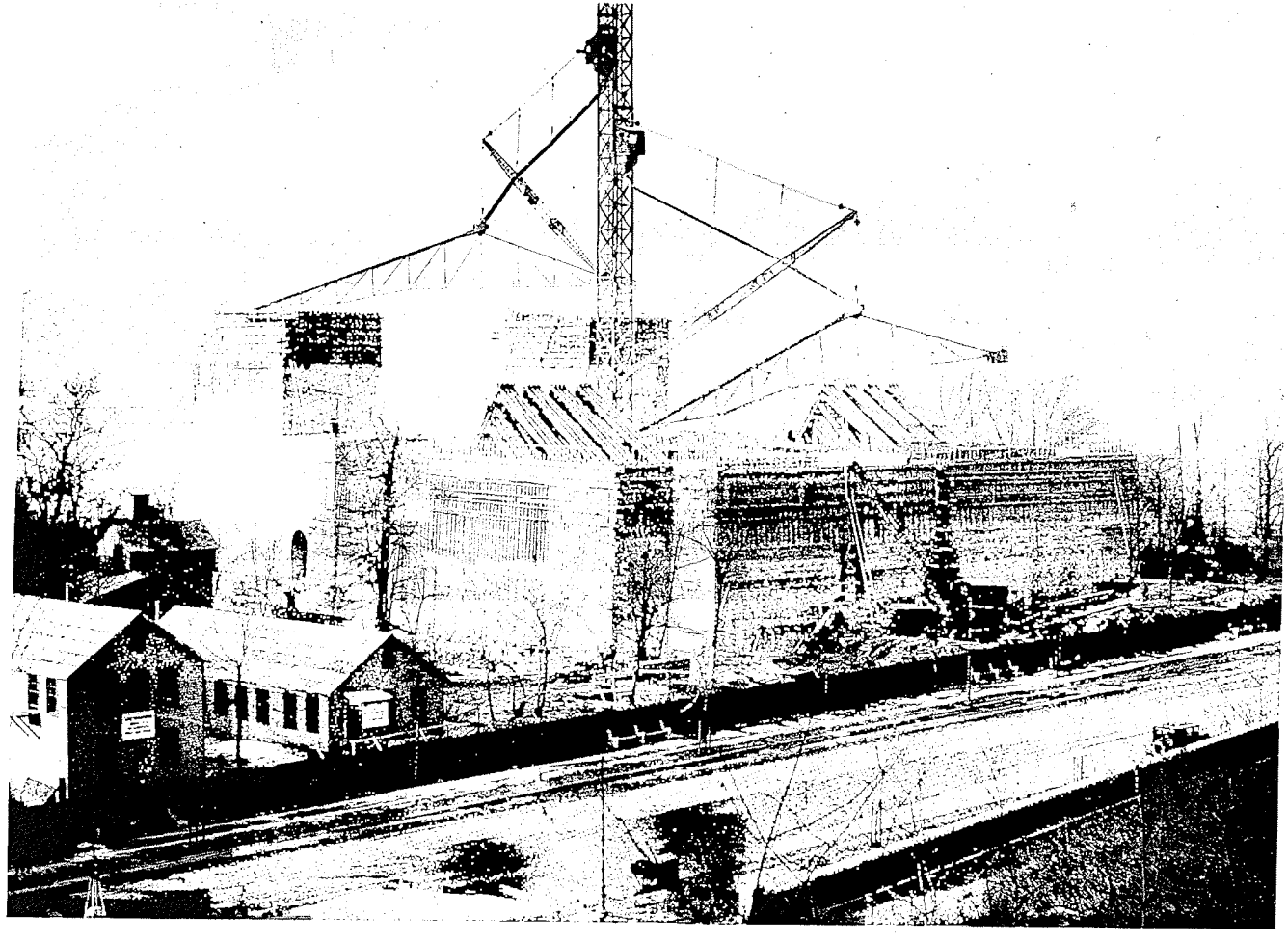
These additions, and a fair margin for other contingencies and increasing cost of real estate, made it necessary to provide a fund of $18,000,000.

Estimates may be made too low or they may be made too high. Very often estimates of costs are made too low, especially where, as in public works, additional appropriations may be secured to make up the difference. The Port Authority engineers have endeavored to err on neither side,—to be neither too high nor too low in calculations of estimates of costs. In view of the fact that the Port Authority must sell its bonds to investors who have the right to rely upon the estimates of cost made by the Port Authority's staff, it is but natural that they should be prudently made, that is to say, a reasonable factor of safety considered so that if the mistake occurs, it occurs on the right side.

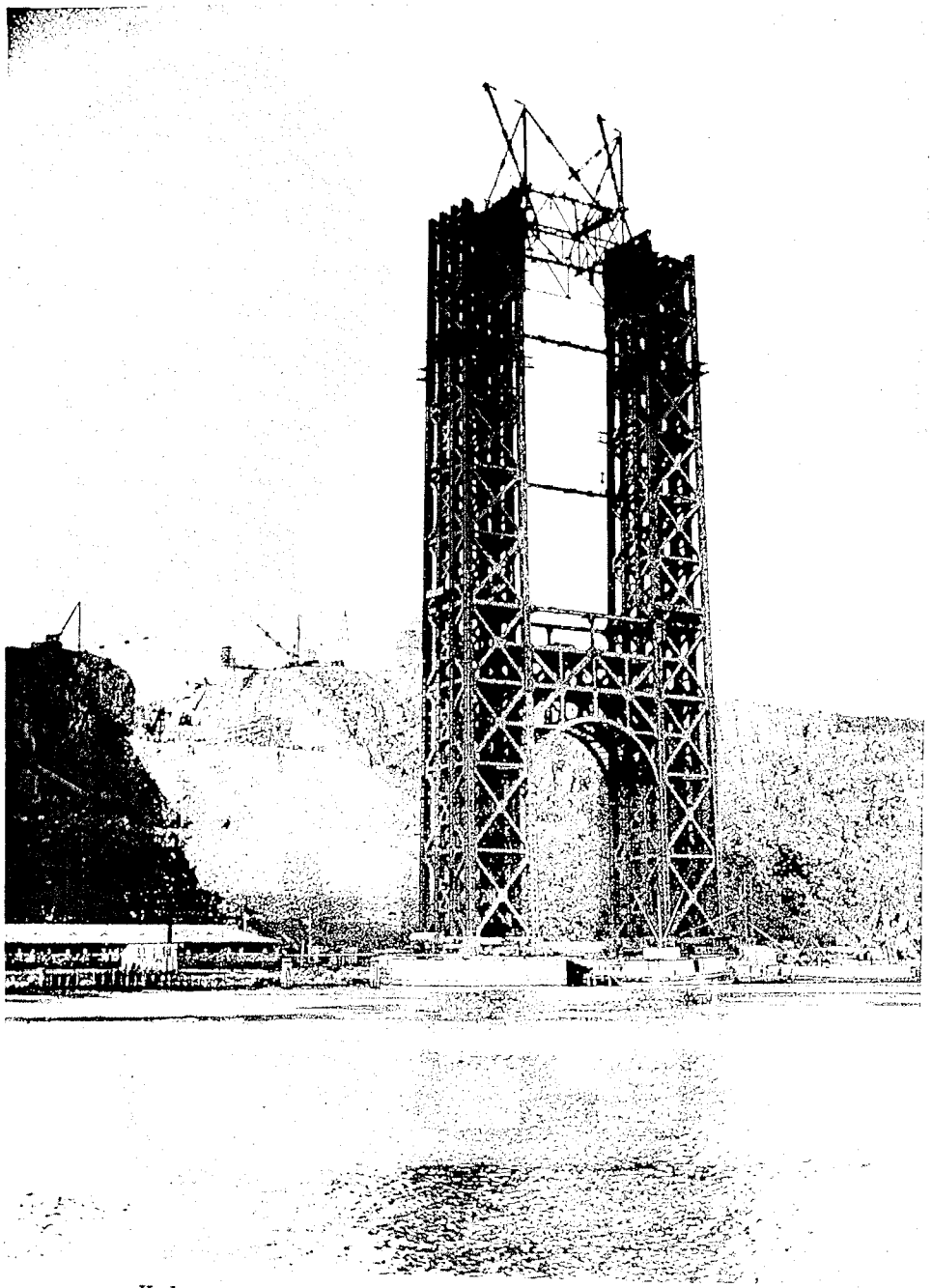
After the bridges were financed, early in 1926, by the sale of $14,000,000 Port Authority bonds, the preliminary plans for both bridges were completely restudied and it was found possible to make certain modifications which would effect material reductions in the initial cost of the bridges without affecting either their quality or their usefulness. Principal among these modifications were the omission of provision for rapid transit on the Outerbridge Crossing, simplification of the roadway floor by the use of a plain concrete slab with hard surface, and the omission initially of certain parts, particularly plaza pavements, which may be added later as and when increase in traffic requires and justifies. Other modifications in the design, such as the substitution of massive and more durable concrete piers for the initially less expensive steel piers as



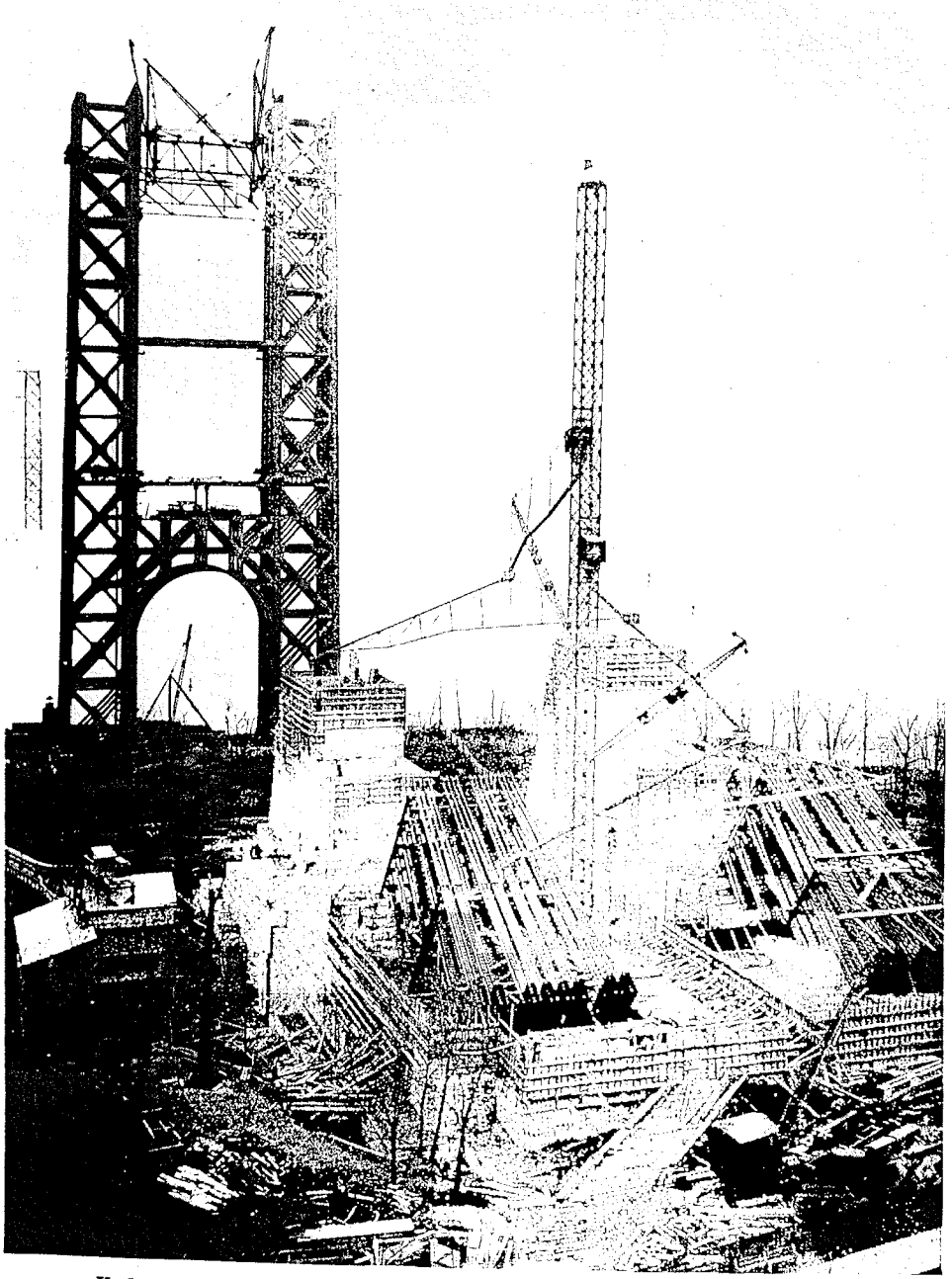
The Hudson River Bridge. View from Manhattan



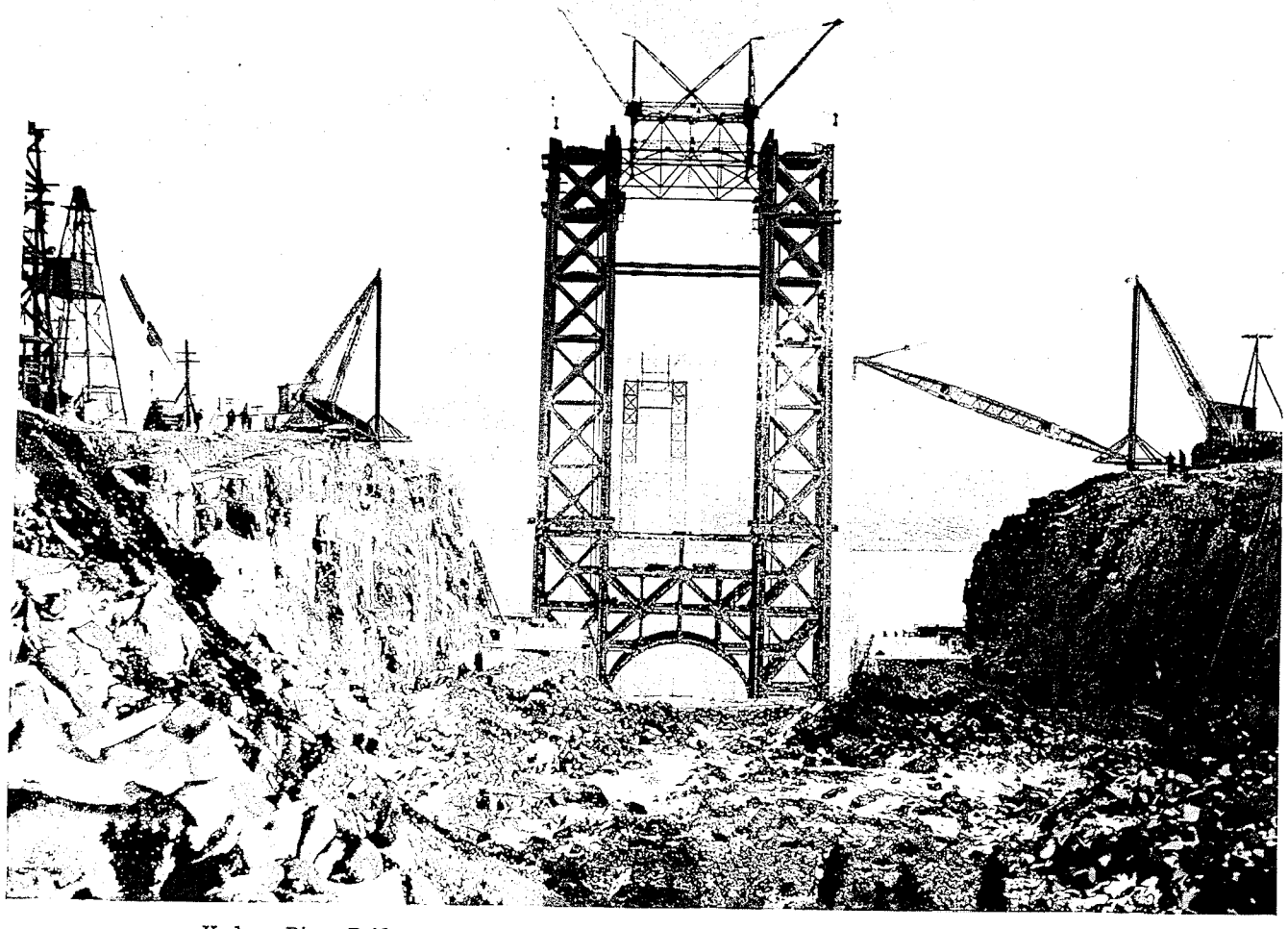
Hudson River Bridge. Construction of New York Anchorage.



Hudson River Bridge. Construction of New Jersey Tower.



Hudson River Bridge. Construction of New York Anchorage and Tower.



Hudson River Bridge. New Jersey Side. View Looking East Through Rock Cut.

tentatively designed, somewhat offset the above reductions in cost.

It was also found, as the work proceeded and after completion of the bridges, that the estimates of construction costs were somewhat higher, as they should be, than the actual costs as contracted for.

The net result of all these modifications and conservative estimating was that, instead of an expenditure of close to $18,000,000, as was expected at the time of financing the projects, approximately $16,600,000 (the exact amount is not yet determined since a number of contracts have not yet been settled) have actually been spent or contracted for to date.

Summary of Contracts

Number of bridge contracts let		24
Total of engineer's estimates of contract items, exclusive of contingencies and adjustments	$12,333,595 00	
Total of engineer's estimates for contingencies and adjustments	924,990 00	$13,258,585 00
Estimated cost per accepted bids, exclusive of contingencies and adjustments	12,233,595 50	
Estimated cost for contingencies and adjustments	924,990 00	13,158,585 50
Actual cost of contract items	11,831,161 37	
Actual cost of contingencies and adjustments	915,295 95	12,746,457 32

Hudson River Bridge

Construction work on this project is progressing rapidly. The difficult foundation work for the New Jersey tower which began in 1927, was completed early in the year and in time for the scheduled erection of the steel tower. The construction of the tower bases on the New York side was completed in July—two months after the contract was let.

Erection of the towers began in June, 1928, and within four and one-half months, 31,000 tons of steel had been erected, and the towers had reached a height of approximately 500 feet. The fabrication had been done with such unusual accuracy that it was found that in a height

HUDSON RIVER BRIDGE

STATEMENT OF EXPENDITURES UNDER CONSTRUCTION CONTRACTS

MARCH, 1926, TO DECEMBER, 1928, INCLUSIVE

Contract reference	DESCRIPTION	BIDS RECEIVED				Engineers estimate of contract items	Actual cost of contract items	Contingent work	Total actual cost of contract items plus contingent work	Remarks
		Number of bids	High bid	Low bid	Accepted bid					
HRB-1...	Test borings.....	....	.....	.....	.....	.....	$20,262 58	$8,164 83	$28,427 41	Complete.
HRB-2...	Foundations and tower bases — N. J.	13	$2,723,350	$1,160,200	$1,160,200	$2,599,200	1,057,190 00	1,511 43	1,058,701 43	Complete.
HRB-3...	Excavation — N. J. anchorage and approach.	18	2,765,700	694,000	694,000	1,492,500	681,150 00	19,294 73	700,444 73	Contract 98% complete—figures represent amounts earned to date.
HRB-4...	N. Y. anchorage and tower foundation.	32	1,773,425	986,600	986,600	1,778,900	988,585 96	5,512 25	994,098 21	Contract 90% complete — figures represent amounts earned to date.
HRB-5A..	Steel towers and floors.....	3	10,621,020	10,134,440	10,134,440	10,483,400	6,569,996 48	26,384 27	6,596,380 75	Contract 65% complete—figures represent amounts earned to date.
HRB-5B..	Wire cables.....	3	14,979,455	12,339,977	12,339,977	15,355,200	2,691,267 83	3,517 76	2,694,785 59	Contract 22% complete—figures represent amounts earned to date.

Engineers' estimate of contract items is arrived at on basis of estimated quantities at an assumed unit price for each contract item.
Contractors' bids represent an aggregate estimated cost, based on fixed unit prices bid by the contractor and the engineers' estimate of quantities.

of over 500 feet, the error in length of any one column was within one-quarter of an inch. Inasmuch as it is considered inadvisable to work at such a great height during the winter months, further erection work has been postponed until spring.

Work on the New Jersey anchorage was carried on concurrently with the tower construction and the excavation of about 225,000 cubic yards of hard trap-rock for the New Jersey anchorage and approach is now nearing completion.

The contract for the New York anchorage in Fort Washington Park was let on May 4, 1928. At the close of the year, approximately 90,000 cubic yards of concrete had been poured, or about ninety per cent of the total. The steel anchorage and anchor chains were placed and imbedded as the concrete work proceeded.

The steel anchorage on the New Jersey side is being erected in the excavated tunnels.

At the close of the year 9,320 tons of steel wire for the cables had been fabricated, and the spinning of these cables will begin this summer.

Unusually thorough inspection has been exercised over the manufacture of all materials that go into the bridge. Research work has been carried on by the staff, partly in collaboration with the United States Bureau of Standards and with the United States Bureau of Public Roads.

As mentioned elsewhere in this report, eighty-four per cent of the property needed in Manhattan has been acquired, and ninety-two per cent in Fort Lee.

Further studies have been carried on throughout the year in the development of plans for the approaches and highway connections at both ends of the bridge. The staff has had the advice and cooperation of engineering representatives of the City of New York, Bergen County, Borough of Fort Lee, and State of New Jersey. This problem of approaches is a very complicated one, especially in Manhattan. However, a plan has been worked out

which it is believed will be satisfactory, both to the City of New York and to the Port Authority.

The table included herein, lists the various contracts which have been awarded.

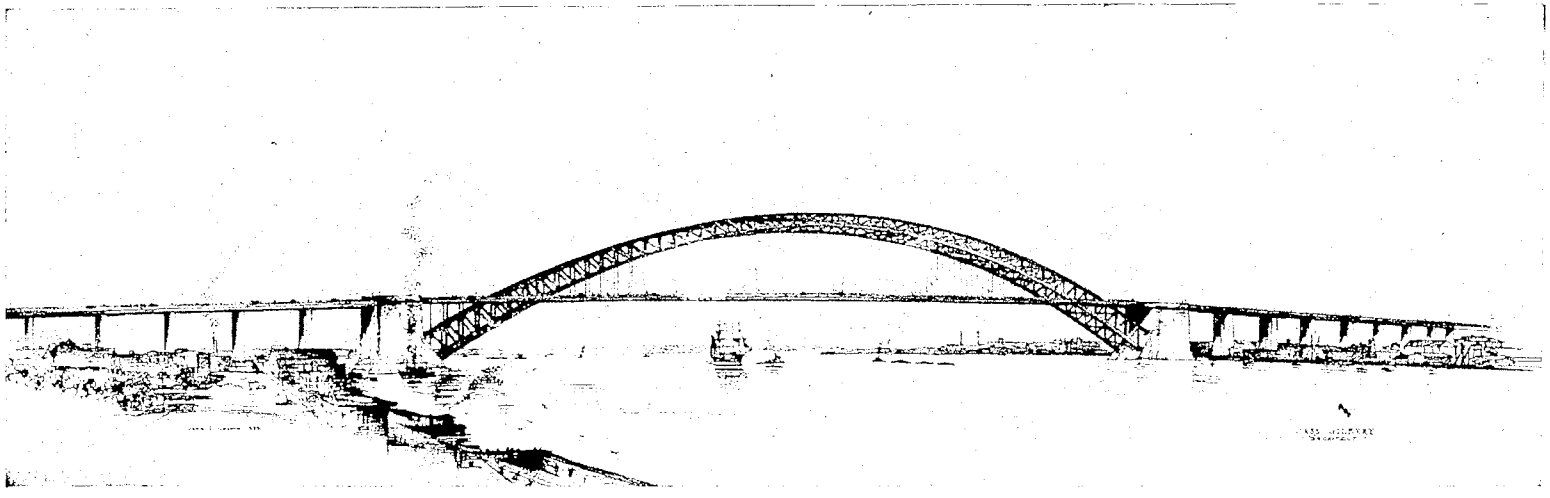
All operations have been proceeding within schedule and within estimated costs. Barring unforseen delays, the bridge will be opened for traffic not later than the spring of 1932.

A separate progress report on the construction of the Hudson River Bridge is now being prepared.

Kill Van Kull Bridge

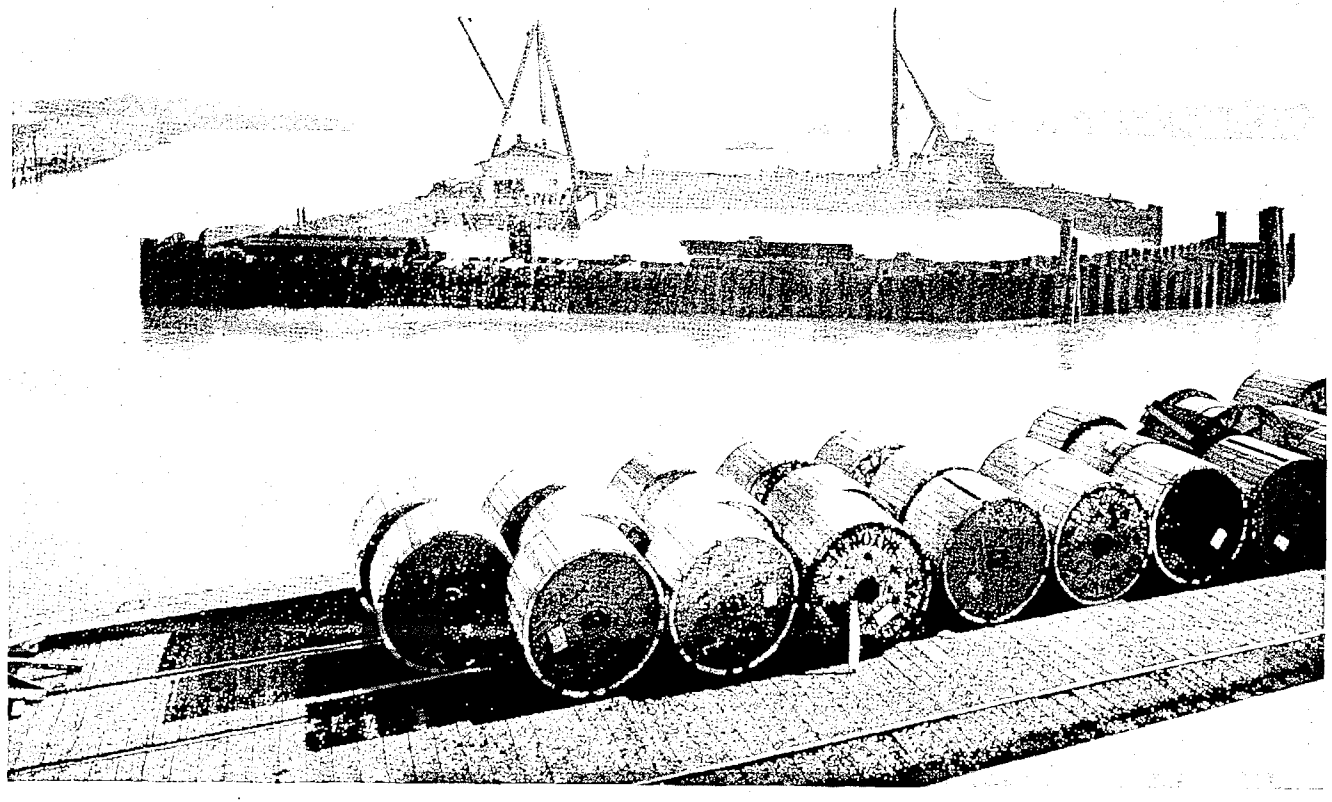
The Kill van Kull Bridge was successfully financed by the sale of $12,000,000 Port Authority bonds, which, together with $4,000,000 to be made available by the two States, will permit the construction of the bridge for initial capacity. Immediately thereafter, steps were taken toward the execution of the project. In order to determine more fully the actual foundation conditions, contracts were let for additional borings. Preparation of contract plans and specifications for the foundations of the arch abutments was started as soon as sufficient information from these borings became available, and on July 5, 1928, bids were received for the construction of these foundations and the lower portions of the two abutments. The upper portions of the abutments are to be constructed under a later contract. The contract was awarded to H. P. Converse of Boston, Massachusetts, on August 10, 1928. Construction work was started immediately and has been progressing satisfactorily.

Involved in this contract are two large cofferdams, one for each abutment, approximately two hundred feet square, within which the foundations and abutment bases will be built after unwatering the cofferdams. At the end of the year, both cofferdams had been completed. One has been unwatered and the excavation inside of it is progressing satisfactorily. There is every evidence from the conditions encountered and from the progress of the work that it will



Proposed Arch Bridge, Bayonne-Port Richmond.

Kill Van Kull Bridge. Inside of Cofferdam—Staten Island Abutment.



Kill Van Kull Bridge. Construction of Cofferdam—Bayonne Abutment.

be completed within schedule and in time to be ready for the erection of the arch span in 1929.

On November 19, 1928, bids were received for the furnishing and erection of the entire steelwork for the main bridge and the approaches. The contract was awarded to the American Bridge Company on November 22, 1928. The construction of the arch span, 1,675 feet between centers of bearings, being the longest arch span ever built, will be an unusual erection operation. The contractor has already started the preparation of his working drawings and detailed studies of his erection problems. It is expected that rolling of steel will begin shortly and that field operations will be started in the spring of 1929 .

In the meantime, the staff of the Port Authority is preparing plans and specifications for the foundations and piers of the approaches and bids will be advertised early in 1929. It is also studying the numerous problems involved in properly providing for the plazas and street connections at each end of the bridge and is, in this connection, collaborating with representatives of the municipalities, state and county governments, on both sides.

If further progress is kept within schedule, the bridge should be in operation early in 1932.

KILL VAN KULL BRIDGE
STATEMENT OF EXPENDITURES UNDER CONSTRUCTION CONTRACTS
MARCH, 1926, TO DECEMBER, 1928, INCLUSIVE

Contract reference	DESCRIPTION	BIDS RECEIVED				Engineers estimate of contract items	Actual cost of contract items	Contingent work	Total actual cost of contract items plus contingent work	Remarks
		Number of bids	High bid	Low bid	Accepted bid					
BP-1.....	Test borings.....	4	$9,180	$4,856 25	$4,856 25	$10,000	$5,721 25	.....	$5,721 25	Complete.
BP-2.....	Main bridge abutments....	15	777,900	515,709 00	515,709 00	851,200	117,466 30	.....	117,466 30	Contract 23% complete—figures represent amounts earned to date.
BP-3.....	Steelwork.....	3	5,469,950	5,041,770 00	5,041,770 00	5,781,000	.....	.....	.....	Work just started, no payments made.

Engineers' estimate of contract items is arrived at on basis of estimated quantities at an assumed unit price for each contract item.
Contractors' bids represent an aggregate estimated cost, based on fixed unit prices bid by the contractor and the engineers' estimate of quantities.

SECTION II—INTERSTATE VEHICULAR CROSSINGS

Part 2—Bridge Operation

The Goethals Bridge, spanning the Arthur Kill between Elizabeth, N. J., and Howland Hook, Staten Island, N. Y.; and the Outerbridge Crossing between Perth Amboy, N. J., and Tottenville, Staten Island, N. Y.—were formally dedicated on June 20, 1928, in the presence of the Governors of the States of New York and New Jersey, and other representative state and city officials. On June 29, 1928, at 5. a. m., these bridges were opened to traffic.

Preparatory Studies

Preparatory to the opening of these bridges, studies were made of about one hundred and fifty toll-bridge operations throughout the United States, for the purpose of determining the method of toll collection and pertinent operating data on which to found the basis for methods of operating the Arthur Kill Bridges.

Personnel

On June 1, 1928, there had been selected from over two hundred applicants, the operating personnel for these two bridges, consisting of fifty-one picked men, of whom forty were uniformed. The selected men all passed rigid physical and mental examinations before appointment. They were placed on a probationary period of intensive training under the direction of persons experienced in the field of police methods, traffic control, first aid, fire prevention, fire-fighting, and accounting and treasury methods. The state and local police departments, the United States Army, the

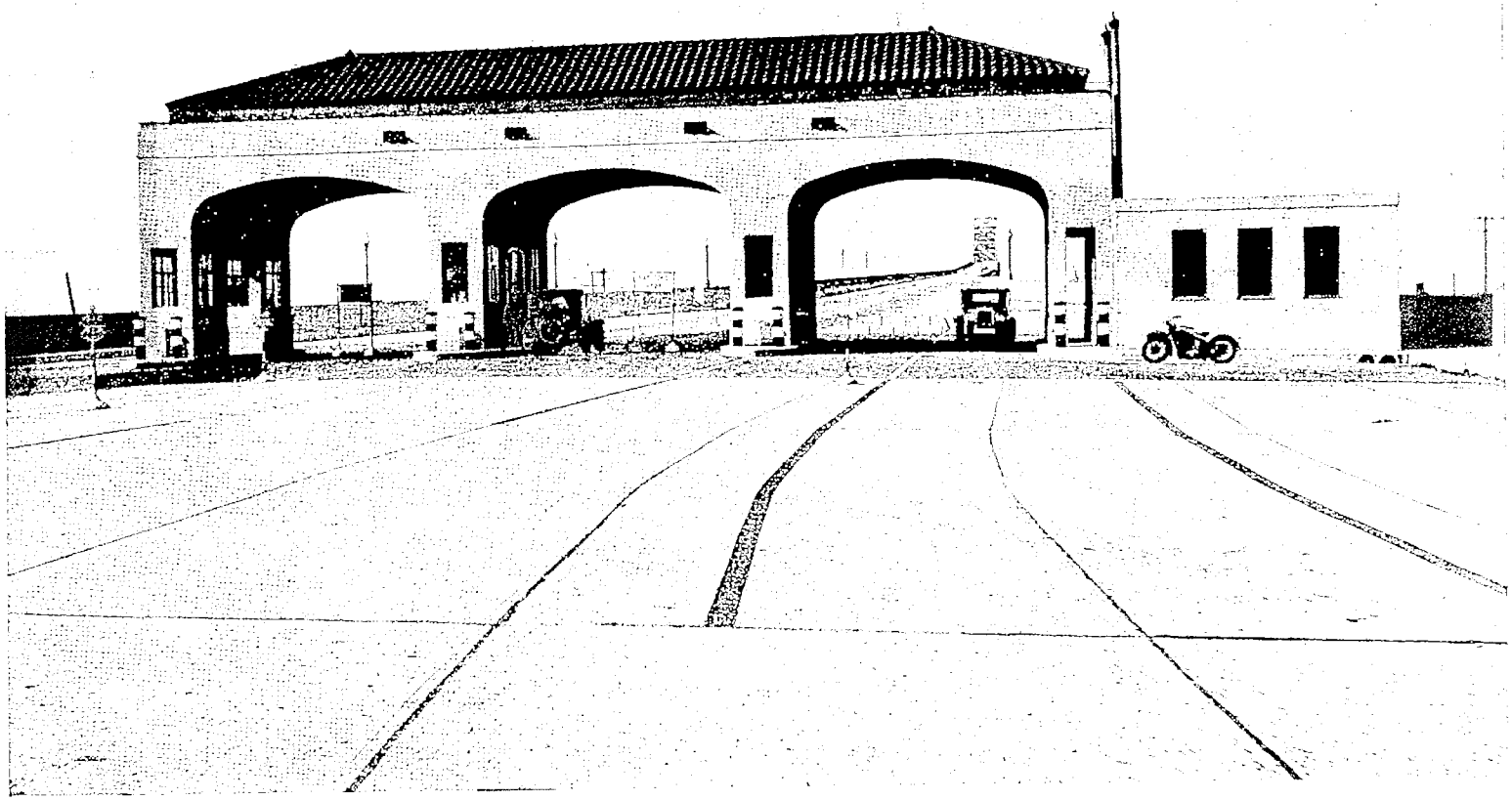
American Red Cross, and others, rendered much assistance. The men had been so well drilled with respect to their duties that no trouble was experienced in handling the first flow of traffic.

After a few months of experience under actual operating conditions, it was found that by rearrangement of personnel and reassignment of duties, the bridge operating force could be considerably reduced, and, further, on account of seasonal fluctuation of traffic, fewer men would be required during winter months. On November 30, 1928, eighteen men were furloughed indefinitely. This effected a saving of $2,877 per month, or at the rate of $34,500 per annum. It is expected that when traffic increases, some of these men will be returned to duty.

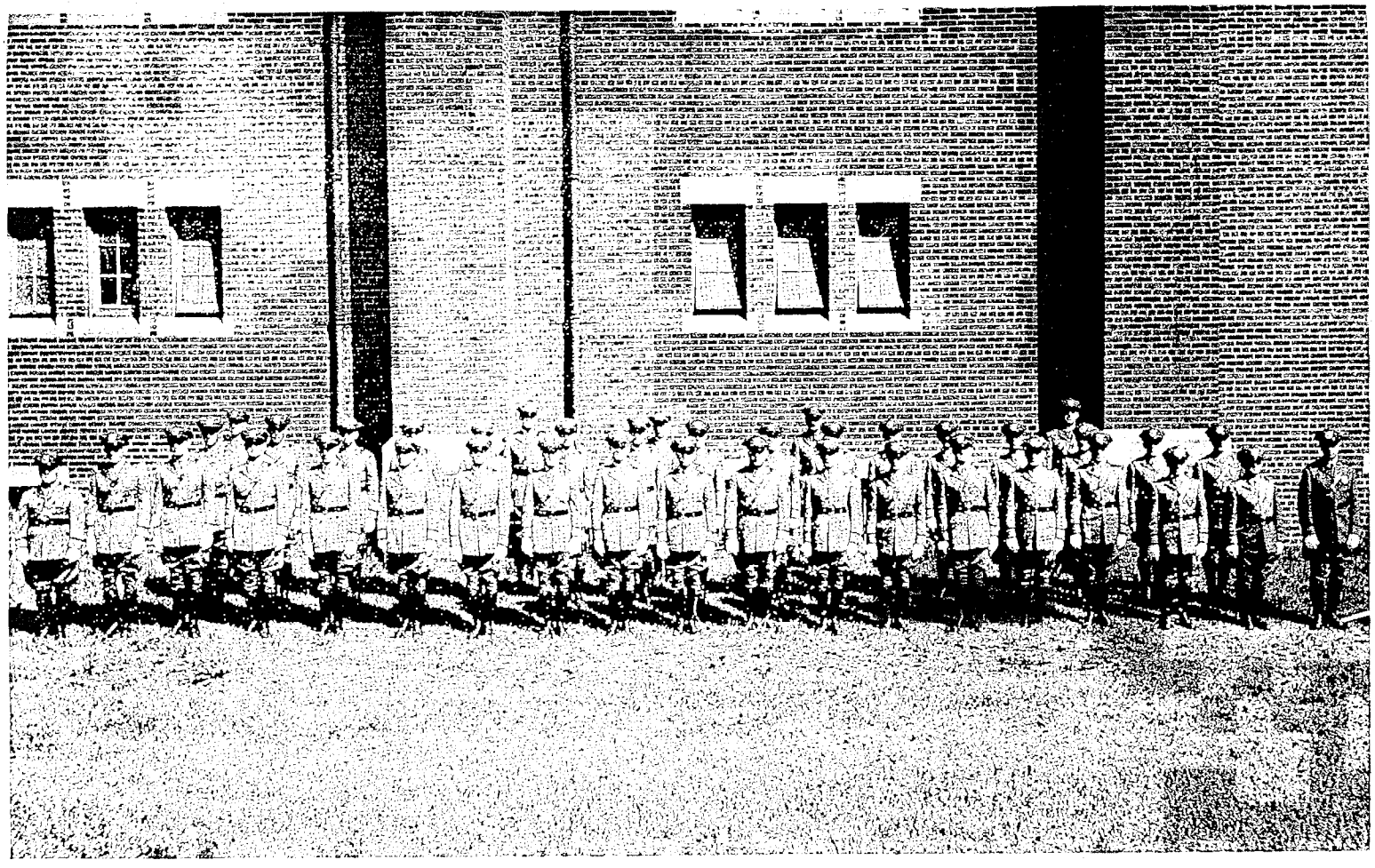
As of January 15, 1929, monthly expenditures for personal service employed in the operation of both bridges, and inclusive of all types of service required for the task, viz., administration, superintendence, accounting and treasury work, policing, toll collections, snow removal and all other classes of labor, are as set forth in the following table:

Personnel (For Two Bridges)	Assigned Charges	Unassigned Charges	Total Charges
1 General Superintendent	$ 625	.....	$ 625
1 Clerk to General Superintendent	150	.....	150
2 Superintendents	600	.....	600
2 Assistant Superintendents	450	.....	450
6 Bridgemasters	1,200	.....	1,200
2 Tellers	375	.....	375
20 Bridgemen	3,180	.....	3,180
1 Electrician	200	.....	200
General Administration, Legal, Auditing and Treasury Work	526	580	1,106
Total	$7,306	$580	$7,886

As a measure of fairness, we selected our bridge employees from both New York and New Jersey on an equal basis. This plan was also followed when we found it necessary to furlough employees.



Toll Booth Area, Goethals Bridge



Operating Force. Arthur Kill Bridges

Toll Schedule

The following schedule of tolls was adopted:

Group No.	Vehicle Type	Rate
I.	Motorcycle, bicycle, horse and rider	$0 25
II.	Passenger automobile, ambulance, hearse	0 50
	Extra passengers in automobiles (over 12 years of age)	0 05
III.	Horse-drawn vehicle with driver	0 50
IV.	Motor truck with driver and helper, less than 2-ton carrying capacity	0 60
V.	Motor truck with driver and helper, 2 to 4½-ton carrying capacity	0 75
VI.	Motor truck with driver and helper, 5 tons and over carrying capacity	1 00
VII.	Bus	1 00
VIII.	Tractor with trailer	1 00
IX.	SPECIAL	
	Tractor	0 75
	Extra trailers	0 50
	Special vehicles	2 00
Pedestrians (over 12 years of age)		0 05

All tolls are collected on the Staten Island side, and no free passages are allowed except to special vehicles of the Army, Navy, police and fire departments, as required by law. Passes are not issued to anyone.

Highway Handicaps

In the first forty-eight hours of operation, 8,991 cars passed over the bridges. During the first four months of operation, bridge revenues, while gratifying, were materially handicapped by a lack of good public highway approaches. During these months (and these the four in which heaviest travel occurs), it was possible to reach the lower bridge only by using unimproved highways. On the New Jersey side, the highways leading to both bridges have since been completed, as has the highway on the New York side leading to the Goethals Bridge. In order to open the lower bridge, it was necessary for the Port Authority to spend about thirty-five thousand dollars to build connecting highways to Arthur Kill Road. This expenditure was not indicated in our original estimates as it was expected that the necessary connections would be completed by the City of New York. Plans for highways in Staten Island, providing adequate routes to the Tottenville Plaza, are now under way and should be completed in time to accom-

modate the heavy traffic of next summer. The benefit of these improved highway conditions will be shown in bridge revenues next summer.

Developing Traffic

Realizing that a large part of the general public must be informed as to the travel advantages of these facilities, as well as aided in reaching them by the most direct routes, an extensive campaign of advertising is being conducted and signs directional to the bridges are being erected on important highways. The states and local city governments have cooperated in every way in the work, and it is felt that efforts in this direction will insure a steady increase in bridge revenues.

Commutation Rates — Passenger Cars

Feeling that it is obligated to provide service to the public over these bridges at the lowest consistent cost, the Port Authority, in October, 1928, undertook a census to determine whether the adoption of a commutation rate for frequent travel would be desirable. In this, we had the hearty cooperation and able assistance of the Chambers of Commerce of Elizabeth, Perth Amboy and Staten Island. The printed questionnaire which was distributed was designed to show by the answers received how much traffic would be generated were the following proposals placed in effect:

1. A 12-trip commutation book, good for one week only. Cost $4.20 (35c per trip, instead of the regular 50c rate).
2. A 12-trip commutation book, good for two weeks only. Cost $4.80 (40c per trip, instead of the regular 50c rate).

A tabulation of the replies was interpreted as signifying that there did not exist at that time any important demand for rates such as those proposed.

Undoubtedly, as the commercial and residential development becomes more extended, there will be a high rate of stimulation in the daily or commuting movement between

Staten Island and Elizabeth, Perth Amboy and other points in New Jersey. When the time comes, and when studies indicate that such traffic will be accelerated by the establishment of commutation toll rates, the Port Authority will give further consideration to the problem and take such action as may seem justifiable.

Bus Operation — The Goethals Bridge

On June 29, 1928, the Public Service Coordinated Transport commenced operations between the Winfield Scott Hotel, Elizabeth, and St. George, Staten Island, using the Goethals Bridge. The fare was 40c each way. This service was discontinued on September 15, 1928, as it was claimed by the operators to have been unprofitable.

Subsequently, the Elizabeth Chamber of Commerce took up the question of re-establishing a regular bus service over the bridge, between Elizabeth and Staten Island. The proposition interested the Nevin Bus Company who agreed to make the venture provided that some arrangement could be made whereby the rate of $1.00 assessed as a toll over bridge could be adjusted.

Believing that the establishment of a regular bus service would tend to build up the local communities served, and further that its existence would provide additional bridge revenues, the Port Authority agreed to sell 600-trip monthly bus tickets for $360. In establishing this rate, the Port Authority adhered to its policy of granting no franchises or other exclusive rights to anyone wishing to use the bridges. Any bus owner may buy a 600-trip ticket, but no rebates are made if the minimum of 600 trips are not made within the month. As a result of this action, regular bus service between Staten Island and New Jersey dated from December 1, 1928, and has since continued. The fare being charged for passengers is 25c one way, instead of 40c as formerly.

Bus Operation — The Outerbridge Crossing

On June 29, 1928, the Public Service Coordinated Transport commenced operations between Smith Street, Perth

Amboy, and Main Street, Tottenville, Staten Island, using the Outerbridge Crossing. A fare of 25c one way was charged. This service was discontinued on August 28, 1928, as it was claimed by the operators to have been unprofitable.

After regular bus service had been re-established over the Goethals Bridge, the Chamber of Commerce of Perth Amboy conferred with representatives of the Nevin Bus Company and induced them to establish regular bus service between Perth Amboy at Smith Street, and Main Street, Tottenville, Staten Island, using the Outerbridge Crossing. This service commenced on December 22, 1928, and a fare of 15c each way was charged. It was discontinued on December 30, 1928, due to a lack of patronage.

Traffic Results

The volume of traffic moving over the bridges since their opening has been very gratifying. This is especially true when consideration is given to the handicaps suffered through the inadequate highway connections previously referred to. From the table which is included herein, it will be seen that during the last six months of 1928, there was an increase of 284,607, or fifty-four per cent, in the number of vehicles crossing the Arthur Kill as compared with the same period in 1927. There was an increase of thirty-three per cent at Perth Amboy and of eighty-one per cent at Elizabeth. The major portion of this can be directly attributed to the stimulation in traffic brought about by the bridges, inasmuch as the annual rate of increase in ferry traffic in prior years did not show such large percentages. This fact will be noted from the table shown below:

COMPARISON OF VEHICULAR CROSSINGS OF ARTHUR KILL

Years 1927 and 1922

	Perth Amboy	Elizabeth	Total
1927	496,284	396,964	893,248
1922	309,182	203,075	512,257
5-year Increase	187,102	193,889	380,991
Per cent increase in 5 years	60.5	95.5	74.4
Per cent average annual increase	12.1	19.1	14.8

VEHICULAR TRAFFIC OVER THE ARTHUR KILL.
July to December, 1928, compared with same period, 1927.

	ELIZABETH				PERTH AMBOY				TOTAL			
	1928		1927		1928		1927		1928		1927	
	Number of vehicles	Per cent of total	Number of vehicles	Per cent of total	Number of vehicles	Per cent of total	Number of vehicles	Per cent of total	Number of vehicles	Per cent of total	Number of vehicles	Per cent of total
Ferry	122,731	29.6	228,636	100.0	100,729	25.4	297,890	100.0	223,460	27.5	526,526	100.0
Bridge	291,766	70.4	None	None	295,907	74.6	None	None	587,673	72.5	None	None
Total	414,497	100.0	228,636	100.0	396,636	100.0	297,890	100.0	811,133	100.0	526,526	100.0

Increases and Decreases

	Number of vehicles	Per cent of increase or decrease	Number of vehicles	Per cent of increase or decrease	Number of vehicles	Per cent of increase or decrease
Ferry	*105,905*	*46.3*	*197,161*	*66.2*	*303,066*	*57.6*
Bridge	291,766	.....	295,907	.....	587,673	.....
Total	185,861	81.3	98,746	33.1	284,607	54.1

NOTE — Decreases are shown in *italics*.

During the five-year period shown, the average annual increase was fifteen per cent for both ferries—at Perth Amboy, twelve per cent, and at Elizabeth, nineteen per cent. When these percentages are compared with the 1928 increase over the 1927 traffic, based on the last six months of operation, the results are significant and show the intense stimulation of traffic caused by the bridges. It is anticipated that when the Kill van Kull Bridge is completed in 1932, there will be another large "step up" in the amount of traffic over the Arthur Kill Bridges.

The two bridges absorbed not only all of this large traffic increase, but also attracted a considerable portion of the traffic which had previously been accommodated by the ferries. For the six months' period referred to, the ferry at Perth Amboy suffered a decrease of 197,161 vehicles and the one at Elizabeth, 105,905 vehicles—or sixty-six per cent and forty-six per cent, respectively. The total decrease on both ferries was 303,066 or fifty-eight per cent. Out of the total of 811,133 crossings, the bridge has handled 587,673, or seventy-three per cent.

Our optimistic views with respect to potential traffic have been further justified by the fact that the anticipated seasonal fluctuations during the winter months, have been much less than we had expected.

Revenues and Expenses

Between seventy-five and eighty per cent of the bridge revenues are derived from passenger vehicles. In making the original estimates of earnings at the time of financing, a toll rate of 60c per car and driver, with an additional charge of 5c for *each extra passenger,* was used as a basis for computing financial requirements.

Prior to the opening of the bridges, the Commissioners gave mature and deliberate consideration to the matter of toll rates. They realized that these bridges are public enterprises, built solely for the purpose of furnishing a public service, and that rates charged the public for use of the facilities should not be higher than would be

required to return revenues sufficient to pay operating expenses and interest and amortization charges on the debt incurred for moneys used to build the bridges. Moreover, they were firmly convinced, from careful observation, that a tremendous development in the localities immediately served by these bridges would not be long deferred, and believed that the lowest possible tariff rates would stimulate this development. Other factors given consideration were that the bridges were being opened nine months ahead of schedule, and that unanticipated revenues for that period would be available as a surplus fund; that approximately $1,200,000 would be available from construction moneys on account of the bridges having cost less than estimated, which sum would be available for the sinking fund; that the Port Authority's bonds used to finance the structures are serial in character and will not begin to mature until 1932; and, furthermore, that the schedule of maturities is an easy one as will be noted from the table shown herein.

For the reasons as here set forth, it was decided to fix the toll rate for passenger vehicles at 50c, with a charge of 5c for *each additional passenger over twelve years of age,* which schedule means some 15c per vehicle less than that used in the original estimates.

ARTHUR KILL BRIDGES

OPERATING REVENUES AND OPERATING EXPENSES

June 29, 1928, to December 31, 1928

	Goethals Bridge	Outerbridge Crossing	Total
Revenue:			
Revenue from tolls collected	$176,813 05	$179,904 85	$356,717 90
Operating Expenses:			
Salaries of operating employees (General Superintendent, Superintendents, Bridgemasters and Bridgemen)	27,731,55	26,921 93	54,653 48
Proportion of salaries (Administrative, Audit, Legal and Treasury Departments)	5,085 13	5,096 70	10,181 83
Miscellaneous expenses, including light, heat, water, stationery and printing, advertising and miscellaneous repairs and supplies	10,921 87	11,057 60	21,979 47
Total operating expenses	$43,738 55	$43,076,23	$86,814 78
Net operating revenue	$133,074 50	$136,828 62	$269,903 12

TOLL REVENUES

June 29, 1928, to December 31, 1928

	Goethals Bridge	Outerbridge Crossing	Total
I. Motorcycles, bicycles, etc	$418 50	$420 50	$839 00
II. Pleasure cars	133,824 00	139,041 00	272,865 00
III. Horse-drawn vehicles	23 50	12 00	35 50
IV. Motor trucks (less than 2 tons)	6,415 80	6,051 60	12,467 40
V. Motor trucks (2 to 4½ tons)	4,034 25	3,135 75	7,170 00
VI. Motor trucks (5 tons and over)	3,778 00	2,542 00	6,320 00
VII. Busses	5,388 40	3,880 40	9,268 80
VIII. Tractors and trailers	611 00	134 00	745 00
IX. Special	569 75	11 05	580 80
Extra passengers	$21,744 50	$24,655 70	$46,400 20
Towing charges, gasoline, etc	5 35	20 85	26 20
Total revenue	$176,813 05	$179,904 85	$356,717 90

In the six months' period (assuming a total traffic of between 500,000 and 600,000 vehicles), the resultant decrease in revenues is estimated as being between $75,000 and $95,000.

Although they have suffered a considerable loss in traffic as shown hereinbefore, the two competing ferries have continued service. When our original predications were made, it was anticipated that at least one of the ferries would cease operations within a comparatively short time after the bridges were opened. Should these facilities cease to operate for the accommodation of vehicular traffic, the bridge revenues, based on present toll rates, would be increased approximately $265,000 per annum—$120,000, Outerbridge Crossing, and $145,000, Goethals Bridge.

Since the bridges opened, the ferry at Perth Amboy has made two reductions in rates, actuated, perhaps, by the hope of regaining lost traffic. Notwithstanding these reductions, it is felt that the action taken has had no appreciable effect on bridge revenues.

As will be noted from the table showing operating revenues and operating expenses, a net of $269,903.12 was realized from operations during the period June 29, 1928, to December 31, 1928. This amount will be held in reserve to be applied against subsequent requirements for interest and amortization charges.

Construction work was not complete at the time the bridges were opened to traffic. Indeed, considerable work still remains to be done, such as placing sidewalks (or coverings) on the south side of each bridge; part of the final field painting; landscaping, etc.—which will not be undertaken until the winter months have passed. In view of this and the further fact that the accounting forecast had apportioned charges for interest on investment during 1928 and into 1929, it was decided, after due deliberation and after consultation with expert opinion outside of the organization, to charge interest to construction accounts up to December 31, 1928, and then on that date commence to make charges to the operating accounts. There are,

therefore, no charges for interest to be applied to operation during the period June 29, 1928, to December 31, 1928.

In this connection, the accounting practice which was followed, provides that the moneys received from interest on bank balances, derived from the placing of construction funds in various banks, with rates of interest averaging about three and one-half per cent,—be applied as an offset on the interest charged to construction.

The amount of $86,814.78, charged to operating expenses for the period ending December 31, 1928, cannot justly be used as a basis for predicting what the future annual amounts will be. There are many extraordinary items of expense incident to the commencement of operations on facilities of this character, and as has been previously noted herein, a considerable reduction in the personnel was made during the latter part of the year. Our observations indicate that the operating expenses for the year 1929 will not go beyond $125,000 per annum. The interest charges for the year will be $630,000.

Based on what has already transpired (particularly the fact that the winter season traffic has exceeded our estimates by thirty to fifty per cent a month), it is estimated that the revenues from tolls during the year 1929 will amount to between $750,000 and $800,000. Other income from rentals and interest receivable will be approximately $50,000.

Coming into the new year with about $270,000 net from 1928 operations; with a cushion of approximately $1,200,000 which may be made available to meet future amortization charges; with the first of these amortization charges ($300,000) not coming due until 1932; and with the outlook for earnings most favorable (the traffic doubling every six years, as indicated by ferry statistics),—there exists a sound financial condition.

In deciding upon the method of financing to be followed for these projects, the Port Authority determined upon the serial form of bond so that gradual retirements could be made. It was realized also that in the first few years of

Financial Status as of December 31, 1928

Estimated Cost of Construction—Arthur Kill Bridges			$18,000,000 00
Financing Program			
Bonds sold		$14,000,000 00	
Advances pledged in aid of construction			
State of New York	$2,000,000 00		
State of New Jersey	2,000,000 00	4,000,000 00	
		$18,000,000 00	
Resources from which Expenditures have been made			
Port Authority Bonds		14,000,000 00	
Advances—State of New York	$1,600,000 00		
Advances—State of New Jersey	1,600,000 00	3,200,000 00	
Income from Interest on bank balances, rents and other sources		696,241 43	17,896,241 43
Expenditures to December 31, 1928			
Engineering		$863,697 83	
Investment in land		1,226,153 72	
Construction		12,672,038 46	
Administration and general expenses		233,675 99	
Interest on bonds paid during construction		1,785,000 00	
Bond discount charged to construction		78,124 88	
Unamortized discount on funded debt		315,558 06	
Accounts receivable		1,473 36	
Unadjusted debits		7,063 17	
		$17,182,785 47	
Less Amounts included above yet to be paid			
Audited vouchers payable	$59,570 57		
Accrued interest on debt	210,000 00		
Unadjusted credits	1,765 12	271,335 69	16,911,449 78
Securities owned			435,555 00
Cash on hand as of December 31, 1928 (from construction)			549,236 65
			$17,896,241 43
Assets Available December 31, 1928			
Cash on hand from construction		$549,236 65	
Securities owned		436,000 00	
Due from states		800,000 00	$1,785,236 65
Less liabilities for contract work (est.)		300,000 00	
For bond interest to December 31, 1928		210,000 00	510,000 00
Balance			$1,275,236 65
Income from operation of Arthur Kill Bridges—June 29 to Dec. 31, 1928			
Revenue from tolls		$356,717 90	
Miscellaneous Income		2,773 63	
		$359,491 53	
Operating Expenses		86,814 78	
Net Revenue (Cash on hand from Operation)			272,676 75
Cash on hand, securities owned and money due from States			$1,547,913 40

operation, certain conditions might prevail which would retard the realization of potential traffic, and for that reason, the first serial retirement was deliberately deferred until 1932. Thereafter, these retirements were graduated to occur as the revenues increase and as indicated below:

	Maturities		
1932	$300,000	1940	$1,000,000
1933	400,000	1941	1,100,000
1934	500,000	1942	1,200,000
1935	600,000	1943	1,300,000
1936	700,000	1944	1,300,000
1937	800,000	1945	1,400,000
1938	900,000	1946	1,500,000
1939	1,000,000		

It will be seen that the aggregate retirements up to and including 1934 (six years after commencement of operation), amount to $1,200,000, which is approximately the amount which will be carried to the sinking fund in 1929. It is our confident belief that ere this six-year period will have elapsed, the earnings will be on a basis which will be more than ample to meet interest and amortization charges as they fall due.

After but a few short months of actual bridge operation, there began to appear criticisms of these operations from a financial viewpoint. It was believed that behind the criticism was a purpose to injure the credit of the Port Authority and thus impair its efficacy in going ahead with its work. The deliberate misrepresentations and actual distortion of facts confirmed the Commissioners in their belief that the motives behind the criticisms were sinister and were against the public interest. Reflection upon one factor alone—i. e., the bridges have been in use but a short time—is sufficient to raise doubts as to the sincerity of the motives actuating these criticisms.

These bridges were built pursuant to legislative mandate of the two States. The Port Authority believes that they provide a vital factor in the development of the Port District; that they have been ably financed, were constructed in an efficient and practical manner, are being economically operated, and will prove highly successful.

SECTION II—INTERSTATE VEHICULAR CROSSINGS

Part 3—Additional Crossings

For the past five years, the Port Authority has been consulted by the Governors and Leaders of the Legislatures of the two States, and various civic and trade bodies with regard to the building of additional tunnels between New York and New Jersey. Throughout, the Port Authority has advised that there is need for additional improved interstate transportation facilities. Such adequate facilities embrace better all-rail communications and additional interstate bridges and tunnels to handle the fast-growing vehicular traffic. Within the District there are now three interstate vehicular connections—the two Arthur Kill Bridges, completed and opened to traffic last June, and the Holland Tunnel opened to traffic in November, 1927. The Kill van Kull Bridge and the Hudson River Bridge will be ready for operation within about three years. The problem of better interstate communication, regardless of whether it is to be solved in part by improved all-rail facilities and in part by vehicular connections, is *one* problem, and these facilities should not be considered and dealt with separately or as individual projects, but as one general comprehensive plan.

A vehicular crossing is not merely a crossing for passenger vehicles but is also a crossing via which freight can be transported by motor from one part of the Port District to another. It furnishes the most modern means by which freight may be trucked from one side of the river to the other.

In past years many bills have been introduced at both Albany and Trenton, providing for additional vehicular tunnels between New York and New Jersey, to be built

at some location more or less definitely fixed. During the past two years, the advice of the Port Authority has been sought in aid of such projects. It has advised that no fixed location should be specified by legislation, but that such crossings should be built as rapidly as they can be financially supported.

The Port Authority has further said that, provided they are properly planned and located, these crossings could be built by the utilization of its credit; and, furthermore, that it could support them by borrowing on its own bonds, without support from either State through bond issues or appropriations. The need for a "cushion" for tunnel enterprises, such as was required in the case of the bridges, no longer exists. With this in view, bills were introduced in the Legislatures of both States last year, authorizing and empowering the Port Authority to locate and build additional vehicular crossings. Similar legislation was introduced in New York early in the current year.

The Port Authority is apprehensive that unless a comprehensive viewpoint is taken in legislative treatment of the matter, the providing of future interstate crossings, without further burdening the taxpayers of the States, will be jeopardized. Competition in toll charges between interstate crossings built by different agencies will ensue and the users will not get the benefit of low tolls. It is desirable, for example, that after the Kill van Kull Bridge is completed, motorists bound for New Jersey shore resorts or commuters to and from Staten Island shall have the opportunity of purchasing through tickets that will furnish them with passage through the Holland Tunnel, over the Kill van Kull Bridge or over the Arthur Kill Bridges. Such opportunities for through tickets would increase the revenues from all of these facilities, but under an arrangement of divided jurisdiction, each one of these facilities must levy a separate toll charge against the motorist.

The problem is further complicated by the fact that commuter traffic between the two States and between

various parts of the Port District is interrelated with the problem of additional vehicular crossings. Like the motor truck, the motor bus is one of the modern means for passenger transportation. One of the most-needed things for making Staten Island a part of the City of New York is a motor bus service direct from New York to Staten Island. This is entirely practicable by the utilization of the Holland Tunnel and the Kill van Kull Bridge (when it is completed).

In projecting future interstate crossings, whether for vehicular or for rail transportation, serious consideration should be given to their ultimate interrelation—in other words, these future crossings should be made to coincide with that part of the general plan which has already been completed or is under way.

For economical operation, and as a valuable aid in the issuance of securities to finance construction, a plan should be adopted whereby the tolls charged for the use of these facilities, whether bridges or tunnels, should revolve through a general fund which would be devoted strictly to the payment of operating costs and to the gradual reduction of the debt incurred in construction, with a view to making these facilities free from tolls within the least possible time.

It is perfectly obvious that under such a comprehensive treatment, a general level of tolls could be placed on a much lower basis than would be possible under divided responsibility. Should the tolls of one specific project, under a plan which allowed divided responsibility, be set below a certain point, it is conceivable that the unfair competition which might develop would vitally affect the financial success of another project. With all tolls working through a general fund, the excess returns from the more profitable enterprises could be used in assisting those enterprises which might be less profitable, and in this manner preserve the success of the whole plan.

We are confident that the Governors of the two States and the Legislative leaders will avert such complications.

SECTION III—SUBURBAN TRANSIT

In its report for the calendar year ended December 31, 1927, the Port Authority advised of the problem of providing adequate passenger transportation for commuters from and within the suburban district centering about the City of New York, and stated it had become one of the most acute traffic and transportation problems with which the Port of New York District had to deal.

In accordance with directions received from the State of New Jersey (Chapter 277, Laws of 1927), to study and make report and recommendations of such amendments to the existing comprehensive plan for development of the transportation facilities of the Port District and/or such additional or supplementary legislation as may be necessary to effectuate a comprehensive interstate and suburban passenger transportation system for the Port of New York District,—the Port Authority has been doing all possible in working out a solution of this problem.

As has been reported, the Port Authority has brought about effectuation of the organization known as the Suburban Transit Engineering Board, with the following representation:

North Jersey Transit Commission
Board of Supervisors, Westchester County
Boards of Supervisors, Nassau and Suffolk counties
Board of Transportation, New York City
Association of Railroad Executives (embracing all railroads of the Port District)
The Port of New York Authority

The agencies constituting this Board have appointed thereto as their representatives, engineering, traffic and transportation experts, than whom none could be secured more ably fitted to deal with the various complexities of the problem.

The records indicate that during 1927 there were 390,566,000 passengers, known as "commuters," transported by the railroads to and from various destinations within

the Metropolitan District. This number is 13,380,000 in excess of the number transported the previous fiscal year. About one-half of this increase, or 6,860,000 passengers, were handled to and from Long Island; 3,600,000 to and from Westchester, and 2,920,000 to and from New Jersey.

These figures show that the growth of suburban passenger traffic for the year averaged 40,000 passengers per day. Over half of this increase occurred in suburban traffic to and from Long Island.

RAILROAD COMMUTER TRAVEL — METROPOLITAN DISTRICT

Sector	1927 Increase Over 1926			
	Passengers, 1926	Passengers, 1927	Passengers, increase 1927 over 1926	Per cent of total increase
New Jersey	217,777,000	220,697,000	2,920,000	21.8
Westchester	54,615,000	58,215,000	3,600,000	26.9
Long Island	104,794,000	111,654,000	6,860,000	51.3
Entire district — total	377,186,000	390,566,000	13,380,000	100.0

In its last annual report, the Port Authority advised that creation of the Suburban Transit Engineering Board had resulted in wholehearted cooperation between the various public agencies of the Port District and the railroads concerned with the problem, and recommended that the cooperative efforts of these associated interests being devoted to a solution of this difficult problem, be fostered and encouraged, and further suggested as a helpful measure to this end, the passage of legislation by the State of New York concurring with New Jersey in its directions to the Port Authority, as contained in Chapter 277, Laws of 1927.

An appropriate bill to this end was passed by the New York Legislature at the 1928 session but met with the Governor's veto. The failure of this legislation resulted in no funds being made available to the Port Authority for specific purposes of suburban rapid transit.

However, upon mature consideration, the Commissioners of the Port Authority resolved to continue the Suburban Transit Engineering Board and its support thereof to the extent funds available might permit. The reasons there-

for are contained in the following resolution adopted at meeting of the Commissioners, June 11, 1928.

"Whereas, The Port of New York Authority did on the 24th day of June, 1927, enter into an agreement with the North Jersey Transit Commission to cooperate in a study of the engineering, economic and legal phases of the interstate passenger commuter problem; and

"Whereas, Such agreement was entered into after the passage of Chapter 277 of the Laws of 1927 of New Jersey, wherein and whereby The Port of New York Authority was authorized and directed to make such plans for the development of said district, supplementary to or amendatory of the Comprehensive Plan heretofore adopted by the Legislatures of the two states and approved by Congress, as will provide adequate interstate and suburban transportation facilities for passengers traveling to and from one state to the other in the said district, and from one part of the said district to another, to the end that travel between the various parts of the Port District may be made more convenient, practicable and economical for those residing in one region in the Port District and doing business in another region thereof; and

"Whereas, The Port Compact or Treaty under which the Port Authority is created defines transportation facilities as 'every kind of transportation facility now in use or hereafter designed for use for the transportation or *carriage of persons* or property' and such Compact recites that the coordination of such transportation facilities in and about and through the Port of New York 'can best be accomplished through the cooperation of the two states by and through a joint or common agency' and under Article I thereof, the states pledged 'each to the other, faithful cooperation in the future planning and development of the Port of New York,' and by Article III, the Port Authority was created as the agency of the two states for the purpose of carrying out such Compact; and

"Whereas, Since the adoption in 1922 of the statutory Comprehensive Plan by the two states, dealing with the transportation of freight, the States of New York and New Jersey have, by various acts, added to the said Plan the building and operation by the Port Authority of four bridges over which passengers are to be carried by vehicles and/or rail; and

"Whereas, The Commissioners of the Port Authority have found in their studies that no adequate or effective interstate transportation development can take place without taking full account of transportation of passengers as well as of freight throughout the Port District; and

"Whereas, At many points in the statutory Comprehensive Plan, problems arise as to which rail or bridge facilities shall be used primarily for freight or primarily for passenger service, and which for both; and

"Whereas, Upon the request of the Westchester County Board of Supervisors and the Nassau County Supervisors, as well as the petition of many civic and commercial bodies within the Port District, as well as in compliance with said Chapter 277 of the Laws of 1927 of New Jersey, The Port of New York Authority, did, on the 30th day of June, 1927, approve of and join in the setting up of the Suburban Transit Engineering Board, made up of Daniel L. Turner, Consulting Engineer, North Jersey Transit Commission; Billings Wilson, Deputy Manager, Port Authority; Robert Ridgway, Chief Engineer, Board of Transportation, City of New York; Charles MacDonald, County Engineer, Westchester County; R. C. Falconer, Engineering Assistant-Vice-President, Erie Railroad (representing Erie, Lehigh Valley and Delaware, Lackawanna & Western); R. K. Rochester, Assistant General Manager, Pennsylvania Railroad (representing Central Railroad of New

Jersey, Baltimore & Ohio, Long Island and Pennsylvania); and R. E. Dougherty, Engineering Assistant to the President, New York Central Railroad (representing New York Central, New Haven, New York, Westchester & Boston, and New York Ontario & Western), and

"Whereas, Said Board has not yet completed its work; and

"Whereas, In the opinion of the Commissioners of the Port Authority, it would not be in the public interest nor facilitate the work of the Port Authority to suspend the operation of said Suburban Transit Engineering Board at this time, or for the Port Authority to withdraw therefrom; and

"Whereas, The Board has learned, through the public statement lately made of Robert Ridgway, Chief Engineer of the Board of Transportation, that the principal concern of the said Board in dealing with suburban transit plans is, as stated by said Ridgway, that:—

> The City cannot consent to any interference with its management and control of the local transportation problem.
>
> The City will not permit interstate suburban trains to operate through the subways it has built and will build for its own people.
>
> The City may not contribute from its own funds to the cost of building subways within its borders for commuter traffic. Therefore, other means of financing them must be found, and

"Whereas, The said Board of Transportation, through its engineer, has recently again expressed its readiness to cooperate with other public agencies in finding the right solution of the interstate or suburban passenger problem; and

"Whereas, The Port of New York Authority sees no difficulty arising out of the conditions aforesaid, suggested by the Board of Transportation, if the work of said Suburban Transit Engineering Board is continued; and

"Whereas, The Commissioners of the Port Authority have not now and never have had in mind the taking over by the Port Authority of the whole or any part of the City's subway or transportation facilities, nor the assumption of any of the City's own transit problems; and

"Whereas, The Commissioners of the Port Authority are of the opinion that it is not only the duty but the right of all existing municipal agencies, including the City of New York, to meet and handle their own municipal transit problems; and

"Whereas, The Commissioners of the Port Authority are satisfied from the reports of their staff that continuance of the work of the Suburban Transit Engineering Board and the participation therein by members of the staff of The Port of New York Authority will not at this time divert any of their efforts away from the effectuation of the statutory Comprehensive Plan nor from their duties in the field of protecting the Port nor from any other pending work of the Port Authority, but, on the contrary, the continuance of such Suburban Transit Engineering Board's work will facilitate the other work of the Port Authority; and

"Whereas, It appears that it is entirely practicable to meet the views expressed by the Governor of New York in his message accompanying the veto of the Mastick Bill (Senate Int. No. 672, Pr. No. 1849) and the Port Authority perform its duties called for by the statutes dealing with the effectuation of the Comprehensive Plan as well as continue its present relationship with the suburban transit problem;

"Now, therefore, be it resolved: That it is the opinion of the Commissioners that the said Suburban Transit Engineering Board be continued and the Chief Executive Officer of the Port Authority be and he is hereby authorized to assign such members of the staff of the Port Authority as are necessary to participate in said Board, to the end that the Port Authority may have at hand all the available engineering information and plans dealing with the transportation of passengers

in the Port District, may so coordinate said plans that they may fit in with the statutory Comprehensive Plan for the handling of freight; and to the end, further, that under the provisions of Article XI of the Port Compact, the Port Authority may from time to time submit to the Legislatures of the two states amendments to the said Comprehensive Plan or supplements thereto, dealing with all phases of the transportation problem in the Port, as defined in said Compact."

Although the Suburban Transit Engineering Board has been continued, its progress has been handicapped and delayed because of lack of sufficient funds. However, some of the member agencies represented on the Board are assisting in financing the work by assigning members of their own staffs to the Suburban Transit Division of the Port Authority. The following table indicates the source of this support and the relation of the expenses borne by member agencies of the Board for the fiscal year 1928–29.

		Personnel	Per cent of total	Per cent of total salaries	Per cent of total expenses
The Port of New York Authority	....	8	45	44	*50
Railroad Groups:					
New York Central Railroad	1				
New York, New Haven & Hartford Railroad	1				
Long Island Railroad	1				
Delaware, Lackawanna & Western Railroad	1	7	39	39	35
Erie Railroad	1				
Pennsylvania Railroad	1				
Central Railroad of New Jersey	1				
Board of Transportation (City of New York)	....	3	16	17	15
North Jersey Transit Commission—Appropriated $1,200 for fiscal year ending June 30, 1929					
		18	100	100	100

* Includes appropriation from the North Jersey Transit Commission.

No financial support has been received from the boards of supervisors of the counties of Westchester, Nassau and Suffolk. The assistance which has been given by the member agencies is greatly appreciated and acknowledged.

During the past year, the Suburban Transit Engineering Board held thirty meetings. The several sector committees

of the Board held ten additional meetings. Many phases of the problem of planning an adequate suburban transit system were brought before the Board for consideration and study during the year.

The following is a summary of the more important matters considered:

a. Three separate studies of Manhattan unit of a plan which would provide for an independent suburban transit system, located on its own right-of-way in deep level tunnels so as to avoid possibility of interference with existing rights-of-way, and with local New York City transit facilities.

b. Whether, in order to give relief to New Jersey travelers, that part of the system serving New Jersey should offer distribution in Manhattan and should traverse Manhattan longitudinally.

c. The Long Island part of the system, to connect with the Manhattan unit, so as to offer distribution and traverse Manhattan longitudinally.

d. Possible use of existing rights-of-way of the railroad carriers for suburban rapid transit.

e. Whether steam railroads should continue to detrain their suburban passengers at the present terminals or at outlying transfer points to the suburban system.

f. Whether suburban trains of the trunk line railroads originating in the suburban territory should be routed through existing facilities to other parts of the Metropolitan District.

g. The question of type of equipment which should operate through the system.

h. Should the distributing facilities be operated by a single operator with its own crews and equipment, or should each railroad operate its own crews and equipment over the distributing facilities.

i. The question of adoption of uniform power characteristics for suburban trains serving the Metropolitan District.

j. The question of routings on Manhattan; whether they should be axial along the Island or cross, connecting with the New Jersey part of the system on the one side and the Long Island on the other.

These questions and many others of like character are most complex in that they involve not only economic matters of first importance but a reconciliation of divergent views and conflicting interests.

The engineering staff provided by the several member agencies of the Board has proceeded with statistical and analytical studies of the passenger traffic involved, and with numerous physical studies relating to every part of the plan, under direction of either the Chairman of the Board or the chairmen of the several sector committees.

The helpful spirit of cooperation which has prevailed among the member agencies composing the Board, and other agencies concerned with the problem, is appreciated and should be encouraged. It is felt that only by coopera-

tion of all concerned will concrete results be found possible. No one agency working alone can solve the problem.

Legislation by the State of New York, concurring with New Jersey in its directions to the Port Authority to prepare and submit a physical, legal and financial plan,—and the appropriation of moneys by both States specifically for this work,—is recommended in order that the work may be progressed and the efforts, skill and money that have been expended may not be lost.

SECTION IV — GENERAL

Part 1—Financial

The Port of New York Authority is required to finance the construction of improvements which it undertakes, without increasing the burden of the taxpayer.

The funds necessary to create the facilities which are on its program must be raised on its own credit. It is not limited as to the amounts of the securities it issues as are municipalities and other political subdivisions of the two States, but must meet debt charges, administration and maintenance out of the earnings of its facilities. In other words, it must be governed in the issuance of its bonds by the law of economic practicability.

The Compact between the two States expressly withholds from the Port Authority power to levy taxes or assess for benefits. It also forbids the Port Authority to pledge the credit of the States which created it.

The Port Authority has issued to date securities to the amount of $46,000,000 as follows:

	Amount of issue	Date of sale	Sale bases	Placed on market at
Series "A".....	$14,000,000	3/4/1926	97.25	100 (yielding 4.50%)
Series "B".....	20,000,000	12/9/1926	95.6377	97.40(yielding 4.20%)
Series "C".....	12,000,000	1/5/1928	99.777	101 (yielding 3.92%)

These bonds are a general and direct obligation of the Port Authority and are secured by revenues remaining after meeting expenses of operation and maintenance. The table shown herein gives a full description of the bonds.

BONDS AUTHORIZED AND ISSUED

By the Port of New York Authority as of December 31, 1928

Designation	Series	Date of issue	Amount authorized	Amount issued	Rate	Interest		Maturities		Special provisions
						Date payable	Payable at	Date	Amount	
New York–New Jersey Interstate Bridge Construction of bridges across the Arthur Kill between Perth Amboy, N. J. and Tottenville, Staten Island, N. Y.; Elizabeth, N. J. and Howland Hook, Staten Island, N. Y.	"A"	3/1/1926	$14,000,000	$14,000,000	4½%	March 1 and Sept. 1	National City Bank of New York	March 1 1932	$300,000	Legal for investment of funds of the States of New York and New Jersey and their municipal subdivisions; also insurance companies and associations, savings banks, executors, administrators, guardians, trustees and all other fiduciaries of the two States
								1933	400,000	
								1934	500,000	
								1935	600,000	
								1936	700,000	
								1937	800,000	
								1938	900,000	
								1939	1,000,000	
								1940	1,000,000	
								1941	1,100,000	Free from New York and New Jersey taxes. Exempt from Federal Income Tax.
								1942	1,200,000	
								1943	1,300,000	
								1944	1,300,000	Callable on any interest payment date on or after March 1, 1936, at 105 and accrued interest.
								1945	1,400,000	
								1946	1,500,000	
New York–New Jersey Interstate Bridge Construction of a bridge over the Hudson River between Fort Lee, N. J. and 178th Street, Manhattan, New York City.	"B"	12/1/1926	60,000,000	20,000,000	4%	June 1 and Dec. 1	National City Bank of New York	Dec. 1 1936	1,000,000	Legal for investment of funds of the States of New York and New Jersey and their municipal subdivisions, also insurance companies and associations, savings banks, executors, administrators, guardians, trustees and all other fiduciaries of the two States.
								1937	1,000,000	
								1938	1,000,000	
								1939	1,000,000	
								1940	1,000,000	
								1941	1,000,000	
								1942	1,000,000	
								1943	1,500,000	
								1944	1,500,000	
								1945	1,500,000	Free from New York and New Jersey taxes. Exempt from Federal Income Tax.
								1946	1,500,000	
								1947	1,500,000	
								1948	1,500,000	Callable on any interest payment date on or after December 1, 1936, at par and accrued interest.
								1949	2,000,000	
								1950	2,000,000	

New York–New Jersey Interstate Bridge Construction of a bridge over the Kill van Kull connecting Bayonne, N. J., and Port Richmond, Staten Island, N. Y.	"C"	1/3/1928	12,000,000	12,000,000	4%	Jan. 3 and July 3	Guaranty Trust Company	Jan. 3 1938 1939 1940 1941 1942 1943 1944 1945 1946 1947 1948 1949 1950 1951 1952 1953	300,000 400,000 400,000 400,000 500,000 600,000 700,000 800,000 900,000 1,000,000 1,000,000 1,000,000 1,000,000 1,000,000 1,000,000 1,000,000	Legal for all state and municipal officers and bodies, all banks, bankers, trust companies, savings banks, savings and loan associations, investment companies, insurance associations, administrators, executors, guardians, trustees and other fiduciaries, and may properly and legally be deposited with and received by any state or municipal officers or agencies for any purpose for which bonds or other obligations of the two States may be deposited. Free from New York and New Jersey taxes. Exempt from Federal Income Tax. Callable on any interest payment date on or after January 3, 1938, at 103 and accrued interest.

In directing the Port Authority to construct the four bridges now on its program, the States of New York and New Jersey provided the money for study purposes. They also agreed to advance certain sums of money in aid of construction. The amounts so authorized are as follows:

FACILITY	Estimated cost	Authorized advances, both states	AMOUNTS ADVANCED TO DECEMBER 31, 1928	
			New York	New Jersey
Arthur Kill Bridges.....	$18,000,000	$4,000,000	$1,600,000	$1,600,000
Hudson River Bridge.....	60,000,000	10,000,000	1,000,000	1,500,000
Kill van Kull Bridge.....	16,000,000	4,000,000	.....	400,000

The advances in each instance are payable in five equal annual installments.

Both study funds and advances in aid of construction constitute a debt which must be repaid with interest at four per cent to the two States, out of the earnings of the bridges from tolls or otherwise. The bonds, however, have the first lien on the bridge revenues and the claim of the States is secondary.

It is reasonable to assume that there has been a growing confidence in the Port Authority's method of financing, and its securities are rated as first-class investments.

There still remains to be sold $40,000,000 of Series "B" bonds, and of this sum it is expected that $30,000,000 will be sold sometime in the near future.

SECTION IV — GENERAL

Part 2—Real Estate Operations

Progress in the acquisition of real estate necessary in connection with bridge work continues satisfactorily both from the point of view of number of parcels obtained and prices paid. The policy is followed of having appraisals made by various committees composed of realty experts whose reputation for reliability and integrity are unquestioned. They are representative citizens of the communities involved and are thoroughly familiar with real estate values. Only three condemnation proceedings were carried out during the year, and one of these was a friendly proceeding to clear a title.

Since the beginning of work on the bridges, a total of four hundred seventy-four parcels of real estate, making up three hundred titles, have been acquired for a total purchase price of $10,392,867.13 Practically all dealings have been made through direct negotiation with owners. The purchases have been at prices considered as representing reasonable market worth and within appraisals, with no yielding to gouging or speculating figures. To date it has been necessary to complete only six condemnation proceedings;—two of these proceedings involving one owner and two being friendly, to clear titles. We believe that these facts form a unique record for large-scale real estate trans actions by a public body. Efforts were made to carry on negotiations in such a manner as would result in retaining the goodwill of the communities.

Hudson River Bridge

The New York Plaza and Approach for the Hudson River Bridge fall within an area that has been highly developed by apartment house construction. The original plans embraced property within the area bounded by 178th and 179th Streets, Fort Washington Avenue, and Riverside Drive, and in addition certain park property lying between

Riverside Drive and the Hudson River. This property, exclusive of park property, aggregating 4.7 acres, comprises twenty-four parcels, three of which are vacant land, one is improved by a one-story church building, and the remaining twenty are improved by apartment houses of various sizes. The original plan was subsequently modified to include a parcel of unimproved property, 1.86 acres in area, lying between Haven Avenue and Riverside Drive south of the line of the bridge. The total area, exclusive of park property, was therefore, 6.56 acres. At the beginning of the year, there had been acquired three parcels of unimproved property and nine improved by apartment houses. In area, this represented about sixty-four per cent of the total.

In January, 1928, the area to be acquired was extended to include the block bounded by 178th and 179th Streets, Fort Washington Avenue and Broadway. This area, embracing 1.62 acres, is all improved; one church and eight apartment houses being erected thereon. According to present plans, therefore, the total area to be acquired exclusive of park property is 8.18 acres consisting of thirty-four parcels. During the year, fourteen parcels of improved property were acquired;—thirteen apartment houses and one church.

The following statement shows the status at the end of the year:

KIND OF PROPERTY	Number of Parcels Acquired	Number of Parcels yet to be Acquired	Total
Unimproved	3	1	4
Churches	1	1	2
Apartment Houses	23	5	28
Total	27	7	34

The twenty-three apartment houses, containing 790 apartments (3,302 rooms, exclusive of janitors' quarters), and twenty-four stores, were continued in operation under the direct management of the Real Estate Department. Eighty-seven per cent of the apartments were occupied at the end of the year. The church property is still occupied by the congregation from which it was purchased. Gross rentals collected to December 31st amounted to approximately

$575,500. The net return from these operations has been more than sufficient to take care of carrying charges on the property and thus has contributed a substantial amount toward reduction of charges for interest during the period the bridge is under construction.

In area, eighty-four per cent of property on the New York side had been acquired at the end of the year. Thus far it has not been necessary to resort to condemnation to acquire any property on the New York side. The total purchase price of property acquired to the end of the year was $6,284,407.46, and was well within the estimates.

Plans for the acquisition of property in Fort Lee were to some extent based on the hope that the speculative rise in prices of property in and around the proposed bridge plaza which was a feature of real estate transactions in 1927 would abate during 1928, at least insofar as they affected the property which must be acquired for the plaza and approach of the bridge. This position has been largely justified, and as a result, good progress in the purchase of property in Fort Lee has been made during the year. Several properties have been purchased at reasonable prices for which at earlier stages in negotiations excessive figures were demanded. During the year, thirty-four parcels, involving twenty-three titles, have been purchased for an average price of less than sixty per cent of prices originally asked. The total of property acquired to date, comprising eighty-eight lots or parts of lots, represents ninety-two per cent of the total area required. The total purchase price of property acquired to the end of the year was $874,357.33. There remain to be acquired sixteen titles, seven of which are fractional lots on which there are no improvements. The property acquired has been purchased at approximately eighty per cent of the cost allowed by estimates.

Of the three condemnation actions which it has been necessary to begin for the acquisition of Fort Lee property within the past year, one was a friendly suit to clear a title and the other two resulted in awards which were considered favorable to the Port Authority.

The improved property acquired in Fort Lee has been of a residential character, and practically all of it has been kept rented on a satisfactory basis.

Kill van Kull Bridge

According to present plans 16.79 acres of Bayonne property are required for the Kill van Kull Bridge. This property comprises one hundred thirty-four parcels, six of which are parts of industrial plants, two are unimproved waterfront properties, and the remainder residential. Ninety-two titles are involved. All residential property has been acquired. One parcel of unimproved waterfront property has been acquired from the City of Bayonne, and agreement has been reached with one of the industries affected. Negotiations are in progress with representatives of the other industries. In general, the taking of a portion of the property of the several industries involves the relocation on remaining property of manufacturing buildings. In this work, the Real Estate Department has had the assistance of industrial experts. In area, ninety-two per cent of the property needed had been acquired at the end of the year, and all of this was through negotiation.

A somewhat greater area of property is affected on the Port Richmond side, and, according to present plans, 25.44 acres are required. This property comprises seventy-two parcels, including three of waterfront industrial property. Altogether, fifty-six titles are involved. Fourteen parcels remained to be acquired at the end of the year. In two cases, incompetency proceedings were involved which tended to delay the actual closing of title, although agreements as to price had been reached readily. At the end of the year, ninety-three per cent of the total area needed had been acquired, and all this was through negotiation.

The Port of New York Authority will continue to rent property on both the Bayonne and Port Richmond sides until such time as it is actually needed for construction purposes. The collection of rents is handled by the Real Estate Department through local rental agents. The revenues from this source approximate $4,500 per month.

SUMMARY OF REAL ESTATE PURCHASES FOR BRIDGES

DECEMBER 31, 1928

BRIDGE	Location	No. of parcels	Appraisals	Actual cost	Comparison of Actual Cost with Appraisal	
					Over	Under
Hudson River Bridge	New York City	27	$6,270,000 00	$6,284,407 46	$14,407 46	
	Fort Lee	88	886,155 00	874,357 33		$11,797 67
Kill van Kull Bridge	Port Richmond	72	737,952 65	771,125 65	33,173 00	
	Bayonne	134	1,348,975 00	1,318,350 00		30,625 00
Goethals Bridge	Howland Hook	8	68,295 00	69,578 71	1,283 71	
	Elizabeth	55	460,730 00	445,950 00		14,780 00
Outerbridge Crossing	Tottenville	1	80,000 00	80,000 00		
	Perth Amboy	89	565,976 00	549,098 00		16,878 00
Totals		474	$10,418,083 65	$10,392,867 15		$25,216 50
Amounts not yet paid out included in above				452,204 93		
Total				$9,940,662 22		

The total purchase price of property acquired for the Kill van Kull Bridge, to the end of the year was $2,089,475.65.

Necessity for removing from the bridge right-of-way certain manufacturing buildings, which it was originally felt would not be disturbed, and the decision to increase the original areas on the Port Richmond side, has had the effect of increasing somewhat the estimated cost of real estate, but it is believed that the amount reserved for this purpose will be ample.

Arthur Kill Bridges

All of the property has been acquired for the two Arthur Kill Bridges. In one or two instances titles to properties have not passed, pending the removal of minor legal objections.

Laboratory Site

During the course of the year, there was acquired in Jersey City, a site for the proposed laboratory building. After the investigation of between seventy and eighty properties in Jersey City and Hoboken, a parcel 100 feet x 150 feet was purchased on the southwest corner of West Side Avenue and Fox Place in Jersey City.

SECTION IV — GENERAL

Part 3 — Accounting Reports

EXPENDITURES FOR EFFECTUATION OF COMPREHENSIVE PLAN
YEAR ENDED DECEMBER 31, 1928

Projects	Amount
Belt Line No. 1—General	$4,034 29
Belt Line No. 1—Hell Gate Bridge Route	372 00
Belt Line No. 13—General	749 96
Belt Line No. 13—Hoboken Manufacturers Railroad	
Brooklyn-New Jersey Ferry Service	28 43
Channels, Bridges, Anchorages	2,572 00
Consolidated Lighterage, Carfloatage Operations	1,238 71
Food Receiving Terminals and Food Distribution	8,698 93
Food Distribution—Marketing Research Council	4,934 29
General Development Port District	47,619 24
Interstate Commerce Commission and State Commission Cases	49,560 00
Inland Terminals and Movement of Freight by Motor Truck	19,261 22
New York Central Railroad—West Side Improvement	454 30
Suburban Transit	40,892 08
Terminal Operations General	8,922 91
Traffic Rates and Regulations	7,613 34
Total	$196,951 70

General Balance Sheet as at December 31, 1928

ASSETS

BRIDGE CONSTRUCTION IN PROGRESS:			
The Goethals bridge — Elizabeth to Howland Hook		$6,938,818 98	
The Outerbridge Crossing — Tottenville to Perth Amboy		9,424,666 86	
Hudson River bridge		18,931,652 28	
Bayonne–Port Richmond bridge		2,778,234 63	
			$38,073,372 75
INVESTMENTS:			
United States Treasury 4½% certificates of indebtedness due June 15, 1929, par value $500,000.00		499,218 75	
Series "A" interstate bridge bonds, par value $36,000.00		36,180 00	
Capital stock of subsidiary company		500 00	
			535,898 75
CURRENT ASSETS:			
Cash in banks	$15,872,820 35		
Cash on hand	4,799 90		
Total cash		15,877,620 25	
Bills receivable		27,117 21	
Accrued interest receivable		1,571 37	
Payroll revolving fund — reimbursements in transit		17,208 49	
Advances for options, closings, tests, etc		9,990 18	
Unexpended balance of state appropriations under the comprehensive plan, per contra:			
State of New Jersey, Laws of 1928	$50,955 61		
State of New York, Laws of 1928	76,047 06		
		127,002 67	
Total current assets			16,060,510 17
DEFERRED STATE ADVANCES, PER CONTRA:			
Amounts authorized by the States of New Jersey and New York to be advanced in annual installments to The Port of New York Authority to aid in the construction of interstate bridges:			
The Outerbridge Crossing and The Goethals Bridge		800,000 00	
Hudson River bridge		7,500,000 00	
Bayonne–Port Richmond bridge		3,600,000 00	
			11,900,000 00
DEFERRED CHARGES:			
Unamortized balance of bond discount and expense chargeable to construction and operations during the life of the bonds:			
Series "A" Bonds	$315,558 06		
Series "B" Bonds	731,150 22		
Series "C" Bonds	22,308 04		
		1,069,016 32	
Miscellaneous		5,746 58	
			1,074,762 90
CASH ON DEPOSIT WITH PAYING AGENT FOR UNREDEEMED BOND INTEREST COUPONS: PER CONTRA:			
Series "A" bonds		2,947 50	
Series "B" bonds		26,580 00	
Series "C" bonds		1,460 00	
			30,987 50
			$67,675,532 07

NOTE.— In addition to the assets and liabilities stated on the balance sheet above, there is available for bridge construction the proceeds from the future sale of $40,000,000.00 of interstate bridge bonds which have been authorized but not issued, and there is an additional liability stated by the management to be $20,730,220.02 at December 31, 1928 for contracts awarded but not completed at that date. Net revenue from operation of bridges to December 31, 1928 does not include charge for interest on bonds or amortization of bond discount, said amounts having been included as a part of the cost of construction.

General Balance Sheet as at December 31, 1928

LIABILITIES

LONG TERM INDEBTEDNESS:			
Series "A" interstate bridge bonds, issued for the construction of the Outerbridge Crossing and The Goethals bridge		$14,000,000 00	
Series "C" interstate bridge bonds, issued for the construction of the Bayonne–Port Richmond bridge		12,000,000 00	
Authorized for the construction of the Hudson River bridge	$60,000,000 00		
Less unissued	40,000,000 00		
Series "B" interstate bridge bonds issued		20,000,000 00	
			$46,000,000 00
CURRENT LIABILITIES:			
Audited vouchers payable		991,900 79	
Mortgages payable and accrued interest		1,129,714 59	
Accrued interest on bonds:			
Series "A" bonds	$210,000 00		
Series "B" bonds	66,666 70		
Series "C" bonds	240,000 00		
		516,666 70	
Total current liabilities			2,638,282 08
SUBORDINATED LONG TERM INDEBTEDNESS:			
Advances made by the States of New Jersey and New York for preliminary surveys and to aid in the construction of interstate bridges, the repayment of which is subordinated by law to the respective serial bond issues:			
The Outerbridge Crossing and The Goethals bridge		$3,399,918 20	
Hudson River bridge		2,799,921 97	
Bayonne–Port Richmond bridge		500,000 00	
			6,699,840 17
DEFERRED STATE ADVANCES, PER CONTRA:			
Amounts authorized by the States of New Jersey and New York to be advanced in annual installments to The Port of New York Authority to aid in the construction of interstate bridges:			
The Outerbridge Crossing and The Goethals bridge		$800,000 00	
Hudson River bridge		7,500,000 00	
Bayonne–Port Richmond bridge		3,600,000 00	
			11,900,000 00
UNEXPENDED BALANCE OF STATE APPROPRIATIONS UNDER THE COMPREHENSIVE PLAN, PER CONTRA:			
State of New Jersey, Laws of 1928		$50,955 61	
State of New York, Laws of 1928		76,047 06	
			127,002 67
UNREDEEMED BOND INTEREST COUPONS, PER CONTRA:			
Series "A" bonds		2,947 50	
Series "B" bonds		26,580 00	
Series "C" bonds		1,460 00	
			30,987 50
DEFERRED CREDITS:			
Interest on bank balances		80 21	
Items in suspense		6,662 69	
Net Revenue from operation of bridges		272,676 75	
			279,419 65
			$67,675,532 07

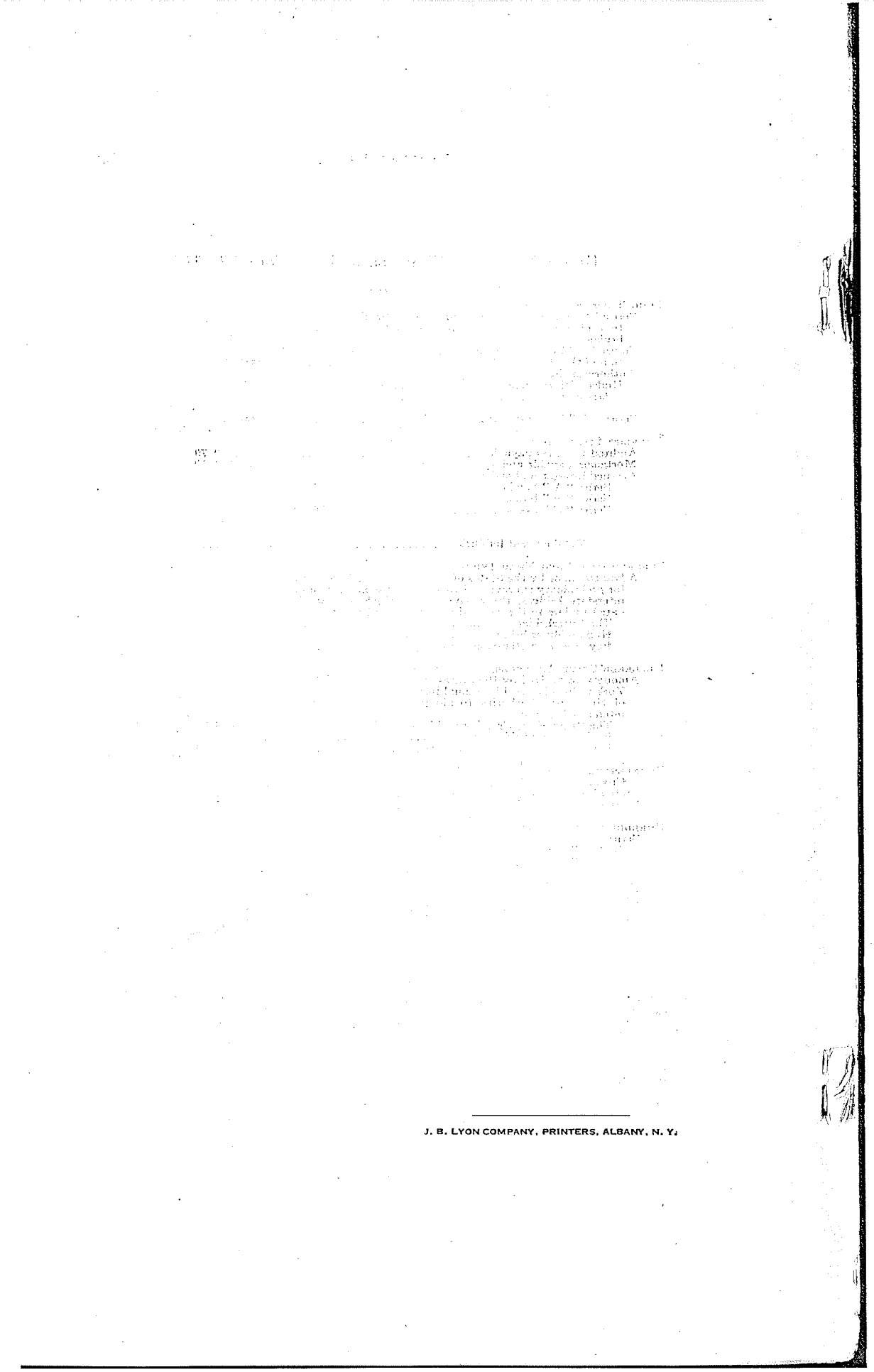
CERTIFICATE OF AUDIT

We have made an audit of the books and accounts of The Port of New York Authority for the period commenced March 1, 1926, and ended December 31, 1928, and

We hereby certify that, in our opinion, the above Balance Sheet correctly sets forth its true financial position as at December 31, 1928.

S. D. LEIDESDORF & CO.
Certified Public Accountants.

New York,
February 11, 1929.

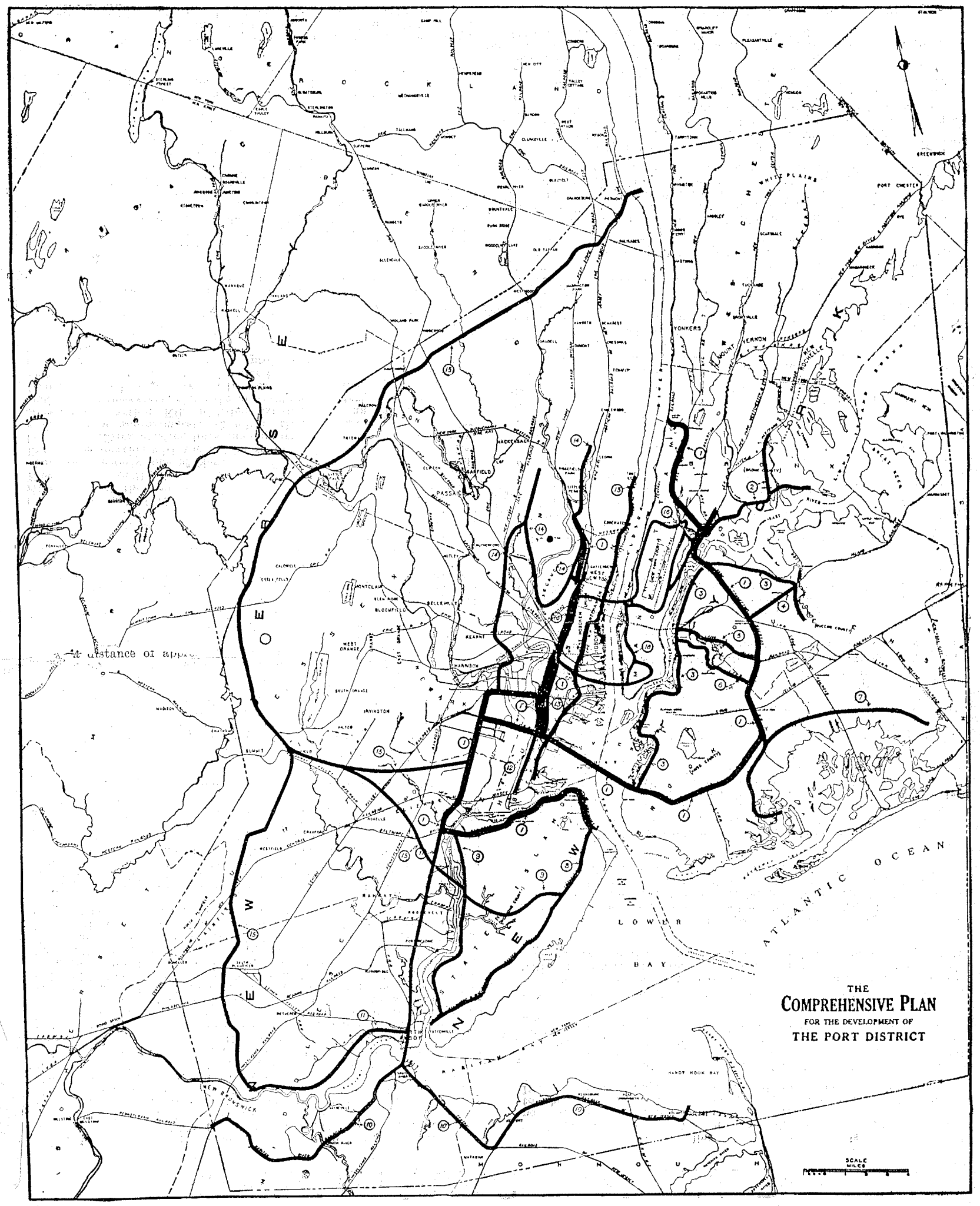


J. B. LYON COMPANY, PRINTERS, ALBANY, N. Y.

EXPENDITURES FOR CONSTRUCTION OF BRIDGES
FOR CALENDAR YEAR 1928 AND TOTAL TO DECEMBER 31, 1928

	Total		Hudson River Bridge		Bayonne–Port Richmond Bridge		Howland Hook–Elizabeth Bridge		Tottenville–Perth Amboy Bridge		Total Arthur Kill Bridges	
	Year 1928	Total to December 31, 1928	Year 1928	Total to December 31, 1928	Year 1928	Total to December 31, 1928	Year 1928	Total to December 31, 1928	Year 1928	Total to December 31, 1928	Year 1928	Total to December 31, 1928
ENGINEERING:												
General superintendence	$62,021 34	$110,128 23	$35,228 96	$59,891 86	$12,401 45	$12,401 45	$6,346 91	$16,054 51	$8,044 02	$21,780 41	$14,390 93	$37,834 92
Engineering consultants	51,857 99	106,141 79	32,596 38	69,247 57	4,315 98	4,365 98	5,978 24	13,109 20	8,967 39	19,419 04	14,945 63	32,528 24
Architectural consultants	83,425 33	121,201 08	46,454 85	68,870 17	31,201 94	31,201 94	2,307 43	8,451 60	3,461 11	12,677 37	5,768 54	21,128 97
Traffic studies	31,859 06	50,385 68	20,698 70	33,185 03	1,879 24	1,879 24	4,415 59	6,724 96	4,867 53	8,616 45	9,283 12	15,341 41
Design engineering studies	40,173 44	81,708 29	23,834 44	56,594 38	15,317 76	15,666 75	589 00	4,591 14	432 24	4,756 02	1,021 24	9,347 16
Design engineering — plans and specifications	120,960 73	186,946 98	52,116 35	103,626 96	54,414 75	54,916 25	6,944 91	13,200 20	7,484 72	15,203 57	14,429 63	28,403 77
Design and supervision — engineering consultants	12,021 47	356,405 89	.....	.....	.....	.....	4,808 59	142,562 36	7,212 88	213,343 53	12,021 47	356,405 89
Property drawings, blue prints and maps	420 98	13,256 75	48 00	5,562 42	372 23	1,194 84	30	2,157 60	45	4,341 89	75	6,499 49
Miscellaneous drawings, blue prints and maps	606 56	3,037 13	414 09	2,451 20	127 03	127 03	30 45	212 72	34 99	246 18	65 44	458 90
Construction engineering	224,799 97	427,123 41	124,111 30	170,606 98	31,869 09	31,869 09	30,830 03	95,343 62	37,989 55	129,303 72	68,819 58	224,647 34
Material inspection	141,121 46	209,237 76	111,001 15	120,247 10	6,172 68	6,172 68	10,544 24	37,229 49	13,403 39	45,588 49	23,947 63	82,817 98
Office rental and expenses	27,257 73	52,128 66	16,773 39	30,882 39	6,375 74	6,375 74	1,631 01	6,249 53	2,477 59	8,621 00	4,108 60	14,870 53
Office furniture and equipment	6,158 33	15,434 09	4,316 01	8,373 31	1,313 76	1,313 76	215 11	2,423 90	313 45	3,323 12	528 56	5,747 02
Engineering equipment	6,673 13	15,207 49	5,889 98	8,991 12	735 74	735 74	24 84*	2,609 02	72 25	2,871 61	47 41	5,480 63
Laboratory equipment	67,314 25	77,453 83	46,335 48	47,980 31	20,471 47	20,471 47	229 16	3,602 79	278 14	5,399 26	507 30	9,002 05
Automobile and marine equipment	1,213 56	4,531 67	.....	.....	1,800 00	1,800 00	286 44*	1,262 31	300 00*	1,469 36	536 44*	2,731 67
Operation of automobiles and marine equipment	5,193 83	13,274 85	431 23	622 75	2,218 48	2,218 48	771 40	4,706 88	1,772 72	5,726 74	2,544 12	10,433 62
Other engineering expenditures	84 52	106 72	68 20	81 52	6 96	6 96	3 75	7 08	5 61	11 16	9 36	18 24
Total	$883,163 68	$1,843,710 30	$520,316 51	$787,295 07	$190,994 30	$192,717 40	$75,334 84	$360,498 91	$96,518 03	$503,198 92	$171,852 87	$863,697 83
INVESTMENT IN LAND:												
Cost of land — east approach	$4,316,101 06	$6,759,812 86	$3,533,776 20	$5,839,243 99	$756,073 65	$770,948 65	$26,251 21	$89,620 22	.....	$80,000 00	$26,251 21	$149,620 22
Cost of land — west approach	1,103,597 98	3,180,849 36	356,911 98	862,443 25	483,960 00	1,309,496 46	138,750 00	446,160 01	$123,976 00	562,749 64	262,726 00	1,008,909 65
Cost of land — salaries and expenses	111,600 72	231,480 32	62,366 75	98,398 64	34,671 17	72,914 31	8,157 59	25,144 06	6,405 21	35,023 31	14,562 80	60,167 37
Taxes and assessments	78,033 24	104,386 71	51,604 48	74,901 33	22,028 90	22,028 90	806 56	2,050 97	3,593 30	5,405 51	4,399 86	7,456 48
Total	$5,609,333 00	$10,276,529 25	$4,004,659 41	$6,874,987 21	$1,296,733 72	$2,175,388 32	$173,965 36	$542,975 26	$133,974 51	$683,178 46	$307,939 87	$1,226,153 72
CONSTRUCTION:												
Test borings	$8,526 75	$51,415 13	.....	$28,427 41	$8,526 75	$8,526 75	.....	$5,722 70	.....	$8,738 27	.....	$14,460 97
Substructure	1,919,819 43	8,353,893 14	$1,813,566 16	2,522,106 62	105,719 67	105,719 67	.....	2,407,957 48	$533 60	3,318,109 37	$533 60	5,726,066 85
Steel superstructure	8,413,963 44	12,042,446 44	7,557,053 40	7,557,053 40	.....	.....	$346,869 50	1,897,011 98	510,040 54	2,588,381 06	856,910 04	4,485,393 04
Plazas	666,322 66	825,907 26	.....	.....	.....	.....	259,314 31	340,283 42	407,008 35	485,623 84	666,322 66	825,907 26
Roadways and footwalks	1,256,833 01	1,256,833 01	.....	.....	.....	.....	540,149 39	540,149 39	716,683 62	716,683 62	1,256,833 01	1,256,833 01
Conduit lines	152 08	152 08	.....	.....	.....	.....	76 04	76 04	76 04	76 04	152 08	152 08
Water lines	244 35	244 35	.....	.....	.....	.....	.....	.....	244 35	244 35	244 35	244 35
Buildings	99,939 53	99,939 53	.....	.....	.....	.....	50,876 91	50,876 91	49,062 62	49,062 62	99,939 53	99,939 53
Bridge signs	1,888 64	1,888 64	.....	.....	.....	.....	799 45	799 45	1,089 19	1,089 19	1,888 64	1,888 64
Telephone and signal system	239 00	239 00	.....	.....	.....	.....	119 00	119 00	120 00	120 00	239 00	239 00
Lighting system	204,240 95	204,240 95	.....	.....	.....	.....	95,534 02	95,534 02	108,706 93	108,706 93	204,240 95	204,240 95
Machinery, tools and equipment	12,896 37	12,896 37	.....	.....	.....	.....	6,545 76	6,545 76	6,350 61	6,350 61	12,896 37	12,896 37
Other construction expenditures	45,922 34	76,998 64	5,666 89	33,222 23	.....	.....	31,194 87	31,293 91	9,060 58	12,482 50	40,255 45	43,776 41
Total	$12,630,988 55	$22,927,094 54	$9,376,286 45	$10,140,809 66	$114,246 42	$114,246 42	$1,331,479 25	$5,376,370 06	$1,808,976 43	$7,295,668 40	$3,140,455 68	$12,672,038 46
GENERAL EXPENDITURES:												
Salaries and expenses of general officers	$49,014 81	$94,502 83	$27,304 93	$45,920 06	$10,937 06	$10,944 36	$4,736 66	$15,549 10	$6,036 16	$22,089 31	$10,772 82	$37,638 41
Salaries and expenses of clerks and attendants	65,797 13	126,602 92	36,642 45	61,621 88	12,708 73	12,708 73	7,116 80	21,925 35	9,329 15	30,346 96	16,445 95	52,272 31
Salaries and expenses of counsel, attorneys and assistants	49,360 74	95,603 26	24,946 05	42,941 66	12,100 29	12,100 29	5,586 95	17,947 88	6,727 45	22,613 43	12,314 40	40,561 31
Other law expenditures	600 74	3,578 90	209 13	798 62	126 68	126 68	258 16	1,405 54	6 77	1,248 06	264 93	2,653 60
Office rental and expenses	31,297 46	76,100 55	19,215 40	36,345 84	6,515 91	6,515 91	2,299 85	12,974 56	3,266 30	20,264 24	5,566 15	33,238 80
Office furniture and equipment	3,185 39	10,928 76	1,844 42	5,350 00	537 75	537 75	330 27	2,046 98	472 95	2,994 03	803 22	5,041 01
Stationery, printing and advertising	19,011 06	42,145 53	9,244 66	17,936 42	4,639 74	4,639 74	2,183 67	8,343 68	2,942 99	11,225 69	5,126 66	19,569 37
Insurance	18,969 48	39,522 32	3,712 61	8,234 91	1,318 34	1,318 34	5,095 77	11,557 09	8,842 76	18,411 98	13,938 53	29,969 07
Other general expenditures	22,864 05	42,311 89	6,883 71	22,226 16	7,344 37	7,353 62	3,515 77	5,216 44	5,120 20	7,515 67	8,635 97	12,732 11
Total	$260,100 86	$531,296 96	$130,003 36	$241,375 55	$56,228 87	$56,245 42	$31,123 90	$96,966 62	$42,744 73	$136,709 37	$73,868 63	$233,675 99
INTEREST AND INCOME DURING CONSTRUCTION:												
Interest payable during construction	$1,962,343 28	$3,998,657 01	$847,834 90	$1,729,148 63	$484,508 38	$484,508 38	$252,000 00	$714,000 00	$378,000 00	$1,071,000 00	$630,000 00	$1,785,000 00
Interest earned during construction	768,458 28*	1,933,207 93*	381,265 02*	928,305 75*	308,330 46*	309,572 13*	31,545 12*	278,132 02*	47,317 68*	417,198 03*	78,862 80*	695,330 05*
Premium or discount during construction	61,730 97	162,537 69	36,317 91	85,775 75	1,243 14*	1,236 00	10,662 48	30,210 38	15,993 72	45,315 56	26,656 20	75,525 94
Fees of fiscal agents	8,079 02	10,561 27	2,874 83	3,890 33	4,072 00	4,072 00	452 88	1,039 58	679 31	1,559 36	1,132 19	2,598 94
Miscellaneous rentals and expenses	286,522 04*	345,117 02*	244,345 92*	303,598 46*	41,290 45*	40,607 18*	860 72*	778 31*	24 95*	133 07*	885 67*	911 38*
Total	$977,172 95	$1,893,431 02	$261,416 70	$586,910 50	$137,716 33	$139,637 07	$230,709 52	$466,339 63	$347,330 40	$700,543 82	$578,039 92	$1,166,883 45
RECAPITULATION:												
Engineering	$883,163 68	$1,843,710 30	$520,316 51	$787,295 07	$190,994 30	$192,717 40	$75,334 84	$360,498 91	$96,518 03	$503,198 92	$171,852 87	$863,697 83
Investment in land	5,609,333 00	10,276,529 25	4,004,659 41	6,874,987 21	1,296,733 72	2,175,388 32	173,965 36	542,975 26	133,974 51	683,178 46	307,939 87	1,226,153 72
Construction	12,630,988 55	22,927,094 54	9,376,286 45	10,140,809 66	114,246 42	114,246 42	1,331,479 25	5,376,370 06	1,808,976 43	7,295,668 40	3,140,455 68	12,672,038 46
General expenditures	260,100 86	531,296 96	130,003 36	241,375 55	56,228 87	56,245 42	31,123 90	96,966 62	42,744 73	136,709 37	73,868 63	233,675 99
Interest and income during construction	977,172 95	1,893,431 02	261,416 70	586,910 50	137,716 33	139,637 07	230,709 52	466,339 63	347,330 40	700,543 82	578,039 92	1,166,883 45
Grand Total	$20,360,759 04	$37,472,062 07	$14,292,682 43	$18,631,377 99	$1,795,919 64	$2,678,234 63	$1,842,612 87	$6,843,150 48	$2,429,544 10	$9,319,298 97	$4,272,156 97	$16,162,449 45

* Denotes credit.


THE
COMPREHENSIVE PLAN
FOR THE DEVELOPMENT OF
THE PORT DISTRICT
ATLANTIC OCEAN
NEWARK BAY
RARITAN BAY
SANDY HOOK BAY
NEW BRUNSWICK
PASSAIC
YONKERS
NEWARK
JERSEY CITY
HOBOKEN
WHITE PLAINS
PORT CHESTER
GREENWICH
SCALE
MILES

Description of the Comprehensive Plan

No. 1—Middle belt line—the keystone of the arch of railroad terminal coordination within the Port District. It connects New Jersey and Staten Island and the railroads on the westerly side of the port with Brooklyn, Queens, the Bronx and the railroads on the easterly side of the port. This connection is the most direct, the shortest and the cheapest of any brought to the attention of the Commissioners for study or consideration. This line connects with the New York Central Railroad in the Bronx; with the New York, New Haven and Hartford Railroad in the Bronx; with the Long Island Railroad in Queens and Brooklyn; with the Baltimore and Ohio Railroad near Elizabethport and in Staten Island; with the Central Railroad Company of New Jersey at Elizabethport and at points in Newark and Jersey City; with the Pennsylvania Railroad in Newark and Jersey City; with the Lehigh Valley Railroad in Newark and Jersey City; with the Delaware, Lackawanna and Western Railroad in Jersey City and the Secaucus Meadows; with the Erie Railroad in Jersey City and the Secaucus Meadows; with the New York, Susquehanna and Western Railroad in West Hoboken; with the New York, Ontario and Western and the West Shore Railroads on the westerly side of the Palisades above the Weehawken tunnel.

Its length is approximately sixty-one and one-half miles, of which approximately fifty-one and one-half miles have already been built. Additional tracks to those already built will have to be added. There remains only approximately ten miles of entirely new line to be built. With the construction of the tunnel and approaches from Greenville to Bay Ridge freight can commence to flow without the necessity of building any other trackage except short connections at the tunnel ends. To handle the full traffic that should traverse this middle belt line or utilize it for local service would require the improvement of existing tracks and additions to them.

The route to the Middle belt line is as follows: Connecting at the Hudson river at Spuyten Duyvel running easterly and southerly generally along the easterly side of the Harlem river, utilizing existing lines and improving and adding where necessary, to a connection with Hell Gate Bridge and the New Haven Railroad, a distance of approximately seven miles; thence continuing in a general southerly direction, utilizing existing lines and improving and adding where necessary to a point near Bay Ridge, a distance of approximately eighteen and one-half miles; thence by a new two-track tunnel under New York bay in a westerly direction to a portal in the Greenville yard of the Pennsylvania Railroad in Jersey City, a distance of approximately five miles, to a connection with the tracks of the Pennsylvania and Lehigh Valley Railroads; thence in a generally northerly direction along the easterly side of Newark Bay and the Hackensack river at the westerly foot of the Palisades, utilizing existing tracks and improving and adding where necessary, making connections with the Jersey Central, Pennsylvania, Lehigh Valley, Delaware, Lackawanna and Western, Erie, New York, Susquehanna and Western, New York, Ontario and Western, and West Shore railroads, a distance of approximately ten miles. From the Greenville portal of the Bay tunnel and from the line along the easterly side of Newark Bay by the bridges of the Central Railroad of New Jersey (crossing the Hackensack and Passaic rivers) and of the Pennsylvania and Lehigh Valley Railroads (crossing Newark Bay) to the line of the Central Railroad of New Jersey running along the westerly side of Newark Bay and thence southerly along this line to a connection with the Baltimore and Ohio Railroad south of Elizabethport, utilizing existing lines and improving and adding where necessary, a distance of approximately 12 miles; thence in an easterly direction crossing the Arthur Kill, utilizing existing lines and improving and adding where necessary, along the northerly and easterly shores of Staten Island to the new city piers and to a connection, if the City of New York consent thereto, with the tunnel under the Narrows to Brooklyn provided for under legislation as a municipal project—a distance of approximately nine miles.

No. 2—A marginal railroad in the Bronx extending along the shore of the East river and Westchester creek connecting with the Middle belt line (No. 1), and with the New York, New Haven and Hartford Railroad in the vicinity of Westchester. This is a new line and will open up territory for commercial and industrial development. Its length is approximately eight miles.

No. 3—A marginal railroad in Queens and Brooklyn extending along Flushing creek, Flushing Bay, the East river and upper New York Bay. It connects with the Middle belt line (No. 1), by lines No. 4, No. 5, No. 6 and directly at the southerly end at Bay Ridge. It utilizes certain existing lines of the Brooklyn Eastern District, Jay Street, New York Dock and Bush Terminal companies. Existing lines will be utilized and improved and added to and new lines will be built where lines do not now exist. This railroad will open up territory for commercial and industrial development. It has a length of approximately nineteen and one-half miles, of which approximately four miles now exist and about fifteen and one-half miles will be new.

No. 4—An existing line to be improved and added to where necessary. It connects the Middle belt line (No. 1) with the marginal railroad No. 3 near its northeasterly end. It has a length of approximately two and one-half miles.

No. 5—An existing line to be improved and added to where necessary. It connects the Middle belt line (No. 1), with the marginal railroad No. 3, in Long Island City. It has a length of approximately four miles.

No. 6—A portion of this line exists and a portion is new. It connects the Middle belt line (No. 1), with the marginal railroad No. 3 in the Greenpoint section of Brooklyn. The existing portion to be improved and added to where necessary. It will open up territory for industrial development. It has a length of approximately four miles of which two miles now exist.

No. 7—A marginal railroad surrounding the northerly and westerly shores of Jamaica Bay.—This line is new and connects with the Middle belt line (No. 1). It will open up territory for commercial and industrial development. It has a length of approximately twelve and one-half miles.

No. 8—An existing line, to be improved and added to where necessary. It extends along the southeasterly shore of Staten Island. It connects with Middle belt line (No. 1), and will open up territory for commercial and industrial development. It has a length of approximately twelve miles.

No. 9—A marginal railroad extending along the westerly shore of Staten Island and a branch connection with No. 8. This line is new and will open up territory for commercial and industrial development. It connects with the Middle belt line (No. 1) and with a branch from the Outer belt line (No. 15); with its branch it is about fifteen and one-quarter miles long.

No. 10—This line is made up mostly of existing lines, to be improved and added to where necessary. It connects with the Middle belt line (No. 1) by way of marginal railroad No. 11. It extends along the southerly shore of Raritan Bay and through the territory south of the Raritan river reaching New Brunswick. It will open up territory for commercial and industrial development. It has a length of approximately twenty-nine and one-half miles, of which practically the entire length exists.

No. 11—A marginal railroad extending from a connection with the proposed Outer belt line (No. 15) near New Brunswick along the northerly shore of the Raritan river to Perth Amboy, thence northerly along the westerly side of the Arthur Kill to a connection with the Middle belt line (No. 1) south of Elizabethport. The portion of this line which exists to be improved and added to where necessary. This line will open up territory for commercial and industrial development. It has a length of approximately fifteen and one-quarter miles, of which about nine and one-half miles now exist.

No. 12—A marginal railroad extending along the easterly shore of Newark Bay and the Hackensack river and connects with the Middle belt line (No. 1). This line which does not now exist will open up territory for commercial and industrial development. It has a length of approximately seven miles.

No. 13—A marginal railroad extending along the westerly side of the Hudson river and the Upper New York Bay. It is made up mostly of existing lines—the Erie Terminals, Jersey Junction, Hoboken Shore, and National Docks railroads. It is to be improved and added to where necessary. This line, connected with Middle belt line (No. 1), and operated as a belt line will serve the waterfront and open up territory for commercial and industrial development. It has a length of approximately sixteen and one-half miles, of which about fifteen miles now exist.

No. 14—A marginal railroad connecting with the Middle belt line (No. 1), and extending through the Hackensack and Secaucus Meadows. It will open up territory for commercial and industrial development. It is a new line and has a length of approximately twenty-three miles.

No. 15—The outer belt line, extending around the westerly limits of the Port District beyond the congested section. Its northerly terminus is on the Hudson river at Piermont above the harbor congestion and it connects by marginal railroads at the southerly end with the harbor waters below the congested section. By spurs it connects with the Middle belt line (No. 1), on the westerly shore of Newark Bay and with the marginal railroad on the westerly shore of Staten Island (No. 9). It will have great value in that it will afford military protection to the Port District. It will serve as an interchange between the railroads beyond the congestion and will open up territory for industrial development. It has a length of approximately seventy-one miles which is all new construction.

No. 16—Union terminal stations located on Manhattan in zones of equal trucking distance, as to pick-ups and deliveries, will be served by this system. The overhead rights of these terminals will be utilized by the providing of space for commercial purposes. They will be served by motor trucks operating between these stations and the railroads in New Jersey.

No. 17—The Port Authority has been directed by the two States to construct four interstate bridges. Two of these, The Outerbridge Crossing, between Perth Amboy, N. J., and Tottenville, Staten Island, and The Goethals Bridge, between Elizabeth, N. J., and Howland Hook, Staten Island, were opened to highway traffic June 29, 1928, and are now being operated by the Port Authority. Their cost will approximate $16,800,000 The Hudson River Bridge, between Manhattan and Fort Lee, N. J. (estimated to cost $60,000,000); and the Kill van Kull Bridge, between Bayonne, N. J., and Port Richmond, Staten Island (estimated to cost $16,000,000), are expected to be opened to traffic in 1932.

THE PORT OF NEW YORK AUTHORITY.