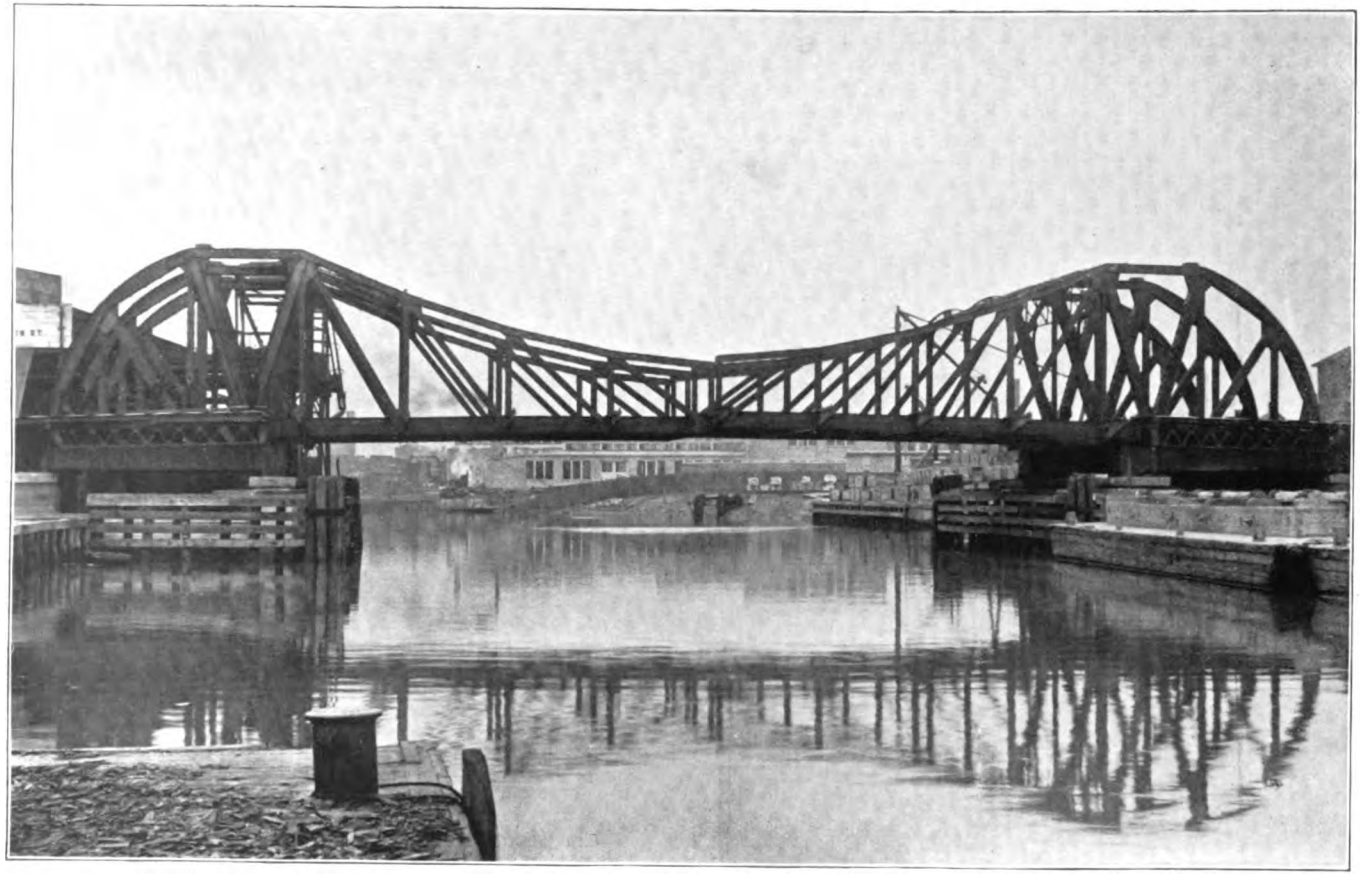


CLYBOURN PLACE BRIDGE.

# MAYOR'S ANNUAL MESSAGE

AND THE

# Twenty-Sixth Annual Report

OF THE

# DEPARTMENT OF

# PUBLIC WORKS

TO THE

## City Council of the City of Chicago

FOR THE

Fiscal Year Ending December 31

1901

during the year of 20,276,316 gallons, or a yearly increase of 7,400,854,972 gallons, and notwithstanding this great increase in pumping there was 2,294 tons less of coal used than in the previous year. The City is now constructing four bridges of the bascule type, at Clybourn place, Division street (canal), Division street (river) and Ninety-fifth street, on a new design made by the City, which will save considerable sums of money in the way of royalties, operation, etc. The Clybourn Place Bridge will be open within a very few weeks, and at the present time has been sufficiently operated to demonstrate that the structure is a complete success.

CARTER H. HARRISON,
*Mayor.*

cleanings in the year—one in the spring of the year, and the other in the fall. The appropriation for this purpose should be at least double in order to give the City such service as it should have.

### BRIDGES AND VIADUCTS.

A new bascule bridge over the North branch at Clybourn place was practically completed, with the exception of the erection of the machinery and floor system to complete the bridge.

The substructures for a new bridge over the Calumet river at Ninety-fifth street, and for one over the North branch at East Division street, were practically completed for the superstructures and the bridges will be completed during the coming year. Plans were also prepared for a new bridge over the North branch of the Chicago river at West Division street.

Contracts for new bridges are being entered into and the construction is being commenced as rapidly as money is available.

Considering the money available for repairs on bridges and viaducts, good results were shown.

The Sanitary District of Chicago has in course of construction new bridges at Randolph street, Harrison street, Canal street, Main street, and at Ashland avenue over the West fork.

### RIVERS AND HARBORS.

During the year the following permits have been issued by this division:

#### CHICAGO RIVER.

| | | |
|---|---|---|
| 5 permits construction of 2,575.89 lineal feet of dock | no | fees |
| 44 permits rebuilding 9,949 lineal feet of dock | $2,485.00 | fees |
| 12 permits repairing 2,167 lineal feet of dock | 270.87 | " |

#### CALUMET RIVER.

| | | |
|---|---|---|
| 2 permits construction of 2,050 lineal feet of dock | $ 74.50 | fees |
| 6 permits rebuilding 2,026.2 lineal feet of dock | 506.55 | " |

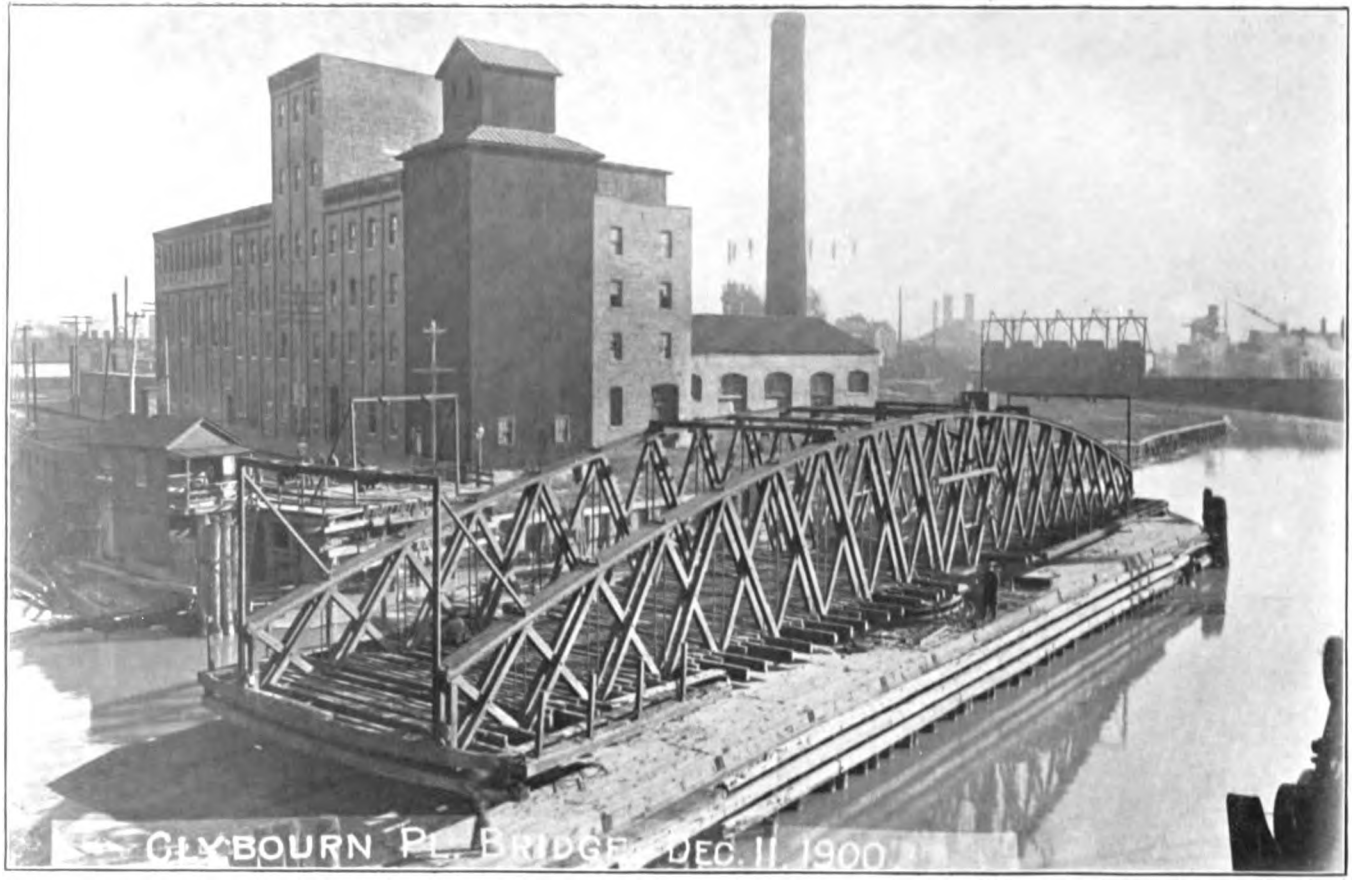
#### LAKE MICHIGAN.

| | | |
|---|---|---|
| 3 permits construction of 1,194 lineal feet of dock or bulkhead | $ 73.50 | fees |
| 6 permits repairing 2,275 lineal feet of dock | 284.38 | " |
| 11 miscellaneous permits | 15.00 | " |

### SUMMARY OF DOCK WORK.

During the year the following dock work was done under permits from the City:

| | | |
|---|---|---|
| 10 permits 5,819.89 feet construction | $ 148.00 | fees |
| 50 permits 11,975.2 feet rebuilding | 2,991.55 | " |
| 18 permits 4,442 feet repairing | 555.25 | " |
| 11 miscellaneous permits | 15.00 | " |
| Totals, 89 permits 24,237 feet | $3,709.80 | fees |



Avenue Station was operated only part of the year 1900, and the Springfield Avenue Station with its additional force of men was not put into operation until January, 1901. The result of starting these new stations was a diminution of both pumpage and pressures at the old stations, the pressures being more equally distributed over the City, as it was no longer a necessity to force the water such long distances as before the new stations were put into operation, and the quantity from the old stations could therefore also be reduced. This decreased pumpage and the lower heads at some of the stations, while the salaries and other charges remained the same, would apparently tend to slightly increase the cost of pumpage, but if the cost is reduced to the basis of the year 1900, head and pumpage, the expenses of operation for the year 1901 will show a considerable decrease.

The question of waste of water was given considerable attention during the year, and the results of the investigations were embodied in a special report of May 9, 1901. It has been stated that the enormous water waste found to exist is necessary for the flushing of sewers. While it undoubtedly dilutes the sewage, there can be no effective flushing, as the total pumpage of the City corresponds to a rainfall of only about 1-8 inch per day, or 1-192 inch per hour.

The question of an increased water supply for the southern part of the City south of Eighty-seventh street was also made the subject of a special report during the year. The importance of the commencement of this improvement is emphasized by the Macedonian cry that has been heard from this district during the past year.

## BRIDGES AND VIADUCTS.

Considering the small appropriation available for the repairs of bridges and viaducts, good work has been done.

The construction of the new bridges at Ninety-fifth street and East Division street suffered annoying delays, partly by the encountering of treacherous subsoil and partly by the bad condition of the water pipe tunnel at East Division street. At the latter place it became necessary for the City Engineer to take personal charge of the work, and for six weeks I was daily on the work until the difficulties encountered were successfully overcome.

## WATER PIPE EXTENSION.

The management of this Division of the Bureau has been economical and efficient. A number of much needed extensions of mains had, however, to be postponed, owing to shortage of funds.

# DIVISION OF BRIDGES AND VIADUCTS.

MR. THOMAS G. PIHLFELDT, Structural Iron Designer in Charge.

During the year 1901 the following plans and specifications were prepared:

For a new bridge over the North branch of the Chicago river at West Division street.

For a temporary bridge at Blackhawk street over the North branch of the Chicago river.

For a pontoon bridge at Canal street over the South branch of the Chicago river.

Plans were also prepared for an electrical equipment for the Madison street bridge. Plans were also made for a proposed elevation of Kinzie and Canal streets to connect with the Milwaukee avenue viaduct.

Plans were drawn up for repairs to the Desplaines street viaduct, repairs to the Chicago avenue and Halsted street viaducts, and repairs to the Twelfth street viaduct and approaches. Plans submitted by the Pennsylvania Railroad Company for the Randolph street viaduct were checked. The entire cost of this viaduct, which was opened for traffic July 30, 1901, was borne by the Pennsylvania Railroad Company.

A viaduct atlas showing plan and cross section of floor systems is being prepared. This work had to be stopped owing to a reduction in the office force.

Supervision of the extensions to the Lake street and the Metropolitan Elevated Railroads, together with the usual miscellaneous work of preparing plans, plats and data for various projects, constituted a portion of the work in this office.

## CONSTRUCTION.

GEO. F. SAMUEL, Assistant Engineer.

### NINETY-FIFTH STREET BRIDGE.

The contract for a new bascule bridge over the Calumet river at Ninety-fifth street was let June 21, 1900, to Roemheld & Gallery. By January 1, 1901, the curb walls were partially in place on both sides of the river and the piles driven and cut off for the east piers, and some piles driven for the west piers.

Water broke through the cofferdams several times, delaying

the work considerably. After the leaks were stopped, work was resumed, and the masonry of the east piers was started on January 7, 1901, and completed October 19, 1901. The masonry on the west piers was begun on November 2, 1901, and finished December 31, 1901. At the present time the substructure is completed, except the west tail pits.

CLYBOURN PLACE BRIDGE.

The contract for the substructure of the new bascule bridge at Clybourn place was let November 16, 1900, to the Fitz-Simons & Connell Company. The contractors began work on December 10, 1900, and the old superstructure, center pier, and abutments were removed by January 1, 1901. The contractors began driving piles for the west piers on January 11, 1901, and began laying the concrete masonry on May 16, 1901. The west piers were completed by July 1, 1901.

The piles under the west piers were driven to an average depth of 45 feet below datum, and cut off at 21 feet below datum. The excavation was carried to 23 feet below datum. At this depth the material on which the piers rest was found to be a very hard clay or hard pan and was removed by blasting. The contractors began driving the foundation piles under the east piers on January 23, 1901, and began laying the concrete masonry piers on August 8, 1901, and the east piers were completed by October 1, 1901. The entire work called for in this contract was completed by December 19, 1901. Amount of contract $68,910.74.

The contract for the superstructure was let on February 20, 1901, to the American Bridge Company. The contractor began the work of erecting the west leaf on August 12, 1901, and the east leaf on November 5, 1901. The iron work on the two leaves is practically all in place at the present time, and there remains only the erection of the machinery and floor system to complete this bridge.

The photographs accompanying this report show the progress of construction to date.

EAST DIVISION STREET BRIDGE.

The contract for the new bascule bridge over the North branch canal at East Division street was let to Roemheld & Gallery on July 11, 1900.

By January 1, 1901, the contractors had built three of the four curb walls and driven the piles for the pier foundations.

Considerable delay was caused at this bridge by the difficulty

of keeping the cofferdams free from water. The single wall dams first built proved insufficient and a double dam was then put in. After the excavation was carried down to 15 feet below datum, water leaked through the water pipe tunnel under the river into both dams. The tunnel was bulkheaded off after considerable delay and excavation resumed.

The concrete masonry in the east piers was begun August 24, 1901, and completed by September 20, 1901. The masonry in the west piers was started November 12, 1901, and completed December 3, 1901.

The substructure of this bridge is now completed with the exception of part of the west abutment and curb walls.

## REPAIRS AND MAINTENANCE.

MR. THOMAS G. PIHLFELDT, Structural Iron Designer in Charge; MR. IVER HORGEN, Assistant Engineer.

This Division has under its supervision forty-eight movable bridges, fifteen with fixed spans, and thirty-seven systems of viaducts. During the year 1901 five bridges were operated by steam, fourteen by electricity and twenty-nine by hand power.

The following statement shows the amounts expended by the City for repairs and maintenance, exclusive of bridge tenders' salaries, of the various bridges and viaducts as mentioned above during the year 1901:

BRIDGES.

| | | | |
|---|---|---|---|
| Adams street | $ 1,992.00 | N. Halsted street (Canal) | $ 748.07 |
| Archer avenue | 353.81 | N. Halsted street (River) | 2,117.67 |
| Ashland avenue (South Fork) | .75 | S. Halsted street | 8,450.60 |
| Ashland avenue (West Fork) | 339.49 | Harrison street | 475.82 |
| Belmont avenue | 389.85 | Indiana street | 1,020.01 |
| Canal street | 55.72 | Jackson street | 1,889.91 |
| Chicago avenue | 3,739.87 | Kinzie street | 1,736.93 |
| Chittenden avenue | 361.61 | Lake street | 1,107.16 |
| Clark street | 2,317.83 | Laurel street | 84.80 |
| Clybourn place | 89.73 | Madison street | 1,780.84 |
| Dearborn street | 2,065.72 | Main street | 172.45 |
| Deering street | 998.15 | Ninety-second street | 544.26 |
| Diversey street | 161.07 | Ninety fifth street | 7.50 |
| E. Division street | 647.65 | North avenue | 1,285.57 |
| W. Division street | 1,105.25 | 106th street | 84.75 |
| Eighteenth street | 8,193.47 | Polk street | 642.47 |
| Erie street | 695.54 | Randolph street | 509.44 |
| Buller street | 682.91 | Riverdale | 85.70 |
| Fullerton avenue | 2,265.61 | Rush street | 9,708.15 |

| | | | |
|---|---|---|---|
| State street | $ 1,408.01 | Wells street | $ 14,649.91 |
| Taylor street | 2,527.99 | N. Western avenue | 1,365.49 |
| Twelfth street | 8,941.08 | S. Western avenue | 259.28 |
| Twenty-second street | 2,041.29 | Kedzie avenue (Span Bridge) | 174.88 |
| Thirty-fifth street | 320.52 | Steamer Hopkins | 1,427.68 |
| Van Buren street | 2,499.88 | General account | 17,667.62 |
| Washington street | 1,169.78 | | |
| Webster avenue | 628.24 | Total | $113,682.78 |
| Weed street | 4.00 | | |

VIADUCTS.

| | | | |
|---|---|---|---|
| N. Ashland avenue | $ 29.13 | Polk street | $ 7.60 |
| Clark street | 259.71 | Sangamon street | 118.34 |
| Desplaines street | 2,619.73 | Twelfth street | 391.59 |
| Eighteenth street | 273.76 | Thirty-fifth street | 9.76 |
| Grand avenue | 309.56 | N. Western avenue and Kinzie street | 1,457.31 |
| Halsted street and Chicago avenue | 5,042.40 | | |
| Halsted and Sixteenth streets | 9.89 | Total | $ 11,102.81 |
| Halsted and Fortieth streets | 41.70 | | |
| Milwaukee avenue | 48.84 | Grand total | $124,785.59 |
| Ogden avenue | 483.49 | | |

The following statement shows the character and extent of the repairs made to the various bridges and viaducts during the year 1901:

BRIDGES.

ADAMS STREET BRIDGE.—The turntable of this bridge has received a general overhauling, the sidewalks have been partly relaid, and the hand-rail repaired.

ARCHER AVENUE BRIDGE has had sidewalks and chord cover repaired in a substantial manner.

ASHLAND AVENUE BRIDGE (over the West fork of the Chicago river) was extensively repaired, new abutments having been constructed.

BELMONT AVENUE BRIDGE received three new floor beams, as well as one new end circle beam, and had sidewalks and hand-rail repaired.

CHICAGO AVENUE BRIDGE.—The new pier protection, the construction of which was commenced last year, has been finished; new steel rail has been fastened to the drum, and sidewalks, chord cover and planking of roadway repaired.

CHITTENDEN BRIDGE.—Pontoon scow was put in a serviceable state.

CLARK STREET BRIDGE has had the pier protection strengthened,

new lock system on both abutments has been put in, and roadways of bridge have been repeatedly repaired. New sidewalks have been laid and new hand-rail built on north approach.

DEARBORN STREET BRIDGE.—The entire roadway was replanked by the Chicago Union Traction Company. New circle planks, new steel rails for end circle and new end rollers were put in by the City force.

DEERING STREET BRIDGE received new circle planks and had roadway repaired.

DIVERSEY STREET BRIDGE.—The roadway was replanked and the old walks repaired.

WEST DIVISION STREET BRIDGE.—The bottom chord was strengthened, and one new bridge seat and new end rollers were put in. The sidewalks were repeatedly repaired.

EIGHTEENTH STREET BRIDGE.—New boilers were installed, new center pier protection built, and repairs made to sidewalks and roadways.

ERIE STREET BRIDGE received new end circle planks, one new end circle rail and new end rollers. Sidewalks were renewed and roadway repaired.

FULLER STREET BRIDGE.—New approaches were built and the old upper turntable rail was replaced by a new one.

FULLERTON AVENUE BRIDGE received extensive repairs to pier protection. The approaches were strengthened by means of new timber bents, and sheet piling was driven on east side to hold back the filling under approach.

NORTH HALSTED STREET BRIDGE (Canal).—New end rollers and one new bridge seat were put in.

NORTH HALSTED STREET BASCULE BRIDGE.—The track girders were raised and leveled.

SOUTH HALSTED STREET LIFT BRIDGE was supplied with new hoisting cable. Extensive repairs were made to the machinery, as well as to the roadways and sidewalks. The counterweights were increased. Part of the structure received one coat of paint.

INDIANA STREET BRIDGE.—A new bridge protection was finished, new end rollers put in, and the support for bridge house strengthened.

JACKSON STREET BRIDGE.—The roadways, sidewalks and chord covers were repaired and the turntable received a general overhauling.

KINZIE STREET BRIDGE was entirely redecked, both approaches strengthened, and new end rollers and end circle rails put in.

LAKE STREET BRIDGE was repaved, as were also both approaches.

MADISON STREET BRIDGE received one new end circle plank and had its drum repaired.

NINETY-SECOND STREET BRIDGE was supplied with a new set of end rollers, the locks were repeatedly repaired, new sidewalks laid, and both approaches strengthened.

NORTH AVENUE BRIDGE.—New braces (two main and two counter) were put in. This bridge was also supplied with new end rollers and one new bridge seat. Sidewalks and chord cover were also repaired.

ONE HUNDRED AND SIXTH STREET BRIDGE.—New set of turntable wheels was put in.

POLK STREET BRIDGE.—Bottom chord was strengthened. Sidewalks were repaired, as well as hand-rail. The locks were repeatedly repaired.

RUSH STREET BRIDGE.—The entire new protection was rebuilt. The spider rods connecting the shaft and the brake wheel were repaired.

STATE STREET BRIDGE was supplied with new spider rods, new end circle rails, and turntable wheels.

TAYLOR STREET BRIDGE.—The machinery received a general overhauling and repairs were made to east tail pits.

TWELFTH STREET BRIDGE.—The roadways, sidewalks and chord cover were patched repeatedly. New circle planks were put in and the machinery and boiler repaired. Piles were driven for new center pier protection.

THIRTY-FIFTH STREET BRIDGE.—The roadways and sidewalks were patched, the locks repaired and the turntable overhauled.

TWENTY-SECOND STREET BRIDGE.—The center pier was remodeled and both approaches raised and strengthened by additional timber bents.

VAN BUREN STREET BRIDGE.—The bad leaks in the east tail pits were stopped. The machinery was overhauled and the counterweights increased.

WASHINGTON STREET BRIDGE received new circle planks and a new oak segment for the rack.

WEBSTER AVENUE BRIDGE.—The locks were repaired and one new bridge seat put in.

WELLS STREET BRIDGE.—New center pier protection, the most substantial of any City bridge, is being built at the present time, the east half having been finished and the west half being well under way. The roadways and sidewalks of this bridge were also repaired.

NORTH WESTERN AVENUE BRIDGE.—Both approaches were replanked, also part of the bridge roadway.

SOUTH WESTERN AVENUE BRIDGE.—The sidewalks of the bridge and approaches were repaired.

In addition to the above mentioned repairs, a large number of lesser repairs were made upon these and other bridges, every bridge within the City's limits having received some repairs during the year.

About one hundred and twenty collisions of boats with the various bridges occurred during the year, incurring the expenditure of a large amount of labor and material to repair the damage done by same.

The steamer "Hopkins" was entirely remodeled; it was lengthened and its machinery put in a serviceable state.

REPAIRS TO VIADUCTS.

OGDEN AVENUE VIADUCT.—The part of the viaduct spanning the tracks of the Chicago & North-Western Railway had its sidewalks and chord covers renewed.

NORTH WESTERN AVENUE RAILWAY VIADUCT.—Both roadways over the tracks of the Chicago, Milwaukee & St. Paul and the Chicago & North-Western Railway companies were entirely renewed. Some of the iron joists in the floor system were replaced by wooden ones.

CHICAGO AVENUE AND HALSTED STREET VIADUCTS (over the Chicago & North-Western Railway tracks).—New sidewalks were laid by the City force and new iron hand-rail built by contract.

GRAND AVENUE VIADUCT (over the tracks of the Chicago & North-Western Railway).—New sidewalks were laid.

MILWAUKEE AVENUE VIADUCT (over the tracks of the Chicago & North-Western Railway).—A portion of the iron railing was renewed.

DESPLAINES STREET VIADUCT (over the Chicago and North-Western Railway tracks).—The sub-planking and paving of the roadways were renewed and part of the iron hand-rail repaired.

TAYLOR STREET VIADUCT (between Taylor and Polk streets).—At

present this viaduct is undergoing repairs, the work being done by the Chicago Union Traction Railway Company.

Other important repairs on viaducts were made by the different railway companies at their own expense. The work of patching, however, was done by this Division.

## DIVISION OF HARBORS.

This Division has supervision over the Harbor of the City of Chicago, which consists of the Chicago river, its branches and slips, the Calumet river, its forks and branches and adjacent slips, and Lake Michigan from the north to the south boundary lines of the City produced into the lake for a distance of three miles, and for a distance of five miles beyond this latter line Sanitary jurisdiction extends.

RICARD O. S. BURKE, Harbor Engineer in Charge; CAPT. JOHN MCCARTHY, Harbor Master; THOMAS J. ELDERKIN, Vessel Dispatcher.

During the year 1901 the following dock work was done under permits from the City. Fees for the same, based on Section 1640 of the Revised Code of 1897, as amended by ordinance of March 7, 1898, were paid to the City Comptroller to the amounts herein stated, viz.:

CHICAGO RIVER.

| | | |
|---|---|---|
| 5 permits construction of 2,575.89 lineal feet of dock | no | fees |
| 44 permits rebuilding 9,949 lineal feet of dock | $2,485.00 | fees |
| 12 permits repairing 2,167 lineal feet of dock | 270.87 | " |

CALUMET RIVER.

| | | |
|---|---|---|
| 2 permits construction of 2,050 lineal feet of dock | $ 74.50 | fees |
| 6 permits rebuilding 2,026.2 lineal feet of dock | 506.55 | " |

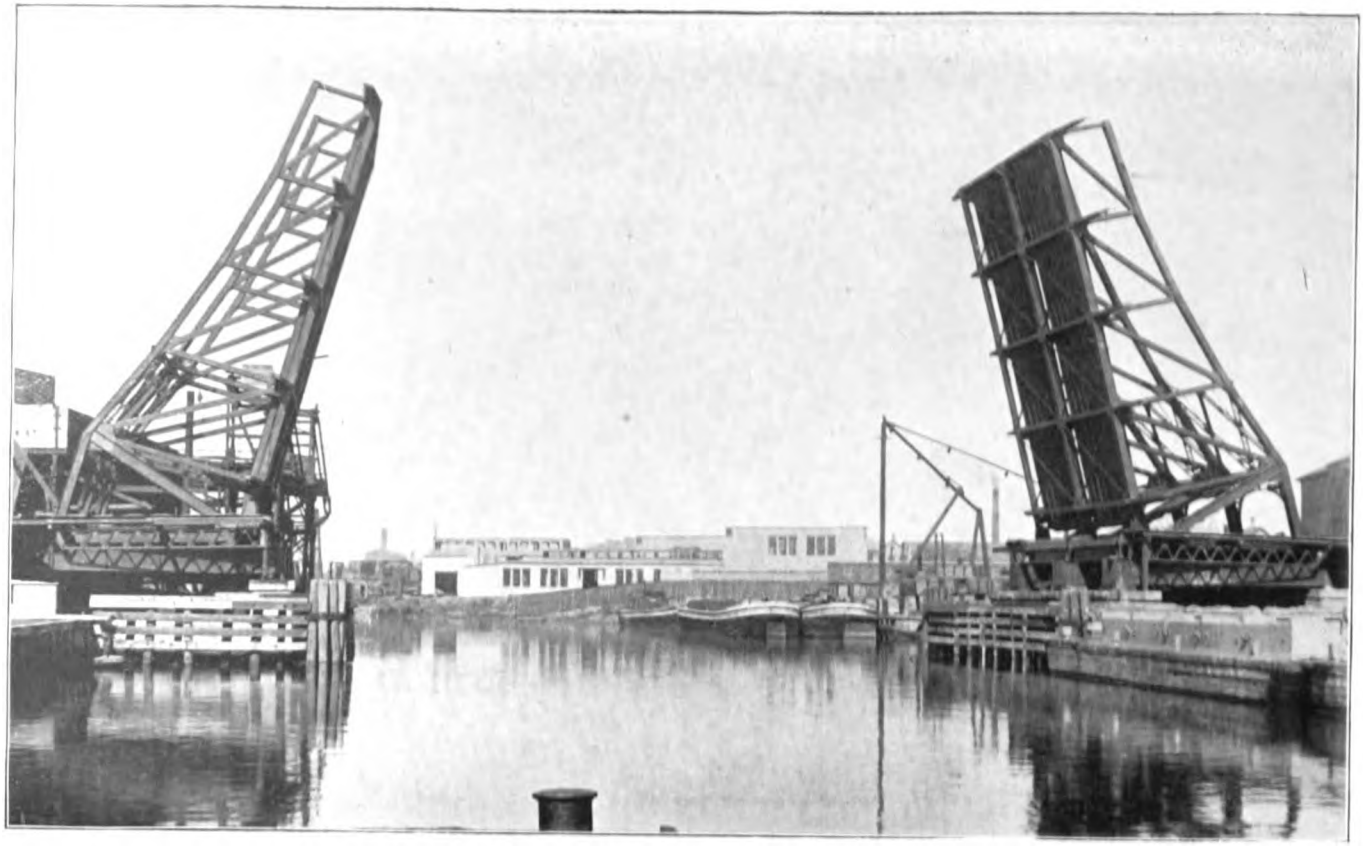
LAKE MICHIGAN.

| | | |
|---|---|---|
| 3 permits construction of 1,194 lineal feet of dock or bulkhead | $ 73.50 | fees |
| 6 permits repairing 2,275 lineal feet of dock | 284.38 | " |
| 11 miscellaneous permits | 15.00 | " |

SUMMARY OF DOCK WORK.

| | | |
|---|---|---|
| 10 permits 5,819.89 feet construction | $ 148.00 | fees |
| 50 permits 11,975.2 feet rebuilding | 2,991.55 | " |
| 18 permits 4,442 feet repairing | 555.25 | " |
| 11 miscellaneous permits | 15.00 | " |
| Totals, 89 permits 22,237 feet | $3,709.80 | fees |

The fee for permit No. 649, amounting to $87.50, and that for permit No. 650, being $25.00, which accompanied the application in each case, were received by the City Comptroller, and, as no permit



CLYBOURN PLACE BRIDGE—DECEMBER 31, 1901.

Of the vessels engaged in the trade of the City, 16 per cent of the number went to the Calumet river, 84 per cent of the vessels, carrying only 67.7 per cent of the tonnage, went to the Chicago river. Of the vessels that sought the Chicago river, 29.4 per cent stopped east of Rush street bridge, 70.6 per cent going west of it. Of the vessels that passed west of Rush street, 72 per cent passed Wells street, 45.6 per cent of them going down the South branch and 54.4 per cent taking the North branch. There has been a movement of 1,291 vessels from branch to branch of the Chicago river going north and coming south without in either case passing east of Wells street bridge. Of the vessels that passed Lake street going down the South branch, 77.7 per cent passed beyond or south of Twenty-second street bridge as against 74½ per cent for the year 1900.

OPERATION OF BRIDGES, YEAR 1901.

| BRIDGES. | | Average Time of Each Swing. Minutes. | Average Number of Swings Each Month. | Total Number of Swings Annually. |
|---|---|---|---|---|
| Adams street | Electricity | 5¼ | 468 | 4,688 |
| Archer avenue | Hand | 6¾ | 150 | 1,428 |
| *Ashland avenue, Thirty-ninth street | " | ..... | ..... | ..... |
| Ashland avenue (river) | " | 4¾ | 611 | 1,922 |
| Belmont avenue | " | ..... | ..... | ..... |
| Chicago avenue | " | 5 | 233 | 2,210 |
| Chittenden | " | 21 | 29 | 294 |
| Clark street | Electricity | 2¼ | 699 | 6,289 |
| *Canal street (not in operation) | ..... | ..... | ..... | ..... |
| Deering street (low bridge) | Hand | 5 | 880 | 6,165 |
| Diversey boulevard | " | 5 | 7 | 62 |
| *Division street (canal) | Electricity | ..... | ..... | ..... |
| Division street (river) | Hand | 4¼ | 314 | 2,970 |
| Dearborn street | Electricity | 2¾ | 595 | 5,948 |
| Eighteenth street | Hand | 2½ | 404 | 3,633 |
| Erie street | " | 5½ | 195 | 1,954 |
| Fuller street | " | 5½ | 333 | 3,327 |
| Fullerton avenue | Electricity | 3⅓ | 97 | 870 |
| Harrison street | Hand | 3½ | 472 | 2,829 |
| Halsted street (canal) | " | 4½ | 266 | 2,655 |
| Halsted street, South | Steam | 8 | 568 | 4,545 |
| Halsted street, North (river) | Electricity | 3¼ | 137 | 825 |
| Indiana street | Hand | 4½ | 286 | 2,295 |
| Jackson boulevard | Electricity | 2 | 474 | 4,744 |

*New bridge under construction. Others not reported are either not in service or at the ends of navigation.

## OPERATION OF BRIDGES, YEAR 1901 — CONTINUED.

| BRIDGES. | | Average Time of Each Swing. Minutes. | Average Number of Swings Each Month. | Total Number of Swings Annually. |
|---|---|---|---|---|
| Kinzie street | Hand | 2 1/3 | 593 | 5,334 |
| Lake street | Electricity | 3 | 516 | 4,647 |
| Laurel street | Hand | 4 1/2 | 6 1/2 | 65 |
| Madison street | Steam | 2 3/4 | 463 | 4,633 |
| *Main street (low bridge) | Hand | ..... | ..... | ..... |
| North avenue | " | 2 1/2 | 244 | 2,316 |
| Ninety-second street | " | 6 | 294 | 2,944 |
| *Ninety-fifth street | Electricity | ..... | ..... | ..... |
| One Hundred and Sixth street | Hand | 6 1/2 | 115 | 1,152 |
| Polk street | " | 4 1/2 | 467 | 4,437 |
| Riverdale | " | ..... | ..... | ..... |
| Randolph street | " | 2 1/2 | 424 | 2,122 |
| Rush street | Electricity | 2 1/2 | 902 | 8,118 |
| State street | " | 2 3/4 | 674 | 6,398 |
| Twelfth street | Steam | 3 1/2 | 484 | 4,357 |
| Twenty-second street | Hand | 3 1/2 | 418 | 3,759 |
| Thirty-fifth street | " | 8 | 87 | 653 |
| Van Buren street | Electricity | 3 3/4 | 467 | 4,441 |
| Washington street | " | 2 3/4 | 478 | 4,782 |
| Webster avenue | Hand | 4 1/4 | 130 | 1,298 |
| Weed street | " | ..... | ..... | ..... |
| Wells street | Electricity | 2 1/2 | 666 | 5,995 |
| Western avenue, North | Hand | 7 1/2 | 6 | 29 |
| Western avenue, South | " | 2 3/4 | 67 | 373 |

*New bridge under construction. Others not reported are either not in service or at the ends of navigation.

## COMMERCE BY LAKE AND CANAL—CITY OF CHICAGO.

FROM 1848 TO 1901, BY YEARS, WITH POPULATION 1831 TO 1901. COMPILED FROM OFFICIAL RECORDS OF THE DEPARTMENT.

| Years | VESSELS BY LAKE. Total No. | Total Tonnage. | Average Cargo Ton. | BY ILL. & MICH. CANAL. Boats No. | Tonnage. | Tolls, Dollars. | POPULATION. | REMARKS. |
|---|---|---|---|---|---|---|---|---|
| 1848 | ..... | ..... | ..... | ..... | ..... | 87,890 | 20,023 | |
| 1849 | ..... | ..... | ..... | ..... | ..... | 118,375 | 23,047 | |
| 1850 | ..... | ..... | ..... | ..... | ..... | 125,504 | 28,296 | |
| 1851 | ..... | ..... | ..... | ..... | ..... | 173,300 | 34,000 | |
| 1852 | ..... | ..... | ..... | ..... | ..... | 168,577 | 38,734 | |
| 1853 | ..... | ..... | ..... | ..... | ..... | 173,372 | 60,662 | |
| 1854 | ..... | ..... | ..... | ..... | ..... | 198,326 | 65,872 | |
| 1855 | ..... | ..... | ..... | ..... | ..... | 180,519 | 80,028 | |
| 1856 | ..... | ..... | ..... | ..... | ..... | 184,310 | 86,000 | |
| 1857 | ..... | ..... | ..... | ..... | ..... | 197,830 | 93,000 | |
| 1858 | ..... | ..... | ..... | ..... | ..... | 197,171 | 84,000 | |
| 1859 | ..... | ..... | ..... | ..... | ..... | 132,147 | 94,000 | |
| 1860 | ..... | ..... | ..... | 201 | 867,437 | 138,554 | 109,460 | |
| 1861 | ..... | ..... | ..... | 194 | 547,295 | 218,040 | 120,000 | |
| 1862 | 14,687 | 3,847,246 | 262 | 211 | 673,590 | 264,647 | 137,050 | |
| 1863 | 17,135 | 4,333,832 | 252 | 240 | 619,599 | 210,386 | 150,000 | Population, Prior Years. |
| 1864 | 17,762 | 4,339,770 | 244 | 228 | 510,286 | 156,607 | 161,288 | |
| 1865 | 20,179 | 4,199,135 | 208 | 228 | 616,140 | 300,810 | 178,492 | |
| 1866 | 22,199 | 4,620,092 | 208 | 230 | 746,815 | 202,958 | 200,418 | |
| 1867 | 24,370 | 5,101,203 | 209 | 209 | 746,954 | 252,231 | 225,000 | 1831 60 |
| 1868 | 26,399 | 6,005,403 | 265 | 218 | 737,827 | 215,720 | 252,054 | 1832 600 |
| 1869 | 27,602 | 6,273,346 | 227 | 219 | 817,788 | 238,759 | 280,000 | 1833 350 |
| 1870 | 25,173 | 6,033,207 | 239 | 179 | 585,970 | 149,035 | 298,700 | 1834 1,800 |
| 1871 | 24,632 | 6,178,336 | 251 | 186 | 628,975 | 159,050 | 334,270 | 1835 3,265 |
| 1872 | 25,358 | 6,077,542 | 239 | 178 | 783,641 | 165,874 | 367,396 | 1836 4,000 |
| 1873 | 23,734 | 6,564,542 | 239 | 172 | 849,533 | 166,641 | 380,000 | 1837 4,179 |
| 1874 | 21,547 | 6,329,711 | 294 | 152 | 712,020 | 144,831 | 395,400 | 1838 4,000 |
| 1875 | 21,095 | 6,279,055 | 298 | 142 | 676,025 | 107,081 | 407,000 | 1839 4,200 |
| 1876 | 19,245 | 6,167,786 | 320 | 146 | 691,946 | 113,293 | 420,000 | 1840 4,470 |
| 1877 | 20,517 | 6,585,415 | 321 | 145 | 695,912 | 96,913 | 439,776 | 1841 5,500 |
| 1878 | 20,984 | 7,239,673 | 345 | 140 | 598,792 | 84,330 | 450,000 | 1842 6,590 |
| 1879 | 23,873 | 7,757,395 | 325 | 136 | 669,559 | 89,064 | 475,000 | 1843 7,580 |
| 1880 | 25,520 | 9,154,351 | 345 | 133 | 751,360 | 92,296 | 503,298 | 1844 8,000 |
| 1881 | 26,005 | 8,762,247 | 337 | 133 | 826,133 | 85,130 | 540,000 | 1845 12,088 |
| 1882 | 26,977 | 9,754,949 | 362 | 132 | 1,011,287 | 85,947 | 560,693 | 1846 14,169 |
| 1883 | 23,992 | 7,790 337 | 325 | 132 | 925,575 | 77,975 | 580,000 | 1847 16,859 |
| 1884 | 22,826 | 7,508,696 | 330 | 134 | 956,721 | 77,102 | 630,000 | |
| 1885 | 21,542 | 7,306,222 | 339 | 135 | 827,355 | 66,800 | 664,634 | |
| 1886 | 22,372 | 7,877,080 | 352 | 130 | 808,019 | 62,516 | 704,000 | |
| 1887 | 23,972 | 8,749,852 | 365 | 132 | 742,074 | 58,024 | 760,000 | |
| 1888 | 22,095 | 8,890,658 | 402 | 127 | 751,055 | 56,028 | 830,000 | |
| 1889 | 21,788 | 10,267,831 | 471 | 114 | 917,047 | 60,605 | 1,100,000 | |
| 1890 | 20,133 | 10,116,051 | 502 | 104 | 742,392 | 65,112 | 1,208,669 | |
| 1891 | 19,680 | 10,862,808 | 522 | 97 | 641,156 | 49,557 | 1,323,839 | |
| 1892 | 21,123 | 11,780,393 | 565 | 95 | 783,288 | 54,937 | 1,438,010 | |
| 1893 | 17,044 | 10,788,029 | 602 | 82 | 529,816 | 38,702 | 1,502,868 | |
| 1894 | 16,202 | 10,284,178 | 635 | 85 | 617,811 | 44,928 | 1,567,727 | |
| 1895 | 18,232 | 12,631,180 | 693 | 83 | 591,407 | 39,106 | 1,584,070 | |
| 1896 | 16,999 | 12,965,812 | 763 | 67 | 446,762 | 34,543 | 1,600,413 | |
| 1897 | 17,865 | 14,277,235 | 799 | 64 | 600,000 | 41,000 | 1,726,000 | |
| 1898 | 18,512 | 15,116,426 | 817 | 64 | 395,017 | 38,570 | 1,851,588 | |
| 1899 | 16,174 | 12,599,239 | 779 | 64 | 469,352 | 41,022 | 2,000,000 | |
| 1900 | 16,976 | 13,990,894 | 824 | 60 | 121,759 | 20,866 | *2,007,695 | |
| 1901 | 16,274 | 13,634,904 | 838 | 41 | 81,456 | 11,551 | †2,100,000 | |

* School Census, 1900. † Estimated.

## DAMAGES DONE BY VESSELS.

Statement of damages done to the bridges in the Chicago and Calumet rivers during the year 1901:

| MONTHS. | Accidents. | Damage. |
|---|---|---|
| January | 2 | ..... |
| February | 2 | $ 29.20 |
| March | ..... | ..... |
| April | 2 | 23.28 |
| May | 19 | 1,176.14 |
| June | 14 | 391.99 |
| July | 19 | 789.50 |
| August | 17 | 1,132.05 |
| September | 18 | 1,849.96 |
| October | 15 | 1,627.77 |
| November | 10 | 483.51 |
| December | 5 | 317.22 |
| Total | 123 | $7,820.62 |

The status of the submerged land along the lake front has been a fruitful subject of litigation for years. The opinion of the Supreme Court of this State, filed December 21, 1898, in the case of Revell *vs.* the People, 177 Ill., 468, is of great importance in this connection. It is as follows:

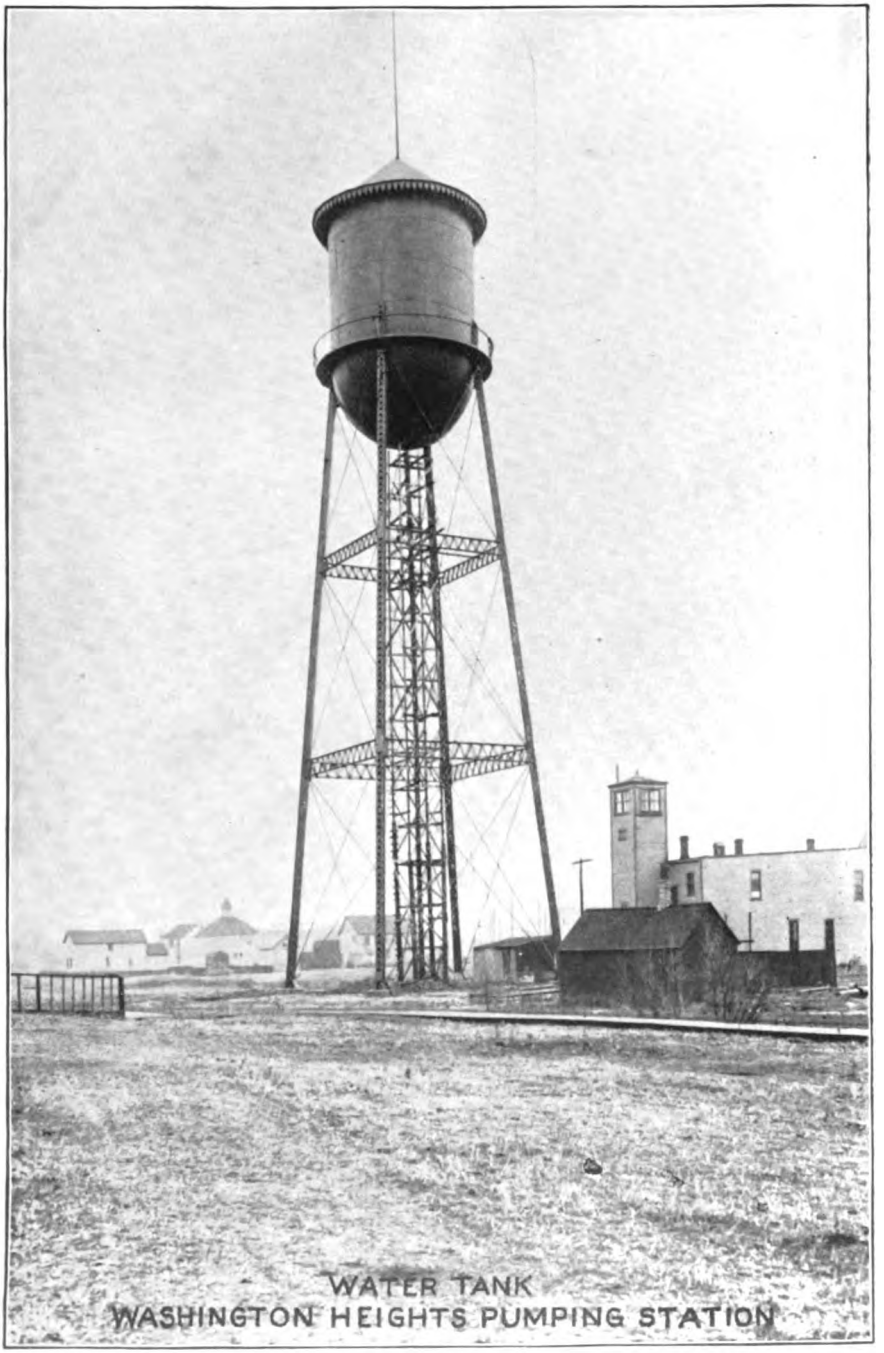
"1. *Waters.*—Title to land submerged by waters of the great lakes belongs to the boundary States. Title to and dominion over lands covered by the waters of the great lakes are in the several States within which the lands are located.

"2. The erection of piers in Lake Michigan by a shore owner constitutes a purpresture, and is such an unlawful act as warrants the interference of an equity upon the filing of an information by the Attorney-General.

"3. A purpresture may be enjoined or abated in equity, although it is not injurious or a public nuisance.

"4. One owning land bordering on Lake Michigan has no right to build wharfs or piers for the purpose of increasing the boundary of his premises beyond the water line, nor can he lawfully do any act which may indirectly accomplish that result.

"5. The only rights which one owning land bordering on Lake Michigan has in Illinois are the common law rights of access to the lake from his property within its width, and to natural accretions.



WATER TANK
WASHINGTON HEIGHTS PUMPING STATION