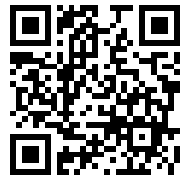

This is a reproduction of a library book that was digitized by Google as part of an ongoing effort to preserve the information in books and make it universally accessible.

Google™ books

<https://books.google.com>



T 1125
P 22
1872

52729

OFFICE OF THE MAYOR,

PHILADELPHIA.

Mayor,
EDWIN S. STUART.

Secretary,
LEWIS E. BEITLER.

CONTRACT CLERK—JAMES R. CALHOUN.

ASS'T CONTRACT CLERK AND STENOGRAPHER—HENRY W. PEIRSON.

ASS'T STENOGRAPHER AND TYPEWRITER HARRY M. FISLER.

MESSENGER—WILLIAM G. LEE.



SECOND ANNUAL MESSAGE.

OFFICE OF THE MAYOR, CITY HALL.

Philadelphia, April 3, 1893.

TO THE SELECT AND COMMON COUNCILS
OF THE CITY OF PHILADELPHIA.

GENTLEMEN:—Again it becomes my duty, under the Act of Assembly, to transmit to your Honorable Bodies the reports of the several Heads of Departments of their proceedings during the preceding year, and I have the honor to present them herewith, together with my various recommendations thereon and also upon the general affairs of the municipality.

Finances.

According to the Annual Report of the City Controller, our Municipal finances are in a very good condition, 1892 presenting a better financial showing than any previous year, the receipts of the various Departments being one million four hundred and fifty-six thousand three hundred and forty-three (1,456,343) dollars and forty (40) cents in excess of 1891; this increase being largely derived from receipts of taxes (current and delinquent), Bureau of Water, tax on dividends paid by City Passenger Railways on account of street paving, fees from licenses for the sale of liquor and State appropriation to schools, yet had the City received during the past year the money due her from the State as her share of the taxes on personal property, which she collects and pays over to the State, there would have been eight hun-

dred and fifty-six thousand one hundred and thirty-six (856,136) dollars and fifty-seven (57) cents more available for appropriations for this year. The conditions from which arose this contention with the State for this amount are due entirely to the unfortunate complications into which the City's finances were plunged during 1891.

The City's funded debt January 1, 1892, was.....	\$56,701,320 22
The City's funded debt January 1, 1893, was.....	54,542,245 22
Reduction in 1892.....	<u>\$2,159,075 00</u>

The loans maturing in 1893 are as follows :

Six per cent., Jan. 1, 1893.....	\$554,200 00
Six per cent., July 1, 1893..	68,900 00
Total 6 per cent.....	623,100 00
Four per cent., Dec. 31, 1893.....	400,000 00
Total 6 per cent. and 4 per cent.....	<u>\$1,023,100 00</u>

The assessed valuation of property is :

1893.....	\$752,763,382 00
1892.....	<u>735,696,772 00</u>
An increase of.....	\$17,066,610 00

For the year 1892 there were appropriated to the various Municipal Departments seventeen millions seven hundred and fifty-five thousand two hundred and two (17,755,202) dollars and seventy-six (76) cents, and for this year eighteen million five hundred and eighty-two thousand two hundred and sixty-nine (18,582,269) dollars and fourteen (14) cents, an increase of eight hundred and twenty-seven thousand and sixty-six (827,066) dollars and thirty-eight (38) cents, which is a little less than the average yearly increase during the last ten years, which has been nine hundred and eighty-six thousand eight hundred and ninety-one (986,891) dollars and one (1) cent.

This appropriation for each year, taken on January 1st, does not include all the appropriations for that particular year, as many small appropriations were made during that period.

While we have presented a very good showing, the result

of the many necessary and much needed improvements which have been made, there still remains much to be done in the way of permanent improvements that are absolutely necessary in a great city like Philadelphia.

I most respectfully recommend that at the earliest possible moment some action be taken upon the question of the advisability of refunding at a lower rate of interest the City's six per cent. loans.

That the credit of our City, both at home and abroad, stands second to no other city in the world is best attested by the fact that when you authorized the borrowing of one million (1,000,000) dollars upon her credit for the purpose of building the Queen Lane Reservoir, and advertisements were made to that effect, we were enabled to place this loan at the very low rate of three per cent., and in addition secured a total premium of nine thousand seven hundred and fifty (9,750) dollars. This is the lowest rate of interest at which the City has ever been able to place her loans.

While our Funded Debt is theoretically fifty-four million five hundred and forty-two thousand two hundred and forty-five (54,542,245) dollars and twenty-two (22) cents, it is a very important question of the greatest possible interest whether the holdings of the Sinking Fund Commission, amounting to twenty-seven million three hundred and eighty-one thousand seven hundred and eighty-nine (27,381,789) dollars and sixty (60) cents, are or are not an asset of the City; for if they are, the actual debt is but twenty-seven million one hundred and sixty thousand four hundred and fifty-five (27,160,455) dollars and sixty-two (62) cents, and should so be considered in estimating her borrowing capacity.

While it is true the City is thus in debt, yet she is in the most prosperous financial condition, as among her many resources, one alone, the real estate she owns, represents a value of over thirty-one million (31,000,000) dollars, exclusive of Fairmount Park, valued at over thirteen million (13,000,000) dollars.

DEPARTMENTS.

DEPARTMENT OF PUBLIC SAFETY.

The Director of the Department of Public Safety has submitted a full and detailed report of the work of his Department for the year 1892, the same complete being transmitted herewith.

BUREAUS.

Bureau of Police.

Much credit is due to the Bureau of Police for the very vigorous methods taken by it to suppress crimes of all kind.

During the year the force has been increased by the addition of fifty-four (54) patrolmen.

New buildings were contracted for in the Fourteenth District, a sub-station at Chestnut Hill, and another, a new station house in the Thirty-third Ward, and new stables for the horses of the Mounted Police in the Twenty-first and Twenty-ninth Police Districts.

One of the most important additions to this Bureau has been the introduction of the "Bertillion System" for the identification of criminals. This system which for some time has been in use in various cities in this country and in Europe, has added greatly to the efficiency of the Bureau, and has, as well, decreased its expenditures.

A force of one thousand five hundred and three (1,503) men covers a territory of one hundred and twenty-nine square miles, and while the number of patrolmen is perhaps as great as can be allowed, considering the demands from the other Municipal Departments, it is still totally inadequate to properly police the City of Philadelphia. In proportion to the area of territory to be covered, which is rapidly being improved, and consequently the demands on the Bureau

rapidly being increased, the Police Force is less than in any other city in the United States.

Bureau of Fire.

During the past year the efficiency of this Bureau was increased by the addition of four (4) companies, located namely : at Sixty-fifth and Woodland avenue, Sixty-first and Thompson streets, and at Roxborough and Tacony, an increase of twenty-seven (27) men, making the total number in the Bureau five hundred and fifty-two (552).

There were added five (5) Silsby Rotary Engines, and at this rate in a few years we will be thoroughly equipped with the latest and best apparatus.

A new fire boat, the first owned by the City, for which the Department received an appropriation in 1892, will be finished and in service this year, and will supply one of the most necessary and at the same time effective apparatus to fight fire, should the same happen among our shipping interests, or in the large warehouses or other valuable business properties in the vicinity of the river front.

On August 7, 1892, the Bureau suffered a severe loss in the death of John R. Cantlin, who had been connected with the Fire Department since its organization, and as Chief Engineer since February 11, 1879. On October 13, 1892, James C. Baxter, Jr., who has also been connected with the Department since its organization, was appointed to the vacancy. Our Fire Department, for faithful, courageous and successful service, I consider second to none in this country, and believe should receive the same careful and liberal consideration in your appropriations in the future that it always has in the past.

Electrical Bureau.

This Bureau still continues its rapid advances and maintains its reputation, as already stated, as being the finest equipped and most practical Municipal Electrical Bureau

in this country, a fact admitted and conceded by electrical experts.

The total number of feet of conduit laid to January 1, 1893, was eighty thousand three hundred and eight (80,308), of which twenty thousand five hundred and seventy-eight (20,578), or one-quarter ($\frac{1}{4}$) of the entire conduit system, was successfully laid in 1892. This is not only in excess of the work of any previous year, but is very nearly twelve thousand (12,000) more feet than were laid in 1891.

There are two thousand six hundred and fifty (2,650) arc lights now in use; fifty (50) owned by the Girard Trust; and this year we will add seven hundred (700) to that number, making a total of three thousand four hundred (3,400) lights.

In my message of last year I recommended to your deliberate consideration, the advisability of enacting a general ordinance requiring a gradual removal of all poles and overhead wires, and the placing of all wires underground. To my mind this is one of the most important questions now facing the municipality. There is no valid reason, except that of expense, why the unsightly poles and overhead wires should not be removed, and the wires placed underground, and the longer positive determination of this question is delayed, the less will be the chances of accomplishing this very desirable result. One of the objections made by the corporations is that the question of placing the wires underground has not yet been determined to be feasible. The best answer to this is that it has been successfully demonstrated as a fact by the City of Philadelphia herself.

We now have 391.2 miles of underground service and are adding to it annually many miles more, and why should not private corporations be compelled to do that which the city herself has demonstrated commercially, scientifically, practically, and in every other way, to be a decided success?

As there is an underground conduit on Broad street, all poles will be removed from that street, and the wires placed underground between Germantown avenue and McKean street

in a short time. All companies having wires thereon have been notified to remove the same at once.

All the poles and overhead wires will be removed from Market street this year between Delaware river on the east and at least Thirty-second street on the west. This has been brought about by the persistent and determined efforts of the Director of the Department of Public Safety to secure an appropriation of fifty thousand (50,000) dollars to build a conduit upon that street, between the points named, which was granted in the appropriations for this year. I regret to say that we are far behind other large cities in this respect, but if you will refuse to grant privileges which would increase the number of poles and overhead wires, I am satisfied that it will very materially assist in the successful accomplishment of this much desired result. The poles are not only unsightly but the wires are very dangerous in many instances, and very materially interfere with the necessary efforts of the Bureau of Fire in extinguishing all large conflagrations.

I am more firmly convinced than ever of the importance of the City owning her electric light plant. There is no service more important than the proper lighting of the City, and there is no better way to do it than by electric lighting, for it is not only a matter of economy, but also renders very efficient aid to the police in the suppression of crime. There should be as many more as are already provided for, and in my judgment, we should have absolute control of all lights that may be used for street lighting. Unless legislation soon be adopted to establish such a plant with the least possible delay, the future will show that the municipality has made a very grave and inexcusable mistake.

Bureau of Health.

The report of this Bureau shows the general health of the city to be good. I have repeatedly called your attention to the Municipal Hospital, which is not only totally inadequate

for its purpose, but is also located in a part of the city in which improvements are being rapidly made. You have just granted permission to appoint a Committee of Experts to select a proper site for a new building. Effort should be made at once not only to remove the old building, which, on account of its improved surroundings, should no longer be allowed to remain in its present location, but also to build a new one, which will be provided with all the improved sanitary methods which a hospital of this character, to be effective, demands.

During the year 1892 the members of the Bureau of Health had perhaps the most responsible duties thrust upon them that has existed for many years. Cholera had become epidemic in many of the seaports of Europe, and it was a matter of grave responsibility to the health authorities to determine how best to protect our city from the ravages of this dread disease. It became necessary to establish a strict quarantine against vessels from all infected ports, and the question of properly protecting us from this pestilence, and at the same time not placing any unnecessary restrictions on the commerce of the port, became a very serious and delicate question. The policy of the Bureau seeking first to protect the health interests of the City was severely criticised by certain other interests, but after a careful investigation of the matter, personally, I am convinced that the only desire of the members of the Board was to properly and impartially perform their sworn duty as public officials without unnecessarily, in the slightest degree impeding, restricting or interfering with the commerce and shipping interests, the plan adopted being the one suggested and upheld by the best medical and sanitary experts of this city and the country at large.

Quarantine against the shipping should, in my judgment, be placed under the control of the National Government, otherwise there may be conflicts between the State and Municipal Governments, each having distinct and defined responsibility under the present law. I believe it would be more satisfactory to all the various interests, yet until such

a result is accomplished, it is our duty to do all in our power to protect the health of the city under the laws as they now exist.

I take this opportunity to acknowledge your prompt liberality and willingness to grant all appropriations asked for in the emergency of last summer.

Bureau of Building Inspectors.

The report of this Bureau shows an increase of three hundred and twelve (312) permits over 1891, there being issued that year four thousand two hundred and seventy-two (4,272), and in 1892 four thousand five hundred and eighty-four (4,584) permits. These permits issued cover ten thousand four hundred and one (10,401) operations, as against nine thousand one hundred and forty-two (9,142) operations in 1891, and the total value of buildings authorized by permits was twenty-six millions eight hundred and twenty-six thousand eight hundred and fifty-nine (26,826,859) dollars and twenty-seven (27) cents, as against twenty millions eighty-eight thousand two hundred and thirty-six (20,088,236) dollars and fifty (50) cents in 1891, an increase of six million seven hundred and thirty-eight thousand six hundred and twenty-two (6,738,622) dollars and seventy-seven (77) cents. There is now before the Legislature an Act to revise the building laws, the proper determination of which will be of great importance to the City of Philadelphia, and very materially assist in her improvement.

Bureau of City Property.

This Bureau reports having received during the past year from all sources the sum of eighty-four thousand six hundred and seven (84,607) dollars and sixty-seven (67) cents, as against eighty-two thousand five hundred and seventy-one (82,571) dollars and forty-seven (47) cents in 1891, showing an increase of two thousand and thirty-six (2,036) dollars and twenty (20) cents over 1891.

Among the most valuable properties owned by the City are her wharves, yet she seems to receive no return adequate to their value. Your Joint Special Committee in conjunction with an appointment, one each, by the Board of Port Wardens, the Board of Trade, and the Mayor, are now investigating this matter, the ultimate result of which I have no doubt will be of great benefit to the City by increasing, as far as possible, the revenue derived from these properties.

Bureau of Boiler Inspection.

The number of boilers inspected and approved during the year 1892 was three thousand and sixty-two (3,062), an increase of eighty-two (82) as compared with 1891.

The number of certificates of inspection issued was two thousand six hundred and two (2,602), an increase of fifty-eight (58) over that of 1891.

The number of new boilers erected during 1892 was five hundred and thirty-three (533), and the number of boilers now under the supervision of the Bureau is three thousand three hundred and thirty-nine (3,339).

The amount paid into the City treasury was three thousand three hundred and ninety-five (3395) dollars and twenty-six (26) cents over and above the expenses for the year.

DEPARTMENT OF PUBLIC WORKS.

The Sixth Annual Report of the Director of the Department of Public Works is herewith transmitted, presenting detailed statements of the great amount of work this Department performed during the year 1892.

BUREAUS.

City Ice Boats.

As there was no necessity for their services, the Ice Boats were not placed in commission until December 26th; but from

that date until the last of February of this year there was experienced the severest winter weather this section of the country has undergone during the last twenty-five years, and had it not been for the very efficient service performed by our ice boats in keeping navigation open on both rivers, from the City to the Delaware Breakwater, it would have been impossible for even the largest of the steamships, bound for this port, to have come to their docks, as along part of the City's front the rivers were freezing solidly across, and, along the other parts, were being choked with great floes of floating ice. Our growing shipping interests demand that we be prepared for just such emergencies. The question of appropriations for this service should receive careful and generous consideration.

Bureau of Gas.

An itemized statement of the receipts and expenditures of this Bureau will be found to be as follows :

In 1892 the receipts were.....	\$3,845,825 99
In 1891 the receipts were.....	3,774,072 09
Being an increase of.....	\$71,753 90

Expenses for 1892 were two million eight hundred and eleven thousand eight hundred and ninety-nine (2,811,899) dollars and fifty-four (54) cents, being a decrease of fourteen thousand three hundred and seventy-five (14,375) dollars and sixteen (16) cents over last year.

The amount of gas furnished to the city in 1892 was five hundred and ninety-four million two hundred and three thousand six hundred and five (594,203,605) cubic feet, and in 1891 five hundred and eighty-seven million three hundred and ninety-eight thousand three hundred and twenty-eight (587,398,328) cubic feet, being an increase for 1892 of six million eight hundred and five thousand two hundred and seventy-seven (6,805,277) cubic feet. This total amount of gas if sold to the public at the present rate, would have placed

in the City Treasury eight hundred and ninety-one thousand three hundred and five (891,305) dollars and forty (40) cents.

This gas is used for lighting the streets and in the various municipal offices, and if the city did not own her own gas plant, would have to be paid for out of taxation.

During 1892 there were appropriated five hundred thousand (500,000) dollars for the manufacture of gas in the plant owned by a private corporation and located at the City's Twenty-fifth Ward Gas Works, and in the appropriations this year, that was increased one hundred thousand (100,000) dollars, making a total of six hundred thousand (600,000) dollars.

A most serious question now confronts us: the Department of Public Works has directed your attention to it in a communication which I transmitted you in a special message, and the attention of the Finance Committee has been asked by the Director appearing before them thereon: it is—the great importance of the City taking advantage of her right to purchase this plant, now in operation in the Twenty-fifth Ward Gas Works, in order that she may manufacture all the gas herself instead of purchasing it from a private corporation. The question to be determined at the earliest possible moment is whether it is better to keep on adding to our appropriations for the purchase of gas, or to purchase the plant ourselves, and it is one of the most important now to be considered. In my judgment legislation should be enacted at once to purchase the plant at the Twenty-fifth Ward Gas Works, and to constantly add to it. If this is not done the result will be that eventually, by degrees, the entire production of our gas will be in the control of a private corporation, and the City will then be unable to make those arrangements which now she can and may make so advantageously. As I have stated already, the control of our supply of gas should always remain with the City herself, and should never be surrendered, either directly or indirectly, by sale or lease, or in any way whatever, for it has been the experience

of all other municipalities, where the gas works were owned by the City and were afterwards allowed to be purchased or leased by private corporations, that there has always followed an endeavor on the part of the City to regain control of the same.

Bureau of Highways.

The appropriation to this Bureau for the year 1891 for the paving of streets not occupied by passenger railway companies was four hundred and five thousand two hundred and sixty-three (405,263) dollars and seventy-five (75) cents, and for the year 1892 three hundred and twenty-five thousand (325,000) dollars, with no appropriation for railway streets.

After several ineffectual efforts to arrive at some amicable agreement whereby the passenger railway companies should do their share of paving, as required by law, I transmitted to you, by special message, on April 14, 1892, a statement of what, in my judgment, they should be compelled to do. This resulted in the passage of an ordinance directing what streets they should repave. I regret to say that while the companies had ample notice to do all the paving required of them during the past year, in some cases the same was delayed until the Director of the Department of Public Works determined to pole off the streets, as authorized under the ordinance. This had the desired effect, although some of the work remains incompleted on account of the winter setting in before the companies commenced the work.

The Bureau of Health, Department of Public Safety, last summer passed a resolution calling the attention of the Department of Public Works to the bad sanitary condition of many of the small streets and alleys in a section of the city where disease was likely to become epidemic. I immediately transmitted to you, by special message, a recommendation of the Director of the latter department, in which he requested an appropriation be made to pave all these small streets with sheet asphaltum, in order that they might be properly

drained and kept in a cleanly condition. In view of this request you later appropriated four hundred thousand (400,000) dollars, that these recommendations might be carried out, and as soon as the money becomes available we will immediately commence this much needed improvement. There is nothing so important to the health of the city as the keeping of this class of streets in proper sanitary condition.

Among the notable improvements accomplished during the past year were first, the repaving of Broad street, from Columbia avenue to Spring Garden street, and from Chestnut street to Fitzwater street with sheet asphaltum, replacing the previous pavement of Belgian blocks, and second, the using of these same blocks redressed, in repaving the many miles of adjacent streets previously paved with cobble stones.

We hope this year to finish the repaving of this thoroughfare from Spring Garden to Filbert, and from Fitzwater to McKean streets, and when this is completed we will have as fine a street, well and properly paved, as any city in the country. During the year 1892 there have been laid more miles of improved street paving than in any preceding year.

Bureau of Street Cleaning.

There was appropriated to this Bureau for the year 1892 the sum of five hundred and twenty-five thousand seven hundred and fifty-eight (525,758) dollars, and while this seems like a great amount of money it is comparatively small when compared with the appropriation for street cleaning in other cities.

For this work during the present year, 1893, New York's appropriation is two million two hundred and fifty thousand (2,250,000) dollars, based upon a mileage of about four hundred (400) linear miles, while our appropriation for this year is only six hundred and four thousand one hundred and seventy-eight (604,178) dollars, based upon a mileage of seven hundred and eighty-nine (789) linear miles.

In view of the threatened invasion of cholera during 1892 the Bureau of Health passed resolutions that after January

1, 1893, the keeping of hogs within the City limits should be prohibited. This raised a very serious question; what disposition to make of the garbage collected, the same having formerly been collected and disposed of to the owners of hogs, that they might feed it to them. After careful consideration and investigation the Director of the Department of Public Works recommended that the garbage should either be removed outside of the city limits or cremated, stating most positively that, in his judgment, the proper method for disposing of it was by cremation. In making the appropriation, you disagreed with him, and directed that garbage should only be cremated in one district, and in the other districts collected and disposed of in the old way. The bill making this appropriation did not reach me until the last day of the year, and as the contracts for the removal of garbage expired on that date, the Department was compelled to award the contracts as directed by the ordinance.

Bureau of Lighting.

The number of electric lights in 1891 was.....	1,769
The number of electric lights in 1892 was	2,717
Increase of.....	948
Number of gasoline lamps in 1891 was.....	7,911
Number of gasoline lamps in 1892 was.....	8,757
Increase of.....	846

The total number of electric lights, gasoline lamps and gas lamps in the year 1891 was thirty thousand one hundred and forty-one (30,141), as against thirty-two thousand seven hundred and ten (32,710) in 1892, an increase of two thousand five hundred and sixty-nine (2,569) lights.

This is an additional argument in support of my recommendation that the City should, at the earliest possible moment, operate and control her own electric plant for Municipal purposes.

Bureau of Surveys.

On February 1, 1893, Mr. Samuel L. Smedley, Chief Engineer of the Bureau of Surveys for twenty-one (21) years,

resigned on account of failing health, the position he had so long and so faithfully filled, and Mr. George S. Webster, who throughout Mr. Smedley's long illness, had been Acting Chief of the Bureau, was appointed in his stead.

There have been constructed during the past year six miles of main sewers, and this year we expect to complete more miles of main and branch sewers than have ever been before constructed in any one year. While the work of this Bureau, in the construction of sewers, which being underground is not always seen, there is no municipal work that tends so much to improve the health and sanitary condition of a community as the rapid extension of its sewerage system.

The bridge over the Schuylkill river at Walnut street is now complete, excepting the paving of the approaches, the flooring of the channel spans, the railings and decorative iron work, and the painting, all of which will be placed under contract as soon as funds are available. We hope to have this bridge open for travel about midsummer.

On account of the rapid growth of the south and south-western sections of the City, I beg to call to your attention the importance of building two new bridges across the Schuylkill river, one at or near the site of the present bridge at Gray's Ferry, the other in the neighborhood of the terminus of Passyunk road. They now would be of great convenience to the large population of those sections, and in the near future will be imperative necessities.

Bureau of Water.

This City experienced throughout last summer the severest drought and longest spell of high temperature for many years; and while this was general all over the country, and we suffered greatly from the insufficiency of our pumping facilities and the greatly increased demands thereon, yet we were not afflicted to the degree that a great many other large cities, towns, and boroughs were by the scarcity of their water supply.

To make our supply answer the necessities of our citizens

was possible only by the utmost and constant exertions of the Director of the Department of Public Works himself and of all his subordinates. Every engine in the Bureau was run at its full capacity, and all the resources of the Department taxed to their utmost; otherwise it would have been impossible to have kept any supply in the reservoirs, as from June 15th to September 15th we were unable to increase the height of water in the reservoirs more than an average of two (2) inches in every twenty-four hours, showing that the water was consumed almost as fast as pumped. The standard height of water in the East Park Reservoir is twenty-five (25) feet, yet throughout this drought, despite all our exertions, the average was but six (6) feet.

The average quantity of water pumped daily during 1892 was one hundred and sixty-three million eight hundred and one thousand six hundred (163,801,600) gallons, equal to about one hundred and sixty (160) gallons per day for every man, woman, and child of our population.

The twenty million (20,000,000) gallons pumping engine contracted for by the former administration under my distinguished predecessor, was completed on June 15th, and on that day, by my invitation, the Hon. Edwin H. Fidler started the machinery, and since then this engine has proved of incalculable benefit, for had it not been for the efficient work it performed the consequences upon our service would have been very serious. There will be added this year to our pumping capacity one twenty million (20,000,000) gallons engine at the Spring Garden Station; one fifteen million (15,000,000) gallons engine at Frankford, and one twelve million (12,000,000) gallons engine at Roxborough, and while these additional pumping facilities will very materially increase the efficiency of this most important branch of the municipal service, we will, at the present rate of increase in our consumption of water, if we do not steadily continue, for some time yet, these additions to this service, be in the same or a worse condition than we are to-day.

The Roxborough Reservoir, in the construction of which the contractor is already far in arrears as to the time of its completion, we hope to have finished this year, and be then able to give that territory, embracing Chestnut Hill and Germantown, that which it has so long been without, an adequate supply of subsided water.

On September 13th the Director of the Department of Public Works awarded the contract for the construction of the Queen Lane Reservoir, for the sum of one million one hundred and fifty-nine thousand five hundred and ninety-one (1,159,591) dollars, making the award, in his judgment, to the best interests of the city by accepting this bid of Messrs. Filbert, Porter & Co., who guaranteed the completion of this work by January 1st, 1895, entering a bond of one hundred thousand (100,000) dollars, to be forfeited to the city upon their failure to so complete the work as guaranteed. The lowest bidder, as to the price, was Mr. John B. Riley. He is the contractor for the Roxborough Reservoir, and has already required more time than his contract allows for the completion of that work, and had not then nor has not yet nearly finished, and we estimate he will require a full year more than he guaranteed in the contract. In his bid for this Queen Lane Reservoir he asked for one year longer in which to complete the work than Messrs. Filbert, Porter & Co. did, and as it was and is of the utmost importance to the people of the whole northwestern section of our city to have this great improvement, now already much too long delayed, completed at the earliest possible date, we felt it incumbent upon us to award this contract to those in whose ability to promptly and properly fulfill their contract obligations we had entire confidence. From the present advanced condition of this work we feel that it will not only be completed by the time specified, January 1st, 1895, but also that it may be presented the city finished several months before that date.

By reason of the rapidly increasing population of the City it is absolutely imperative that at once there should be com-

menced preparations looking toward securing our future water supply from sources other than those from which the the present is obtained, for it is as much folly to imagine for an instant that the present sources of supply will be adequate for the future needs of this great City, as it would have been seventy-five (75) years ago, to contend that the water works of that day, located on Center Square, would suffice for the City's needs for the balance of the century, for the demands upon the sources of our present supply will increase, in the future, in even greater proportion than did the demands upon the Center Square Water Works in the past, as our City's history shows her advance in size and greatness to be steady and yet proportionately swifter year by year. The quicker legislation be had and actual work commenced, the quicker will be the solution of this grave and most important question, now already too long delayed. Several surveys in connection with this subject have at different times been made, and the City has already expended upwards of eighty thousand (80,000) dollars, and unless some action soon be had, and the work which has thus been accomplished be made use of, she will have wasted both her time and money. It is my opinion from the investigations of the Department that a system could be adopted whereby we would secure a supply adequate for a hundred years to come.

On September 1, 1892, I transmitted to you a communication upon this subject from the Director of the Department of Public Works, requesting authority to appoint a Committee of three, one to be a leading hydraulic engineer, one to be a business man of the City of Philadelphia, and the other, the Chief of the Bureau of Water, no new surveys or any of the work already done to be made or done over again by this Committee, they simply to utilize the great amount of data upon this subject at present on hand in the Department, surveys, plans and other detailed data, etc., and then make recommendation what in their judgment is the best plan to adopt and course to pursue in its adoption.

These recommendations of the Director of the Department of Public Works have my unqualified endorsement, and if they be adopted I believe will prove successful. What is imperative, is action and action immediately.

DEPARTMENT OF CHARITIES AND CORRECTION.

The President of the Department of Charities and Correction has presented his Annual Report, which is transmitted herewith, showing in detail the important work accomplished during the past year.

On April 4, 1892, the terms of office of the President and Members of the Board of Directors of this Department, appointed by my distinguished predecessor, expired, and in their stead I appointed Mr. James A. Freeman, President, and Messrs. William H. Lambert, Alfred Moore, William D. Gardner, and John Huggard, Members of the Board.

On September 29, 1892, Mr. Freeman, because of ill-health, tendered his resignation, which was with regret, accepted, and Mr. Lambert appointed President in his stead, and to the vacancy thus created James W. Walk, M. D., was appointed.

BUREAUS.

Bureau of Charities.

In this Bureau, of the total appropriation for 1892 of five hundred and nine thousand nine hundred and thirty-eight (509,938) dollars and sixty-six (66) cents, there were four hundred and sixty-three thousand two hundred and nine (463,209) dollars and two (2) cents expended, forty-three thousand four hundred and seventy-three (43,473) dollars and nineteen (19) cents were carried over to, and are available for this year, and three thousand two hundred and fifty-six (3,256) dollars and forty-five (45) cents merged.

There was a total of nine thousand nine hundred and six (9,906) inmates during the year, a daily average of two thousand nine hundred and sixty-three (2,963), the daily cost per capita for subsistence being thirteen and fifty-seven one-hundredths ($13\frac{57}{100}$) cents, and for maintenance and subsistence, including fuel, light, clothing, medicine, salaries and general repairs, thirty and eighty-nine one-hundredths ($30\frac{89}{100}$) cents.

Throughout this Bureau many and important improvements have been added, expenses have been reduced wherever practicable, a great amount of repairing, replastering and painting has been done; the new Clinic Hall commenced in 1891 was completed and opened on October 8, 1892, and has been declared to be "one of the finest halls of its kind in this country;" several new wards have been opened, one for contagious diseases; the new dining room, with a seating capacity of seven hundred and ten (710) has been used for the first time; the Training School for Nurses has continued most successfully its important work; the force of Out-door Physicians, heretofore comprising twenty-five Allopaths, has been doubled by the appointment of as many Homœopaths, and the members of the Medical Staff, gentlemen of the highest professional ability and integrity, have rendered their most faithful and conscientious service.

Bureau of Correction.

The appropriation for this Bureau during 1892 was one hundred and ninety-seven thousand and eighty-five (197,085) dollars, of which, on December 31st, five thousand three hundred and eighty-six (5,386) dollars and twenty-seven (27) cents merged, which with twenty-nine thousand three hundred and seven (29,307) dollars and seventy-four (74) cents also paid into the City Treasury as the earnings of the Bureau, makes the net cost to the City for conducting same, one hundred and sixty-two thousand three hundred and ninety (162,390) dollars and ninety-nine (99) cents.

There was a total of six thousand four hundred and thirty-six (6,436) inmates during the year, a daily average of nine hundred and fifty (950), of which seven hundred and seventy-five (775) were males and one hundred and seventy-five (175) females, the daily cost per capita for subsistence being eleven and sixty-four one hundredths ($11\frac{64}{100}$) cents. The Bureau's earnings, twenty-nine thousand three hundred and seven (29,307) dollars and seventy-four (74) cents, was an increase over that of 1891 of two thousand seven hundred and two (2,702) dollars and fifty-six (56) cents. As gratifying results have been obtained in this Bureau as in the Bureau of Charities, among other permanent improvements the work of perfecting the water supply for the institution was completed, and much alteration and many repairs made.

The overcrowded condition and unsatisfactory accommodations at present provided for the insane poor, the most unfortunate of our unfortunates, demands that at the earliest possible moment additional and improved buildings shall be erected, and this question is commended to your immediate and favorable consideration, as is also the earnest action, brought to your attention by my communication of March 23d last, which was taken by the Department to endeavor to obtain from the State the same treatment for Philadelphia County with regards to the care of, or compensation for her own care of, her insane poor that is given in this connection by the State to other counties, and in the Department's action I most heartily concur.

The duty of the President and Members of the Board of Directors of the Department of Charities and Correction is to care for our sick, unfortunate and pauper poor, and to deal with the vicious and depraved classes of society, and this is a task self-imposed and with no remuneration for its many arduous, trying and difficult duties, except the consciousness of a service in the aid of humanity and for their City's good. The different individuals under their charge, have each their separate claim upon us, some to be treated with the utmost care and consideration, others to be strictly though justly

dealt with, but all to receive our sympathy and charity, and these gentlemen, I feel, from personal and intimate official and private knowledge, will in all respects fulfill their trust.

The Proposed Boulevard.

Under the Ordinance to place a Boulevard upon the City Plan, the Department of Public Works, Bureau of Surveys, will, in accordance with law, bring before the Board of Surveyors on May 1st next, all the details of route, plans, section, etc., for same, and at that time the final hearing for any interested persons will take place, and it is earnestly hoped that these plans will be adopted.

The City will then have taken another step to secure an approach to her great Fairmount Park, free from the dangers of any steam railroad crossings and accessible alike to all her citizens, and one which would be not only a most valuable improvement, but also be our most beautiful highway. If this step is taken, I would most earnestly recommend the earliest possible consideration of the best method for providing the money, for the appropriation necessary to at once continue this important project by actually commencing the work, otherwise injustice will be done to the owners of property within the approved lines, for immediately upon their adoption, there would be created a bar to action for damage for any improvement, which they might thereafter make, any delay therein, affecting not only the property owners, but also the City, the owners, by preventing improvements, and the City by thus depriving her of the increased taxes she would receive from such improvements.

The Philadelphia & Reading Railroad Company's Terminal.

I sincerely regret that at this date I am compelled to advise you of our inability, up to the present, to arrive at any amicable agreement with the officials of the Philadelphia and Reading Railroad Company regarding the improvements to

be made to Broad street at Pennsylvania avenue. Repeated consultations have been held during the last year looking to the settlement of this question by adopting, if possible, a plan by which Broad street would not be elevated, as was originally contemplated in the ordinance approved December 26, 1890, my desire being to have the railroad cross overhead at that point, and also to remove, at the same time, all the grade crossings now existing along Pennsylvania avenue, from Broad street to Girard avenue. During this delay, the improved pavement on Broad street remains incomplete from Spring Garden street to Filbert street, thus preventing a continuous asphalt pavement, and unless an agreement soon be reached, I will again communicate with you in a special message upon this subject.

The Overhead Electric Trolley System.

This year there will be introduced throughout our entire City the most extensive system of overhead electric trolley propulsion for street cars that has ever been attempted in this country. The original ordinances granting such privileges having been vetoed, became a law notwithstanding the veto of the Mayor. The question of their legality was then carried to the Supreme Court of the Commonwealth, and since the decisions there obtained, you have granted to every street railway company within the City of Philadelphia permission to use such system, although the later Ordinances of the utmost value to these companies, contain certain conditions which protect her interests in a number of particulars which the original ordinances entirely ignored, one of the most important being that which compels the removal of this system upon the passage of an ordinance to that effect.

The City for years past has been continually contending to her utmost for the removal of all poles and overhead wires, and has heretofore been consistent therein by removing all her poles and placing her wires underground just as fast as she

could secure appropriations therefor, and yet by these Ordinances which permit this system of overhead trolley there will be thousands of poles erected and several hundred miles of wires strung throughout the City, but beyond this is the fact that no matter what desirable advantages future improvements in electric motive power may present, the City of Philadelphia will be committed to this system, unless these various companies of their own accord adopt such improvements. No other great City of our size has permitted overhead trolley as the general system for her street car propulsion, New York and Chicago, so often held up to us as examples of all that is advanced and progressive in Municipalities, have continually refused their consent, and although your action upon these ordinances has been almost unanimous, I am yet firm in my belief that the future will show that by granting these privileges now a most serious mistake has been made, particularly as this action has been taken while the whole question of the use of electricity, as a motive power, is acknowledged by all to be but in its infancy and experimental stages.

I have the honor to also transmit herewith for your consideration the complete Annual Reports made me by the following Departments:

Receiver of Taxes,

City Treasurer,

City Controller,

Law,

Education,

Sinking Fund Commission, and

Board of Revision of Taxes.

With this, my Second Annual Message, there closes another official year.

During this period many questions of great moment to the City have engaged our attention, and their solution has involved most serious consideration and reflection, yet I feel she has more than held her own, as many improvements for the welfare and comfort of the people have been secured.

Throughout the new year, now opening, many more grave and all important questions will have to be considered, and mainly upon you, the Legislative Branch of our Municipal Government, will depend, by the wisdom of your decisions thereon, the future success of our City, for by your actions will the Executive be assisted or retarded in that which I know we both so earnestly desire; the advance of Philadelphia's greatness. To that end we must united, bend our sincere, unalterable and unremitting energies, ever remembering that our actions of to-day effect the future as well as the present, and that in all questions, Legislative or Executive, it is, as public officials, our first and foremost duty, above and beyond all others, to well and faithfully guard the interests entrusted to our care and keeping by the people of Philadelphia.

I am,

Respectfully,

EDWIN S. STUART,

Mayor.

ANNUAL REPORT
OF THE
DEPARTMENT OF PUBLIC WORKS
FOR THE YEAR ENDING
DECEMBER, 31, 1892.

OFFICERS
OF THE
Department of Public Works.

Director,
JAMES H. WINDRIM.

Chief Clerk,
HARRY W. QUICK.

CLERK—WILLIS SHEBLE.

STENOGRAPHER AND CLERK—W. W. ALEXANDER.

STENOGRAPHER—CLEMENT L. BURTNETT.

TYPEWRITER—GWILLEM S. DAVIS.

MESSANGER—JAMES A. JUNIOR.

Superintendent of City Ice Boats,

H. E. MELVILLE.

Chiefs of Bnreaus :

GAS—WILLIAM K. PARK.

HIGHWAYS—GEORGE A. BULLOCK.

LIGHTING—JOHN J. KIRK.

STREET CLEANING—SYLVESTER H. MARTIN.

SURVEYS—SAMUEL L. SMEDLEY.

WATER—JOHN L. OGDEN.

SIXTH ANNUAL REPORT
OF THE
DEPARTMENT OF PUBLIC WORKS.

JAMES H. WINDRIM, Director.

Philadelphia, January 2, 1893.

HON. EDWIN S. STUART,
Mayor of Philadelphia.

SIR:—In compliance with the Act of Assembly, approved June 21, 1885, I have the honor to present the Sixth Annual Report of the Department of Public Works of the City of Philadelphia, for the year ending December 31, 1892.

The reports of the Chiefs of the several Bureaus of this Department are herewith submitted, which show in detail what has been accomplished by each in the maintenance and extensions of the public works of the City; from them the following summary is made, with suggestions from the experience of the past year, that should be considered for present and for future improvements.

City Ice Boats.

On account of the open winter of the months of January and February the boats were in commission only from January 27 to February 6. When not in service they have been anchored at the City's wharf, at the House of Correction.

During the summer the repairs scheduled to be made under the appropriation to the boats were contracted for and completed satisfactorily.

The cold weather of December made sufficient ice to obstruct navigation in the rivers, and the three boats were put in commission on December 26, and are at this date rendering efficient service in keeping the channel open for the shipping between the Delaware Breakwater and the City. The usefulness of the City Ice Boats has been fully demonstrated at this time; without them the rivers would have been closed to all shipping entering the Port of Philadelphia.

The amount asked for in the appropriation for 1893, for the repairs to the boats, and reconstruction of the wheels, was reduced by Councils, and an additional appropriation should be made to permit the necessary work upon them to be done this summer that the boats may be in readiness for the season of 1893-94.

The following comparative summary is an abstract of the work done by the City Ice Boats, and of the receipts for towage, and the expense of maintenance during the years 1889-90, 1890-91, and 1891-92:

	1889 and 1890.		1890 and 1891.		1891 and 1892.	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
Vessels Outward.....			2	1,050	1	1,050
“ Inward.....						
“ Assisted.....			1	2,000		
Total.....			3	3,050	1	1,050

	1889 and 1890.	1890 and 1891.	1891 and 1892.
Amount received for towage and assistance rendered.....		\$423 64	
Amount received from the sale of old material	\$296 50	66 35	\$9 03
Total paid City Treasurer	\$296 50	\$489 99	\$9 03

XXXVII

	1890.	1891.	1892.
Total amount of warrants drawn	\$11,040 50	\$23,441 90	\$18,849 68
Deduct cash paid City Treasurer	296 50	489 99	9 03
Actual current expenditure	\$10,744 00	\$22,951 91	\$18,840 60

Bureau of Gas.

The most important works scheduled to be done under the appropriation for 1892 have been completed, and they add to the value of the City's property at the gas works and in street mains.

Of distributing mains there were laid 35.40 miles, making a total of 1,071 miles of gas mains now in the streets.

The following is a comparative statement of the pipe laid during the years 1890, 1891 and 1892 :

	1890. Feet.	1891. Feet.	1892. Feet.
2 inch.....			62
3 "	10,911	8,072	6,933
4 "	119,797	130,978	111,770
6 "	10,940	5,420	36,784
8 "	24	25,436	972
12 "	16	33,494	16,148
16 "	4		
20 "	34,451	26,152	14,272
30 "	15,308	8,640	
Total	* 191,451	† 238,192	‡ 186,941

* 1890 equal to 36 $\frac{1}{4}$ miles. † 1891 equal to 45 $\frac{1}{8}$ miles. ‡ 1892 equal to 35 $\frac{3}{4}$ miles.

At the Twenty-sixth Ward Works the improvements made were the construction of an additional stack of D. D. Fleming generating benches; the erection of a set of four purifying pans, a multitubular condenser and a scrubber; change of

house and placing a fourteen feet station meter; erection of one Ross patent discharging machine; the erection of an office for the Superintendent, telegraph operator and clerks.

At the Ninth Ward Works one Ross patent discharging machine was introduced.

The new office authorized to be rented, by ordinance of Councils, at Broad and Columbia avenue, was fitted up, and the general business centre removed from Thirteenth and Spring Garden streets.

Manufacturing Capacity.—The following table gives in detail the capacity of the several Works:

Works.	Stacks.	Retorts per Stacks.	Total Retorts.	Grand Total.	Maximum Capacity per Works, 24 hours.	Total Maximum Capacity, 24 hours.
Ninth Ward.....	4	150	600			
	2	194	388			
Experimental Bench.....			3	991	6,600,000	
Twenty-first Ward.....	1	30	30	30	200,000	
Twenty-fifth Ward.....	6	120	720	720	4,000,000	
Twenty-sixth Ward.....	2	72	144			
	4	144	576	720	6,000,000	16,800,000

The above does not include the plant of the Philadelphia Gas Improvement Company, which has a capacity of 11,000,000 cubic feet per day.

There are at the Ninth Ward Works, in addition to the above, eight (8) retorts used exclusively for vaporizing naphtha, for maintaining clear pipes about the Works.

From the aggregate of all the retorts for making gas from coal, the maximum quantity it is possible to make, if all parts of the plant are in perfect condition and could be maintained so, would be 16,800,000 cubic feet in 24 hours; on account of antiquated benches, renewals, repairs, and other contingencies, the working output is about 12,000,000 cubic feet in 24 hours.

The greatest consumption in the City in any one day in 1892 was 16,328,000 cubic feet; the works owned by the City are short in capacity 4,328,000 cubic feet per day, of the supply needed, and this quantity may be greater if the supply of coal be inadequate, or accident occur to the retort benches.

The deficiency will increase each year, as the City grows, by additional consumers, the increase of business industries in number, and in their requirements, together with the desire of the public for more and better light, now requisite by comparison with electric lighting. In the report of last year this subject was referred to as follows :

“The adoption of the manufacture of water gas by the City was occasioned by the demand for an increased supply of gas with a higher illuminating power, which the City had not the facilities to provide. It is imperative for the City to extend its plant for the manufacture of the entire quantity of gas required by the consumers. The amount of consumption is increasing with the growth of the city, and if the Department is to supply gas to be manufactured by the City, appropriations should be made to construct additional works, or the City must continue to purchase gas in the manner already instituted from a private corporation.

The City should own its entire plant, increasing its capacity to supply the public, and in doing so, adopt the improved methods for the manufacture of gas which science and business enterprise have proven efficient, in order to supply satisfactory illuminating and fuel gas at the lowest possible price to the consumer.

“With such improvements made there can be a reduction in the price of gas; with that reduction there would naturally be a greater consumption; but the City is not at the present time in condition to do either—make the reduction in price or make the additional gas.”

Nothing has been done during 1892 to increase the facilities for manufacturing gas, further than the reconstruction of worn-

out benches, substituting those of more modern pattern and with partial machine labor, and additional purifying apparatus.

The Department has suggested that money be appropriated to purchase the present plant of the Philadelphia Gas Improvement Company at the Twenty-fifth Ward Works, and to erect at the Twenty-sixth Ward Works a plant to manufacture at least six million cubic feet of water gas per day, complete in all its appointments, with an additional holder of 3,000,000 cubic feet capacity, with exhausters and the additional mains for distribution to the other holder stations; these improvements are estimated to cost about \$1,000,000, and as additions to the works should be planned and constructed to form a part of any future extensions.

If the City does not provide the additions to make the gas required, there will have to be made each year an increase in the appropriations for the purchase of water-gas.

HOLDERS.—The general repairs and repainting of holders at the several stations have been done by employes of the Bureau.

The enlargement of the second holder at the Ninth and Diamond streets station has been completed, increasing the capacity 500,000 cubic feet. The Department requested an appropriation for increasing the capacity of one of the holders at the Twenty-fifth Ward Works, which was not given. While the increase in mains, and their completion in circuits provides for distribution, a uniform supply will be best secured to the public by an increased capacity at the holder stations, and with new holder stations established, that the distribution to all sections shall be at the lowest pressure.

The following table gives in detail the date of construction, the location and capacity of all the holders :

XLI

Location.	When Erected.	Dimensions.	Capacity.	Total.
Ninth Ward Works.....	1851	Feet. 140 x 70	Cubic feet. 1,000,000	
"	1871	140 x 70	1,000,000	
"	1844	80 x 40	200,000	
"	1847	80 x 40	200,000	2,400,000
Twenty-fifth Ward Works.....	1876	140 x 70	1,000,000	
"	1876	140 x 70	1,000,000	
"	1885	140 x 70	1,000,000	
"	1885	140 x 70	1,000,000	
"	1889	140 x 70	1,000,000	5,000,000
Twenty-sixth Ward Works.....	1852	160 x 90	1,800,000	1,800,000
Twenty-first Ward Works.....		60 x 88	103,000	
"	1874	78 x 44	200,000	303,000
Frankford: Frankford avenue and Bucklius street.....		50 x 16	31,000	
Frankford: Frankford avenue and Bucklius street		45 x 16	25,000	
Frankford: Frankford avenue and Bucklius street.....	1869	80 x 28	130,000	186,000
Bridesburg: Richmond and Bridge streets.....	1869	60 x 21	59,000	59,000
Ninth and Diamond streets.....	1869	140 x 70	1,500,000	
"	1874	140 x 70	1,500,000	3,000,000
Ninth and Mifflin streets.....	1874	115 x 62	600,000	
"	1890	160 x 84	1,577,000	2,177,000
Twenty-fifth and Callowhill sts...	1851	100 x 50	390,000	
"	1888	80 x 42	203,000	593,000
Germantown, near Wister Sta- tion, P. & R. R.	1870	100 x 50	390,000	390,000
Total.....				15,908,000

The following is a summary of the receipts and expenditures for the years 1890, 1891, and 1892:

Comparative Statement of Receipts.

Year.	Receipts.	Increase.
1890	\$3,659,644 30	
1891	3,774,072 09	\$114,427 79
1892	3,845,825 99	71,753 90

Comparative Statement of Expenditures.

	1890.	1891.	1892.
Current expenses.....	\$2,495,196 52	\$2,552,150 39	\$2,604,432 90
Extensions.....	311,354 90	274,124 31	207,466 64
Total.....	\$2,806,551 42	\$2,826,274 70	\$2,811,899 54

The receipts, as reported in detail by the Chief of the Bureau, are:

	For Gas, Services, etc.	Coke, Tar, etc.	Miscellaneous.
1892.....	\$3,497,917 53	\$346,181 11	\$1,727 35
1891.....	3,440,380 34	306,387 55	27,304 20
Increase,	\$57,537 19	Increase, \$39,793 56	Decrease, \$25,576 85

The decrease in column "Miscellaneous" in comparison with the previous year results from the fact that the statement of last year included insurance, which was received for the buildings destroyed by fire and was thereafter expended in reconstruction.

Total, 1892.....	\$3,845,825 99
" 1891.....	3,774,072 09
Increase.....	\$71,753 90

XLIII

To the receipts from gas should be added the value, at \$1.50 per 1,000 cubic feet, of the increased quantity of gas sold for which payment is not due, as follows :

December 31, 1892	524,673,400 cu. ft.
" 31, 1891	522,687,800 "
	1,983,600 cu. ft.=£2,975 40

The operations of the Bureau during the years 1890, 1891 and 1892, are summarized as follows :

	1890. Cubic Feet.	1891. Cubic Feet.	1892. Cubic Feet.
Total output	3,311,995,600	3,391,887,000	3,585,158,000
Largest production of gas in any 24 hours	* 14,058,000	† 14,253,000	‡ 15,332,060
Largest consumption in any 24 hours	a 16,103,000	b 16,196,000	c 16,328,000

* † ‡ On December 16th, 4th and 19th.
a b c On December 17th, 24th and 24th.

	Bushels.	Bushels.	Bushels.
Quantity of coke on hand January 1	212,886	256,090	110,615
Made during the year	5,959,784	5,903,109	6,712,032
Total	6,172,670	6,161,199	6,822,647
Coke sold during the year	2,925,894	3,005,163	3,389,513
Breeze sold during the year	554,425	606,000	807,520
Used under retorts	2,035,965	2,002,845	2,017,911
Used under boilers and lime-kilns	337,513	368,066	374,724
In offices, yards and in pipe-laying	62,783	68,510	83,379
On hand December 31	256,090	110,615	148,610
Total	6,172,670	6,161,199	6,822,647

XLIV

	1890.	1891.	1892.
Number of meters introduced during the year.....	5,674	5,465	4,882
Total in use.....	133,290	138,753	143,637
Services introduced during the year.....	10,789	10,515	9,287
Total in use.....	158,905	169,420	178,707
Lights added during the year..	122,973	120,284	111,486
Total in use.....	2,328,986	2,449,270	2,560,756
Total number of consumers.....	134,555	140,052	144,897
Number of public lamps.....	18,984	19,947	20,754

The following table gives in detail the total output of gas and its distribution during the years 1890, 1891 and 1892 :

The average candle power of the gas for 1892 was 19.06.

The following table gives the amount of gas consumed in the several Departments of the City, and for which the Bureau of Gas receives neither money nor credit :

Quantity of gas burned free in 1890,	551,459,572	cubic feet.
“ “ “ “ “	1891,	587,398,328 “
“ “ “ “ “	1892,	594,203,605 “

It has been suggested before, as a matter of economy, that the amount of gas used in each Department of the City Government should be paid for into the City Treasury by each Bureau or Department from the appropriation made to it. The returns thus made would increase the receipts of the Bureau of Gas, and place an indefinite account in proper business form.

Extensions.—The various works set forth to be done, in the ordinance making appropriations for the year 1893, will be placed under contract as early as practicable.

Bureau of Highways.

During the year 1892 there have been laid more miles of improved street paving than in any preceding year; by the City 14.32 miles of Belgian block paving and repaving, 6.98 miles of asphaltum paving, 9.18 miles of vitrified brick paving, 1.8 miles of tramway streets repaved with granite blocks, and 6.01 miles of macadam road made and resurfaced; by the passenger railway companies 10.25 miles of block and asphaltum paving.

The paved streets of the City aggregate about 788.8 miles, of which 293.22 miles are occupied by passenger railway companies; there are 98.96 miles of macadam roads, of which 31 miles are turnpike, and 415.5 miles of unpaved streets and country roads.

The following tables give comparative statements in detail, of the work done during 1890, 1891 and 1892, of the paving of new streets, of the repaving of old streets, and of the receipts and expenditures of the Bureau of Highways :

XLVII

Comparative Statement of Work Done.

	1890.	1891.	1892.	
New Paving	205,923.00	197,511.00	226,438.60	Linear feet
Macadamizing (new).....	31,411.00	34,344.00	19,729.00	" "
Grading.....	516,424.68	626,058.31	447,475.00	Cubio yds.
New footway paving.....	47,199.00	305,513.00	154,999.00	Square yds.
Repairs to paved streets.....	390,336.94	336,980.7	314,153.00	" "
Footways repaved.....	12,310.75	12,684.8	18,465.00	" "
Ditches repaved	88,461.00	64,366.	55,772.00	
Gutter stone laid.....	63,262.00	53,023.00	48,715.00	Linear feet
Crossing stone laid.....	46,406.00	50,887.00	42,336.00	" "
Tramway stone laid.....	10,685.00	2,053.00	6,759.00	" "
Curbstone reset.....	221,564.00	272,137.5	350,689 00	" "
Wooden trunks.....	5,531.00	6,284.00	8,484 00	" "
Brick and stone drains.....	311.00	386.5	872 00	" "
Hand railings	2,802.00	2,907.00	1,248 00	" "
Broken stone used.....	17,117.00	21,429.7	6,668 00	Cubic yds.
Macadamizing (resurfaced).....	44,561.00	23,860.00	12,033 00	Linear feet
Footway, curb and railroad notices served..	22,999.	21,264.	32,806.	

Summary of Work done in Improved Pavements. New streets.

	1890.		1891.		1892.	
	Square yards.	Linear feet.	Square yards.	Linear feet.	Square yards.	Linear feet.
Granite blocks.....	121,95	43,540	183,918.16	57,296	134,715.38	49,219
Sheet asphalt.....	30,774	13,423	40,654.8	16,126	71,685 96	21,002
Vitrified bricks.....	137,015	45,608	192,692.00	58,122	143,953.82	48,471
Asphalt blocks.....	5,068	2,986	671.00	400		
Macadamizing.....	70,290	31,411	74,900.00	34,344	47,503.00	19,729
Slag blocks.....	1,310	500				
Total.....	366,352	* 137,468	492,835.96	† 166,288	397,558.16	† 138,424

XLVIII

Replacing Cobblestone with Improved Pavements. Old streets.

	1890.		1891.		1892.	
	Square yards.	Linear feet.	Square yards.	Linear feet.	Square yards.	Linear feet.
Granite blocks.....	158,314	68,099	94,588.00	41,344	161,370.00	75,882
Sheet asphalt.....	124,578	31,767	78,894.00	23,984	133,644.75	31,861
Vitrified brick.....			860.6	239		
Total.....	282,892	*99,866	174,342.6	†65,567	295,014.75	†107,743

*1890. Total amount of new paving, 237,334 linear feet, equal to 44 miles, 5,014 linear feet
 †1891. " " " 231,855 " " " 43 " 4,815 "
 ‡1892. " " " 246,167 " " " 46 " 3,287 "

Comparative Statement of Receipts.

Year.	Receipts.	Increase.
1890.....	\$71,514 32	\$1,310 79
1891.....	71,815 89	301 57
1892.....	81,467 97	9,652 08

Comparative Statement of Expenditures.

	1890.	1891.	1892.
Current expenses.....	\$355,013 15	\$293,522 41	\$315,580 94
For extensions.....	1,043,857 99	820,401 64	856,283 09
Total.....	\$1,398,871 14	\$1,113,924 05	\$1,171,864 03

The most important improvement under the Bureau of Highways has been the repaving of Broad street with Trinidad Lake Asphaltum, on a substantial concrete foundation ; the street has 59 feet width of roadway the greater part of its length, and the improved portion on the north extends from the Richmond Branch of the P. & R. R. R. to Spring Gar-

den street, 4.3 miles of continuous paving; the portion of the street south of Chestnut street has been completed to Fitzwater street, a distance of .75 miles. These works have been constructed in the most substantial manner. During the year 1893 it is proposed to complete the section between Spring Garden street and the City Hall, and to continue that portion south of Fitzwater street to Mifflin street, and north from the Richmond Branch of the P. & R. R. R. to Cayuga street. With these portions completed, Philadelphia will have a highway 7.6 miles in length, ranking first with the best improved highways of any city in this country.

The relaying of the granite blocks taken up from Broad street upon the adjacent streets, and the removal of the cobble stone paving from them, has made streets convenient for travel, with surfaces that can be readily cleaned.

All regulations of Councils relative to underground structures have been complied with in completing these works; curved curb corners have been set at all intersections, which improves the appearance of the streets, and by the increased space given in the roadway at the intersections, facilitate travel on the main and connecting streets.

For the protection of street pavements from being taken up for attachments to underground works, the Highway Committee is now considering an ordinance requiring connections to be made with sewers, gas and water mains, to be led inside of the curb line before paving or repaving any street; the passage of such an ordinance will enable the work of paving of new streets after the gas and water mains and sewers shall be laid, even before buildings are erected on the streets. From connections led inside the curb line, a branch service may be laid under footways, from which connections can be made thereafter to any sub-division of the street frontage, and thus do away with the necessity of breaking the street paving for connections.

It is of so much importance to the City that its streets should have regular surfaces for the purposes of business, and for the

convenience and health of the public, that Councils should, by ordinance, require all new paving or repaving, except in the suburban districts, to be laid upon a concrete foundation.

Street paving properly constructed when first laid, can be kept free from ruts, breaks, and irregular surfaces, which interfere with travel, retain street waste and surface drainage, and become injurious to the public health.

Upon the business streets in the older parts of the City, subject to the wear of constant travel, this best system of construction should be adopted for paving, if the streets are to be kept at a proper standard. The foundation of concrete will add to the cost of paving, but when laid will save the expense of repairs, that follows street paving laid upon a bearing foundation that is not uniformly solid. For the reason of the inferior foundation to the first paving, it is found that the repairs made upon many streets are not satisfactory; the repairs of the previous year are made again each succeeding year with worn-out material; in many cases it would be economy to repave and not to repair.

If the custom of concrete foundation be directed by ordinance, the streets can be maintained in the very best condition at a minimum cost for repairs.

As the proposed ordinance for a loan for permanent improvements designated one million two hundred and fifty thousand dollars for repaving with improved pavement streets not occupied by passenger railways, the annual appropriation ordinance for the repaving of streets was limited to those streets named in it. With the passage and approval of the loan ordinance, the Department, through his Honor the Mayor, will submit to Councils a recommendation for repaving with improved pavements the most important business thoroughfares not repaved, and for the repaving and drainage of narrow streets to improve their sanitary condition.

On June 9th, Councils passed an ordinance directing the repaving of certain portions of streets occupied by passenger railway companies; notices of the requirements of the ordi-

nance were sent to the proper officers of each company, and the works necessary to be done, prior to therepaving, by property owners or the City, were at once commenced. Much of the repaving has been completed; strikes at the granite quarries prevented the quantity of blocks being delivered in season, or this entire paving would have been done this year; that unfinished will be resumed in the spring, and completed.

Councils should, at an early day, legislate what repaving shall be done by the passenger railway companies during 1893, that the works can be commenced and completed prior to December.

It should be here stated, that the lowest bid for repairs to paved streets not occupied by passenger railways, in the five districts of the City, for 1892, was \$200,000, while from the annual appropriation only \$65,000 could be set aside for this work—namely, to repair nearly 500 miles of paved streets.

Macadam Roads.—The appropriation for 1892 was utilized to the best advantage, but was insufficient to keep the large mileage of these roads in a satisfactory condition. The contracts for 1893 will require a specific quantity of material and days labor to be provided in each district, by which the Department can secure a better defined service from the contractors than heretofore.

Grading.—During the year, contracts were awarded for the grading of streets authorized by Councils, to the full extent of the appropriation, with ordinances passed authorizing the grading of others at an estimated cost of \$97,330, which will be contracted for when the appropriation for 1893 becomes available.

The ordinance approved June 21st, 1892, to provide for the better care of sidewalks where the properties are assessed at suburban or rural rates, is beneficial to the public; but it should be amended to require that sidewalks must be graded at the time of the opening or grading of any street, and its application made general; many suits for damages would then

be prevented, and additional expense would be saved .the City in regrading the accumulation of earth which is deposited on streets from ungraded sidewalks.

Repairs to Sewers.—The contracts for repairs to sewers during 1892 amounted to \$17,800; many repairs have been made and imperfect sections rebuilt. There was no serious break in any portion of the system of sewers during the year.

Repairs to Bridges.—Contracts were made for repairs to 56 minor bridges during the year, and the works were satisfactorily completed; repairs were made to 141 bridges of less than 8 feet span, to the Girard avenue bridge, the Falls bridge, Penrose Ferry bridge and to the Spring Garden street bridge; and by the Philadelphia & Reading R. R. Co. to the bridge over its tracks at Girard avenue, for which the City is to pay \$424.26. Proposals have been received for the renewal of the iron work and roadway of the latter bridge, and contracts will be entered into for the work when funds are made available.

Subway, or Underground Conduit.—The Survey Committee of Councils considered favorably the recommendation of the Department for the construction of an underground conduit on Market street, to receive the sewers, gas and water mains, and other municipal works, and the lines of corporations having separate conduits in the street; an item of five hundred thousand dollars was suggested in the pending loan ordinance for the construction of so much of the conduit as could be built within that sum; it was, however, found necessary to omit the item from the ordinance.

During the past year, ordinances have been passed for the further extension of conduit systems of private corporations in the streets, for pneumatic tubes and steam heating apparatus. While it is proper that opportunity should be given to introduce all improvements that the progress of the time produces, for the convenience or comfort of the public, only the best methods of construction should be allowed, or the advan-

tages gained will also impose continual broken street surfaces; the solution of the matter is the construction of permanent subways in the streets to receive them.

The Department again recommends that the construction of subways in the principal streets, by the City, shall receive the further consideration of Councils. A system of subways would relieve the streets of the conduits of separate corporations, and give to them better facilities for extensions, for repairs, renewals or attachments to any or all systems.

The constant displacement of the street surface by private corporations is largely the cause of the bad condition of so much of the paving on the business streets of the City.

The omnibuses on Broad street are more injurious to the street paving than any other class of vehicle, on account of the greater tonnage they carry at speed. The injury they cause to the Belgian block paving and crossing stones of this street can be seen at this time on the portions of the street on which the block paving still remains. The destruction of the street paving on 13th and 15th streets, over which the omnibuses were driven during the repaving of Broad street, was so marked that a communication was forwarded to Councils by his Honor the Mayor, calling attention to the desirability of legislation requiring the company to widen the tires of the wheels of the omnibuses, and to shorten the front axles, that the least injury might be done to the repaved street by their travel over it; and suggesting that a license fee should be required proportionate with the privilege granted to the company by the City.

An omnibus with the complement of passengers weighs 11,000 pounds, and with forty omnibuses running, there will be an omnibus passing a given point during the time of running, 1120 times each day, driven at a rate of speed of from 7 to 9 miles an hour.

From the statistics of travel upon City streets, by "Byrne," it is found that the proportion of light and heavy vehicles in cities averages as follows: Vehicles less than one ton 67 per cent.; between one and three tons, 26 per cent.; more than

three tons, 7 per cent. ; these statistics show the proportionate use of this street by the Omnibus Company General under its privilege, compared with its use by the general public, and the relative advantages to each.

Board of Highway Supervisors.

During the past year the Board, at its monthly and special meetings, has approved of plans for underground structures, vaults, conduits, sidings, and other works authorized by ordinance of Councils, in and upon the streets of the City. The report of the Secretary enumerates in detail the applications and the permits authorized by the Board.

Ordinances granting privileges for the use of the highways of the City require plans to be submitted showing the works proposed, and their relative positions in the streets with other municipal structures. These plans are prepared by draughtsmen of the Board, upon the maps of the City, and constitute the record of the Department of all structures beneath the streets.

The report of the draughtsman of the Board states that the income paid into the City Treasury has been \$921 over and above the expenses of his office.

The following is a statement of the number of permits authorized to be issued to the several underground companies during the year 1892 :

Bell Telephone Company.....	15
Brush Electric Light Company	2
Philadelphia Traction Company.....	11
Pneumatic Transit Company.....	2

The following is a summary of the transactions of the Board and of the work of the draughting department for the years 1890, 1891 and 1892 :

Transactions of the Board of Highway Supervisors.

Permits authorized to be issued.	1890.	1891.	1892.
For vaults	4	3	4
For railroad tracks, curves, and turnouts.....	58	70	106
For underground pipes.....	7	4	12
For electrical conduits.....	110	15	30
For artesian wells.....	1	2	.....
For erecting bridges.....	.....	1	.....
For tunnels .....	.....	4	2
For miscellaneous.....	.....	.....	2

Work done by the Draughtsmen of the Board of Highway Supervisors.

	1890.	1891.	1892.
Correction of street record plans.....	228	460	526
New street record plans prepared	22	53	74
Blue print plans placed on file.....	127	62	78

Receipts and Expenditures.

	1891.	1892.
Receipts	\$3,780 00	\$4,521 00
Expenditures	3,427 90	3,600 00
Profit to the City.....	\$352 10	\$921 00

Bureau of Lighting.

The recommendation of the Department, of the necessity to establish an additional lighting district, to secure better service in the outlying sections of the City was approved by Councils, and provision made therefor in the appropriations for 1892; for further betterment, the number of lamplighters has been authorized to be increased the present year.

The following comparative statement shows the number of lamps and the expenditures during the years 1890, 1891 and 1892:

	1890.		1891.		1892.	
	No.	Cost.	No.	Cost.	No.	Cost.
Electric Arc Lights.....	1,293	\$201,259 29	1,719	\$231,741 13	2,667	\$328,055 94
Gasoline Lamps.....	7,160	147,550 54	7,911	162,904 55	8,757	180,287 96
Gas Lamps supplied by the Northern Liberty Gas Company.....	354	8,186 78	317	7,420 51	264	6,785 76
Under charge of Bureau of Lighting.....	*18,984	154,689 43	19,947	161,260 89	20,754	175,800 45
Electric Arc Lights under charge of Board of Directors of City Trusts	50	.....	50	.....	50	.....
Gas Lamps under charge of Bureau of Correct'n	172	.....	197	.....	218	.....
Total	28,013	\$511,686 04	30,141	\$563,327 08	32,710	\$690,930 11

* Not lighted because of proximity to electric lights:

1890.....2,769. 1891.....3,293 1892.....4,200.

The above table shows an increase of 807 gas lamps, 948 electric lights, and 846 gasoline lamps over the number in use in 1891.

The Bureau of Lighting, in conjunction with the Electrical Bureau, prepared specifications for electric arc lighting, and proposals were invited by advertisement and contracts awarded as follows:

Electric light districts, number of lights and price paid per light per night, for the year 1893 :

	Number.	Price.
SOUTHERN ELECTRIC LIGHT AND POWER COMPANY.		
South of and including the south side of South street to the north of and including the north side of Washington avenue, between the Delaware and Schuylkill rivers.....	220	45
South of and including the south side of Washington avenue, between the Delaware and Schuylkill rivers.....	149	50
SUBURBAN ELECTRIC COMPANY.		
In the Twenty-third and Thirty-fifth Wards.....	173	55
GERMANTOWN ELECTRIC LIGHT COMPANY.		
All that part of the Twenty-second Ward known as Germantown.....	90	55
BRUSH ELECTRIC LIGHT COMPANY.		
Including all the lights on Girard Avenue Bridge, Callowhill Street Bridge, Market Street Bridge, Chestnut Street Bridge, and east of the draw on South Street Bridge, namely : Commencing at Delaware avenue and South street along the north side of said South street to Schuylkill river, along the Schuylkill river to Callowhill Street Bridge, along the north side of Spring Garden street to Twenty-fifth street, along the west side of Twenty-fifth street to Pennsylvania avenue, along the west side of Pennsylvania avenue to Thirty-third street, along the west side of Thirty-third street to the south side of Montgomery avenue, along the south side of Montgomery avenue to Broad street, along the east side of Broad street to Susquehanna avenue, along the north side of Susquehanna avenue to American street, along the west side of American street to Dauphin street, along the south side of Dauphin street to Howard street, along the east side of Howard street to a line south of the south side of Lehigh avenue, along said line to Emerald street, along the southeast side of Emerald street to Front street, along the east side of Front street to Thompson street, along the north side of Thompson street to Frankford avenue, along the east side of Frankford avenue to Manderson street, along the north side of Manderson street to Beach street, along the east side of Beach street to Laurel street, along the north side of Laurel street to the Delaware river, along the Delaware river to Poplar street, to place of beginning.....	1,091	39
On Broad street, South Penn square to South street. (Underground cable.).....	14	39
On Broad street, south of South street. (Underground cable.).....	33	39
On Locust street, east of Fifteenth street. (Underground cable.).....	15	39
On Spring Garden street, between Sixth and Broad streets, and on Broad street, between Spring Garden street and Columbia avenue. (Underground cable.).....	37	39
On Spring Garden street, from Broad street to Twenty-fifth street, and on Twenty-fifth street to Green street, and on Green street to Broad street. (Underground cable.).....	46	39
On Broad street, between Columbia avenue and Germantown avenue, and on Diamond street, between Broad and Thirty-third streets. (Underground cable.).....	63	39
On Federal street, between Front street and Twenty-eighth street. (Underground cable.).....	30	39
On Arch street, from Twenty-third street to Broad street, and on Broad street, from Filbert street to Buttonwood street, and on Mt. Vernon street, from Broad street to Twenty-third street. (Underground cable.).....	28	39

	Number.	Price.
POWELTON ELECTRIC COMPANY.		
Twenty-fourth, Twenty-seventh, and Thirty-fourth Wards, all west of the Schuylkill River, Philadelphia, upon any streets in either of said wards, or at any point that may be designated by the proper authority of the Department of Public Works in the above-described territory.....	238	47
WISSAHICKON ELECTRIC LIGHT COMPANY.		
Manayunk, Roxborough, and Falls of Schuylkill north to Fountain street, south to Allegheny avenue, east to Township line, and west to Schuylkill River.....	71	30
FRANKFORD AVE. MERCHANTS ELECTRIC LIGHT COMPANY.		
The following limits and bounds to wit: Commencing at the intersection of the westerly side of Frankford avenue and the westerly side of Coral street; thence along a line west of the west side of Coral street to the southerly side of Susquehanna avenue; thence along Susquehanna avenue to a line west of the westerly side of Frankford avenue; thence along said line to Thompson street; thence along a line west of the west side of Shackamaxon street to the Delaware river; thence along the Delaware river to a line south of the south side of Lehigh avenue; thence along the same to place of beginning.....	123	45
MANUFACTURERS ELECTRIC COMPANY.		
Beginning at a line east of the east side of Broad street, north of the north side of Susquehanna avenue; thence eastwardly to Bodine street; thence along and including Bodine street to north side of Dauphin street; thence along and including north side of Dauphin street to west side of Howard street; thence along and including west side of Howard street to a line south of the south side of Lehigh avenue; thence to a line east of the east side of Broad street; thence to place of beginning.....	19	45
Beginning at a line east of the east side of Broad street and south side of Lehigh avenue; thence along and including south side of Lehigh avenue to the Delaware river; thence along the Delaware river to Wingohocking creek; thence along Wingohocking creek to a line east of the east side of Broad street; thence to place of beginning.....	116	50
DIAMOND ELECTRIC COMPANY.		
North of and including north side Montgomery avenue to and including both sides of Lehigh avenue, west of, but not including the west side of Broad street to the Park.....	51	45
North of but not including the north side of Lehigh ave., west of west side of Broad street, west of and including the south side of Germantown ave., south of and including the south side of Roberts avenue, east of and including Wissahickon avenue, south of and including Hunting Park avenue or Nicetown Lane, south of and including Allegheny avenue to Ridge avenue, east of and including both sides of Ridge avenue to the north side of Lehigh avenue.....	33	50
Number of lights furnished free.....	27	

Average price 43.63.

The superiority of the arc electric light for street lighting is so well established, that it is most desirable to extend the system each year until the main streets of the City have this light, and the public have the advantage and protection given by streets lighted in this, the best manner.

The annual appropriation for the extension of the underground cable for electric lighting should be liberal, to provide for all street lighting from the City's cables. Each addition adds to the property of the City, and the greater territory they reach, the more economically the electric lighting should be done by private corporations, when furnishing only the current and the lamps. With a complete underground cable system, the City would be in position to establish an electric lighting station at any time it is to her interest to do so.

Bureau of Street Cleaning.

During the past summer and to the end of the year the officers of the Bureau gave especial attention to the cleanliness of the streets and gutters for sanitary reasons, and they were cleaned as required by the contracts; there are sections of the City where the condition of the street paving and the lack of necessary drainage prevent the streets from remaining clean but for a short time after the sweepers, and the only evidence apparent that they have been cleaned, is that there is not an accumulation of street waste upon them.

To correct these conditions in a special locality, an appropriation was asked before the adjournment of Councils for the summer, to enable the Department to place in the necessary drainage and repave the small streets included in the section bounded by Pine street, Washington avenue, Front street and Tenth street. The urgency of action in this matter has been fully presented to the Committee on Highways and on Surveys, and the Department expects, from the funds to be provided by the loan ordinance, to place drainage in, and to repave the small streets in the portions of the City most densely populated.

To comply with the regulations of the Board of Health, that on and after January 1st, 1893, hogs would not be permitted to be kept within the City limits, the specifications for street cleaning were prepared to provide for hauling all garbage and combustible waste outside the City limits, or for its disposal by cremation or other means not objectionable to the public health. The proposal in aggregate for street cleaning and the removal of garbage was \$610,898; for street cleaning and the cremation of garbage was \$641,449; the Department recommended the acceptance of the proposal for the cremation of all garbage. By the appropriation ordinance the cremation of garbage was limited to the First District.

The restricted dumping ground and the removal of the piggeries from the outskirts of the City, make it necessary to decide how the garbage of the City shall be disposed of with the least inconvenience to the public, and in a more satisfactory way than by the long hauls by garbage carts through the streets in mid-summer; and if depositories are to be established, from which it will be taken by lighters, it is a question whether the depository will not be a greater nuisance than a well-appointed crematory establishment.

The Department expects that the introduction of the disposal of garbage by cremation in the one district will prove so satisfactory, that in the future, contracts will be authorized to include the entire City.

The following is a statement in detail of the operations of the Bureau of Street Cleaning for the year 1892; also, in totals, for the years 1890 and 1891:

The total work done during the year 1892 is as follows :

DISTRICTS.	CLEANED.						REMOVED.				Number of Complaints of all kinds.
	Squares.	Inlets.	Crossings.	Market Houses.	Snow on Fire Plugs.	Number of dead Animals.	Dirt.	Ashes.	Garbage.		
First.....	118,677	63,901	35,458	624	914	1,490	43,956	96,235	16,155	317	
Second	124,271	78,949	35,803	624	725	2,439	51,997	79,584	12,366	541	
Third.....	114,382	56,797	25,576	624	761	1,547	42,340	99,853	15,823	442	
Fourth.....	138,287	100,123	51,908	.....	840	3,987	53,706	182,540	11,481	349
Fifth.....	65,991	53,018	31,833	.....	586	493	26,214	80,201	16,104	314
Total, 1892.....	561,608	332,788	180,578	1,872	3,776	9,956	218,213	488,833	71,929	1,963	
Total, 1891.....	709,375	240,546	36,153	1,840	54	14,795	290,680	573,999	84,065	1,844	
Total, 1890.....	566,223	177,819	79,132	1,361	208	12,274	266,581	495,004	64,334	2,101	

The total expenses for street cleaning for the year 1892, were \$30,153 50.

Bureau of Surveys.

The works devolving upon the Bureau of Surveys are important, and the proper execution of them has much to do with the present and future welfare of the City.

They include the preparation work for all street improvements; for the routes of passenger railways; for sidings and extensions of railroads, when authorized by Councils; the preparation of plans for the opening and grading of new streets in the City or suburban districts; all work contingent with the revision of grades to prevent grade crossings on new branch roads extending into the suburbs from the main lines of railroads; to retain suitable gradients and drainage to contemplated streets, and with the least damage to property; the construction of bridges; of main and branch sewers; the revision of plans and placing upon them streets dedicated for public use, public parks, etc., as authorized by Councils; all of the above are municipal works in which the entire community is interested; the progress made during the past year is fully described in the report of the Chief Engineer.

The number of certificates issued of the legal opening of streets and portions of streets was 3,112.

The number of streets and parks authorized to be placed on the City plans, revising lines and grades of streets and striking out streets from City plans, was 192.

The number of deeds of dedication recorded was 337.

On November 6th, 1891, Councils directed the Department of Public Works to examine the several plans of a proposed boulevard from the Public Buildings to Fairmount Park. Three plans were submitted, as follows: 1st, from Green street entrance to the Park, in a direct line to the intersection of Broad and Arch streets, following the line of Pennsylvania avenue; 2d, from the intersection of Twenty-fifth and Spring Garden streets, in a direct line to Filbert street, seventy-five feet west of Broad street; 3d, from Twenty-fifth and Callowhill streets, in a direct line to the northwest corner of Broad and Filbert streets—a distance of 4,480 feet. The latter, by

reason of the shortness of the route, the least damage it occasioned to property, its direct connection with roads leading to both the East and West Parks, the advantages it offered for locating historic monuments and works of art, and the views afforded of the river scenery, was recommended for adoption through a message by his Honor the Mayor, and was thereafter approved by Councils, and directed to be placed on the City plan an avenue 160 feet wide. The District Surveyors are now engaged in making surveys to fix the intersection of the boulevard with the streets and with property lines.

The Philadelphia & Reading Terminal Railroad Company has continued actively the works upon the elevated road, and have near completion the line from Market street to Wallace street, including all bridges for avoidance of grade crossings. There is under consideration a revision of the plans for the intersection of Broad street and Pennsylvania avenue, which will do away with all grade crossings east of Broad street to New Market street, and on the west to Girard avenue; this accomplished would be a most desirable improvement for the City, in abolishing grade crossings to all streets running north and south now crossing the tracks at grade, remove the constant liability to accidents, and the obstruction and delay to street travel which so long have harassed and inconvenienced the public. The masonry for the bridge at Broad and Lehigh avenue, to abolish the grade crossing at this important intersection, has been commenced. The company expects to have the entire system completed for road service at an early day.

Work is in progress on the Roxborough railroad, a branch of the Philadelphia, Germantown & Chestnut Hill R. R., on the Fort Washington branch of the same road, and upon the Kensington branch of the Pennsylvania R. R. Some three miles of track have been laid by the Philadelphia Belt Line Railroad Co. in the northeastern section of the City, which has given new facilities for business and for manufacturing establishments on the line.

During the past year Councils, by ordinance, authorized the construction of the following railroads: April 9th, 1892, The Philadelphia & Newtown Connecting Railway, a branch of the Philadelphia & Reading R. R.; June 2d, 1892, The Philadelphia & Northern, a branch of the Philadelphia & Reading; June 2d, 1892, The Philadelphia & Bustleton, a branch of the Pennsylvania R. R.; by ordinances of June 29th and October 26th, 1892, The Midvale Branch of the Philadelphia, Germantown & Chestnut Hill R. R. Upon each of these roads work has been commenced, and is being rapidly advanced.

Plans were approved by the Board of Highway Supervisors for extensions to the elevated terminal of the Pennsylvania R. R. increasing the width of the roadbed, and remodelling their bridges crossing streets, westward from the passenger station to the Schuylkill river.

By ordinance of February 12th, 1892. The Quaker City Elevated Railroad Company was granted the privilege of constructing an elevated railroad on Market street from Delaware avenue to 63d street, and on Lancaster avenue, 44th street, Woodland avenue, Ridge avenue and other streets. The company received permit for the commencement, and has built the pier foundations for the structure on 44th street at Columbia avenue. Injunction of the Court was applied for, to restrain the construction of the road; the decision was adverse to the interests of the company, and work is suspended.

By ordinance of June 24th, 1891, the Northeastern elevated railroad was authorized; no work has been commenced by the company under its privileges; injunction was applied for, and the case was before a master appointed by the Court, who rendered a decision in favor of building the road; the case has been appealed, and no work commenced.

There have been completed and placed under construction on main and branch lines of railroads, to avoid grade crossings, 53 bridges during the year.

It is worthy of note here, the advance that has been made in the abolishing of grade crossings of railroads entering the City. On the Connecting Railway and the Philadelphia & Trenton R. R. twenty or more such crossings have been abolished, the necessary bridges built by the railroad company, the City paying the damage to property owners for changes in street grades made necessary, and with the completion of work now under consideration of this company, there will practically be no grade crossings from the Broad street station to Torresdale, a distance of thirteen miles.

One of the most dangerous crossings is the intersection of the Connecting Railway with the North Pennsylvania R. R., (the latter under the management of the Philadelphia & Reading R. R. Co.), known as the North Penn Junction. To abolish this crossing, Councils have appropriated \$200,000 and the Pennsylvania R. R. Co. \$100,000. General plans for this contemplated improvement were made, and proposals received for the work, in accordance with the provisions of the ordinance of Councils, authorizing the Department "to enter into a contract with the Pennsylvania R. R. Co., the Philadelphia & Reading R. R. Co., the Connecting R. R. Co., the North Pennsylvania R. R. Co., either, any or all of them, for the abolishment of the grade crossing, etc." The proposal of Charles A. Porter, representing the Pennsylvania R. R. Co., with the assent of the Philadelphia & Reading R. R. Co., as contractor, was the only one received, in amount \$332,000.00. A modification of plans is being made by the Bureau of Surveys to bring the cost of this entire construction within the \$300,000 available; and when such plans are approved by the said railroad companies, the Department will have a contract entered into for the execution of this very important work.

The abolishment of grade crossings is and has been a question of public interest in this City and to the great railroad systems centering here, and since 1888 the City has expended for land damages, regrading, etc., upwards of \$750,000.00, and the railroad companies have possibly expended a like

amount in co-operating with the City to abolish grade crossings. It is the policy of the City not to create any new grade crossings of steam railroads, and the effort will be continued to abolish existing ones.

The bridge over the Schuylkill river at Walnut street is completed, excepting the paving of the approaches, the flooring of the channel spans, the railings and the decorative iron work and the painting; contracts have been made for the entire work except the painting, which will be placed under contract when funds are available. It is expected that the bridge will be open to travel about mid-summer.

Plans have been made for the renewal of the defective iron work of the bridge at Girard avenue over the Philadelphia & Reading R. R.; the proposals received were in excess of the appropriation, and the letting of the work has been deferred until funds are provided by action of Councils from the appropriation for 1893.

The necessity for a new bridge over the Schuylkill river at the Falls was referred to in the last report. During the summer it was necessary to make repairs on several occasions; the timbers of the bridge are decaying and will be beyond repair, when it must be closed to public use. An appropriation was asked in the annual appropriation for 1893, to commence the foundations for a new double-deck bridge of steel and iron construction at the location of the present bridge. The reconstruction of this bridge is required for the convenience of general travel; it connects the East and West Parks, and when completed as designed, will continue the roadway the same as the present bridge, and the upper deck will connect with the roads from the high land on the east and west sides of the river and cross above the railroad on the west side; the upper road will facilitate communication from the northwestern district of the City, which is rapidly improving, and benefit the upper portions of Germantown and the surrounding sections. The Department again recommends that provision be

made at the earliest time for the commencement and completion of this bridge.

During the past year there have been constructed 6 miles of main sewers, and 33.06 miles of branch sewers.

During the construction of sewers, there has been close inspection of the workmanship, and tests made continuously of the materials used in the work.

The total length of main sewers now constructed is 86.44 miles.

The total length of branch sewers now constructed is 389.80 miles.

To enable the construction of a main sewer on Shunk street and Passyunk avenue to the Schuylkill river, and on 18th, 21st and 24th streets, for the relief of the southwestern district, Councils on June 21, 1892, authorized a temporary loan of \$250,000.00 from the Board of City Trusts; plans were made and contracts entered into for these entire works, which will be completed by July next, and provide drainage for a large section lying flat and now without sewers for surface or other drainage.

The following is a summary of the operations of this Bureau in the active construction of work during the years 1890, 1891 and 1892:

LXVIII

Summary of Bridges, Main, Branch and Private Sewers built during the years 1890, 1891, and 1892.

	1890.		1891.		1892.	
	No.	Linear ft.	No.	Linear ft.	No.	Linear ft.
Bridges	10		4		5	
Intercepting sewer (section).....			1	3,184	1	5,855
Intercepting sewer connections.....	3	5,473				
Wissahickon Valley sewer (section).....			3	5,600	4	7,564
Main sewers.....	20	24,096	20	27,318	26	31,705
Branch sewers	188	122,463	196	133,216	213	132,000
Private sewers.....	69	21,120	60	23,465	68	29,218
Total.....	280	*173,152	284	†192,783	317	‡206,343

* 1890 equal to 32.793 miles. † 1891, equal to 36.50. ‡ 1892, equal to 39.05.

Comparative statement of work upon bridges during the years 1890, 1891, and 1892 :

	1890.	1891.	1892.
Finished.....	10	4	5
Begun.....	2	3	4
Authorized.....	1	3	4
Planned.....		4	10

LXIX

The following is a comparative summary of the receipts and expenditures for the years 1890, 1891, and 1892:

Comparative Statement of Receipts.

Year.	Receipts of Bureau.	Receipts of District Surveyors.	Total.	Increase.
1890	\$30,018 49	\$65,177 63	\$95,196 12	
1891	45,246 96	98,155 30	143,402 26	\$48,206 14
1892	50,199 74	108,433 42	158,633 16	15,230 90

Comparative Statement of Expenditures.

	1890.	1891.	1892.
Current expenses.....	\$101,540 33	\$146,688 60	\$174,600 77
For extensious.....	949,568 31	1,061,409 95	1,047,169 14
Total.....	\$1,051,108 64	\$1,208,078 55	\$1,221,769 91

The attention of the Committee on Surveys was directed to the necessity of connecting up and completing sections of main sewers, constructed in parts, and their further extension for the accomodation of improvements, constantly increasing in the suburban districts; also for the construction of main sewers and branches in the northeastern, southeastern and southwestern portions of the City, for the proper drainage of large areas being rapidly built upon.

A plan was submitted designating the works recommended, and the Chairman of the Committee presented, as a part of the proposed loan ordinance, an appropriation of one million dollars for the work, and a separate appropriation of two hundred and fifty thousand dollars for the extension of the Aramingo Canal system. It is expected, if the appropriation be.

comes available, to place these important works immediately under contract.

The Board of Surveyors, consisting of the Chief Engineer and thirteen District Surveyors, held thirty meetings during the year, for the general business of references from the Committee on Surveys, and for hearings and taking testimony on plans for removing or changing streets on the City plan, revision of lines and grades, etc.

The work of the District Surveyors in the outer districts of the City increases each year, in the care of municipal work and in the preparation of plans required by Committees of Councils and the Bureaus of the Department. The net profits to the City for the year 1892, were \$16,902.82.

There devolves upon each District Surveyor the duty of defining party lines of properties between owners from title deeds, which during the year involves much of the time of this officer, and frequently is the cause of delay in attention to municipal work.

The receipts and expenditures of the District Surveyors for the year 1892 are set out in the following table in detail by districts, and also in totals for the year 1891:

Summary of Receipts and Expenses of District Surveyors.

Districts.	Survéyors.	Cash Receipts.	Credit for Work Done for the City.	Total Credit.	EXPENSES.				Balance Profit to the City.	Profit to the City in 1891.	Increase.	Decrease.
					Salaries.	Pay of Assistants.	Miscellaneous.	Total.				
First.....	Thomas Daly.....	\$8,004 35	\$2,560 64	\$10,564 99	\$3,000 00	\$2,298 82	\$1,153 31	\$6,452 13	\$4,112 86	\$1,968 87	\$2,113 99	
Second.....	Charles W. Close.....	6,898 83	1,882 73	8,781 56	3,000 00	2,526 61	1,385 10	6,911 71	1,869 85	647 90	1,221 95	
Third.....	Wm. C. Craumer.....	9,650 73	7,023 46	16,674 19	3,000 00	6,300 29	1,398 18	10,698 47	5,975 72	1,915 14	4,060 58	
Fourth.....	Wm. W. Thayer.....	8,312 77	5,192 88	13,505 65	3,000 00	5,106 93	1,692 62	9,799 55	3,706 10	418 01	3,288 09	
Fifth.....	Walter Brinton.....	7,263 99	3,915 54	11,179 53	2,558 33	5,750 08	1,830 60	10,169 01	1,010 52	93 44	917 08	
Sixth.....	Joseph Mercer.....	15,877 51	5,132 67	21,010 18	3,000 00	6,376 35	1,560 56	10,936 91	10,073 27	6,677 62	3,395 63	
Seventh.....	Wm. K. Carlisle.....	10,117 94	4,260 91	14,378 85	3,000 00	5,121 00	1,747 25	9,868 25	4,510 60	3,790 63	719 97	
Eighth.....	C. A. Sundstrom.....	3,197 62	5,355 08	8,552 70	3,000 00	4,146 66	1,621 25	8,767 91	.....	79 77	.....	{ \$215 21 79 77
Ninth.....	Waller Jones.....	5,157 31	5,440 24	10,597 55	3,000 00	5,782 76	1,013 56	9,796 32	801 23	99 41	701 82	
Tenth.....	John Webster, Jr.....	8,706 05	8,092 92	16,798 97	3,000 00	7,678 32	2,100 94	12,779 26	4,019 71	305 86	3,713 85	
Eleventh.....	Joseph Johnson.....	7,065 45	3,654 73	10,720 18	3,000 00	3,899 99	1,291 28	8,191 27	2,528 91	3,483 17	.....	954 26
Twelfth.....	Wm. H. Jones.....	4,813 61	3,640 54	8,454 15	3,000 00	2,851 00	1,026 41	6,877 41	1,576 74	1,225 84	350 90	
Thirteenth.....	H. M. Fuller.....	13,367 26	5,895 65	18,762 91	3,000 00	6,976 32	1,854 07	11,830 39	6,832 52	7,409 91	.....	477 39
	Total, 1892.....	108,433 42	61,547 99	169,981 41	38,558 33	64,845 13	19,675 13	123,078 69	47,118 03	28,145 57	*20,483 88	1,726 63
	Total, 1891.....	98,155 30	33,888 65	131,993 85	36,000 00	46,143 85	21,704 43	103,848 28	28,145 57	21,210 83	8,690 63	1,755 80

* Net increase, \$18,757.25. † Expenses in excess of Receipts.

On February 1st, 1892, Mr. George S. Webster, Surveyor and Regulator of the 10th District, resigned his position to accept the appointment of Principal Assistant Engineer of the Bureau. Mr. John H. Webster, Jr., was transferred to the 10th District, and Mr. Walter Brinton was appointed to the vacancy in the 5th District.

On account of failing health, in May last, Samuel L. Smedley, Chief Engineer of the Bureau of Surveys, was granted leave of absence; this Department appreciates the past services of Mr. Smedley, who has been continuously the Chief Engineer of the Board of Surveyors since 1872, and whose record has been most creditable as the engineer identified with so many public measures which have been beneficial to the community, and who has been eminently faithful to official duty.

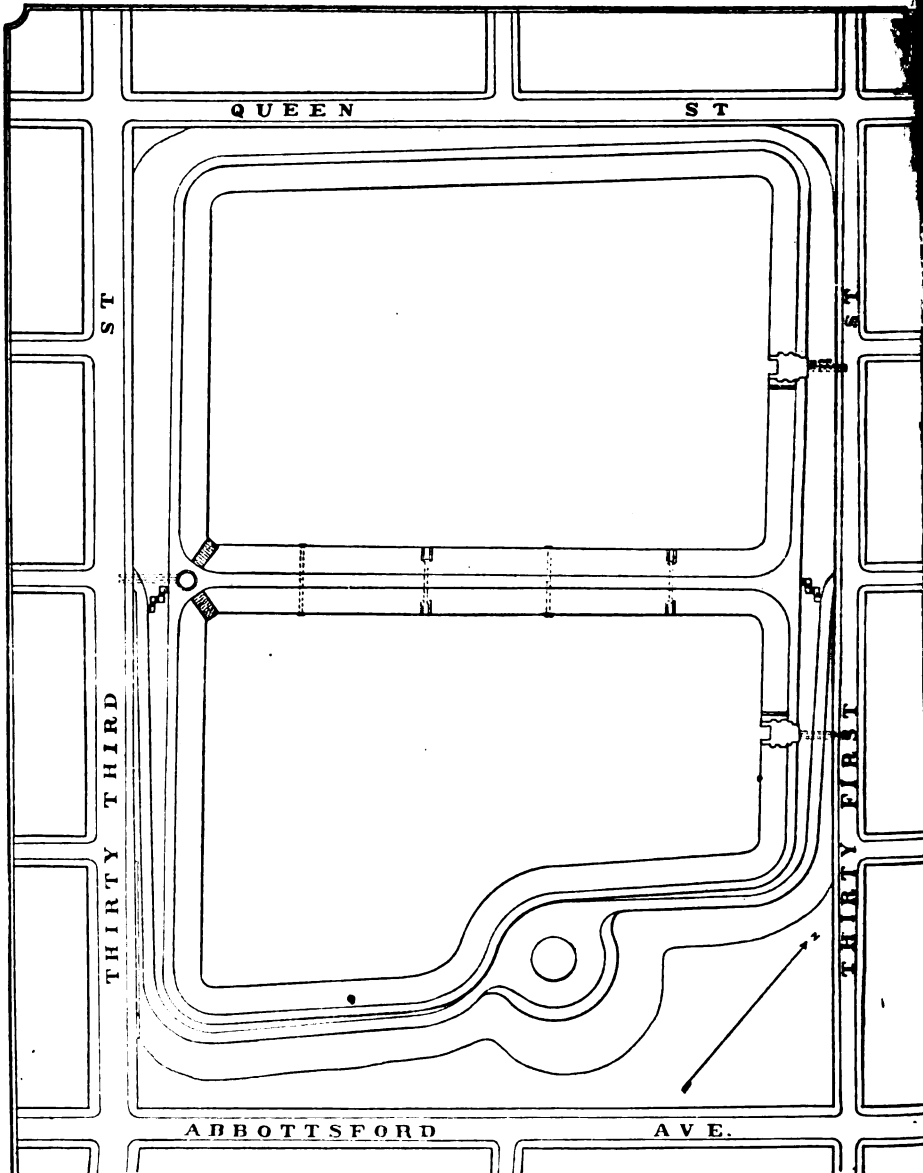
Mr. Geo. S. Webster was appointed Acting Chief Engineer of the Bureau.

Registry Branch.—The improved methods of keeping records, introduced by the Registrar, facilitate the business of the public in this office. The report shows the great increase in the work during the past year.

The work of the Registry Branch of the Bureau of Surveys is shown by the following summary of its operations :

	1890.	1891.	1892.
Number of certificates registered owners issued.....	7,771	10,522	11,053
Number issued for use of the Law Department.....	477	507	212
Receipts from certificates of registered owners.....	\$1,948 00	\$2,617 00	\$2,765
Number of original lots plotted.....	12,478	11,705	12,387
Number of transfers registered.....	21,554	22,365	22,510
Number of plans made for use of City Departments, Bureaus, etc.....	268	543	440
Number of examinations of registry plan books made by the public.....	20,521	21,396	23,824
Number of descriptions of property filed for registry.....	32,027	34,070	35,195
Number of titles perfected.....	1,705	1,858	2,215
Number of certificates of legal opening of streets, issued to Bureaus, etc.....	4,842	3,071	3,112
Number of certificates of registered owners in municipal lien cases for Law Department.....	2,468	6,527	5,825

On December 31st, the Department received a communication from the Board of Harbor Commissioners, signed Charles Platt, President, and W. R. Tucker, Secretary, stating that "in accordance with the provisions of the Act of Assembly, approved June 8th, 1891, and the ordinance of Councils, approved October 7th, 1891, the Board of Harbor Commissioners for the City of Philadelphia have the honor to transmit for filing in the Department of Public Works (Bureau of Surveys) the subjoined copy of a communication from Major C. W. Raymond, Corps of Engineers, U. S. A., announcing the fixing of the new harbor lines for the Harbor of Philadelphia by the Secretary of War. The new bulkhead from Moore street to Otis street is fixed for the entire distance, and the new lines beyond which no wharf or pier shall extend, is also fixed between Moore street and Queen street, and certain regulations are prescribed by the Secretary of War for the construction



**PLAN OF
QUEEN LANE RESERVOIR**

CAPACITY 386,000,000 GALLONS

ELEVATION	TOP OF BANK	243 C.D.
ELEVATION	BOTTOM	208 C.D.

Bureau of Water.

During the summer that has passed, notwithstanding the long continued drought which caused much inconvenience to other cities, the supply of water was maintained in all districts without complaint, except from those depending upon supply from the high service station at Roxborough and Chestnut Hill.

On January 28th, the breaking of a 48-inch pumping main leading to the East Park Reservoir, at the rear of the Spring Garden pumping station, caused considerable damage by the wash of sand and silt into the pumping wells, throwing out of service five pumps. The quantity of water in the East Park reservoir at that time of the year prevented any especial inconvenience to the public; the repairs were made promptly, and all joints and branches of the mains uncovered were substantially underpinned with masonry to secure solid and permanent bearings.

The supplemental contract for the completion of the Roxborough reservoir was entered into when the appropriation for 1892 became available; the contract was to have been completed September 1st, 1892; it will require great diligence by the contractor to finish the work by August 1st next.

On March 24th, the ordinance was approved selecting the site of the Queen lane reservoir; plans and specifications were immediately prepared for the work. An ordinance was approved September 16th, creating a loan of one million dollars for the construction of this reservoir and other extensions; after advertisement for proposals, that submitted by Filbert, Porter & Co., on September 13th, for the construction and completion of the work in two years, for the sum of \$1,159,591.00 was accepted as the lowest best bid for the City, and a contract was entered into for the first division of the work, for a sum not exceeding \$795,613.84, conditioned that a supplemental contract should be entered into for the completion of the work when a further appropriation was made by Councils;

the time for completion being guaranteed by a bond for \$100,000.00. Work was immediately commenced by the contractors, and excavations were made and embankments constructed involving the moving of 160,000 cubic yards of earth before the work was stopped by winter weather.

The average quantity of water pumped daily at all the stations during 1892, was 163,801,600 gallons. The average pumpage per day, from June 15th to September 15th, was 177,034,568 gallons; during this period the height of water in the reservoirs did not vary two inches in 24 hours, showing that all the water pumped in this period, equal to about 160 gallons per day per capita, was used by the public. The standard height of water in the East Park reservoir is 25 feet; between the above dates the average was not more than 6 feet of water in the basins, notwithstanding constant pumpage with all the engines.

The 20-million gallon pumping engine, built under contract with the Southwark Foundry & Machine Co., was completed on June 15th, 1892, and started into service by Ex-Mayor Edwin H. Fidler, by invitation and request of his Honor the Mayor; this pumping engine has been in constant service, and proved most useful in maintaining the water supply during the past summer. The extension of the house to receive this engine has been completed in a satisfactory manner.

For the betterment of the service, the following pumps have been contracted for; one 20-million gallon pumping engine for Spring Garden station, contractor Henry R. Worthington & Co., to be completed April 26th, 1893, amount of contract \$67,800.00; one 12-million gallon pumping engine for Roxborough, contractor The Southwark Foundry & Machine Co., to be completed March 30th, 1893, amount of contract \$72,000.00; one 15-million gallon pumping engine for Frankford, contractor The Southwark Foundry & Machine Co., to be completed July 5th, 1893, amount of contract \$47,690.00.

Six additional boilers have been completed for Frankford, Roxborough and Spring Garden stations; two at each.

The Department has recommended the following additions to the pumping stations, which have been approved by the Water Committee; two 30-million or three 20-million gallon pumping engines at the Spring Garden pumping station, connected with the East Park reservoir, with separate intakes from the river, and separate pumping mains to the reservoir; also for the extensions to the engine house, the boiler house and boilers; for establishing a new pumping station adjacent to the Falls, for supply to the new Queen lane reservoir. The loan ordinance includes the appropriation for the estimated cost of these additions, and when available, the Department will immediately advertise for proposals and place the works under contract.

The appropriations for 1894 must include the boilers, pumping engines, pumping and distributing mains for the station supplying the Queen lane reservoir, and for additional mains required for the redistribution contemplated with the completion of the new reservoir.

The extensions to be made during 1893 are set forth in items in the appropriation ordinance, in the order they were submitted by the Department to the Committee on Water and the Sub-Committee on Finance; the works will be contracted for as early as possible in accordance therewith. The Department is deprived from any further work of extensions during the year, should they become necessary for the convenience of the public, other than those stipulated in the ordinance; and the Committee on Water is prevented from exercising any discretion should circumstances make it desirable within the year to do other work than that set forth in the ordinance, without additional appropriations being made for the same.

On June 23d, 1892, Councils passed an ordinance which was approved by his Honor the Mayor, authorizing proposals to be received for the erection of a filtering plant at Belmont pumping station; the ordinance embodied specifications prepared by the Bureau of Water. The Department recommended the trial of a filtering plant upon the conditions of the ordinance,

for the reason that a filtering plant to deliver a clear water, of the standard specified, into the reservoir at Belmont, would be a substitute for an extension of the present reservoir there, or the building of a subsiding reservoir. The present reservoir holds but two days supply for West Philadelphia: in the near future this district will receive water by direct pumpage passing through the reservoir. No appropriations having been made, the Department could not accept the best bidder, or enter into a contract for a filtering plant.

On account of the frequency of breaks in mains in the streets, directions have been given to the Chief of the Bureau to have a full report from the purveyors of the probable cause, and the conditions of each, that precaution may be taken to prevent breaks, which are a source of expense to the City, and of inconvenience to the public. The system of searches for leaks instituted, by placing the Deacon registering meter on the street mains in circuits, has been continued during the year with satisfactory results, and is reported upon in full by the Chief of the Bureau.

The receipts of the Bureau during the year have been \$2,634,456.02, an increase of \$133,693.29 over the year 1891.

The total number of gallons of water pumped at the river stations, and supplemental pumpage, was 59,787,584,178 gallons, 93 per cent. of which was from the Schuylkill river, and 7 per cent. from the Delaware river. The increase in pumpage over 1891 was 4,121,936,178 gallons, and the consumption per capita was 143 gallons per day.

During 1892 there was an increase of 136 per cent. in the quantity of water pumped over that of 1883, and the consumption has nearly doubled in ten years.

These facts, from the experience of the past, bring again to notice two matters previously reported upon by the Department; 1st, that the waste of water should be prevented by legislation; 2d, that action should be taken at once to select a system for the future water supply of the City that will be commensurate

with the requirements of the City of the future, and commence work upon it at once.

The Water Committee of Councils has now under consideration an ordinance for the introduction of meters to equitably dispose of the first, and will in all probability make some especial recommendation to Councils concerning the second.

It should be here stated, that while the facilities of the Bureau of Water have been greatly increased by additions under way, and those contemplated in the loan ordinance, in less than five years the City, with an increase proportionate with the past, will again be in a like position with last summer, and have to suppress the use of water to a minimum quantity, unless further betterments be made to the service.

The following statement gives the number and type of engines and their several aggregate capacities at the various stations :

PUMPING STATION.	Designated No. of Engine or Turbine.	TYPE OF ENGINE.	Designated Capacity in Million Gallons per day.	Total.	
SPRING GARDEN.	Old Station.....	5 Compound Rotary	20,000,000	116,000,000	
	"	6 Simpson Compound Rotary.....	10,000,000		
	"	7 Marine Compound Rotary.....	20,000,000		
	"	8 Worthington Duplex	10,000,000		
	"	11 Gaskill	20,000,000		
	"	12 "	6,000,000		
	New Station.....	9 Worthington Duplex.....	15,000,000		
	"	10 " "	15,000,000		
	Belmont.....	1 Worthington Duplex.....	5,000,000		18,000,000
	"	2 " "	5,000,000		
"	3 " "	8,000,000			
Roxborough	1 Worthington Duplex	5,000,000	12,500,000		
"	2 " "	7,500,000			
Roxborough Auxiliary..	1 Knowles' Pump.....	500,000	1,000,000		
" "	2 " "	250,000			
" "	3 " "	250,000			
Mt. Airy.....	1 Davidson Pump.....	1,000,000	3,000,000		
"	2 " "	1,000,000			
"	3 Knowles' "	1,000,000			
Chestnut Hill.....	1 Knowles' Pump.....	250,000	750,000		
"	2 Worthington Duplex	500,000			
Frankford.....	1 Marine Compound Rotary	10,000,000	20,000,000		
"	2 Corliss Compound Rotary.	10,000,000			
FAIRMONT.	New House.....	1 Turbine Wheels	2,000,000	33,290,000	
	"	3 " "	5,330,000		
	"	4 " "	5,330,000		
	"	5 " "	5,330,000		
	Old House.....	7 " "	5,100,000		
	"	8 " "	5,100,000		
"	9 " "	5,100,000	33,290,000		
Total.....				204,540,000	

The following is a statement of the location, date of completion, elevation and capacity of the City's reservoirs :

Name of Reservoir.	Location.	Date of completion.	Height above City datum.	Capacity in Gallons.
Reservoir No. 1.....	East Fairmount Park.....	{ 1813 1821 1827 1843 1846 1846 } { 1872 and 1871 }	91	26,350,800
" " 2.....				
" " 3.....				
" " 4, Section 1.....				
" " 4, " 2.....	Sixth and Lehigh avenue.....	{ 1872 and 1871 }	114	26,394,000
" " 4, " 3.....				
" " 4, " 4.....				
" " 4, " 5.....				
Section 1.....	Twenty-sixth and Master streets..... Corinthian avenue and Poplar street.....	1814	120	12,000,000
" " 2.....				
" " 3.....				
Spring garden.....				
Section 1.....	East Fairmount Park.....	{ 1887 1888 1888 }	133	{ 62,737,692 306,406,922 369,144,614 }
" " 2.....				
" " 3.....				
Bankford.....				
Belmont.....	Oxford Turnpike and Comly street..... West Fairmount Park.....	1877	167	36,046,000
Bloomington.....				
Mount Airy.....				
Roxborough.....				
Statue tank.....	Allen's lane and Mower street, Germantown..... Ridge and Shawmut avenues..... Manatawna and Ridge avenues..... Hartwell avenue and Chestnut Hill Railroad, Chestnut Hill.....	1881	306	4,216,000
" " 2.....				
" " 3.....				
Chestnut Hill tank.....				
Total.....				869,288,814

The following is a comparative statement of the total pipe laid and of other work done during the years 1890, 1891, and 1892.

YEAR.	PIPE LAID.			*PIPE RELAID.	FIRE HYDRANTS PLACED IN POSITION.		SUBSTITUTED FOR DEFECTIVE HYDRANTS.		Fire Hydrants in use.	Water Attachments.		
	Feet.	EQUAL TO.			New Style	Old Style	New Style	Old Style				
		Miles.	Fe								Total.	Total.
1890.....	159,176	30	776	33,242	619	3	622	243	25	268	7,749	10,081
1891.....	221,336	41	4,856	32,081	626	5	631	221	23	244	8,105	8,178
1892.....	138,783	30	383	50,074	634	.....	634	384	28	412	8,447	8,900

Total pipe laid, 1031 miles, 367 feet.

* Adds nothing to feet in ground.

LXXXV

The following is a comparative summary of the operations for the years 1890, 1891, and 1892 :

	1890.	1891.	1892.
Receipts from water rents.....	\$1,958,551 95	\$2,057,417 39	\$2,147,447 98
“ “ fractional rents.....	171,901 15	200,868 36	214,678 24
“ “ water pipes.....	141,884 27	138,180 98	152,916 45
“ “ City Solicitor's office.....	38,367 73	84,394 49	58,768 25
“ “ penalties.....	26,270 94	29,672 21	27,136 90
“ “ delinquent rents.....	25,472 39	25,183 85	15,422 75
“ “ Chief Engineer's office.....	9,730 83	6,503 70	10,274 24
“ “ searches.....	5,235 75	5,046 75	5,718 50
“ “ delinquent penalties.....	3,622 69	3,495 00	2,092 71
Total.....	\$2,381,037 70	\$2,500,762 73	\$2,634,456 02

	Gallons.	Gallons.	Gallons.
Pumped to reservoirs.....	51,698,508,699	55,065,648,000	59,787,584,178
Equal to gallons pumped 100 feet high.....	84,501,451,686	93,490,106,725	102,443,373,631

NOTE.—The “pumped to reservoirs,” etc., includes 1,091,634,196 gallons of repumpage to higher levels at Mount Airy, Roxborough, and East Park Reservoirs.

This, deducted from the total pumped, gives 58,695,949,982 gallons as the total consumption.

The cost of pumpage is calculated on the total pumpage and the consumption per capita on the smaller quantity.

	1890. Gallons.	1891. Gallons.	1892. Gallons.
Pumped by water-power.....	12,362,987,130	11,380,824,570	10,401,951,806
Pumped by steam-power.....	39,335,521,569	44,284,823,430	49,385,632,372
Largest quantity pumped in 24 hours.....	170,600,577	183,421,163	199,996,713
Smallest quantity pumped in 24 hours.....	61,956,522	73,057,433	83,599,844

LXXXVI

Year.	Average consumption in gallons per capita per day, estimating the population at*	Increase of	Increase per capita per day.	Cost per 1,000,000 gallons pumped 100 ft. high	Reduction in cost of pumpage per 1,000,000 gallons.
	Gallons.	Gallons.	Gallons.		
1890	181	9,179,588,918	21	\$3 05	82 cents.
1891	140	4,405,019,830	9	2 99	6 cents.
1892	143	4,121,986,178	8	2 68	31 cents.

* 1890—1,046,964, U. S. Census.
 1891—1,071,672, U. S. Census.
 1892—1,142,650, City Census.

Expenditures.

	1890.	1891.	1892.
Current expenses.....	\$712,497 37	\$781,227 88	\$814,332 89
For extensions.....	230,866 92	749,066 21	558,124 42
Total.....	\$993,364 29	\$1,530,294 04	\$1,372,457 31

The cost of pumping one million gallons lifted 100 feet high was \$2.68, or 31 cents less than in the previous year, and \$3.98 less than in 1882.

Eighteen per cent. of the total pumpage was by water-power, the turbine wheels using..... 312,058,554,180 gallons
 To pump..... 10,401,951,806 “

DIRECTOR'S OFFICE.

The current work of the office has been conducted with regularity, and all matters of special reference have received prompt attention.

The following is a comparative statement of the expenditures of the Director's office for the years 1891 and 1892 :

	1891.	1892.
Item 1. Salaries	\$14,148 62	\$15,920 00
Item 2. Horse keep, etc.....	500 00	500 00
Item 3. Printing, stationery and incidentals	2,097 12	2,099 18
Total	\$16,740 74	\$18,519 18

The Department respectfully presents the following recommendations :

Gas.—That Councils provide by legislation for an extension of the City gas-works, adequate to provide for the constant increase in the consumption of gas. The increase in consumption in past consecutive years is shown by the tabular statement.

Highways.—As the street curbing in the old section of the City are of inferior stone, much worn and not suitable to receive the improved pavements now being laid upon the streets, it is recommended that legislation by an Act of Assembly be procured, that in all streets to be paved or repaved with new or improved pavements by ordinance of Councils, the property owners shall provide and set a dressed granite curbing with not less than six inches face, on the street frontage owned by them.

One more year's experience with the condition of the streets of the City with the old paving and with the improved paving, causes to be renewed the recommendation of last year,

that in future, ordinances should direct that all street pavements should be laid upon a concrete foundation.

That the ordinance approved June 21st, 1892, "to provide for the better care of sidewalks, where the properties are assessed at suburban or rural rates," be amended to require that all footways shall be graded and the curbs set when an ordinance is passed for the grading or paving of a street.

For the protection of street paving Councils should provide by ordinance, that all connections with sewer, gas or water pipes shall be made by the owners of improved or unimproved property fronting thereon, prior to paving or repaving, to be led inside the line of curb; upon refusal to do so after notice, the City to put in such connections to each property fronting on the street, the property owner to pay for the connections before a permit can be secured for any attachment thereto.

Street Cleaning.—That additional ordinances be passed requiring the removal of snow and ice from the streets of the City during the winter months, setting forth the responsibilities of property owners and of the passenger railway companies, making a time limit for the removal of snow and ice, and a penalty for neglect, with power for the City to act if the snow and ice are not removed after notice, and provide for the collection of costs, or that a distinct amount of money be appropriated for the removal of ice and snow from tramway streets and the removal of all ice and snow from the streets in the business parts of the city. Action should be taken in this matter for the convenience of the public, and to abate the nuisance of the streets being banked with snow covered with the accumulation of street dirt. The existing ordinances on this subject, were passed at a time when the conditions were different from those of to-day, and they are conflicting.

The City should not assume the removal of snow and ice from the streets under the contract system; the duty required cannot be specified, as the number and quantity of snow storms cannot be predicted. The contractor would bid in lottery,

not be
o work

it sub-
lous to
under-
is who
uits in
sider-
or the

time
City,

con-
at the
a re-
ureau.
as to
thou-
Me-
er to
osition

le by
Bel-
ats of

endi-
2, are
lso in

ARTMENT OF PUBLIC WORKS,

Balance available in 1893.	Total.	Amount merging.	Receipts.	Number of employees December 31, 1892.	
D.....	\$18,519 18	82		7	
C.....	36,084 42	1,315 58	9 03	81	
G 54,233 61	2,876,272 26	40,282 62	3,845,825 99	1,554	
H 280,531 23	1,455,358 68	9,473 80	81,467 97	75	
B.....			4,521 00	5	
L 423 70	706,412 14	1,516 86	99 70	323	
S.....	537,267 00	461 00		8	
S 921,991 64	2,162,676 55	880 08	50,199 74	156	
D.....			108,433 42	13	
W 099,234 92	2,474,563 89	4,936 14	2,634,456 02	554	
.....	306,415 10	58,866 90	6,725,012 87	2,775	
.....	131,865 28	401,585 77	6,494,480 42	2,599	
.....	225,390 63	8,679,196 70	47,591 78	6,212,531 81	2,554

xpenditures of the Bureau of Surveys.



that in
ments

Tha
for the
sessed
all foo
nance

For
by ord
pipes &
proper
led ins
the Ci
on the
before

Stru
quirin
City d
of pro
makin
penalt
and ic
lection
ated f
the rei
parts o
the co
the str
lation
were p
those o

The
from t
cannot
cannot

and the City might pay for work the contractors might not be required to do, or the contractor would be called on to do work beyond the reasonable requirements of his proposal.

Subways.—The desirability of constructing permanent subways in the principal business streets of the City, previous to repaving with improved pavements, that will receive the underground structures of the City and of private corporations who have or may have granted to them privileges to lay conduits in the streets, or for other uses, should receive the early consideration of Councils before further concessions be granted for the use of the public highways.

Water.—That Councils be urged to act at the earliest time upon a plan for the future water supply system for the City, and commence work upon it.

The introduction of meters upon the supply to large consumers of water is recommended as a measure to prevent the careless use of water, as all waste that is stopped will be a reserve for the pumping and storage facilities of the Bureau. The price charged should be only the net cost the City has to pay for pumpage and distribution, thirty cents per one thousand cubic feet, or four cents per one thousand gallons. Meters to register the consumption will require the consumer to pay for what he uses only, and in the cost of water his position in trade and business will be equitable with his neighbor.

It is also recommended that an appropriation be made by Councils for the construction of a filtering plant at the Belmont pumping station, in accordance with the requirements of the ordinance of Councils, approved June 23d, 1892.

Receipts and Expenditures.—The appropriations, expenditures and receipts of the Department for the year 1892, are set out in the following table in detail by Bureaus, and also in totals for the years 1890 and 1891:

Appropriations, 1893.

The following is an abstract of the ordinance making appropriations to this Department for the year 1893, with a statement of balances available from previous years for work ordered, and for which contracts are executed :

Bureaus.	Annual appropriation for the year 1893.	Balance available from previous years.	Total.
Director's Office.....	\$19,720 00	.....	\$19,720 00
City Ice Boats.....	34,900 00	.....	34,900 00
Bureau of Gas.....	3,014,968 00	4,233 61	3,019,201 61
Bureau of Highways.....	1,145,428 88	280,531 23	1,425,960 11
Bureau of Lighting.....	878,366 00	423 70	878,789 70
Bureau of Street Cleaning.....	617,698 00	.....	617,698 00
Bureau of Surveys.....	661,940 00	921,991 64	1,583,931 64
Bureau of Water.....	1,405,789 00	1,099,234 92	2,504,973 92
Total.....	\$7,778,759 88	\$2,306,415 10	\$10,085,174 98

In concluding, I desire to mention the earnest and faithful services of the Chief Clerk and of the assistants in my office ; also, the fidelity of the Chiefs of the Bureaus in the discharge of their responsible duties ; and to return my thanks to you for the confidence and the assistance you have always given me.

Very respectfully submitted,

JAS. H. WINDRIM,

Director.

ANNUAL REPORT

OF THE

BUREAU OF WATER,

FOR THE YEAR 1892.

OFFICERS

OF THE

BUREAU OF WATER.

Chief :

JOHN L. OGDEN.

Assistants :

ALLEN J. FULLER, WILLIAM WHITBY.

Draughtsmen :

John E. Codman, William Samon,
Martin Murphy, John R. Gorman.

Chief Clerk—Job T. Hickman.

Assistant Clerk—James G. Dixon.

Correspondence Clerk—P. DeHaven.

Search Clerk—H. J. Johnson.

Assistant Search Clerk—William J. Duffy.

Clerk—Thomas Spence.

Assistant Clerk—K. McNeal.

Assistant Clerk—J. J. Barney.

Time Clerk—W. J. Innes.

Pipe Inspector—Theodore S. S. Baker.

Pipe Clerk—George G. Whitby.

Messenger—Haines Lewis.

Telephone Operators :

Mattie Wittingham, Calvin Craner.

Gen'l Superintendent :

FRANK L. HAND.

Clerk to General Superintendent—John A. Hayes.

Assistant Clerk to General Superintendent—John B. Wright.

Engineers at Pumping Stations :

FAIRMOUNT—*Engineers*, William H. Cubbler, John W. Bronson.

SPRING GARDEN—*Engineers*, David Pyke, H. A. Gideon, Abraham Stott,
John L. McGinnis.

Telephone Operator—Fannie Shields.

BELMONT—*Engineers*, William Kiner, Thomas Seddon.

ROXBOROUGH—*Engineers*, Joshua Bartley, Archibald Weir.

MOUNT AIRY—*Engineers*, Henry W. Everly, William Fletcher.

CHESTNUT HILL—*Engineer*, Lewis Culp.

FRANKFORD—*Engineers*, Charles Douglas, William Maxwell.

Works—General.

Foreman Carpenter—Henry Guest.

Foreman Bricklayer—Frank A. Mooney.

Foreman Stonemason—Michael Farrell.

Foreman Rigger—James Forrest.

Foreman Painter—Charles Ravenor.

Foreman Laborer—Matthew J. Richmond.

General Storekeeper—S. C. Buchanan.

Electrician—Henry P. Morgan.

Superintendent of Shop—James H. Dean.

Clerk to Superintendent of Shop—Jonathan Bonsall.

Purveyors:

First District, John H. Holmes.

Clerk, William J. Mackey.

General Foreman, Thomas Preston. *Foreman of Repairs*, W. W. Wellington.
Office, 1120 Wharton street.

Second District, David A. Craig.

Clerk, Charles H. Green.

General Foreman, Michael Young. *Foreman of Repairs*, Edw. Homan.
Office, 918 Cherry street.

Third District, Charles J. Lowry.

Clerk, J. A. Spanagle.

General Foreman, Elias Abrams. *Foreman of Repairs*, Wm. Magee.
Office, 1420 Frankford avenue.

Fourth District, John Montgomery.

Clerk, Arthur B. Cook.

General Foremen, George W. Showaker, James Hutchinson.

Foreman of Repairs, John Richards.

Office, Twenty-sixth and Master streets.

Fifth District, Henry Dawson.

Clerk, F. J. Cornman.

General Foreman, Charles Frank.
Office, Lyceum Building, Roxborough.

Sixth District, George H. Laut.

Clerk, William D. Kinsler.

General Foreman, Samuel Loeb.
Office, Town Hall, Germantown.

ANNUAL REPORT
OF THE
Bureau of Water

FOR THE YEAR 1892.

Philadelphia, January 24, 1893.

JAMES H. WINDRIM, Esq.,

Director, Department of Public Works:

SIR:—The operations of the Bureau of Water for the year 1892 are herewith respectfully submitted:

Receipts.

The following tables furnished by the Receiver of Taxes show in detail the receipts from water rents and other sources:

Total Receipts Bureau of Water for the Year 1892.

MONTHS.	Searches.	Delinquent Rents.	Delinquent Penalties.	Rents 1892.	Penalties 1892.	Fractional Rents.	Water Pipes.	Bureau of Water, Department of Public Works.	TOTALS.
January.....	\$37 25	\$1,637 75	\$150 46	\$278,358 08		\$19,412 85	\$12,504 78	\$0,129 71	\$40,232 80
February.....	441 50	1,013 00	141 33	308,994 08		8,744 23	11,216 57	256 93	300,201 64
March.....	527 25	1,683 00	225 40	627,502 41		8,588 45	7,362 20	505 84	528,454 22
April.....	545 00	2,187 50	306 11	663,357 57		21,965 24	7,611 79	66 27	660,246 32
May.....	519 00	2,940 50	417 81	53,665 28	\$2,659 04	17,607 24	14,031 67	142 10	698,940 89
June.....	546 50	1,651 50	199 54	20,690 00	1,002 13	10,705 82	10,347 71	236 20	78,911 59
July.....	450 00	878 00	131 71	56,773 68	2,836 95	18,788 04	9,623 80	608 40	52,172 08
August.....	354 00	568 00	81 02	30,949 65	4,621 88	32,365 66	20,549 84	339 99	118,429 64
September.....	483 25	415 00	62 25	59,706 43	8,911 58	6,903 58	16,837 70	530 54	60,753 86
October.....	518 00	666 00	84 92	35,626 80	5,377 83	21,479 10	11,498 09	429 02	108,368 14
November.....	488 75	970 00	144 78	11,924 00	1,777 49	27,891 08	19,984 78	359 67	90,798 59
December.....	492 50	982 50	147 38			20,082 00	10,697 57	664 67	46,748 01
Totals.....	\$5,718 50	\$18,422 75	\$2,092 71	\$2,147,447 98	\$27,136 90	\$214,678 24	\$152,916 45	\$10,274 24	\$2,575,637 77

G

Receipts through the office of the City Solicitor, 1892.....

Total receipts of the Bureau of Water for the year 1892.....

Receipts as previously estimated.....

58,768 25
\$2,684,466 02
2,400,000 00

Comparative Statement of Fractional Rents.

YEA.R.	Rents.	Meter Rents.	Ferrules.	Repairs.	TOTALS.
1892.....	\$66,350 51	\$125,705 73	\$28,409 00	\$4,213 00	\$214,678 24
1891.....	62,623 52	108,151 34	28,019 00	4,074 50	200,868 36
Increase.....		\$17,554 39	\$2,390 00	\$139 50	\$13,800 88
Decrease.....	\$6,278 01				

Revenue for Ten Years, 1888 to 1892, inclusive.

YEARS.	Delinquent Water Rents.	Delinquent Penalties.	Water Rents.	Penalties.	Fractional Rents.	Water Pipe.	Searches.	Chief's Office.	City Solicitor's Office.	TOTALS.
1883	\$69,995 84	\$10,310 00	\$1,860,882 17	\$23,280 44	\$67,088 10	\$45,833 09	.....	\$6,515 11	\$21,144 41	\$1,627,089 16
1884	19,837 72	2,492 97	1,566,027 57	22,797 76	77,657 40	71,542 00	\$461 00	10,670 89	21,088 20	1,792,486 01
1885	11,267 23	1,561 03	1,567,081 94	22,298 78	101,643 88	92,162 18	1,988 75	9,197 00	18,993 23	1,826,164 04
1886	15,049 50	1,964 42	1,637,296 69	21,377 89	97,219 62	123,748 91	2,960 00	10,121 56	24,394 95	1,933,328 34
1887	19,040 87	2,705 79	1,721,488 83	24,433 08	115,989 21	106,602 48	3,412 75	7,287 61	29,504 04	2,080,494 61
1888	13,995 04	1,948 54	1,759,482 38	23,091 86	118,560 16	123,967 85	4,158 25	7,742 45	22,846 97	2,104,926 50
1889	23,407 23	3,332 78	1,846,549 49	24,247 95	143,894 78	149,611 63	5,056 25	11,863 70	33,048 09	2,241,999 85
1890	25,472 39	3,622 69	1,858,851 95	26,270 94	171,901 16	141,884 27	5,245 75	9,780 83	38,387 73	2,381,087 70
1891	25,183 85	3,495 00	2,057,417 39	29,672 21	207,863 36	188,180 98	5,046 75	6,503 70	34,394 49	2,100,762 73
1892	15,422 75	2,092 71	2,147,447 98	27,136 90	214,678 24	152,916 45	5,718 50	10,274 24	58,768 25	2,634,456 02
TOTALS.....	\$238,672 44	\$33,525 93	\$17,678,119 89	\$245,120 76	\$1,308,840 85	\$1,145,184 84	\$34,038 50	\$91,406 89	\$302,755 36	\$21,072,664 96

7

Comparative Statement.

1892	\$15,422 75	\$2,092 71	\$2,147,447 98	\$27,136 90	\$214,678 24	\$152,916 45	\$5,718 50	\$10,274 24	\$58,768 25	\$2,634,456 02
1891	25,183 85	3,495 00	2,057,417 39	29,672 21	200,868 36	138,180 98	5,046 75	6,503 70	34,394 49	2,300,762 73
Increase.....	.....	.....	\$90,030 59	.....	\$13,809 88	\$14,735 47	\$671 75	\$3,770 54	\$24,378 76	\$133,693 29
Decrease.....	\$9,761 10	\$1,402 29	.....	\$2,635 31	.....	.....	.....	.....	.....	.....

Fractional Rents 1892.

Months.	Rent.	Ferrules.	Repairs.	Meters.	Totals.
January	\$2,314 51	\$275 00	\$97 00	\$16,726 34	19,412 85
February.....	4,624 43	458 00	183 00	3,528 80	8,744 23
March.....	5,581 28	1,512 00	261 00	1,209 17	8,564 45
April	9,066 32	2,302 00	348 00	10,248 92	21,965 24
May	8,709 98	2,388 00	351 00	6,158 26	17,607 24
June	6,627 60	2,864 00	427 00	787 22	10,705 82
July.....	4,843 20	2,789 00	281 00	10,874 84	18,788 04
August	3,068 20	2,618 00	372 00	26,297 46	32,355 66
September.....	3,182 22	3,315 00	339 00	67 36	6,903 58
October.....	3,096 55	3,982 00	418 00	14,187 55	21,679 10
November	2,223 47	5,189 00	695 00	19,783 56	27,891 03
December.....	3,012 75	717 00	496 00	15,886 25	20,062 00
Totals	\$56,350 51	\$28,409 00	\$4,213 00	\$125,705 78	\$214,678 24

A comparison of the tables shows an increase of \$1,007,386.86 over the receipts for the year 1883, and of \$133,693.29 over the year 1891,—the principal advance being for water-rents.

The receipts for water-pipe were as follows :

Through the Receiver of Taxes.....	\$152,916.45
Through the City Solicitor	58,768.25
	\$211,684.70

The unpaid claims sent to the City Solicitor for lien amounted to \$62,782.70.

The amount appropriated for the laying of service-pipes was \$145,944.11. The revenue from this source would have been much greater if a larger sum had been provided for the work.

Appropriations.

We received by appropriation and transfers :

For current expenses.....	\$821,358.11
For extensions	550,000.00
From loan	1,000,000.00
Available balance from 1891	108,081.92
Total from all sources	\$2,479,440.03

The Extension Item was used for the following new work :

For a new reservoir at Queen lane,
 For the completion of the new Roxborough reservoir,
 For a twenty-million-gallon engine at Spring Garden station,
 For a fifteen-million-gallon engine at Frankford station,
 For a ten-million-gallon engine at Roxborough station,
 For two boilers at Spring Garden station,
 For two boilers at Frankford station,
 For two boilers at Roxborough station,
 For new engine-house at the Spring Garden station, and for large pumping-
 and supply-mains.

Expenditures.

For current expenses.....	\$314,332.89
For extensions	558,124.42
Total	\$1,372,457.31
Amount not merging.....	\$1,099,234.92
Amount merging	4,936.14
The amount due on unpaid bills, principally for coal, is	45,000.00

For expenditures in detail, see Appendix B.

Appropriations and Expenditures.

Appropriation January 6, 1892.	AMOUNT.			
	Appropriat'd	Expended	Merging.	Not merg'g
Item 1. Salaries:				
Office, Chief of Bureau.....	\$110,459 00	\$108,782 48		
Fairmount Pumping Station.....	10,360 00	10,342 58		
Spring Garden Pumping Station.....	48,955 00	48,297 39		
Belmont Pumping Station.....	11,850 00	11,886 76		
Roxborough Pumping Station.....	11,470 00	11,112 92		
Mt. Airy Pumping Station.....	8,070 00	3,070 00		
Chestnut Hill Pumping Station.....	1,500 00	1,500 00		
Frankford Pumping Station.....	11,750 00	11,710 26		
	<u>\$204,414 00</u>			
Transferred to Item 5.....	\$2,000 00			
Transferred to B. of Gas.....	811 66			
	<u>\$2,811 66</u>	\$201,602 84	201,602 84	
Item 2. Regular supplies, including fuel, oil and small stores.....	135,000 00	134,067 15	982 85	
Item 3. Repairs to machinery, including the conveyance of workmen incident thereto.....	\$50,000 00			
Transferred from other bureaus.....	3,000 00	53,000 00	52,429 65	570 35
Item 4. Maintenance and repairs to buildings, grounds and reservoirs.....	\$60,000 00			
Transferred from other bureaus.....	4,000 00	64,000 0	63,833 69	166 31
Item 5. Maintenance and improvements to the distribution, including purchase of material and cost of labor connected therewith and expenses incident thereto.....	\$95,000 00			
Transf'd from Item 1.....	\$2,000 00			
Transf'd from other bureaus.....	7,500 00	9,500 00		
	<u>\$104,500 00</u>			
Transferred to B. of Gas.....	2,000 00	102,500 00	101,548 04	956 96

Appropriations and Expenditures—Continued.

Appropriation, January 6, 1892	AMOUNT.			
	Appropriat'd	Expended.	Merging.	Not merg'g
Item 6. For Supplies and Labor at City Shop.....	\$75,000 00	\$74,914 29	85 71	
Item 7. For general incidental and contingent expenses, including \$1,200 for keep of horse for Chief of Bureau, General Superintendent and Assistant.... \$14,000 00 Transferred from other bureaus..... 1,500 00	15,500 00	15,487 68	12 32	
Item 8. For the purchase of material and cost of labor in connection with the laying of service pipe and expenses incident thereto.....\$140,000 00 Transferred from other bureaus..... 5,944 11	145,944 11	144,455 05	1,489 06	
Item 8½. For relaying small pipe....	25,000 00	25,000 00		
Item 9. Extensions.....\$550,000 00 Balance from books, 1891..... 36,463 07	586,463 07	375,445 57	722 58	20,294 22
Item 9½. Balance January 1, 1892....	71,618 85	36,518 85		35,100 00
Item 10. To pay Robert W. and Joseph Fitzell for water pipe.....	1,000 00	1,000 00		
Item 11. For the construction of a Reservoir in the 28th ward.....	1,000,000 00	146,160 00		853,840 00

Pumpage.

The total number of gallons pumped was of follows :

Fairmount station.....	10,401,951,806
Spring Garden station.....	34,363,453,840
Belmont station.....	5,655,950,060
Roxborough station.....	4,465,297,193
Chestnut Hill station.....	26,828,760
Frankford station.....	3,782,468,323
Total.....	58,695,949,982

Supplementary lift :

Roxborough.....	20,339,160
Mt. Air.....	577,102,250
East Park.....	494,192,786
Total.....	1,091,634,196
Grand total.....	59,787,584,178

Of this amount about 93 per cent. was taken from the Schuylkill River and the remainder from the Delaware River.

Total Gallons Pumped during 1892.

Month.	Water-power.	Steam-power.	Totals.	Average gallons per day.
January.....	1,178,720,710	3,109,078,399	4,287,794,109	138,315,939
February.....	1,125,055,853	3,407,701,379	4,533,756,732	156,836,439
March.....	1,194,050,836	3,484,155,013	4,678,205,849	150,909,898
April.....	1,211,331,685	3,493,712,669	4,705,044,354	156,834,811
May.....	1,224,921,964	3,780,195,735	5,005,117,699	161,455,409
June.....	1,104,483,071	4,284,703,778	5,389,183,849	179,637,961
July.....	587,703,525	4,831,812,050	5,419,515,575	174,824,088
August.....	520,934,448	4,995,736,280	5,516,670,728	177,957,120
September.....	355,096,896	4,916,506,956	5,271,603,852	175,720,111
October.....	164,500,693	5,000,773,961	5,165,274,654	166,621,768
November.....	721,521,830	4,311,910,682	5,033,432,012	167,781,067
December.....	1,012,681,795	3,769,348,470	4,782,030,265	154,259,040
Total.....	10,401,951,806	49,385,632,372	59,787,584,178	163,801,600

2

DECEMBER		
	100	TURE S.F.H.
	900	
	800	
	700	
	600	



The following table shows the gallons pumped, the cost per million gallons, and the daily consumption per capita during the ten years from 1883 to 1892, inclusive :

Pumpage Tables for the years 1883 to 1892, inclusive.

Year.	No. of gallons pumped to reservoirs.	No. of gallons pumped 100 feet high.	Cost per million gallons pumped 100 ft. high.	Gallons per capita per day.	Estimated population.
1883...	26,284,987,251	37,949,320,701	\$6 51	75	911,000
1884...	26,495,179,353	39,001,865,294	5 54	74	932,000
1885...	25,165,020,072	38,908,901,886	4 70	72	933,000
1886...	28,638,966,569	46,255,361,203	4 13	80	975,000
1887...	32,426,779,765	51,289,948,331	3 99	89	995,000
1888...	37,068,763,428	59,483,831,199	4 49	100	1,020,000
1889...	42,518,919,781	69,034,118,484	3 87	110	1,050,000
1890...	51,698,508,699	84,501,451,626	3 05	131	*1,046,000
1891...	55,665,648,000	93,490,106,725	2 99	140	1,071,672
1892...	59,787,581,178	102,443,373,631	2 68	143	†1,142,650

*United States census.

†City census.

The following table shows the quantity of water pumped at Fairmount since 1880 :

Year.	Gallons per 100 feet.	Repairs.	Cost per million gallons.
1881.....	7,575,826,689	\$2,197 72	\$2 21
1882.....	9,377,468,535	2,738 95	1 74
1883.....	9,757,096,729	2,992 62	1 45
1884.....	8,575,107,594	2,795 33	1 45
1885.....	6,847,346,991	7,893 91	2 33
1886.....	7,282,553,795	9,895 87	2 73
1887.....	10,105,736,663	5,582 88	1 18
1888.....	11,241,113,108	6,958 00	1 44
1889.....	11,413,836,169	4,800 44	1 1
1890.....	12,362,987,130	4,900 00	1
1891.....	11,380,824,730	5,900 00	1 11
1892.....	10,401,951,806	4,750 85	1 14

Fairmount Pumping Station, 1892.

Wheels.	Total pumpage.	Hours pumped.	Hours shut down. High water.	Hours shut down. Low water.	Hours shut down Muddy water.	Hours shut down. Full basin.	Hours shut down. Repairs.
1	695,853,568	6,809	11	1,911	.....	.....	53
3	2,148,025,073	8,118	14	607	8	.....	42
4	1,815,289,132	6,853	12	1,797	.....	.....	122
5	1,663,069,237	6,876	14	2,268	35	55	36
7	1,336,246,275	5,127	352	1,476	53	56	1,710
8	1,376,194,021	5,289	18	3,230	53	60	139
9	1,367,324,500	5,238	11	3,217	53	68	197
	10,401,951,806	43,805	427	14,506	202	239	2,299

There was an increase of 4,121,936,178 in the total gallons pumped during 1892 over the previous year, and of 34,502,626,927, or 136 per cent. over the year 1883. The consumption has more than doubled in the ten years.

For want of steam-pumping capacity it was impossible during several months to supply the full demand for water, and the reservoirs which furnished the deficiency were almost depleted. Some parts of the city were on short allowance, and every one was requested to be economical in the use of water. It is probable that except for a new engine of twenty millions of gallons capacity, started on June 15, all of the reservoirs would have been entirely empty. This engine was at times run at least fifty per cent. above its contract capacity.

There was not sufficient water in the Schuylkill to run the turbine wheels, and they were idle a total of 6,684 hours, and pumped 978,872,924 gallons less than during 1891.

On account, however, of less money being expended for repairs, the cost of pumping at Fairmount was the same as during the year preceeding.

The average cost of pumping at all the stations was \$2.68 per million gallons lifted one hundred feet. This cost includes the pay of all employees, coal, lubricant, lighting, repairs and supplies. It has been reduced from \$6.51 in 1883 to its present low figure by the use of cheaper coal, better boilers, the pumping of a larger quantity of water, and in some measure by more careful attention on the part of employees.

With better engines the cost of pumping would be much less. Previous to 1892 there was but one high-duty engine in service. Now we have two, and three others under contract.

The largest quantity pumped in one day was on August 27, when 199,996,713 gallons were registered. The lowest was on March 3, when only 83,599,844 gallons were pumped.

Consumption.

The gallons consumed amounted to 143 per capita, almost double what it was in 1883. This increase is largely due to waste and bad plumbing.

The following is a copy of a notice given by a real-estate agent to his numerous tenants, which, if observed by them, would waste much more water than required for legitimate use:

" Notice."

"To avoid trouble, expense and inconvenience by the pipes freezing and bursting, I desire to state that if you let the water run continually day and night, about half force, in the water-closet, you will not be annoyed by bursted or frozen pipes, or liable for the expense of fixing same, which will be the case, as the owner will not be responsible for any accidents or losses caused by failure to comply with this notice."

With proper plumbing there would be no occasion for this waste in order to prevent freezing.

A hopper closet will waste, by running at half opening, about 80 cubic feet daily, which amounts in three months, to 7,200 cubic feet, the charge for which at meter rates would be \$4.32. The city charges but \$1.00 annually for an appli-

ance of this kind. Besides wasting the water, the pressure in the pipes is reduced, so that houses on high ground have a very poor service, and at times none at all.

There are three ways in which this waste can be stopped.

By requiring all plumbing work to be done in strict accordance with proper rules and having it thoroughly inspected before a permit be given to turn on water.

By continuous inspection for waste and the enforcement of a fine when such waste is not stopped after notice.

By the use of a meter put on at the expense of the owner of the premises, but controlled by the city.

The latter plan will be less expensive for the city and could be applied when water is allowed to waste after proper warning. If the meter should show a larger quantity of water passing through it than the assessment pays for, then charge for the additional quantity at an increased meter rate, say ten cents per one thousand gallons. Indeed under this same rule property owners could be required to place meters on all buildings without causing any trouble from a sanitary point of view, as an abundant supply for all purposes would be provided before exacting an additional charge.

Continuous inspection can be done by means of Deacon meters, or by listening at a key placed on the curb-stops which are required on all house connections, and where wilful waste is detected shut off the water until a fine be paid and the leaky fixtures repaired.

There are but few rules regulating plumbing in buildings. There must be five feet of lead pipe of a specified size attached to the ferrule, the pipe must be laid at a certain depth beneath the surface of the ground, a curb-stop, with a box and iron cover collar, must be placed in its proper position, but the pipe may be of iron, which rusts in a few years, or of lead too light to sustain the pressure, and the fixtures may be imperfect and leaky and not protected from frost.

The experiments with the Deacon meter have been continued during the year, showing where waste is going on, and

which in many cases the Bureau has been able to prevent. Where waste was going on in one district, the per capita rate was 523 gallons, partly due to two leaks in the city pipes.

The consumption where the fixtures were in fair condition was found to be 63 gallons per capita.

The results of the examinations by means of the meter are very fully detailed and considered in Appendix D.

Rain Fall.

The rain fall in the Schuylkill Valley was but 40.4 inches, which was 9.6 inches less than during the preceeding year.

The least precipitation was in February, and the greatest in May. The months of November, February, April, August, and September were less than the average.

The greatest rain-fall occurred during the months when the evaporation was at a maximum, and the least when at a minimum. The result was a reduced flow of the streams.

The rain-fall observations, conducted by this bureau, assisted by volunteer observers, have now completed a continuous record of ten years. See Appendix F.

Flow of the River.

The average daily flow of the Schuylkill was about 1,448,857,597 gallons.

The total daily flow over the dam at Fairmount when added together shows a total of 71.5 feet, which is 6.7 less than during 1891. This is partly due to the fact that more water was taken from the river for use, and to the absence of freshets.

Quality of the Water.

The quality of the water has remained about the same as during previous years.

An ordinance was passed by Councils and approved by the Mayor on June 23d, authorizing the Department of Public Works to advertise for proposals for a filter plant to be placed at the Belmont Pumping Station.

In accordance therewith specifications were prepared and proposals asked for, which were received on August 18th. Two bids were obtained.

A careful examination of the plants referred to by the bidders was made by experts appointed by the Director of the Department in order to ascertain if the plans submitted were capable of fulfilling the requirements of the specifications, but as no appropriation was made a contract could not be awarded.

If a successful and satisfactory filter plant could be placed at the Belmont station, it may be unnecessary to increase the size of the reservoir or build an additional one for West Philadelphia.

If not, a new reservoir will be required in order to furnish clean water to this district.

Machinery.

The first engines for the Philadelphia Water Works were constructed by Nicholas Roosevelt in the year 1800. They were the best that could be built in this country at that time, but would be great curiosities now, with their boilers of oak planks, their fly wheel, fly wheel shaft and its bearings of wood, the walking beam and connecting rods of timber, as well as the hot wells and hot and cold water pumps.

The next engine was started on September 7th, 1815. It was an improvement on the first, as more iron was used in its construction, and the boiler was of cast iron. The cylinder casting cost \$160.00 per ton, the lever beam \$120.00 per ton and the fly wheel and shaft \$100.00, and the boiler plates \$90.00 per ton.

This engine, with a steam pressure of $2\frac{1}{2}$ pounds, raised 2,116,382 gallons into Fairmount reservoir, with the consumption of seven cords of wood. The cost of this engine was \$54,341.00.

About the 15th day of May, 1817, the fourth engine was started. It was a high pressure engine built by Oliver Evans.

The boilers were of wrought iron and carried a steam pressure of 220 pounds. On its contract test this engine delivered into the reservoir 3,666,021 gallons in $23\frac{1}{2}$ hours and burned 13 cords of oak wood. The speed was 22 $\frac{1}{2}$ revolutions per minute.

These engines were discontinued on January 14th, 1822, when the water-power works were started.

No more steam engines were built by the City until after consolidation in 1854. The neighboring districts of West Philadelphia, Spring Garden and Kensington had water works of their own, which at that time became the property of the City, and were united under one management. Their engines were of good design and economical in working, three being of the Cornish type.

In 1866 Cornish engines were put in at the Roxborough and the Spring Garden stations. All of these engines have been removed and those now in service have been constructed since then. They were of the best pattern and the most economical at the time of their adoption.

All of the large engines in service at present are of the compound type, the oldest being No. 1 Worthington Duplex, at Belmont, which was started on September 19th, 1870, its trial test showing a duty of 63,120,707 pounds on the basis of an evaporation of $9\frac{1}{2}$ pounds of water.

The Simpson Compound and the Cramp engines were capable of showing a duty of about 75,000,000 pounds.

The only machinery we have that can be classed as high duty engines are the Gaskill and Southwark Foundry engines at Spring Garden.

The practical economy of an engine depends in a great measure on the boilers, and the character of the water used for making steam.

The Schuylkill water is not good for steaming, as the boilers are soon coated with a lime deposit, which interferes with evaporation and lowers the practical duty of the engines.

Boiler fluids and mechanical appliances to prevent scale are

of little or no value, and the boilers can only be kept clean by chipping the scale off, which can only be done once a year, because there are no spare boilers to permit of the work being done oftener.

If all of our engines were capable of giving a practical duty of about 100,000,000 the cost of pumping would be much less, and if the City could furnish sufficient money, it would pay to throw away the old engines and put in the more economical modern type.

The new engines under contract, and which will be in service during 1893, are required to give a duty of not less than 110,000,000 foot pounds on the basis of 1,000,000 heat units, being the equivalent of 100 pounds of coal.

It is probable that this requirement will be exceeded when the machinery is tested.

The subject of triple expansion has been considered, but owing to the low price we pay for coal, the somewhat experimental character of the engine, the increased cost both for boilers and machinery, and the apparent unwillingness of builders to guarantee a greater duty than we now obtain from a first-class compound, no specifications asking directly for triple expansion were prepared when these engines were advertised for.

It was, however, provided in a note that bidders might submit engines of other types and give any reasons they might have suggesting the superiority of the type proposed. No triple expansion engines were offered by the bidders.

The new boilers constructed during the year are capable of carrying a steam pressure of 100 pounds.

Reservoirs.

The new Roxborough reservoir should have been completed by September 1, 1892, but there is a large amount of work yet to be done.

The pumping and supply mains for this reservoir have been purchased, and the contract for laying them executed, but the

opening of the streets has been so delayed that this work cannot be done until next spring. A driveway will be constructed around three sides of the reservoir so that the grand view from its summit may be enjoyed conveniently by people in carriages.

Bids were received on September 13th for the building of a reservoir of 386,000,000 gallons capacity on Queen Lane, between Thirty-first and Thirty-third streets.

The contract was awarded to Filbert, Porter & Co. for the sum of \$1,159,591, and they have given a bond in the sum of \$100,000 to complete it by January 1, 1895.

The contractors began work on October 10th, and after completing the preliminary work moved 160,000 cubic yards of material before the end of the year. The work is progressing during the winter by means of a steam excavator, and the earth is being placed on the roadway and concourse.

In Appendix C. will be found a more detailed account of the work done at the pumping stations and reservoirs.

Distribution.

This work is given in such detail in Appendix D. that it will only be referred to in a general way. There have been added to the distribution a total of thirty miles and three hundred and eighty-three feet, making in use a grand total of one thousand and thirty-one miles and three hundred and sixty-seven feet. A large quantity of old pipe has been abandoned.

The fire hydrants now in service are eight thousand four hundred and forty-seven, of which 63 per cent. are of the new style.

The new plugs are more ornamental in design than the old plugs or hydrants, and cannot be lifted and broken by the frost, as frequently happens to the old ones.

The new attachments made amounted to eight thousand and nine hundred.

A few large supply mains were laid in order to benefit the direct pumpage district.

Meters.

The number of meters in use at present is 789.

It is contemplated to reduce the charge for water used by meter from eight to four cents per one thousand gallons, which is about the cost of the water when the interest on the plant is added to the cost of pumping.

If such an ordinance be passed by Councils the number of meters will be greatly increased.

The meter shop was unfortunately burned down, and new quarters must be prepared where the meters can be properly tested and where the records and stock will not be exposed to another conflagration.

Pipe Inspection.

Water pipes and special castings were procured from six contractors. Every piece was inspected, and the result is shown in the following table:

Pipe and Specials.	Inspected.	Rejected.	Accepted.	Cancelled.
6-inch pipe.....	14,279	2,279	12,000	
8-inch pipe.....	1,742	242	1,500	
10-inch pipe.....	1,610	110	1,500	
12-inch pipe.....	1,081	81	1,000	
30-inch pipe.....	424	61	363	
36-inch pipe.....	505	155	350	
48-inch pipe.....	269	69	200	
Small specials.....	5,701	479	5,222	
Large specials.....	85	5	80	49
6-inch pipe for builders.....	73	22	51	
Specials for builders..	671	39	632	
Total.....	26,449	3,542	22,898	49

One inspector and two assistants were necessary to perform this work in a proper and satisfactory manner.

The operations of the Repair Shop are shown in Appendix E.

Respectfully,

JOHN L. OGDEN,

Chief, Bureau of Water.

2, BY WARDS.

	23	24	25	26	27	28	29	30	31	32	33	34	Total.
													2
1	1	2	3	4	2	9	6	2	1	3	4	2	75
1	2	4	2	8	3	7	4	4	6	4	5	1	102
1	5	6	5	9	4	5	6	3	4	5	3	3	159
5	29	293	67	72	188	942	307	14	22	345	92	38	3,494
4	6	11	14	8	135	31	14	8	36	5	10	5	762
1	138	506	318	472	296	1,602	341	114	60	315	886	217	7,434
4		4		9	6	12						2	69
1					2								6
3	2	2	3	2	1	3	3	2	3	2	1	1	82
0	70	51	45	35	45	120	30	4	1	10	70	40	804
5	9	7	5	9	4	14	13	6		4		6	244
				1									3
0	12	34	29	31	8	21	50	22	26	41	13	10	732
					4								21
2	1	2	1	2		3	1			1	1	1	25
1			1			1					1		12
													7
7	325	338	468	826	377	1,525	303	148	75	384	868	238	8,524
													6
2	1	3	1	2	2	3	2	1		2	3	1	45
1						1	1						3
	2					3			2				15
4	3		6		4	5					4	2	28
									1				3
					4		5				2		21
0	291	420	492	1,091	402	1,731	234	42	71	393	1,172	261	8,168
4		3		4		6	2		1	2		1	42
1						1							5
1	2	3	1	2	1	3	2		1		2	1	49



APPENDIX A.

*Receipts through the Office of Bureau of Water, Department
of Public Works, for the year 1892.*

January	11...	Baltimore & Ohio R. R. Co....	Raising 6-inch water pipe.....	\$42 04	
	13...	Clarendon Iron Co.	Old oil barrels.....	12 24	
	14...	A. Purves & Son.....	Lot of old material.....	400 95	
	15...	Girard College.....	Material.....	35 84	
	15...	Girard Estate.....	Repairing water pipe.....	17 44	
	18...	Robert H. Forderer.....	Setting private meter.....	224 18	
	19...	Phila. & Reading R. R. Co....	Repairing fire hydrant.....	38 57	
	20...	W. T. Hughes Co.....	Supply connection.....	68 93	
	22...	Henry Snyder.....	Rent, saloon, Fairmount.....	500 00	
	23...	Bussenius & Culliffe.....	Old cast scraps.....	4,522 18	
	27...	Knickerbocker Ice Co.....	Removing ice.....	214 00	
	29...	John W. Faries.....	Removing fire hydrant.....	23 39	
	February	3...	Martin Burke.....	Old brass.....	168 00
		11...	John Blood & Co.....	Repairing stop.....	7 70
26...		Drexel Institue.....	Fire attachment.....	75 03	
26...		Drexel Institute.....	Supply connection.....	5 80	
27...		Receiver of Taxes.....	Overdrawn warrant.....	40	
March	1...	Bureau of Water.....	Sale of manure.....	2 00	
	1...	Bureau of Water.....	Overdrawn warrant.....	22 50	
	2...	John Nighlinger.....	Rent of Farm No. 3.....	152 50	
	3...	H. M. Harris.....	Rent of Farm No. 1.....	100 00	
	3...	J. W. Harris.....	Rent of Farm No. 2.....	100 00	
	7...	Bureau of Water.....	Overdrawn warrant.....	75	
	7...	William Kenarth.....	Moving fire hydrant.....	29 23	
	12...	Cramp Ship Building Co.	Moving fire hydrant.....	14 81	
	21...	Phila. & Reading R. R. Co....	Repairing stop.....	1 28	
	25...	P., W. & B. R. R. Co.....	Renewing 6-inch stop.....	29 68	
April	31...	Kugler Saw Mill Factory.....	Repairing supply connection.....	13 87	
	31...	W. J. McCandless.....	Repairing 4-inch connection.....	31 72	
	31...	Receiver of Taxes.....	Overdrawn warrant.....	7 50	
	12...	James Doak.....	Repairing stop.....	3 98	

*Receipts through the Office of Bureau of Water, Department
of Public Works, for the year 1892—Continued.*

April	12...	Receiver of Taxes.....	Overdrawn warrant.....	\$1 65
	18...	Quaker City Croquet Club....	Rent of lot.....	10 00
	23...	Phila. & Reading R. R. Co....	Fire connection.....	52 64
May	2...	Bureau of Water.....	Overdrawn warrant.....	3 90
	12...	George Campbell & Co.....	Fire connection.....	63 86
	21...	Richard Bennis.....	Repairing water pipe.....	19 17
	31...	Burt Bros.....	Fire connection.....	55 17
June	1...	Baldwin Locomotive Works..	Supply connection.....	41 41
	1...	H. H. Danbly.....	Repairing main.....	18 73
	10...	Christ. Schmidt.....	Supply connection.....	52 95
	17...	David McMahon.....	Repairing water main.....	12 93
	17...	David McMahon.....	Repairing fire hydaant.....	11 68
	23...	Brouny & Burnes.....	Fire connection.....	50 20
	25...	J. M. Sharp.....	4-inch connection.....	48 30
July	6...	Bureau of Water.....	Overdrawn warrants.....	27 69
	7...	Bureau of Water.....	Overdrawn warrants.....	27 92
	12...	Henry Snyder.....	Rent of saloon, Falmount...	500 00
	12...	K. & D. Dooley.....	Repairing water main.....	11 04
	15...	Holmesburg Water Co.....	Fire hydrant.....	20 23
	16...	Bureau of Water.....	Over'n war. & sale of manure	12 50
	16...	Bureau of Water.....	Over'n war. & sale of manure	12 50
August	1...	Ehret & Co.....	Repairing fire hydrant.....	8 37
	10...	Robert Forderer.....	Supply connection.....	38 93
	20...	J. Pugh.....	Repairing water main.....	61 50
	22...	Speckels Sugar Refinery Co..	Fire connection.....	74 61
	23...	David McMahon.....	Repairing water pipe.....	68 70
	27...	Sharp & Burns.....	Repairing water pipe.....	34 13
	27...	W. P. Clements.....	Watching pipe ditch.....	21 00
	27...	G. Manz Brewing Co.....	Transferring connection.....	12 75
	27...	G. Manz Brewing Co.....	Transferring connection.....	12 75
September	1...	Underground Telegraph Co..	Repairing main.....	21 24
	6...	Zoological Garden.....	Supply connection.....	79 50
	7...	Northern Electric Light Co..	Supply connection.....	63 92
	7...	J. W. Pugh.....	Redriving ferrule.....	3 19
	8...	H. M. Harris.....	Rent, farm No. 1.....	100 00
	16...	Cramp Ship Building Co.....	Repairing fire hydrant.....	36 42
	16...	Cramp Ship Building Co.	Moving fire hydrant.....	21 77
	24...	J. D. Thompson.....	Fire connection.....	62 53

*Receipts through the Office of Bureau of Water, Department
of Public Works, for the year 1892—Continued.*

September	24...	J. D. Thompson.....	Supply connection.....	63 93	
	26...	Philadelphia Packing Co.....	Supply connection.....	65 08	
	26...	H. Dambly.....	Repairing water main.....	12 96	
October	3...	Joe. Atkinson.....	Repairing water main.....	6 50	
	7...	H. J. & G. R. Crump.....	Lowering water pipe.....	14 16	
	11...	William H. Doyle.....	Motor connection.....	50 08	
	13...	J. D. Thompson.....	Supply connection.....	41 29	
	18...	J. M. Harris.....	Rent of farm No. 2.....	100 00	
	22...	Traction Railway Co.....	Supply connection.....	70 59	
	24...	Phila. & Reading Term. Co.....	Altering location of main.....	52 39	
	27...	J. D. Thompson.....	Supply connection.....	77 86	
	31...	University of Pennsylvania.....	Removing & sett'g fire hyd't.....	16 15	
November	1...	J. & J. Dobson.....	Repairing fire hydrant.....	10 23	
	1...	W. McCoach.....	Supply connection.....	48 00	
	3...	F'n't Ice Manf'g Co.....	Supply connection.....	51 34	
	15...	Holmesburg Water Co.....	2 No. 1 fire hydrants.....	58 50	
	23...	Hoyle, Harrison & Kays.....	Supply connection.....	53 57	
	25...	Phila. Traction Co.....	Removing stop.....	40 37	
	28...	Sullivan Bros.....	Relaying water pipe.....	24 56	
	29...	H. Muhr's Sons.....	Fire connection.....	73 10	
	December	2...	Phila. Engineering Works.....	Fire connection.....	61 28
		3...	Traction Railway Co.....	Removing stop.....	30 56
3...		Traction Railway Co.....	Removing stop.....	18 09	
7...		Wood & McGill.....	6-inch connection.....	67 21	
7...		W. Acuff.....	Repairing main.....	5 13	
9...		George F. Uber & Bro.....	Supply connection.....	128 75	
9...		Erben, Search & Co.....	Supply connection.....	63 47	
13...		Hansell & Colloday.....	Supply connection.....	9 97	
14...		Charles Lands.....	Repairing main.....	8 78	
19...		Star & Crescent Mills.....	Fire connection.....	61 95	
21...		Phila. & Reading R. R. Co.....	Repairing fire hydrant.....	9 39	
22...		Horner, Bro. & Co.....	Fire connection.....	78 71	
24...		Mathew & Co.....	Supply connection.....	11 21	
24...		Jas. Dechan.....	Cutt'g out & reconnect'g main.....	56 35	
29...	Phila. Traction Co.....	Changing location of stop.....	53 72		
Total.....				£10,274 24	

APPENDIX B.

REPORT OF CHIEF CLERK.

BUREAU OF WATER.

Philadelphia, January 24, 1893.

MR. JOHN L. OGDEN,

Chief of Bureau of Water.

SIR:—I have the honor to transmit herewith a detailed statement of the expenditures of this Bureau for the year 1892.

Respectfully,

J. T. HICKMAN,

Chief Clerk.

Detailed Expenditures of the Bureau for 1892.

General Appropriation.	AMOUNT.			
	Appropriat'd	Expended.	Merging.	Not mergi'g.
An Ordinance to make an appropriation to the Bureau of Water, approved Jan. 6, 1892.....	\$1,348,394 00			
Balance from books of 1891.....	108,081 92			
Increased by transfer.....	22,964 11			
Extra appropriation.....	1,000,000 00			
	\$2,479,440 03			
Diminished by transfer..	2,811 66			
Net appropriation.....	\$2,476,628 37			
Item 1. Salaries.....	\$204,414 00			
Diminished by transfer.....	2,811 66			
Net appropriation to item.....	201,602 34			
Forsalary				
Chief of Bureau.....	6,000 00	\$6,000 00		
Chief clerk.....	2,000 00	2,000 00		
Assistant clerk.....	1,080 00	1,080 00		
Correspondence clerk.....	900 00	900 00		
Time clerk.....	1,000 00	1,000 00		
Messenger.....	650 00	650 00		
Draughtsmen.....	4,500 00	4,500 00		
General superintendent.....	3,500 00	3,500 00		
Clerks to general superintendents.....	2,000 00	2,000 00		
Assistants to chief.....	3,400 00	3,400 00		
Pipe inspector and clerk.....	2,200 00	2,200 00		
Search clerks.....	2,000 00	2,000 00		
Assistant clerks.....	2,750 00	2,750 00		
Chief inspector.....	1,200 00	1,200 00		
Inspectors.....	19,000 00	19,000 00		
Permit clerks.....	2,000 00	2,000 00		
Purveyors.....	9,000 00	9,000 00		
Clerks to purveyors.....	4,320 00	4,320 00		
Assistant clerks to purveyors.....	4,230 00	4,057 46		
Hydrant inspectors.....	7,050 00	6,054 06		
General foreman.....	6,634 00	6,555 75		
Foreman of repairs.....	3,900 00	3,868 55		
Superintendent of shop.....	1,500 00	1,500 00		
Clerk to superintendent of shop.....	900 00	900 00		
Watchmen, offices & yards.....	5,400 00	5,241 60		
Storekeepers.....	1,400 00	1,341 67		
Foreman, machinists.....	1,500 00	1,500 00		
bricklayers.....	1,100 00	1,100 00		
carpenters.....	1,000 00	1,000 00		
stone-masons.....	900 00	665 34		
painters.....	900 00	900 00		
riggers.....	900 00	900 00		
laborers.....	840 00	840 00		
Janitor, main office.....	675 00	675 00		
Lineman.....	900 00	900 00		
Telephone operators.....	1,100 00	1,100 00		
Electrician.....	1,050 00	1,050 00		
General storekeeper.....	1,000 00	1,000 00		
SALARIES AT PUMPING STATIONS.				
Fairmount engineers, oilers, etc.....	\$10,369 00	10,342 58		
Spring Garden engineers, oilers, firemen, coal-passers.....	43,955 00	43,297 39		

Detailed Expenditures of the Bureau for 1892.

General Appropriation.	AMOUNT.			
	Appropriated.	Expended.	Merging.	Notmerging.
Item 1—Continued:				
Belmont engineers, oilers, firemen, coal-passers.....	11,850 00	11,836 76		
Roxborough engineers, oilers, firemen, coal-passers.....	11,470 00	11,112 92		
Mt. Airy engineers, oilers, firemen, coal-passers.....	3,070 00	3,070 00		
Chestnut Hill engineers, oilers, firemen, coal-passers.....	1,500 00	1,500 00		
Frankford engineers, oilers, firemen, coal-passers.....	11,750 00	11,710 26		
		\$201,602 34		
Item 2. For general supplies, including fuel, oil and small stores.....	\$135,000 00			
Deficiencies of 1891:				
Coke.....	\$14 50			
Hauling ashes.....	67 29			
Coal for offices.....	45 56			
Coal for shop.....	8 94			
Coal for stations.....	19,505 92			
		19,642 21		
Belting.....		17 93		
COAL FOR OFFICES, SHOP, ETC.				
1 ton nut.....	\$5 00			
3 tons nut, at \$5.75.....	17 25			
3 tons stove, at \$7.....	21 00			
8 tons stove, at \$5.71.....	45 68			
8 tons stove, at \$5.74.....	51 66			
10 tons stove, at \$6.....	60 00			
21 tons 50 lbs. nut, at \$4.43.....	93 13			
31 tons 50 lbs. nut, at \$4.53.....	149 43			
53 tons bituminous, at \$3.23.....	171 19			
346 tons 3 cwt. pea, at \$2.64.....	913 95			
		1,519 29		
COAL AT STATIONS.				
Chestnut Hill, 846.15 tons buckwheat, at \$1.90.....	\$1,607 91			
Frankford, 3,970.16 tons buckwheat, at \$1.67.....	6,631 24			
Belmont, 9,346.01 tons buckwheat, at \$1.63.....	15,234 04			
Roxborough, 13,995.08 tons buckwheat, at \$1.63.....	22,812 50			
Spring Garden, 35,305.09 tons buckwheat, at \$1.63.....	57,873 89			
		104,150 58		
Chandlery.....		1,199 67		
Coke.....		457 95		
Electric supplies.....		111 15		
Examination of oil.....		100 00		
Grease.....		3 36		
Hauling ashes, Roxborough, 3,887.03 tons, at 54 $\frac{1}{2}$ ¢.....		2,128 80		
Hauling coal to Auxiliary, 53 tons at 75¢.....		43 50		
Hauling coal to Chestnut Hill, 1,178 tons at 40¢.....		471 71		

Detailed Expenditures of the Bureau for 1899.

General Appropriation.	AMOUNT.			
	Appropriat'd	Expended.	Merging.	Not mergi'g
OIL.				
Gasoline, 100 gals., at 8½¢	\$8 50			
Linseed, boiled, 50½ gals., at 41c.....	20 72			
Linseed, raw, 98½ gals., at 38c.....	37 42			
Electric, 105 gals., at 50c..	52 50			
Black, 253¼ gals., at 7¼¢..	18 53			
Castor, 51 gals., at \$1.00...	51 00			
Cylinder, 51 gals., at 45c...	23 18			
Cylinder, 48 gals., at 24c...	11 52			
Cylinder, 52 gals., at 42c...	21 84			
Cylinder, 102 gals., at 6c.	61 20			
Cylinder, 3,960½ gals., at 40c.....	1,584 20			
Engine, 3,392½ gals., at 19c.....	644 57			
Head Light, 2,113 gals., at 7½c.....	158 50			
Lard, 102½ gals., at 49c.....	50 04			
Lard, 1,408½ gals., at 56c.....	788 76	3,532 48		
Paints.....		561 51		
Tallow, 1,100 lbs., at 6½¢.....		67 98		
Wood, 5 cords, at \$10.00.....		50 00		
Total.....		134,067 15	932 85	
Item 3. For repairs to machinery, and the conveyance of workmen incident thereto.....	\$59,000 00			
Increased by transfer.....	3,000 00			
Net appropriation to Item.....	53,000 00			
Asbestos board.....		26 46		
Beltting.....		41 33		
Brass fittings.....		1,111 62		
Bricks and lime.....		268 18		
Fire bricks.....		284 49		
Gum goods.....		1,271 50		
Hardware.....		629 35		
Hauling.....		919 45		
Iron (bar).....		24 65		
IRON CASTINGS.				
4,895 lbs., at 2½¢.....	\$127 27			
13,584 lbs., at 1½¢.....	268 96			
20,150 lbs., at 2½¢.....	453 38			
36,492 lbs., at 1½¢.....	634 98			
35,723 lbs., at 2½¢.....	714 46	2,199 05		
Iron fittings.....		1,192 30		
Lumber.....		1,000 00		
Machine work.....		78 37		
Packing.....		12 94		
Repairs to boilers:				
Mt. Airy.....	\$119 25			
Belmont.....	131 10			
Frankford.....	450 04			
Roxborough.....	1,605 24			
Spring Garden.....	1,799 83			
		\$4,105 50		

Detailed Expenditures of the Bureau for 1892.

General Appropriation.	AMOUNT.			
	Appropriat'd	Expended.	Merging.	Not merg'g.
Repairs to engines :				
Frankford	\$19 03			
Spring Garden.....	788 56			
		807 59		
Repairs to stack.....		944 53		
Repairs to turbines.....		33 00		
Repairs to pipe covering:				
Frankford.....	\$46 44			
Roxborough.....	127 86			
Belmont.....	138 90			
Mt. Airy.....	213 94			
Spring Garden.....	668 58			
		\$1,195 72		
Tools		2,097 65		
Transportation.....		929 50		
Wages:				
Blacksmith	\$230 25			
Bricklayers.....	4,718 75			
Carpenters	6,333 81			
Laborers	1,286 60			
Machinists.....	16,408 88			
Painters.....	1,118 25			
Stone-masons	2,630 02			
		32,626 56		
Total.....		\$52,429 63	\$570 35	
Item 4. Maintenance and repairs to buildings, grounds and reservoirs.....	\$60,000 00			
Increased by transfer.....	4,000 00			
Net appropriation to Item.....	\$64,000 00			
Deficiencies of 1891:				
Telephone supplies	\$2 40			
Sand.....	20 55			
Lumber	169 18			
Repairs to roofs.....	103 22			
		\$295 35		
Aromatic disinfecter.....		556 75		
Badges.....		37 09		
Bricks and lime.....		1,035 20		
Carts, 2 at \$84.00.....		168 00		
Cement.....		2,000 00		
Chandlery.....		2,002 75		
Electric supplies.....		656 60		
Forage.....		1,632 98		
Freight.....		9 41		
Granite lintel.....		70 50		
Gum goods.....		2,548 24		
Hardware.....		2,149 08		
Horse shoeing.....		143 95		
Ice.....		21 63		
Lumber.....		2,980 01		
Paints.....		63 90		
Paper hanging.....		8 50		
Plants.....		207 78		
Professional services V. S.....		8 00		
Plug valves, 47 large, at \$3.75	\$176 25			
144 small, at 2.75	313 50			
		\$489 75		

Detailed Expenditures of the Bureau for 1892.

General Appropriation.	AMOUNT.			
	Appropriat'd	Expended.	Merging.	Not merg'g.
Item 4. Continued.				
Repairs to bumper.....	\$8 58			
Repairs to electric plant.....	92 14			
Repairs to harness.....	35 65			
Repairs to pumps.....	63 00			
Repairs to roofs.....	1,912 69			
Repairs to siding.....	185 60			
Repairs to wagons.....	24 90			
Repairs to walks, East Park Reservoir.....	873 25			
		\$3,195 81		
Sand.....		254 55		
Shades (window).....		3 00		
Slag.....		25 91		
Slate.....		100 00		
Spars.....		6 00		
Stone.....		514 08		
Tin roof.....		376 98		
Towing.....		139 50		
Wages:				
Bricklayers.....	\$320 40			
Carpenters.....	6,332 19			
Helpers.....	2,998 98			
Horses, carts and drivers.....	1,171 00			
Laborers.....	26,154 44			
Painters.....	3,654 00			
Stonemasons.....	1,985 48			
		42,616 49		
Totals.....		\$63,833 69	\$166 31	
Item 5. For repairs and improvement of the distribution, including the purchase of material and cost of labor in connection therewith and expenses incident thereto.....	\$95,000 00			
Increased by transfer.....	9,500 00			
	\$104,500 00			
Diminished by transfer.....	2,000 00			
Net appropriation to item.....	\$102,500 00			
Deficiency of 1891: Cement.....		32 74		
Brass fittings.....		793 45		
Bricks and lime.....		167 84		
Cement.....		499 20		
Chandlery.....		494 38		
Chromograph.....		11 00		
Custom house charges.....		71 75		
Desk and chairs.....		60 50		
Electric supplies.....		36 00		
Examination of water.....		100 00		
Flagstone.....		2 92		
Forage.....		1,471 13		
Gum goods.....		476 70		
Hardware.....		1,146 54		
Horsehoeing.....		65 00		
Ice.....		37 43		
Incidentals.....		67 83		
Iron (bar).....		274 68		
Iron fittings.....		698 84		

Detailed Expenditures of the Bureau for 1892.

General Appropriation.	AMOUNT.			
	Appropriat'd	Expended.	Merging.	Not merg'g.
Item 5—Continued.				
Iron pipe and specials:				
531,856 lbs. specials at 2¼ cts.	\$11,977 02			
4,005—6 in. 1,458,720 lbs.				
at 1.192 cts.....	17,387 91			
111—12 in. 98,469 lbs. at				
1.17 cts.....	1,158 11			
Lead, 22,321¼ lbs. at 4.48 cts.....		\$30,523 04		
Lumber.....		1,000 00		
Plumbing.....		966 95		
Repairs to gauges, \$1.90:		38 65		
Repairs to wagon, \$77.10.....		79 00		
Sacks.....		6 00		
Services of driver.....		120 00		
Services of inspector.....		123 24		
Stable supplies.....		8 50		
Test gauge.....		95 75		
Transportation.....		57 00		
Wages:				
First District.....	\$8,422 64			
Second District.....	6,815 07			
Third District.....	7,766 88			
Fourth District.....	17,598 51			
Fifth District.....	4,549 49			
Sixth District.....	6,112 87			
Improvement.....	10,851 50			
		62,116 96		
		\$101,543 04	\$956 96	
Item 6. Forsupplies and labor at the				
City construction and repair shop.	\$75,000 00			
Deficiency of 1891, tin roof.....		81 85		
Belting.....		34 51		
Brass fittings.....		274 87		
Brass castings:				
365 lbs. Ajax metal at 22 cts	\$67 10			
1,222 lbs. expansion metal				
at 14.90.....	182 08			
12,714½ lbs. lead coating				
at 4 cts.....	508 58			
20,284½ lbs. red brass at				
1.37 cts.....	2,814 53			
32,744 lbs. yellow brass at				
11.½ cts.....	3,761 65			
	\$7,336 94			
CR.				
67 lbs. yellow brass at 11½ cts.	\$7 78			
191 lbs. red brass at 137 cts....	26 59			
4,910 lbs. scrap brass at 6½ cts.	319 15			
8,900 lbs. turnings at 5½ cts....	489 50			
	\$842 93			
		6,494 01		
Chandlery.....		500 00		
Corporation cocks, 1,050—¼ in. at 60 ct		630 00		
Donkey pumps.....		119 00		
Gum goods.....		428 20		
Hardware.....		3,183 86		
Horseshoeing.....		18 00		
Ice.....		79 57		
Iron (bar).....		2,548 61		

Detailed Expenditures of the Bureau for 1892.

General Appropriation.	AMOUNT.			
	Appropriat'd	Expended.	Merging.	Not merg'g.
Item 6—Continued.				
Lead, 17,857 lbs. at 4.48 cts.....		\$ 800 00		
Lumber.....		2,000 00		
Plug valves:				
178 small, at \$2.75.....	\$489 50			
439 large, at \$3.75.....	1,646 25			
	2,135 75			
Cr.				
2,310 lbs. castings at 3 cts....	69 30			
		2,066 45		
Shop castings:				
90,450 lbs. at 2.6 cts.....	\$2,352 75			
2-,226 " 2 ".....	564 52			
840.326 " 1.98 ".....	6,738 47			
519,343 " 2 1/4 ".....	11,685 24			
305,500 " 1.47 ".....	4,490 86			
		25,831 84		
Stable supplies.....		3 75		
Transportation.....		27 20		
Wages.....		29,792 57		
Total.....		\$74,914 29	85 71	
Item 7. For general incidental and contingent expenses, including keep of horse for Chief of Bureau, General Superintendent and assistant to Chief, each four hundred (400) dollars.....	\$14,000 00			
Increased by transfer.....	1,500 00			
Net appropriation to item.....	15,500 00			
Advertising.....		204 30		
Care of and repairs to clocks.....		19 00		
Carriage hire.....		53 75		
Chairs.....		64 00		
Ground rent (918 Cherry st.).....		28 66		
Horse keep.....		1,209 00		
Ice.....		160 25		
Incidentals.....		115 09		
" Hydrographic corps.....		30 30		
Maps.....		522 70		
Repairs to chairs.....	\$26 50			
Repairs to instrument.....	3 00			
Repairs to maps.....	93 00			
		122 50		
Serving daily papers.....		29 96		
Services of typewriter.....		84 00		
Stationery and printing.....		8,012 83		
Subscription.....		14 00		
Telephone (rental).....		12 54 0		
Towels.....		24 00		
Transportation.....		20 00		
Typewriter supplies.....		37 90		
Washing towels.....		84 00		
Writing duplicates.....		1,837 44		
Wages, Hydrographic Corps.....		1,560 68		
Total.....		\$15,487 68	\$12 00	

Detailed Expenditures of the Bureau for 1892.

General Appropriation.	AMOUNT.			
	Appropriat'd	Expended.	Merging.	Not Mer'g.
Item 8. For the purchase of material and cost of labor in connection with the laying of service pipe and expenses incident thereto.....\$140,000 00				
Increased by transfer.....\$5,944 11				
Net appropriation to Item.....	\$145,944 11			
Deficiency of 1891:				
Gum goods.....	\$87 00			
Horse shoeing.....	16 00			
Professional services V. S.....	21 25			
		\$124 25		
Brass fittings.....		210 82		
Cement.....		500 00		
Chandlery.....		1,000 00		
Chromograph.....		9 00		
Corporation cocks:				
50 2 in. at \$4.25.....	\$212 50			
50 1½ in. at \$2.80.....	140 00			
200 1 in. at \$1.09.....	218 00			
6,950 ½ in. at 60 cts.....	4,170 00			
		4,740 50		
Dynamite.....		71 35		
Forage.....		819 42		
Gum goods.....		506 42		
Hardware.....		591 99		
Harness.....		127 15		
Hauling pipe.....		2,000 00		
Horse shoeing.....		428 00		
Incidentals.....		38 65		
Iron pipe and specials:				
135,350 lbs. specials, at 2¼ cts.....	\$3,045 37			
5,632 6-in., 2,057,273 lbs. at 1.192 cts.....	24,522 64			
1,500 8-in., 731,390 lbs. at 1.18 cts.....	8,630 39			
1,436 10-in. 965,310 lbs. at 1.17 cts.....	11,294 11			
891 12-in. 812,606 lbs. at 1.17 cts.....	9,507 49			
		57,000 00		
Lumber.....		2,000 00		
Lead, 111,607 lbs. at 4.48 cts.....		5,000 00		
Maintaining tracks.....		6 42		
Numbering machine.....		32 00		
Photographic supplies.....		123 94		
Plug valves:				
87 small, at \$2.75.....	\$239 25			
434 large, at \$3.75.....	1,627 50			
		1,866 75		
Professional services V. S.....		56 60		
Repairs to cooler.....	\$1 50			
Repairs to harness.....	19 80			
Repairs to jacks.....	16 65			
Repairs to pavement.....	1,301 43			
Repairs to stoves.....	31 89			
Repairs to wagons.....	189 55			
		1,560 00		
Rent of shop.....		75 00		
Sand.....		4 08		
Slag.....		16 77		

Detailed Expenditures of the Bureau for 1892.

General Appropriation.	AMOUNT.		
	Appropriat'd	Expended.	Merg'g. Not Merg'g.
Item 8—Continued.			
Spars.....		30 00	
Stable supplies.....		154 92	
Stop valves, 52 1/2 6-in. 3 way, at \$28.50.....		1,496 25	
Table.....		35 00	
Testing iron.....		4 00	
Transportation.....		17 10	
Traveling expenses—pipe inspectors.....		489 20	
Window shades.....		9 45	
Wages:			
First District..... \$7,814 76			
Second District..... 9,449 10			
Third District..... 11,427 51			
Fourth District..... 14,508 33			
Fifth District..... 4,217 55			
Sixth District..... 10,348 20			
Improvement..... 5,644 25			
		63,409 70	
Totals.....		144,455 05	1,489 06
Item 8 1/2. For replacing small pipe...	25,000 00		
Iron pipe and specials:			
173,361 lbs. specials, at 2 1/4 cts..... \$3,900 63			
2,383 6-in., 875,774 lbs., at 1.192..... 10,439 23			
82 10-in., 55,550 lbs., at 1.17..... 649 94			
17 hours extra work, at 60 cts..... 10 20			
		15,000 00	
Lead, 89,285 lbs., at 4.45.....		4,000 00	
Wages:			
Second District..... \$2,494 49			
Fourth District..... 3,505 51			
		6,000 00	
Totals.....		25,000 00	
Item 9. Extensions..... \$550,000 00			
Balance from books of 1891..... 36,463 07			
Net appropriation to Item..... 586,463 07			
Asphalt pavement, 2,545 sq. yds., at \$2.25.....		5,726 25	
Boilers.....		20,168 54	
Buff bricks.....		1,328 84	
Car service.....		24 00	
Cement.....		1,863 10	
Chandlery.....		419 97	
Dynamite.....		37 50	
Engines (pumping).....		92,920 80	
Excavating pipe trench.....		2,002 87	
Hauling.....		2,000 00	
Incidentals.....		60 48	
Inspecting filter plants.....		300 00	
Iron tanks.....		60 50	

Detailed Expenditures of the Bureau for 1892.

General Appropriation.	AMOUNT			
	Appropriat'd	Expended.	Merging.	Not Merg'g.
Item 9--Continued:				
Iron pipe and specials:				
101,641 lbs. specials, at 2¼c.	\$2,286 94			
38,372 lbs. specials, at 4c.	1,334 88			
136½ hours extra work, at 60c.....	81 90			
10½ hours extra work, at 90c.....	9 22			
306 30 in., 1,154,729 lbs., at 1 3-100c.....	11,893 96			
303 36 in., 1,567,689 lbs., at 1 5-100c.....	16,303 95			
200,48 in., 1,613,302 lbs., at 1 5-100c.....	16,939 67			
		48,850 52		
Iron roof.....		4,672 54		
Lead, 171,841½ lbs., at 4 48c.....		7,698 49		
Lumber.....		2,949 83		
Meters:				
13 ½ in., at \$9.50.....	\$123 50			
33 ¾ in., at \$14.....	462 00			
33 1 in., at \$19.....	627 00			
30 1½ in., at \$36.....	1,080 00			
86 2 in., at \$49.50.....	1,683 00			
22 3 in., at \$99.....	2,178 00			
20 4 in., \$198.....	3,960 00			
7 6 in., at \$450.....	3,150 00			
Parts of meters.....	1,315 75			
		14,579 25		
New Roxborough Reservoir.....		94,256 91		
Repairs to instruments.....	\$55 50			
Repairs to wagons.....	150 40			
		205 90		
Repaying pipe trench.....		322 99		
Sand.....		248 96		
Services as driver.....		20 00		
Shop castings:				
35,535 lbs., at 1 98-100c.....	\$703 59			
76,665 lbs., at 2¼c.....	1,724 96			
5,032 lbs., at 2c.....	100 64			
		2,529 19		
Slag.....		73 51		
Slate.....		205 00		
Stop-valves:				
38½ 6 in., 3 way, at \$28.50	\$1,047 25			
6 10 in., 3 way, at \$66.....	396 00			
6 12 in., 3 way, at \$83.....	498 00			
		1,991 25		
Stone.....		293 25		
Testing boiler plate.....		35 00		
Towing.....		400 50		
Traveling expenses (pipe inspectors)..		797 35		
Wagons.....		212 00		
Wages:				
Improvement.....	\$147 00			
First District.....	433 22			
Second District.....	529 95			
Third District.....	515 28			
Fourth District.....	22,485 35			
Fifth District.....	2,486 61			
Sixth District.....	525 23			

Detailed Expenditures of the Bureau for 1892.

General Appropriation.	AMOUNT			
	Appropriat'd	Expended.	Merging.	Not Merg'g.
Item 9—Wages—Continued:				
New Roxborough Reservoir.....	\$15,243 33			
Buildings, Grounds and Reservoirs	25,844 81	\$68,210 28		
		\$375,445 57	\$722 58	\$210,244 92
Item 9½. Extensions:				
Balance, January 1, 1892.....	71,618 85			
New Roxborough Reservoir.....		86,518 85		\$5,100 00
Item 10. To pay Robert W. and Joseph Fetzell, for water-pipe, appropriation March 4, 1892	1,000 00	1,000 00		
Item 11. For the construction of a reservoir in the Twenty-eighth Ward, appropriations, March 21, Sept. 16, and Oct. 1, 1892, from 3 per cent loan.....	1,000,000 00	146,160 00		\$53,840 00

RECAPITULATION.

Balance from books of 1891	\$108,081 92			
Transferred from other Bureaus.....	21,944 11			
Special appropriations.....	1,001,020 00			
		\$1,131,045 03		
Annual appropriations.....		1,348,394 00		
		2,479,440 03		
Transferred to other Bureaus.....		2,811 66		
			2,476,628 37	
Expended for refunds.....	1,000 00			
Expended for deficiencies.....	20,146 40			
Expended for maintenance.....	793,186 49			
Expended for extensions.....	558,124 42			
		1,972,457 31		
Amount merging.....	4,936 14			
Amount not merging.....	1,099,344 92			
		1,104,171 06	2,476,628 37	

APPENDIX C.

REPORT

OF THE

GENERAL SUPERINTENDENT

OF

Work done during 1892 to Buildings, Grounds and Reservoirs, and Boilers and Machinery of the Several Pumping Stations.

OFFICE OF THE GENERAL SUPERINTENDENT,

BUREAU OF WATER.

Philadelphia, January, 1893.

JOHN L. OGDEN,

Chief, Bureau of Water.

SIR :—The following is a report of work performed under my direction during the year 1892 :

There have been pumped 59,787,584,178 gallons of water, an increase of 4,121,936,178 gallons over the pumpage of 1891.

The maximum daily pumpage was 199,996,713 gallons, an increase of 16,575,550 gallons over the maximum daily pumpage of the preceding year. The average daily pumpage was 163,801,600 gallons, an increase of 11,292,976 gallons over the average of 1891.

There have been pumped from the East Park Reservoir to the district supplied by direct pumpage, 494,192,786 gallons of water during the year.

One new 20,000,000 gallon engine, built by the Southwark Foundry and Machine Co., has been put in at the Spring Garden Works. It was started on June 15.

Six new boilers have been added; two at Spring Garden, two at Roxborough and two at Frankford, built by the Southwark Foundry and Machine Co.; and two at Roxborough, built by the I. P. Morris Co. All the boilers are from designs furnished by this Bureau, full descriptions of which will be found in the descriptive list of machinery submitted with this report.

A new house was built for the new engine at the Spring Garden Station, the work, with the exception of the roof, all being done by this Bureau. A new building was erected at the Shawmont station to be used as a machine shop, electric engine room and dressing room for the men employed at the station.

The old Cornish engine foundation at the Shawmont station was taken down and the foundation put in for a new engine now being built by the Southwark Foundry and Machine Co.

No. 12 engine and foundations at the Spring Garden station have been taken out to make room for the new 20,000,000 gallon engine now being built by Worthington & Co., of New York.

On January 26 a 48-inch pumping main leading from the Spring Garden station burst, flooding all the pump wells, pits, conduits and forebay, filling them with dirt and stopping all the engines pumping from the east end of the forebay. A dam was built at the west end in order that the engines in the new engine house could be kept running. The water in the forebay was removed by pumps, and men were kept at work day and night until all were cleaned. About 10,000 loads of dirt were removed, and on February 4 the pumps were again started.

On March 3 a 36-inch breeches pipe broke, flooding the pump wells. Everything was cleaned up and the engines started again on March 5.

On July 28 the Corinthian avenue reservoir being down to six feet, a gang of men was put to work to clean the sides of the slopes, and 250 loads of mud were taken out.

On August 24 the Spring Garden reservoir was drawn off and all preparations made to clean it; but after inspection the Director ordered it to be filled up again, not deeming it advisable to clean it at that time.

The pumps at all the stations have been worked beyond their capacity in order to keep up the supply. The lowest point reached at the East Park reservoir was on Saturday, October 8, when the sections were as follows: S. E. Section, 5' 11"; North East Section, 5' 9"; Western Section, 4' 11".

The Germantown district could be supplied only by turning the direct pumpage from the Spring Garden station to the lower part of the district during the night. This was done throughout August, September and October.

Owing to the low water in the Schuylkill during the summer and fall the wheels at Fairmount were run 6,684 hours less than 1891, and 978,872,764 gallons less water were pumped than in 1891 at that station.

The No. 7 twenty million (20,000,000) gallon engine broke the bed-plate, but the engine was kept running until the heavy pumpage was over, and is now having a new bed-plate made.

The south pump of No. 2 engine at the Frankford station broke. Repairs were made and the pump is now in use. A new pump is being made by Robert Wetherill & Co., and will be put in place as soon as completed.

Work on the New Roxborough reservoir has progressed during the year. All the embankments have been finished; the brick and concrete lining in the South Section completed, and the brick and concrete lining in the North Section half finished. The manner of laying the brick lining on the slopes was changed, and instead of laying the bricks dry on two inches of cement mortar, the bricks were laid on half an inch of mortar and jointed with cement mortar. A section of

about 100 feet that had been laid dry was taken up and relaid by the Bureau. The totals to date are:

Excavation.....	386,505 cubic yards.
Concrete lining.....	55,816 square yards.
Brick lining.....	22,716 square yards.

There still remains to complete the reservoir ;

Excavation.....	400 cubic yards.
Concrete lining.....	21,000 square yards.
Brick lining.....	9,000 square yards.
Asphalt walk.....	7,000 square yards,
and inlet and apron in North Section, roadway from Port Royal avenue, shaping up outside bank, and sodding and seeling.	

The following is a report of operations at the Queen Lane reservoir during the year :

The preliminary survey of the site was started April 28 and completed about June 1, when the plans and estimate for the reservoir were begun. These were finished about September 1, and bids for the work were opened September 13.

During the progress of the preliminary survey test pits were dug at the intersections of 200 feet squares, in order to give an approximate idea of the character of the excavation. Where the depth to be excavated was 8 feet or less, instead of digging pits, 4-inch auger holes were sunk to sub-grade. From the notes thus obtained a series of sections was plotted, from which could be formed a very good idea of the material to be met with in the excavation.

The contractors for the building of the reservoir—Messrs. Filbert, Porter & Co.—began operations on October 10, and removed all buildings not required for use, as shedding, trees, shrubs and roots. They then stripped the entire bed of the reservoir of top-soil, placing that needed for the outside of the banks along the outside foot of slope, and the rest in two waste dumps. Bank building was started October 31, and continued, with slight interruptions, due to the weather, until December 23. At the date of this report the contractors

have moved 160,000 cubic yards of material, 90,000 cubic yards of which are in the embankment, and 70,000 cubic yards in top-soil and waste dumps. A railway connection was laid from the Chestnut Hill branch of the Pennsylvania Railroad at a point below Queen Lane station, through private property, to the reservoir site, and on December 19 was completed to the property line on 31st street.

On December 23 a telephone was placed in the engineer's office on the grounds, and connection made with the Water Bureau circuit.

Around the Corinthian avenue reservoir an asphalt walk and electric lights have been placed. Electric lights have also been placed around the Spring Garden and Lehigh basins.

The buildings, grounds and reservoirs have been kept in good condition, and many of them improved.

Respectfully submitted,

F. L. HAND,
General Superintendent.

Total Capacity—30,000,000 gallons per day.

NEW SPRING GARDEN STATION.

No. 9—Worthington Duplex—Capacity, 15,000,000 gallons per day.
 No. 10—Worthington Duplex—Capacity, 15,000,000 gallons per day.

	Running Time of each Engine in Hours.		Gallons Pumped by each Engine.		Total Pumpage of Month.	Average Pumpage per day.	Coal.		Percentage of Ashes.	OIL.		Mean Water Pressure and Suction Lift in Pounds per square inch.	Gallons Raised 100 Feet per pound of coal.	
	No. 9.	No. 10.	No. 9.	No. 10.			Tons.	Lbs.		Cylinder.	Qts.			
														No. 9.	No. 10.	No. 9.	No. 10.
January.....	549	621	394,750,513	446,860,304	811,610,817	27,119,026	1,340	365	.20	468	55	59	60	453.2
February.....	696	695	495,803,140	492,018,004	987,821,144	34,062,798	1,417	1,700	.20	541	58	57	58	496.1
March.....	715	637	470,998,686	436,272,755	907,271,441	29,266,829	1,422	1,660	.20	557	62	64	64	451.0
April.....	680	694	432,563,440	425,353,240	860,736,680	28,691,869	1,350	2,100	.20	539	60	68	68	453.6
May.....	713	744	493,767,920	493,420,387	987,188,307	31,844,790	1,477	739	.20	586	62	69	69	473.8
June.....	745	710	459,276,880	455,406,215	914,683,095	30,489,436	1,330	485	.20	549	60	66	66	489.2
July.....	731	742	498,025,403	492,779,745	990,805,148	31,961,456	1,379	1,334	.20	596	62	68	68	511.3
August.....	740	733	505,987,650	502,278,840	1,008,266,490	32,524,725	1,414	202	.20	570	62	66	66	507.7
September.....	720	718	501,706,119	500,041,760	1,001,747,899	33,391,596	1,461	1,317	.20	585	60	70	70	457.4
October.....	738	732	529,737,490	517,808,930	1,047,546,420	33,791,820	1,528	1,072	.20	578	64	67	67	488.0
November.....	717	717	511,317,590	505,520,260	1,016,837,850	33,894,595	1,539	998	.20	585	72	66	66	455.5
December.....	742	741	535,875,120	533,709,215	1,059,584,335	34,180,139	1,650	1,662	.20	576	66	68	68	457.0
Totals and averages.....	8,485	8,509	5,832,755,951	5,791,469,875	11,624,128,926	81,759,914	17,363	194	.20	6,730	743	66	66	476.7

No. 1.—Worthington Duplex.—Capacity
5,000,000 gallons per day.
No. 2.—Worthington Duplex.—Capacity,
5,000,000 gallons per day.
No. 1.—Worthington Duplex.—Capacity,
8,000,000 gallons per day.

BELMONT PUMPING STATION.

Total Capacity.—18,000,000 gallons per day.

1892.	Running Time of each Engine in Hours.			Gallons Pumped by each Engine.			Total Pumpage of each Month.	Average Pumpage per Day.	Coal.		Oil.		Gallons raised 100 feet per pound of coal.					
	No. 1.	No. 2.	No. 3.	No. 1.	No. 2.	No. 3.			Tons.	Lbs.	Cylinder.	Engine.		Mean Water Pressure and Mean Suction lift in square in. h.				
														No. 1.	No. 2.	No. 3.		
January.....	2	706	701	651,500	178,245,714	262,883,589	441,661,194	14,247,195	955	1,835	20	143	87	88	88	88	88	445.9
February.....	121	575	696	26,531,700	138,983,248	245,542,405	411,037,353	14,174,391	863	1,324	20	137	86	88	88	88	88	459.4
March.....	271	498	612	61,617,400	124,777,544	228,229,403	419,424,374	13,529,818	881	685	20	138	86	88	88	88	88	459.3
April.....	440	672	327	113,553,600	176,645,704	116,386,420	406,575,724	13,552,857	895	1,225	20	143	37	88	88	88	88	487.1
May.....	6	719	717	1,539,200	191,231,661	276,632,560	469,463,921	15,142,662	919	199	20	147	39	88	88	88	88	492.9
June.....	359	716	720	73,791,000	177,602,960	263,724,085	514,518,945	17,159,631	989	1,134	20	171	44	88	88	88	88	501.8
July.....	710	712	700	163,239,700	167,063,210	240,811,715	561,114,625	18,100,471	1,120	1,400	20	207	51	88	88	88	88	483.2
August.....	571	735	709	132,403,200	169,185,232	240,236,600	542,133,032	17,187,879	1,092	230	20	192	52	88	88	88	88	479.1
September.....	353	720	720	89,394,700	172,258,008	259,888,705	513,981,913	17,169,700	1,036	1,415	20	178	52	88	88	88	88	477.7
October.....	355	663	732	77,860,200	156,814,320	264,188,230	498,862,750	16,692,316	1,039	365	20	180	52	88	88	88	88	463.3
November.....	286	472	720	65,171,700	101,771,918	255,928,620	422,872,238	14,693,741	922	65	20	144	46	88	88	88	88	442.6
December.....	21	721	714	5,719,000	175,086,678	271,469,260	453,241,888	11,683,318	1,006	396	20	155	46	88	88	88	88	486.7
Totals and averages.....	3,108	7,890	8,098	797,804,500	1,229,134,150	2,028,921,410	5,657,350,060	16,453,415	11,631	1,134	20	1,265	628	88	88	88	88	469.3

Total Cap

- No. 5.—Vertical Compound, Capacity, 20,000,000 gallons per day.
- No. 6.—Simpson Rotary Compound, Capacity, 8,000,000 gallons per day.
- No. 7.—Marine Rotary Compound, Capacity, 20,000,000 gallons per day.
- No. 8.—Worthington Duplex, Capacity, 10,000,000 gallons per day.
- No. 11.—Gaskill Compound, Capacity, 20,000,000 gallons per day.
- No. 12.—Worthington Duplex, Capacity, 6,000,000 gallons per day.

	Coal.		Percentage of Ashes.	OIL.		Mean Water Pressure and Mean Suction Lift, in Lbs., per square inch.						Gallons raised 100 ft. per pound of Coal.
	Tons.	Lbs.		Cylinder.	Engine.	No. 5.	No. 6.	No. 7.	No. 8.	No. 11.	No. 12.	
January	1,782	1,560	.20	676	282	.....	50	55	60	50	57	472.5
February	1,968	1,830	.20	764	320	.....	50	54	55	50	57	498.8
March	2,130	1,715	.20	842	286	.....	50	54	57	51	57	499.5
April	2,275	1,660	.20	642	284	.....	50	54	68	50	57	489.9
May	2,287	109	.20	657	308	.....	50	54	68	50	57	506.1
June	2,574	831	.20	858	360	48	50	54	70	52	57	578.0
July	3,083	666	.20	735	502	48	50	51	70	51	57	567.0
August	3,101	1,897	.20	766	571	46	50	48	67	46	54	596.1
September	3,105	1,595	.20	796	774	46	50	48	70	46	54	590.6
October	3,226	1,743	.20	810	770	46	50	48	67	46	54	578.9
November	2,762	1,331	.20	713	664	48	50	48	67	48	54	550.6
December	2,096	1,076	.20	608	484	50	50	.....	68	50	54	518.0
Totals	30,396	333	.20	8,867	5,605	47	50	51	66	50	56	544.2



No. 2.—Worthington Duplex.—
Capacity, 5,000,000 gallons per
day.
No. 3.—Worthington Duplex.—
Capacity, 7,500,000 gallons per
day

Total Capacity, 12,500,000
gallons per day.

ROXBOROUGH PUMPING STATION.

1892.	Running time of each Engine in Hours.		Gallons Pumped by each Engine.		Total Pumpage each Month.	Average Pumpage per Day.	Coal.		Percentage of Ashes	OIL.		Mean Water Pressure and Mean Suction Lift, in lbs per Square Inch.	Gallons raised 100 feet per pound of Coal.	
	No. 1.	No. 2.	No. 2.	No. 3.			Tons.	Lbs.		Cylinder.	Engine.			
	No. 1.	No. 2.	Gallons.	Gallons.	Gallons.	Tons.	Lbs.	Qts.	Qts.	No. 2.	No. 3.			
January	469	740	102,558,55.5	225,954,997	328,523,552	10,542,694	1,282	1,333	.25	195	102	145	142	420.5
February	479	692	111,770,290	208,022,184	319,792,474	11,073,356	1,297	1,486	.25	196	101	145	142	406.6
March	501	725	120,147,715	221,330,861	342,478,606	11,047,696	1,315	1,807	.25	227	97	145	142	419.8
April	572	717	129,849,315	213,213,618	343,062,963	11,435,432	1,338	1,541	.25	246	90	145	142	436.0
May	615	731	147,469,690	226,330,302	374,800,002	12,074,193	1,366	1,210	.25	257	93	145	142	451.9
June	691	717	169,488,415	255,428,157	394,916,572	13,163,885	1,413	210	.25	258	92	145	142	461.1
July	709	741	176,370,765	236,541,186	412,911,951	13,319,741	1,426	2,065	.25	295	104	145	142	477.4
August	734	733	176,407,850	236,389,088	412,796,988	13,316,030	1,433	1,721	.25	283	99	145	142	475.0
September	764	714	171,923,390	229,673,554	401,596,944	13,386,564	1,419	877	.25	320	96	145	142	465.8
October	715	738	167,510,900	225,876,558	393,387,458	12,689,918	1,570	1,791	.25	360	97	145	142	413.2
November	671	710	154,890,880	218,183,337	373,077,217	12,435,907	1,574	38	.25	311	63	145	142	391.0
December	634	755	139,786,645	230,365,911	370,152,546	11,949,404	1,738	328	.25	534	113	145	142	351.3
Totals and averages..	7,485	8,693	1,768,971,410	2,696,322,788	4,465,297,193	12,290,265	17,197	967	.25	3,282	1,177	145	142	428.4

No. 2.—Knowles—Capacity,
250,000 Gallons per day.
No. 3.—Knowles—Capacity,
250,000 Gallons per day.

ROXBOROUGH AUXILIARY STATION.

Total capacity 500,000
per day.

	Running time of each engine in hours.		Gallons pumped by each engine.		Total number of each month.	Average pumpage per day.	Coal.		Percentage of Ashes.	Oil Cylinder.	Mean Water Pressure.	
	No. 2.	No. 3.	No. 2.	No. 3.			Tons.	Lbs.			No. 2.	No. 3.
	1892.				Gallons.	Gallons.			Qts.			
January.....	43	65	342,240	695,520	1,037,760	33,572	8	1,615	.20	4	36	36
February.....	46	58	528,850	621,960	1,153,810	39,786	8	743	.20	4	36	36
March.....	42	66	453,620	700,560	1,154,180	36,586	7	1,144	.20	4	36	36
April.....	59	65	585,120	646,720	1,252,140	41,738	6	1,512	.20	4	36	36
May.....	65	94	663,960	1,016,640	1,680,600	54,212	7	10	.20	5	36	36
June.....	83	111	878,420	1,268,640	2,147,060	71,568	8	882	.20	6	36	36
July.....	47	166	670,900	1,991,080	2,561,980	82,644	9	18	.20	6	36	36
August.....	114	96	1,317,350	1,345,560	2,662,910	79,126	9	201	.20	7	36	36
September.....	99	86	1,129,260	969,120	2,098,380	69,546	7	1,919	.20	7	36	36
October.....	92	97	1,005,120	1,106,520	2,111,640	68,117	7	2,158	.20	7	36	36
November.....	65	75	683,760	828,000	1,511,760	50,392	6	780	.20	6	36	36
December.....	47	65	602,860	694,080	1,196,940	38,610	7	1,093	.20	5	36	36
Totals and averages.....	208	1,084	8,641,760	11,697,400	20,339,160	66,571	94	.877	.20	65	36	36

No. 1.—Davidson Rotary, Capacity,
1,000,000 gallons per day.
No. 2.—Davidson Rotary, Capacity,
1,000,000 gallons per day.
No. 3.—Knowles, Capacity, 1,000,000
gallons per day.

MT. AIRY PUMPING STATION.

Total Capacity, 3,000,000 gallons
per day.

1892.	Running time of each engine in hours.			Gallons Pumped by each Engine.			Total Pumpage each Month.	Average Pumpage each Month.	Coal.		Percentage of Ashes.	OIL.			Gallons raised 100 ft. per Pound of Coal.		
	No. 1. No. 2. No. 3.			No. 1.	No. 2.	No. 3.			Tons.	Lbs.		Cylinder.	Engine.	No. 1. No. 2. No. 3.			
	No. 1.	No. 2.	No. 3.											Qts.		Qts.	Qts.
January	734	235	.....	31,593,750	8,946,250	.....	40,540,000	1,307,741	81	1,060	.20	66	66	60	70	.....	296.3
February	681	168	.....	30,636,250	6,592,500	.....	37,228,750	1,283,750	79	540	.20	58	58	60	70	.....	279.7
March	744	242	.....	31,662,750	9,440,000	.....	41,102,750	1,258,895	94	940	.20	62	62	60	70	.....	239.2
April	717	273	.....	30,883,750	10,908,750	.....	41,792,500	1,393,083	93	2,180	.21	60	60	60	70	.....	264.8
May	699	386	5	30,199,500	16,585,500	225,000	47,010,000	1,516,451	110	600	.20	75	63	60	70	.....	253.8
June	668	647	30	30,667,250	24,715,000	1,350,000	56,732,250	1,891,075	134	1,840	.20	89	89	60	70	.....	250.5
July	741	479	.....	32,786,250	20,241,250	.....	53,027,500	1,710,564	120	1,700	.20	88	80	60	70	.....	261.5
August	731	478	.....	31,371,250	19,286,250	.....	50,657,500	1,640,564	118	1,580	.20	82	80	60	70	.....	255.5
September	717	476	.....	31,066,000	18,715,250	.....	49,781,250	1,659,375	117	1,920	.20	84	76	60	70	.....	251.5
October	743	689	5	33,660,000	27,572,500	270,000	61,502,500	1,983,951	137	1,420	.20	103	84	60	70	.....	275.6
November	707	628	.....	32,488,000	20,303,000	.....	52,891,000	1,763,033	118	1,680	.20	101	60	60	70	.....	265.2
December	741	289	.....	34,147,500	10,468,750	.....	44,616,250	1,459,879	99	240	.20	62	62	60	70	.....	268.2
Totals and averages	8,626	4,790	40	381,462,250	193,795,000	1,845,000	677,102,250	1,576,782	1,207	20	.20	930	844	60	70	.....	262.8

No. 2.—Knowles.—Capacity,
250,000 gallons per day.
No. 3.—Worthington Duplex.—
500,000 gallons per day.

CHESTNUT HILL STATION.

Total Capacity—750,000
gallons per day.

1892.	Running Time of each Engine in Hours.		Gallons Pumped by each Engine.		Total Pumpage of each Month. Gallons.	Average Pumpage per Day. Gallons.	Coal.		Percentage of Ashes.	Oils.		Mean Water Pressure and Mean Suction Lifts in Pounds per sq. in.	Gallons raised 100 Ft.
	No. 2.	No. 3.	No. 2.	No. 3.			Tons.	Lbs.		Cylinder.	Engine.			Qts. No. 2.	Qts. No. 3.
January.....	17	.....	622,380	.....	622,380	20,077	9	1,078	.22	2	53	.....	036.3
February.....	105	.....	3,202,920	.....	3,202,920	114,445	12	2,210	.22	7	53	.....	136.4
March.....	3	.....	88,560	.....	88,560	2,856	7	2,105	.37	1	53	.....	006.1
April.....	.....	.....	.....	.....	.....	.....	6	1,976	.35	.....	.....	.....	.....
May.....	154	.....	4,654,320	.....	4,654,320	150,139	15	88	.33	9	53	.....	171.2
June.....	118	.....	3,805,620	.....	3,805,620	126,854	15	194	.33	12	53	.....	139.5
July.....	95	.....	3,013,500	.....	3,013,500	97,209	12	2,138	.33	10	53	.....	128.6
August.....	132	.....	4,811,760	.....	4,811,760	155,218	19	763	.26	18	53	.....	137.3
September.....	109	.....	3,407,100	.....	3,407,100	101,570	13	1,819	.26	13	53	.....	136.3
October.....	42	.....	1,321,020	.....	1,321,020	42,613	9	905	.26	7	53	.....	077.6
November.....	17	.....	373,920	.....	373,920	12,461	8	120	.26	4	53	.....	025.6
December.....	53	.....	1,527,660	.....	1,527,660	49,279	10	2,135	.26	5	53	.....	077.1
Totals and averages.....	885	.....	26,823,760	.....	26,823,760	73,302	141	2,116	.29	88	53	.....	104.5

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

RT

I

S

6
5
6
6
2
9
5
9
4
2
2
2
4
1

H

H

M

Cl

Fr



No. 1.—Marine Compound Rotary.—
Capacity, 10,000,000 gals. per day.
No. 2.—Corliss Compound Rotary.—
Capacity, 10,000,000 gals. per day.

FRANKFORD PUMPING STATION.

Total Capacity, 20,000,000
gallons per day.

	Running Time of each Engine in Hours,		Gallons Pumped by each Engine,		Total Pumpage each Month,	Average Pumpage per Day,	Coal,		Percentage of Ashes,	Oils,		Mean Water Pressure and Mean Suction Lift in Lbs. per Square Inch,	Gallons Raised of Coal. per Pound of Coal.		
	No. 1.	No. 2.	No. 1.	No. 2.			Tons,	Lbs.		Cylinder,	Qts.			No. 1.	No. 2.
1892.															
January	715	95	256,543,272	17,119,479	273,692,751	8,828,798	469	440	.25	170	240	80	86	474.5	
February	321	650	101,944,110	163,217,121	268,191,231	9,247,973	422	2,080	.25	183	260	80	81	515.7	
March	381	180	140,281,086	137,547,107	277,828,193	8,960,909	406	854	.25	168	280	82	81	556.0	
April	677	138	223,900,170	50,340,372	274,240,542	9,141,351	396	1,910	.25	150	210	82	79	562.0	
May	681	189	221,728,890	67,895,745	289,624,635	9,842,780	385	81	.25	155	217	82	80	611.8	
June	720	135	281,077,653	23,863,507	307,946,160	10,264,872	423	380	.25	183	245	85	88	591.9	
July	690	590	243,629,984	109,127,574	352,757,558	11,379,276	526	1,075	.25	288	357	88	88	544.9	
August	730	736	245,060,017	132,479,920	377,539,937	12,178,707	699	790	.25	340	402	88	88	518.2	
September	678	692	265,989,390	132,670,147	398,659,537	12,287,984	584	2,030	.25	317	374	88	88	512.6	
October	728	633	264,851,710	107,427,023	372,278,733	12,008,992	608	450	.25	294	361	88	88	497.8	
November	705	305	260,107,516	47,860,172	308,057,688	10,268,589	506	1,658	.25	185	257	82	84	401.8	
December	706	277	260,516,002	51,155,323	311,671,325	10,053,913	499	1,800	.25	185	258	80	80	507.1	
Totals and averages.....	7,544	4,620	2,741,690,830	1,040,168,483	3,782,168,323	10,364,612	5,828	198	.25	2,618	3,411	84	84	512.2	

APPENDIX D.

REPORT

ON THE

OPERATIONS IN CONNECTION WITH THE

DISTRIBUTION SYSTEM,

DURING 1892.

BUREAU OF WATER.

Philadelphia, January, 1893.

MR. JOHN L. OGDEN,
Chief, Bureau of Water.

SIR:—The following report of work performed by the Distribution System, during the year 1892, is respectfully submitted:

One hundred and thirty-four thousand nine hundred and sixty-six (134,966) feet of service mains, ten thousand three hundred and eleven (10,311) feet of supply mains, and five hundred and twenty-one (521) feet of pumping mains have been laid, which, in addition to the connections and other new work, make a total of one hundred and fifty-eight thousand seven hundred and eighty-three (158,783) feet, or thirty (30) miles, and three hundred and eighty-three (383) feet

added to the distribution system, and a total of one thousand and thirty-one (1,031) miles and three hundred and sixty-seven (367) feet now in use.

Fifty thousand and seventy-four (50,074) feet of pipe have been used for relaying old and defective service mains, of which thirty-eight thousand nine hundred and twenty (38,920) feet were taken up, and sixteen thousand seven hundred and eighty-three (16,783) feet were disconnected from the water system and abandoned.

The total quantity used for relays and repairs was fifty-five thousand three hundred and twenty-seven (55,327) feet, and of that taken up, lowered, raised and shifted, fifty thousand six hundred and sixty-nine (50,669) feet, making the total amount for repairs one hundred and four thousand nine hundred and ninety-six (104,996) feet.

The total quantity handled for all purposes throughout the year was two hundred and sixty-three thousand seven hundred and seventy-nine (263,779) feet, weighing fifteen millions sixty-six thousand three hundred and sixteen (15,066,316) pounds.

Abandoned Pipes.

Sixteen thousand seven hundred and eighty-three (16,783) feet of pipe have been cut off from the distribution system and abandoned, as follows :

3 inch.....	4,661 feet.
4 "	9,755 "
6 "	2,063 "
8 "	8 "
10 "	197 "
30 "	99 "

Fire Hydrants.

A greater number of new fire hydrants have been put in during the past year than in any one preceding it.

Six hundred and thirty-four new style fire hydrants have been put in new locations. Three hundred and eighty-four

(384) new and twenty-eight (28) old style have been substituted for defective ones of the old pattern, making a total of ten hundred and eighteen (1,018) new and twenty-eight (28) old style hydrants put in during the year. There were removed two hundred and twenty-five (225) old and sixty-seven (67) new style hydrants, making the total number added to the distribution three hundred and forty-two (342). The total number in use December 31, 1892, was eight thousand four hundred and forty-seven (8,447), of which three thousand and eighty-seven (3,087) are of the old pattern, and five thousand three hundred and sixty (5360) of the new. The latter, equal to sixty-three per cent. of the total in use, were put in during the past seven (7) years.

Drills.

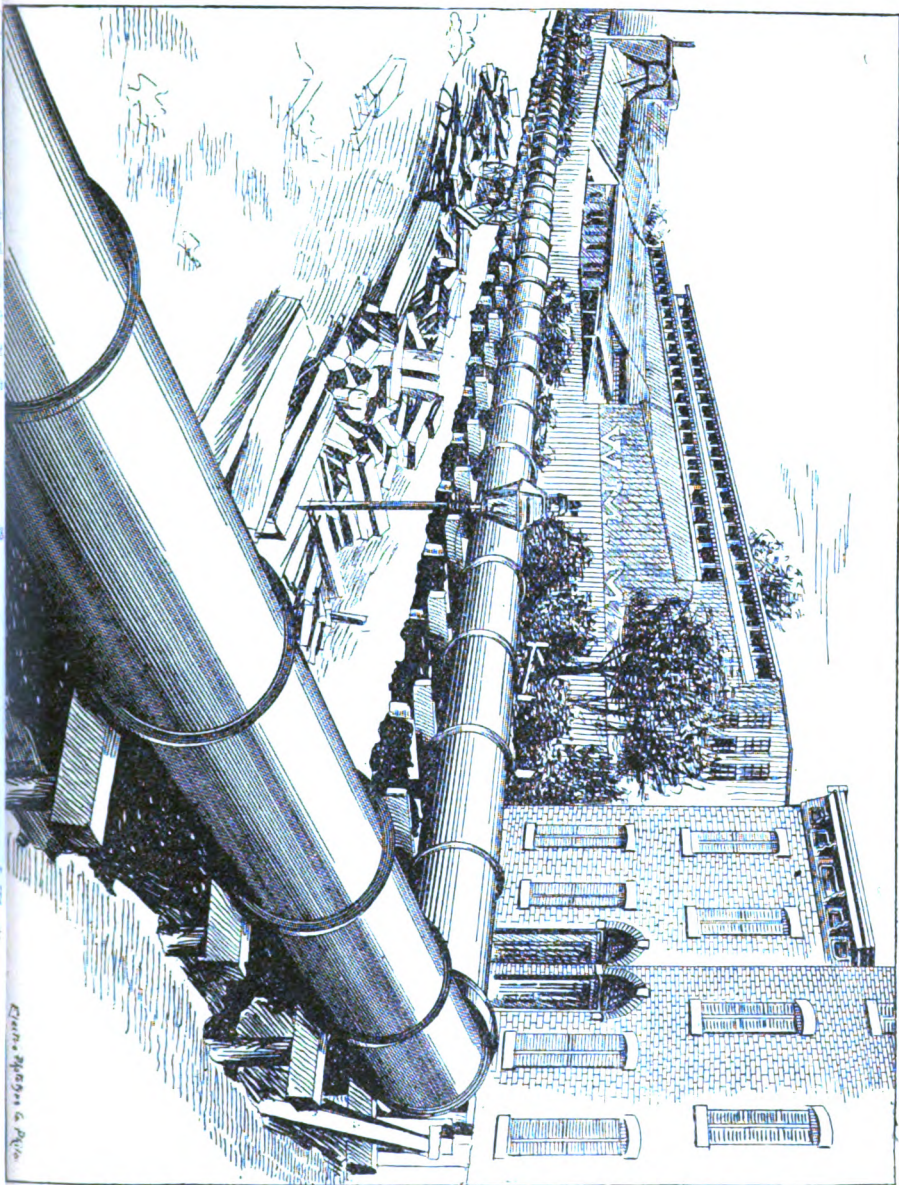
Eight thousand and nine hundred (8,900) new attachments have been made, as follows:

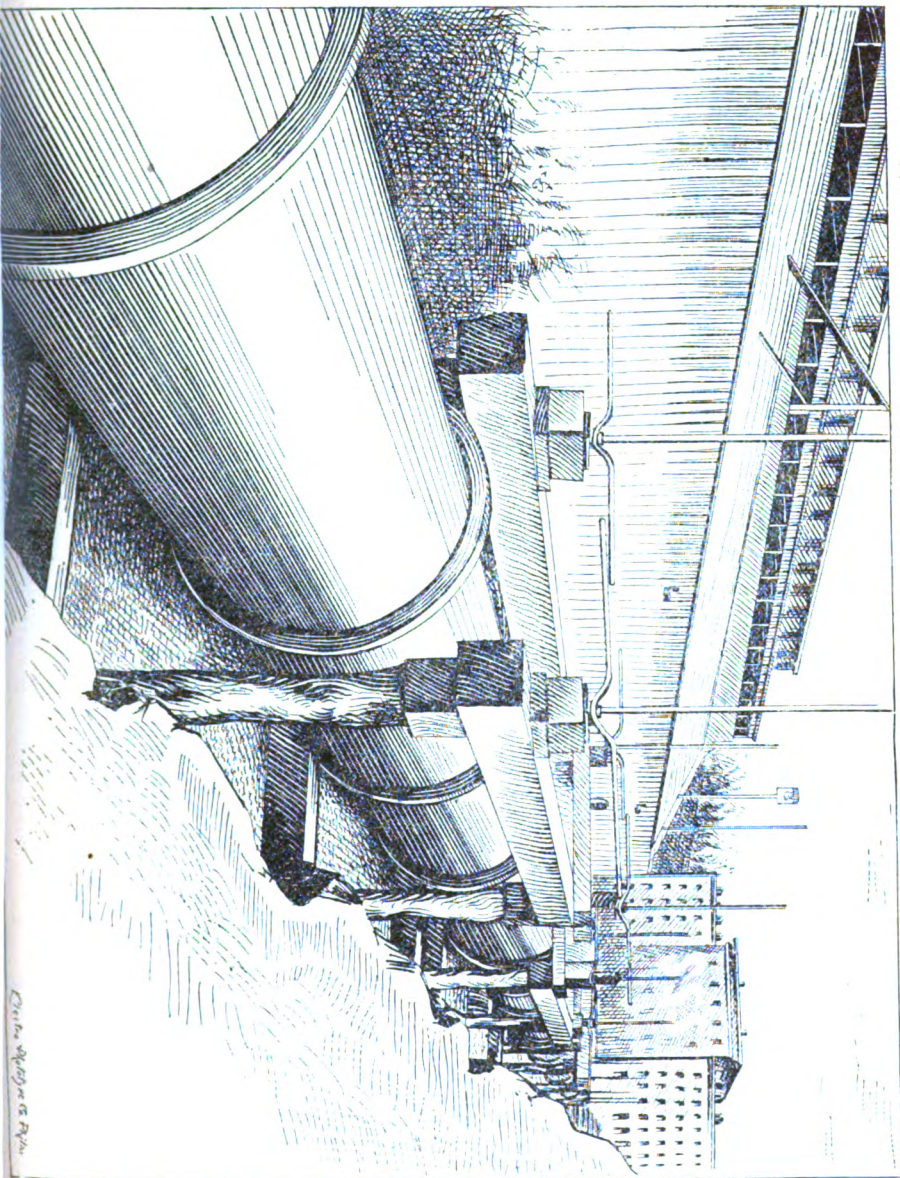
½ inch,	8,093	area of	openings	.....	1,589	square	inches.
⅝ "	289	"	"	"	89	"	"	
¾ "	198	"	"	"	84	"	"	
1 "	218	"	"	"	171	"	"	
1½ "	41	"	"	"	73	"	"	
2 "	61	"	"	"	192	"	"	
Total, 8,900					Total, 2,198 square inches.			

The total number of shut-offs for repairs, etc., by permit, was one thousand three hundred and sixty-four (1,364); and the number without permit, nine hundred and thirty-five (935).

Pumping and Supply Mains.

A 48-inch pumping main for No. 5 engine has been laid from the engine-house to 88 feet northwest of the Reading Railroad; also a connection from the same to No. 10 direct pumpage main. During the current year the present dead end will be connected to No. 11 East Park main.





Chicago, August 15, 1911

A 36-inch supply main was laid in Twenty-sixth street, from Thompson to Parrish street, and a 30-inch main in Parrish street, from Twenty-sixth to Twenty-second street; also a 30-inch main in Fairmount avenue, from Twenty-second to Sixteenth street. These are for the improvement of the direct pumpage district. The excavation was done by contract at ninety cents per cubic yard, or at a total cost of \$5,011.56. The cost of labor in laying the pipe, etc., was \$2,559 21, which, with the cost of the asphaltum repaving, makes a total (exclusive of material) of \$3,834.66, or \$1,42 per linear foot of pipe laid.

All the mains within the limits of Thompson street, south of the Spring Garden reservoir, were removed, and a 30-inch and 36-inch main substituted therefor to connect with the direct pumpage system.

Owing to a change of grade the 48-inch supply main in Sedgley avenue, from Ridge to Montgomery avenue, and in Montgomery avenue from Sedgley avenue to Thirty-second street had to be raised to a height varying from nothing at the extremes to eleven feet at the highest point.

This work was done by uncovering the pipe and driving piles on both sides back of each bell, every alternate pair of piles extending high enough to cap with 12 by 12 yellow pine, through which two V thread screws, 1 $\frac{3}{4}$ inches diameter, extended to each side of the pipe and connected to an ordinary 48-inch band. The work of raising was by operating the screws, and as soon as the pipe was lifted to a sufficient height at the rear, the intermediate piles were capped so that the pipe would rest thereon and the rear set of screws taken to the front, this operation being repeated until the work was completed.

At the intersection of Sedgley and Montgomery avenues there was an angle in the main of 45 degrees, which was braced by extra piling to prevent the main from parting at this point.

The weight lifted was 1500 pounds per linear foot, and the

total weight on each pair of screws was 37,500 pounds. During the period of raising the main it was full of water and in constant use, the entire district depending upon it for a supply.

Broken Mains.

The following table shows the number and sizes of mains broken, an increase of one over those of the preceding year :

Districts.	3 in.	4 in.	6 in.	10 in.	12 in.	16 in.	30 in.	36 in.	48 in.	Total.
First.....		5	7							12
Second.....		8	26	1	1					36
Third.....		3	10	1						14
Fourth.....		4	8	1	1		1	1	1	17
Fifth.....			5	1	2					8
Sixth.....	1	2	4	1		3				11
Totals.....	1	22	60	5	4	3	1	1	1	96

In nearly all cases the reason for these breaks is unknown. It is very seldom the cause can be ascribed to defective pipe castings, and there is no way to prove that they are subject to any unusual strain after having been laid.

The break in the 48-inch main at the Spring Garden Works, which occurred in January, was due to a leaky joint causing the pipe to settle sufficiently to bear upon another below it, the pressure causing the fracture. In this case, as in nearly every instance where the large pipes have been broken, the fracture occurred near or over rock excavation, and for this reason all mains are now laid in concrete wherever rock forms the bottom of the trench.

Distribution.

The water supply of the several water systems remains the same as during the year 1891; but there is not sufficient pressure between Vine and South streets east of Broad, nor in the northeastern section of the city above Vine street.

City of Chicago
Department of Public Works

Water Meters

DIAGRAM FOR CLASS N (SIX-INCH MAIN) DIFFERENTIATING WASTE WATER METER (DEACON'S PATENT'S) Actual Engineering Co. Limited, London, England

Name of District
Date of Diagram October 27/15 1912
No. 1000
Population 10,000

Total Supply
Minimum at Night Inspection

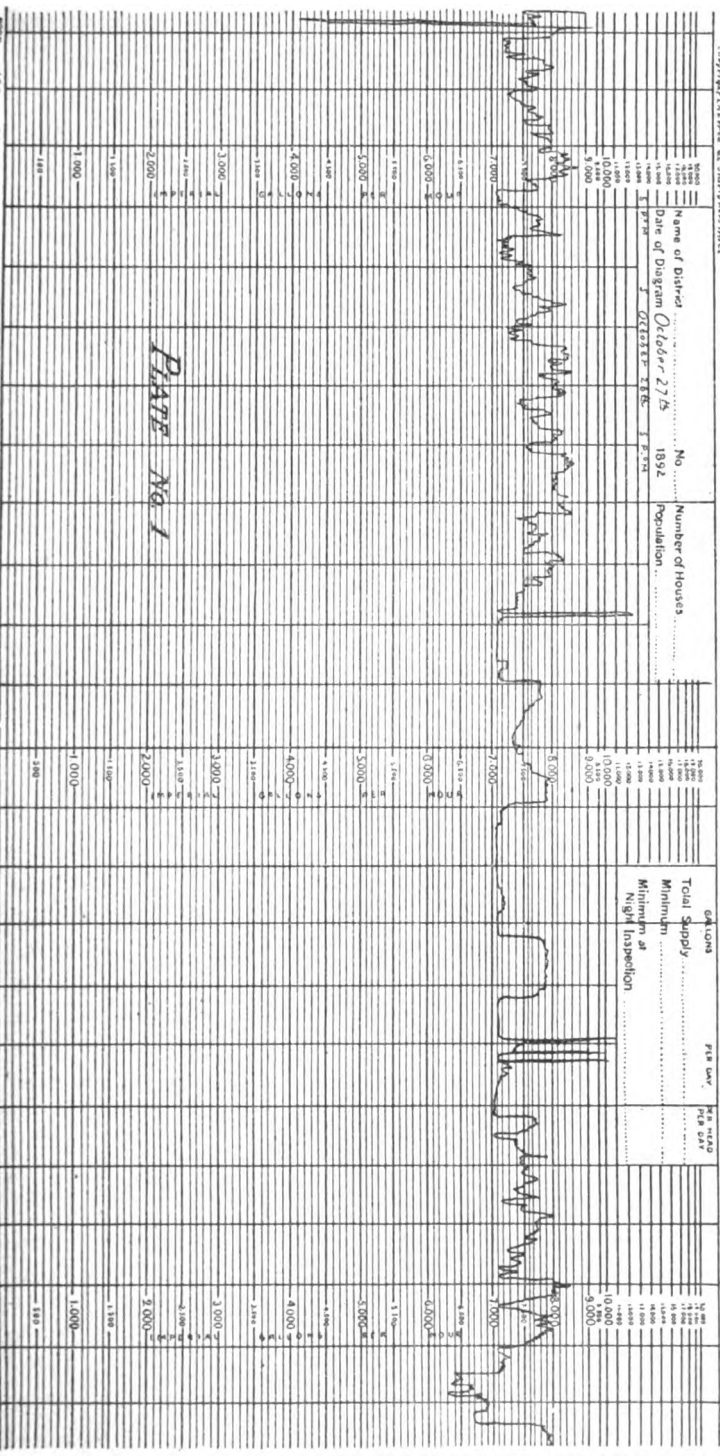


PLATE No. 1

City of Los Angeles
 P. C. C. 2
 Water Meter No. 21

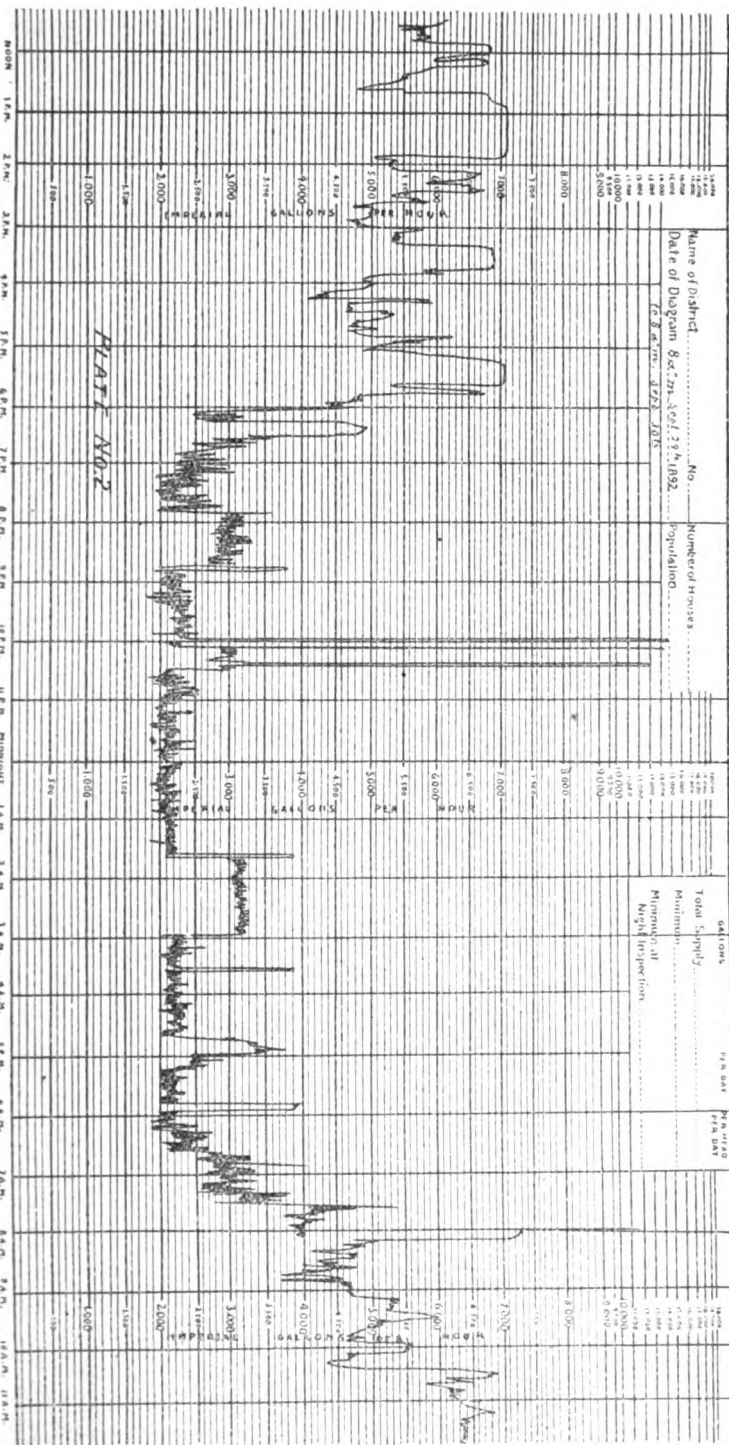
Walter D. O'Shea

Diagrams for Class N (Six-Inch Main) Differentiating Waste Water Meter (Lorcom's Patents)

Assistant Engineering G. L. ...

Name of District: ...
 Date of Diagram: 8/27/2015
 No. of Diagrams: 272
 Population: ...

Total Supply: ...
 Minimum: ...
 Maximum: ...
 Night Inflow: ...



Since laying the mains stated above the direct pumpage system is well supplied, except in the extreme northwestern part. The supply in the Twenty-second Ward was poor, owing to insufficient pumping capacity.

Wasting Water.

This is one of the most important matters at the present time in relation to the water supply, and should receive serious consideration. An inspection was made to ascertain the quantity of water lost by leakage from mains, service-pipes, or other appliances, and that wasted by allowing it to run unnecessarily.

The locality examined was from Seventh to Eleventh street between Chestnut and Walnut, and from Eleventh to Broad street between Chestnut and Spruce. The method of inspection was to divide the above locality into the most convenient sections, and supply each section through a Deacon meter, which is very sensitive to the slightest variation in the quantity of water flowing through it, and records automatically on a diagram operated by clock-work the time and amount of every change. (See Plate 1, which shows the total supply of a section for twenty-four hours, and is an instance where nearly the same quantity of water is used day and night, as shown by the irregular horizontal line at the top, indicating a very great waste of water.)

Plate No. 2 shows the supply of another section, but in this case a greater quantity of water is used during the day than at night, and may be classed as showing considerable waste, but not so much in proportion as in No. 1.

After obtaining the total flow necessary to supply a section for twenty-four hours, as shown by Plates 1 and 2, the several streets of a section were examined in the same manner, with the addition that the connections from the mains to the various properties were alternately shut off at the curb-stop, and if there was any water flowing at the time a faithful record thereof was made by the meter, as shown in Plate No. 3.

The time for doing the latter work was from midnight until 6 A. M., when the least water was being used. On the day following the night of inspection the premises where water was found running were examined to ascertain the cause. In this manner the waste or leakage was discovered without annoying the residents, when unnecessary, by visits of the inspectors. The several street or night inspections were compared and checked with the twenty-four-hour diagrams, thus showing the total quantity used and wasted.

Two tests were made to determine the accuracy of the Deacon meter in comparison with other makes, the result being extremely satisfactory.

The following shows the quantity of water consumed in the entire district examined :

Time.	6 Hours. Gallons.	12 Hours. Gallons.	24 Hours. Gallons.
6 A. M. to 12 M.....	350,320	709,650	1,316,160
12 M. to 6 P. M.....	359,160		
6 P. M. to 12 P. M.....	21,160		
12 P. M. to 6 A. M.....	285,320	603,480	

which would amount to 480,398,400 gallons per annum, or 252 gallons per capita per day, of which 40.6 gallons are by meter.

That portion of the area bounded by Chestnut, Walnut, Seventh, and Eleventh streets consumed water at the rate of 523 gallons per capita per day, while that within the limits of Spruce, Chestnut, Eleventh, and Broad streets uses but 179 gallons.

Another examination was made to determine the quantity used on Spruce street, from Eleventh to Thirteenth, which was found to be at the average rate of 63 gallons per capita

per day. In this case there were no leaky appliances, and no waste other than that in connection with domestic uses, the properties in question being—with the exception of one boarding-house—all private dwellings. The average rate on Thursday and Friday was 54 gallons, while that on Saturday was 80 gallons.

Examination of the whole area mentioned shows the following results, the money-value being at meter rates :

Waste by Leakage.	Gallons.	Cost.
Per hour.....	5,988	\$0 48
Per 24 hours.....	143,712	11 50
Per annum.....	52,454,880	4,196 40

Waste by allowing water to run unnecessarily :

	Gallons.	Cost.
Per hour.....	18,864	\$1 50
Per 24 hours.....	452,736	36 21
Per annum.....	165,248,640	13,219 83

Waste by leaking and running :

	Gallons.	Cost.
Per hour.....	4,012	\$0 32
Per 24 hours.....	96,288	7 70
Per annum.....	35,145,120	2,811 61

Total known waste :

	Gallons.	Cost.
Per hour.....	28,863	\$2 30
Per 24 hours.....	692,736	55 41
Per annum.....	252,848,640	20,227 89

In addition to the above, water was being *used* at a number of houses during the time of examination, but it was impossible to separate the quantity *used* from that *wasted*. It is therefore not included in the *known waste*, although in nearly every place there were leaky fixtures or appliances running unnecessarily, and it is fair to presume from the investigation that was made, at least fifty (50) per cent. of the amount was wasted.

Total used and wasted:

Waste by Leakage.	Gallons.	Cost.
Per hour.....	10,495	\$0 84
Per 24 hours.....	251,880	20 15
Per annum.....	91,936,200	7,354 91

If fifty (50) per cent. of the above be classed as "waste," in addition to that previously given, the total waste would be:

Waste by Leakage.	Gallons.	Cost.
Per hour.....	34,111	\$2 73
Per 24 hours.....	818,676	65 45
Per annum.....	298,816,740	23,905 33

The total amount properly used was :

	Gallons.	Cost.
Per hour.....	20,728	\$1 66
Per 24 hours.....	497,484	39 80
Per annum.....	181,581,660	16,526 53

The amount wasted in 24 hours was 157 gallons per capita.

The amount used in 24 hours was 95 gallons per capita, or 62 per cent. wasted and 38 per cent. used.

This is the result as shown by the Deacon meter. As a

Percent of Total	USED.			TOTAL.		
	Gallons.	Cost at Meter Rate.	Present Cost.	Gallons.	Cost at Meter Rate.	Present Cost.
1 00				28,207,200	\$2,256 56	\$1,140 50
2 85				43,116,720	3,449 32	241 85
				2,628,000	210 23	71 00
				3,679,200	294 34	33 00
				2,102,400	168 19	66 00
				1,576,800	126 14	63 00
	10,512,000	\$840 96		20,323,200	1,625 86	381 00
				3,153,600	252 29	54 00
				5,256,000	420 48	80 00
0 00				3,679,200	294 34	40 00
5 00				1,138,800	91 10	25 00
3 00				81,581,880	6,526 51	1,958 50
				3,066,000	245 28	12 00
				15,067,200	1,206 38	244 00
				840,960	67 28	46 00
				4,380,000	350 40	49 00
0 00				7,402,200	592 18	85 00
0 00				10,512,000	840 96	27 00
				2,715,600	217 25	19 00
				29,442,360	2,355 40	346 50
				2,102,400	168 19	10 00
				630,720	50 46	17 00
0 00				13,630,560	1,090 47	579 00
0 00				2,838,240	227 06	100 00
0 00				12,088,800	967 11	1,984 00
5 00				3,153,600	252 29	49 00
				31,536,000	2,522 88	518 50
				2,102,400	168 18	
				17,344,800	1,387 59	
	63,755,280	5,100 41		63,755,280	5,100 41	
85	74,267,280	\$5,941 37		419,052,120	\$33,524 13	\$8,239 85



matter of fact the city mains were responsible for the leakage of 17,344,800 gallons per annum, which, deducted from the former amount, would make the consumption throughout the whole area 243 gallons per capita per day, the waste 61 per cent., and the quantity used 39 per cent.

There were one thousand and sixty-four (1,064) properties examined, of which one hundred and eighty-three (183), or $17\frac{2}{10}$ per cent., were found wasting water at an average rate of \$130.63 per property per annum.

The following is a list of the appliances through which the water was flowing, showing the quantity registered and the cost thereof at meter rates. The amount designated as "Present Cost" is the entire water rent charged against the property:

The cost of labor for the inspections was \$1,156.96. The cost of setting meters was \$382.76, making a total expense of \$1,539.72.

Like all matters of an experimental nature, the first cost is the greatest, and it is especially so in this case for the reason that the "service connections" are in so vile a condition that most of the inspectors' time is consumed getting the property owners to put them in good repair.

Out of a total of 1,050 properties, 138 were found to be in serviceable condition; the balance were as follows:

Curb stops out of order	15
Without curb stops.....	192
Stop boxes requiring renewing.....	22
Without frames and covers and filled with dirt.....	452
Boxes filled with dirt, stone and brick.....	130
Paved over.....	101
Total.....	912
 Total number in order.....	 13.2 per cent.
Total number out of order	86.8 "

Nearly all the boxes were cleaned out by the inspector rather than wait for the dilatory property owner. In some cases where notices were served to put stop boxes in, as required by ordinance of Councils, the plumbers were discovered

putting them where there were no curb stops, and in some instances where there was not even a service pipe. It can be readily seen how misleading this would have been to the inspector if it had not been discovered by him at the time. It is this vexatious and time-consuming work that makes the expense so great; but if the connections are once put in proper order the cost for subsequent inspections will not exceed 10 per cent. of the original inspections.

The value of an inspection of this kind depends wholly upon what measures are taken to prevent the waste when found; that which is due to *defective* (leaky) appliances can be stopped under the authority of the present ordinances of Councils, which has been done in this case; but the great bulk of waste is through appliances allowed to run unnecessarily, and permitted without any restriction as to the quantity that shall be used. There are many of these that consume water to the value of \$200 per annum, and pay only \$2, \$3 and \$5 therefor. Where there are such appliances there is no use notifying "not to waste water" unless there is a penalty that can be enforced. As an illustration, a case on Broad street may be cited where the consumption was suspected as being very large, but was denied by the consumer. Meters were placed, however, on all the attachments except on one 1 inch connection, which, it was claimed, was used only for general purposes. With the Deacon meter it was discovered a much greater amount was being consumed than was registered by the meters, and a meter was placed on the remaining connection, with the following result:

Meter bill previous to July 5, 1892, for 6 months and 16 days.....	\$43.57
Meter bill since July 5, 1892, for 3 months.....	85.02

The above are the amounts of bills rendered, the latter showing an increase after the last meter was put in of 95 per cent. in less than half the time.

The munificent supply of water furnished to some consumers is further illustrated by the Jefferson College and

Hospital, which practically wastes about 2,700 gallons per hour, or what would amount, at meter rates, to \$1,892.16 per annum. They pay a "charitable rate," \$92.85. When interviewed on the subject of waste an employee stated that "it would keep two men busy all the time to shut off water after those using it." The waste still continues.

Another illustration, which represents either wilful waste or gross negligence, is on the part of the occupants of a property on Spruce street, where a fountain in the back yard was allowed to run day and night through the entire summer, during which time the place was unoccupied.

Many other instances might be cited, but the above is sufficient to show how careless and how wilful consumers are to waste and misuse water.

In order to prevent this waste two annual inspections with the Deacon meter will be necessary, and the placing of meters on all properties to be known as the "Meter Class," which should include the following :

- Arsenals,
- Asylums,
- Bath houses,
- Boarding houses,
- Bottling establishments,
- Club houses,
- Charitable institutions,
- Green houses,
- Hospitals,
- Hotels,
- Ice cream saloons,
- Laundries,
- Machines for washing and scouring,
- Marble and stone yards with permanent drip,
- Market houses,
- Manufacturing places,
- Offices,
- Prisons,
- Public buildings,
- Saloons and restaurants,
- Stables,
- Slaughter houses,
- Skating rinks.

The following appliances, and all others where experience shows that the water will probably be allowed to run unnecessarily, should be designated as "Meter Appliances," and the properties having them should be placed in the "Meter Class."

Aquaria,
 Bars,
 Cellar drainers,
 Fountains,
 Horse troughs,
 Lawn sprinklers,
 Motors,
 Steam boilers, except for heating private residences,
 Swimming pools,
 Storage tanks, unless constructed so that the overflow will show to the public,
 Tubs, vats and tanks (not to include wash-tubs in private residences),
 Urinals, unless flushed automatically or from overhead tanks,
 Water closets, unless flushed automatically or from overhead tanks,
 Watering vessels.

This arrangement would exempt private dwellings and places using a similar supply, and using water for a similar purpose from the "Meter Class," unless provided with one or more of the appliances designated as "Meter Appliances."

Authority should be given to change any of the non-"Meter Class" to the "Meter Class" upon failure to correct abuses after having been duly notified that water is being unnecessarily wasted, or after notification to change such appliances as are not equal to a standard to be adopted by the Department of Public Works.

All the "Meter Class" should pay a minimum charge, to be determined by the Department of Public Works.

A standard for all appliances should be adopted, and all such appliances before being used should be tested and stamped by the Department of Public Works.

Charitable and benevolent institutions and all public properties should pay water rent, no matter how low the rate may be, for if there be an annual charge it will in a measure be a restriction and tend to prevent the waste of water.

There should be a *regular meter rate* and a charitable rate.

The cost of putting meters on all properties in the area examined of the "Meter Class" as indicated above, and inspection during 1893, would be about \$3,200.00. This would give absolute control over the waste in this area, amounting at meter rates to \$23,905.33. I think the actual results would be even more favorable.

The same proportion of saving and expense throughout the "Old City" (between Vine and South streets) would be :

Waste, at meter rates.....	\$478,100.00
Cost of inspection, meters, etc.....	84,800.00
	<hr/>
Saving at meter rates.....	\$393,300.00

Meters.

One hundred and thirty-three (133) meters have been set in new locations; one hundred and sixty (160) that were defective or where a different size or style was required, have been renewed, and forty-one (41) taken out where the use of water by meter was discontinued.

The total number of meters in use December 31, 1892, was seven hundred and eighty eight (788); the number in stock nine hundred and seventy-four (974), making a total of one thousand seven hundred and sixty-two (1,762) in use and on hand.

The old Worthington engine house which stood at the north-east angle of the Fairmount forebay, and which was used for a number of years as a meter shop, was destroyed by fire. The papers, books machinery, stock, etc., were a total loss. Temporary quarters have since been occupied at 918 Cherry street, but owing to want of room, and inadequate water pressure for testing purposes, it is an unsuitable place for this important branch of the distribution system.

The following tables show in detail all work done.

Respectfully,

ALLEN J. FULLER,

Assistant Engineer in Charge of Distribution.

IRON SERVICE AND SUPPLY MAINS LAID IN 1891.

FIRST DISTRICT.

Comprising the First, Second, Third, Fourth, Twenty-sixth and Thirtieth Wards.

Street.	Location.	Size in inches.	Distance in feet.
<i>Service Mains.</i>			
Bancroft street, from 3 feet north of north curb line of Snyder avenue to north house line of McKean.....		6	450
Berlin street, from South, north.....		6	18
Cantrell street, from dead end 1 foot east of east curb line of Fourth, west.....		6	43
Cantrell street, from 350 feet east of east house line of Fifth, west.....		6	376
Chadwick street, from south curb line of McKean, north..		6	26
Clifton street, from 6 feet north of south curb line of Bainbridge, north.....		6	32
Corn street, from south house line of Marion, north.....		6	15
Cross street, from dead end east curb line of Thirty-second west.....		6	401
Daly street, from dead end east curb line of Tenth to west curb line of Eleventh.....		6	472
Daly street, from east curb line of Twelfth, west.....		6	26
Dillmore street, from Moyamensing avenue to south curb line of Wolf.....		6	324
Dorrance street, from south curb line of McKean, north..		6	13
Dudley street, from 240 feet east of east house line of Otsego, west.....		6	245
Durfor street, from 395 feet east of house line of Fourth, west.....		6	460
East Second street, from 2 feet south of south curb line of Snyder avenue, north.....		6	45
Eighteenth street, from Passyunk avenue to dead end 12 feet north of south house line of Moore.....		6	1,672
Eleventh street, from 12 feet south of north house line of Ritner to 6 feet north of south curb line of Snyder avenue.....		6	1,340
Eleventh street, east side, from south house line of Bainbridge, north.....		6	18
Emily street, from Otsego to Front.....		6	262
Fairhill street, from centre of Wolf, north.....		6	32
Fifteenth street, from south curb line of McKean to Millin.....		6	463
Fourth street, from south house line of Durfor to dead end south house line of Snyder avenue.....		6	1,052
Gray's Ferry road, from dead end 287 feet east of east house line of Thirty-sixth street, west.....		6	337

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service Mains—Continued.</i>			
Gray's Ferry road, from west house line of Thirty-sixth street, west.....		6	197
Guenther street, from south house line of Wharton street, north.....		6	50
Hancock street, from dead end 2 feet south of south curb line of Snyder avenue, north to connect.....		6	13
Hancock street, from 8-inch main 12 feet south of north curb line of Snyder avenue north to connect dead end.....		6	20
Hicks street, from south curb line of McKean north to connect dead end.....		6	26
Holly street, from south house line of Catherine street, north.....		6	25
Howard street, from 12 feet south of north house line of Jackson to dead end 2 feet south of south curb line of Snyder avenue.....		6	412
Jackson street, from 321 feet east of centre of Fourth street, west to dead end.....		6	358
Jackson street, from dead end 40 feet east of east house line of Tenth to Twelfth.....		6	957
Juniper street, from Snyder avenue to north house line of McKean.....		6	447
Juniper street, from 225 feet south of south house line of Federal street, north.....		6	237
Juniper street, from dead end 2 feet south of north house line of Federal street, north.....		6	177
Kater street, from 329 feet east of east house line of Twelfth, west.....		6	354
Kater street, from centre of Bainbridge street, north.....		6	25
Kater street, from Fifteenth to 110 feet east of east house line of Seventeenth.....		6	758
Keefe street, from dead end 2 feet west of west house line of Front to Wheat.....		6	282
Kimball street, from dead end east house line of Twelfth street, west.....		6	12
Kimball street, from centre of Twenty-fourth to east house line of Twenty-fifth.....		6	484
Lancaster street, from 7 feet north of south house line of Keefe, north.....		6	33
Latona street, from east to west house line of Twenty-sixth street.....		6	50
Latona street, from Twenty-seventh to dead end east house line of Twenty-eighth.....		6	421
Letitia street, from 2 feet south of south curb line of Snyder avenue, north.....		6	13
Lingo street from dead end south curb line of Snyder avenue to north curb line of McKean.....		6	485
Manton street, from 2 feet east of east house line of Twenty-third, west.....		6	27

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service Mains—Continued.</i>			
Mifflin street, from east curb line of Eighteenth to dead end east house line of Nineteenth		6	446
Mole street, from south curb line of McKean street north to connect dead end		6	26
Moore street, from 12 feet west of west house line of Eighteenth to Washington avenue		6	126
Myrtlewood street, from south house line of Wharton street, north		6	50
McClellan street, from east curb line of Eighteenth street west to connect dead end		6	26
McCrea street, from Juniper street, west		6	13
McKean street, from dead end 3 feet east of west house line of Second street to dead end, 20 feet west of southeast house line of Moyamensing avenue		6	517
McKean street, from dead end east house line of Juniper to Watts		6	152
McKean street, from dead end 8 feet east of west house line of Broad street to east curb line of Seventeenth		8	1,308
McKean street, from east to west curb line of Seventeenth		6	25
McKean street, from west curb line of Seventeenth to east house line of Eighteenth		8	408
McKean street, from east to west house line of Eighteenth		6	50
McKean street, from west house line of Eighteenth to west house line of Nineteenth		8	446
Mt. Holly street, from 6 inch main 8 feet south of north curb line of Snyder avenue, north		6	23
Mt. Holly street, from south curb line of McKean street, north		6	13
Oakford street, from west house line of Twenty-fifth to west house line of Twenty-sixth		6	426
Oakford street, from 186 feet east of east house line of Twenty-seventh, west		6	211
Otsego street, from south house line of Snyder avenue, north		6	60
Ovington street, from centre of Bainbridge street, north		6	25
Pennington street, from centre of Carpenter, north		6	25
Pierce street, from Twenty-first street to 12 feet west of east house line of Twenty-second		6	433
Reese street, from centre of Wolf street, north		6	30
Ritchie street, from centre of Catherine street, north		6	25
Ronaldson street, from 6 feet north of south house line of Bainbridge, north		6	34
Rosewood street, from south house line of Catherine street, north		6	25
Seigel street, from 208 feet east of east house line of Tenth street, west		6	233
Seigel street, from east curb line of Eighteenth west to connect dead end		6	26
Seventeenth street, from Passyuuk avenue to north curb line of McKean		6	611

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service Mains—Continued.</i>			
Snyder avenue, south side from east house line of Swanson to dead end 17 feet west of east house line of Front...		8	681
Snyder avenue, south side, from dead end 180 feet west of west house line of Front to dead end 2 feet east of east house line of Old Second street.....		8	542
Snyder avenue, south side, from east house line of Seventeenth to 28 feet west of east house line of Lingo.....		6	332
Snyder avenue, south side, from east to west house line of Eighteenth street.....		6	50
Snyder avenue, north side, from east house line of Swanson to dead end 5 feet east of east house line of Old Second street.....		8	1,403
Snyder avenue, north side, from east house line of Seventeenth to 28 feet west of east house line of Lingo.....		6	332
Snyder avenue, north side, from east to west house line of Eighteenth		6	50
Sterling street, from south house line of Bainbridge street, north.....		6	25
Street, (not yet named), west of Twenty-eighth, from south house line of Wharton street, north.....		6	50
Street (not yet named) west of Twenty-ninth, from south house line of Wharton street, north		6	50
Swanson street, east side, from south house line of Snyder avenue, north		6	75
Swanson street, west side, from south house line of Snyder avenue, north		6	75
Sydmuth street, from 5 feet south of south curb line of Washington avenue, north.....		6	13
Tasker street, from Passyunk avenue, west to dead end....		6	156
Tasker street, from Long lane to west house line of Twenty-third		6	419
Taylor street, from dead end east curb line of Twenty-third, west		6	403
Tenth street, from north curb line of Wolf to 3 feet north of north house line of Jackson		6	473
Thirteenth street, from 2 feet north of south curb line of Wolf, north to dead end		6	94
Thirtieth street, from south house line of Wharton street, north		6	50
Titan street, from east house line of Twenty-sixth street, west to dead end.....		6	50
Tree street from dead end east curb line of Tenth to west curb line of Eleventh.....		6	472
Twelfth street, from 12 feet south of north house line of Ritner to Jackson		6	902
Twenty-first street, from Dickinson to Wilder.....		6	159
Twenty-fourth street, from Washington avenue to Carpenter street.....		6	395

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service Mains—Continued.</i>			
Twenty-ninth street, from south house line of Wharton street, north ..		6	50
Twenty-sixth street, from south house line of Wharton to Galloway		6	602
Twenty-third street, from south to north curb line of Tasker.....		6	26
Twenty-third street, from 6 feet south of south curb line of Taylor, north.....		6	26
Twenty-third street, from north curb line of Oakford to dead end 2 feet north of south house line of Federal		6	306
Ward street, from south curb line of McKean street, north		6	14
Washington avenue, south side, from Passyunk avenue to Eighth street		6	161
Washington avenue, south side, from Tenth street to Eleventh		6	432
Washington avenue, north side, from west house line of Sixth street to Seventh		6	422
Washington avenue, north side, from dead end, east house line of Passyunk avenue to Eighth.....		6	239
Washington avenue, north side, from Tenth street to Twelfth		6	900
Watts street, from 240 feet south of south house line of McKean, north to dead end		6	80
Wharton street, from east house line of Twenty-sixth to dead end east curb line of Twenty-seventh.....		6	459
Wharton street, from dead end, west house line of Twenty-eighth street to Thirty-first.....		6	1,313
Wilder street, from Y. P. M. street to Fourth		6	234
Winton street, from dead end, 1 foot east of east curb line of Fourth street, west		6	46
Winton street, from east to west curb line of Eleventh.....		6	26
Wolf street, from west curb line of Old Second street to dead end west curb line of Fourth street.....		6	543
Wolf street, from Fifth to Sixth street		6	445
Wolf street, from east curb line of Eleventh to west curb line of Twelfth		6	473
Wolf street, from east to west curb line of Thirteenth		6	26
Yhost street, from south house line of Catherine, north ..		6	25
Total			33,883
<i>Supply Mains.</i>			
Gray's Ferry road, from dead end 1 foot west of east house line of Thirty-sixth street, west.....		20	8

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Supply Main Connections.</i>			
Gray's Ferry Road, north side, 2 feet west of east house line of Thirty-sixth street, between 20- and 6-inch mains on Gray's Ferry road		6	21
Fire hydrant connections			1,527
<i>Fire Connections (private).</i>			
McKean street, south side, 101 feet west of west house line of Ninth, for Burt Bros.....		4	17
Reed street, south side, 41 feet east of east house line of Swanson, for Spreckels' Sugar Refinery.		6	24
Twenty-first street, east side, 62 feet north of north house line of Ellsworth, for Campbell's Mill.....		6	17
Total			58
<i>Supply Connections (private).</i>			
Gray's Ferry road, north side, 197 feet west of west house line of Thirty-sixth, for Philadelphia Packing and Prov. Co.....		6	21
Point Breeze Gas Works from Passyunk avenue to No. 1 Retort House, for Bureau of Gas.....		6	174
Reed street, north side, from 5 feet east of east house line of Eleventh street south into Prison Yard, for County Prison.....		6	723
Sutherland avenue, east side, 54 feet 6 inches south of of south house line of Kansas, for Traction Railway Company		4	37
Total			955
<i>Pipe relaid.</i>			
Anthony street, from centre of Tasker street, north.....		6	28
Baker street, from centre of Seventh street, west.....		6	27
Birch street, from centre of Catharine street, north.....		6	27
Burnett street, from 2 feet south of south house line of Christian, north.		6	32
Carbon street, from north house line of Fitzwater to Bainbridge.....		6	332
Carpenter street, from Second street, to 30 feet east of east house line of Third street.....		6	499

Street.	Location.	Sizes in Inches.	Distance in feet.
<i>Pipe relaid—Continued.</i>			
Charles street, from 10 feet north of south house line of South street, north		6	24
Cuba street, from 2 feet south of south house line of Morris, north		6	27
Dean street, from 22 feet south of north house line of Morris street, north		6	24
Dean street, from south house line of Tasker street, north ..		6	52
Doak street, from 2 feet south of south house line of Bainbridge, north		6	27
Dutton street, from 2 feet south of south house line of Morris, north		6	27
Evangelist street, from 22 feet east of west house line of Seventh, west		6	24
Godey street, from 2 feet south of south house line of Catharine north		6	27
Harshaw street, from centre of Catharine street, north		6	28
Holly street from centre of Catharine street, north		6	27
Jackson street, from 2 feet south of south house line of Washington avenue, north		6	30
June street, from 22 feet east of west house line of Seventh, west		6	24
Juniper street, from north house line of Catherine to south house line of Fitzwater		6	322
Juniper street, from north house line of Fitzwater to 5 feet north of south house line of South street		6	637
Kansas street, from 2 feet east of east house line of Sutherland avenue, west		6	38
Kater street, from Twelfth to Broad streets		6	1,024
Kater street, from Lloyd to Fifteenth streets		6	321
Kater street, from Seventeenth street to Gray's Ferry road		6	2,709
Lancaster street, from 2 feet south of south house line of Marion, north		6	22
Leon street, from 2 feet south of south house line of Washington avenue, north		6	30
Lindsay street, from 2 feet south of south house line of Bainbridge, north		6	27
Lisle street, from 2 feet south of south house line of Bainbridge street, north		6	27
Marker street, from Second street to Moyamensing avenue ..		6	544
Marion street, from 2 feet west of west house line of Front street, to Moyamensing avenue		6	774
Martin street, from centre of Catherine, north		6	27
May street, from 22 feet east of west house line of Seventh street, west		6	24
Medina street, from 8 feet east of west curb line of Seventh to Eighth streets		6	434
Miller street, from 3 feet south of south house line of Washington avenue, north		6	34

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe relaid—Continued.</i>			
Moore street, from Centre of Juniper, west.....		6	17
McKean street, from centre of Broad, west.....		8	48
McKean street, from east to west curb line of Seventeenth street		8	26
McKean street, from east to west house line of Eighteenth street		8	50
Otsego street, from Prime to Christian streets.....		6	1,010
Pallas street, from 16 feet south of north house line of Morris, north.....		6	18
Pallas street, from south house line of Tasker, north.....		6	52
Rose street, from east house line of Juniper street, west....		6	35
Rose street, from 2 feet east of east house line of Broad street, west.. ..		6	26
Rye street, from 2 feet south of south house line of Marion, north.....		6	17
Selfridge street, from 2 feet south of south house line of Bainbridge street, north.....		6	27
St. Paul avenue, from east house line of Seventh street, west.....		6	22
Twelvetford street, from 2 feet south of south house line of Bainbridge street, north.....		6	27
Ward street, from Washington avenue to south house line of Carpenter street.....		6	395
Washington avenue, south side, from west house line of Sixth to east house line of Seventh.....		6	402
Washington avenue, south side, from 9 feet east of west curb line of Seventh street to Passyunk avenue.....		6	275
Washington avenue, south side, from centre of Eighth street to east house line of Ninth.....		6	429
Washington avenue, south side, from 17 feet east of west house line of Ninth to east house line of Tenth streets.....		6	419
Washington avenue, south side, from 10 feet west of east curb line of Eleventh street, west.....		6	21
Washington avenue, north side, from 9 feet east of west curb line of Seventh street to southeast house line of Passyunk avenue.....		6	192
Washington avenue, north side, from centre of Eighth street, to 2 feet west of east curb line of Ninth street..		6	442
Washington avenue, north side, from 9 feet east of west curb line of Ninth to centre of Tenth streets.....		6	448
Weccacoe street, from 2 feet south of south house line of Catharine, north.....		6	27
Wheat street, from 2 feet south of south house line of Marion, north.		6	22
Wyoming street, from 2 feet south of south house line of Bainbridge street, north.....		6	27
Total.....			12,754

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe relaid—Continued.</i>			
Fire hydrant connections relaid.....		6	577
Repairs, general.....		4	5
“ “.....		6	979
“ “.....		8	22
“ “.....		10	45
“ “.....		12	3
Total.....			1,054
<i>Pipe taken up.</i>			
Anthony street, from centre of Tasker street, north.....		4	28
Baker street, from centre of Seventh street, west.....		4	26
Birch street, from centre of Catharine street, north.....		4	27
Burnet street, from 2 feet south of south house line of Christian, north.....		4	32
Carpenter street, from 10 feet east of northwest curb line of Moyamensing avenue, west.....		4	339
Cuba street, from 2 feet south of south house line of Morris street, north.....		4	27
Dean street, from 22 feet south of north house line of Tasker street, north.....		4	50
Doak street, from 2 feet south of south house line of Bainbridge, north.....		4	27
Dutton street, from 2 feet south of south house line of Morris street, north.....		4	27
Evangelist street, from 22 feet east of west house line of Seventh street, west.....		4	23
Godey street, from 2 feet south of south house line of Catherine street, north.....		4	25
Harshaw street, from centre of Catharine street, north.....		4	28
Holly street, from centre of Catharine street, north.....		3	27
Jackson street, from 2 feet north of south house line of Washington avenue, north.....		4	28
June street, from 22 feet east of west house line of Seventh street, west.....		4	24
Juniper street, from north house line of Catharine to south house line of Fitzwater.....		4	322
Juniper street, from north house line of Fitzwater to 5 feet north of south of house line of South street.....		4	625
Kansas street, from 2 feet east of east house line of Sutherland avenue, west.....		4	37
Kater street, from Twelfth to east house line of Thirteenth.....		3	421
Kater street, from east to west house line of Thirteenth.....		4	50

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe taken up—Continued.</i>			
Kater street, from west house line of Thirteenth street west.....		3	160
Kater street, from Lloyd to Fifteenth streets.....		4	321
Kater street, from Seventeenth to east house line of Eighteenth.....		4	421
Kater street, from 296 feet west of west house line of Eighteenth street, west.....		3	150
Kater street, from east house line of Nineteenth street, west.....		3	160
Kater street, from Twentieth to Twenty-first streets.....		4	594
Kater street, from east house line of Twenty-first to 290 feet west of west house line of Twenty-second.....		4	796
Lancaster street, from 2 feet south of south house line of Marion street, north.....		4	22
Leon street, from 2 feet north of south house line of Washington avenue, north.....		3	28
Lindsay street, from 2 feet south of south house line of Bainbridge street, north.....		4	27
Lisle street, from 2 feet south of south house line of Bainbridge street, north.....		4	27
Marker street, from Second street to Moyamensing avenue.....		3	544
Marion street, from 2 feet west of west house line of Front to west house line of Second street.....		3	444
Martin street from centre of Catharine street, north.....		4	27
May street, from 22 feet east of west house line of Seventh street, west.....		4	24
Medina street, from 8 feet east of west curb line of Seventh to Eighth.....		4	446
Miller street, from 3 feet south of south house line of Washington avenue, north.....		4	33
Moore street, from centre of Juniper street, west.....		4	17
McKean street, from 39 feet west of centre of Broad street, west.....		6	9
McKean street, from east to west curb line of Seventeenth street.....		6	26
McKean street, from east to west house line of Eighteenth street.....		6	50
Otsego street, from Prime to Christian streets.....		4	1,008
Pallas street, from 16 feet south of north house line of Morris street, north.....		4	18
Pallas street, from south house line of Tasker street, north.....		4	50
Rose street, from east house line of Juniper, west.....		3	35
Rose street, from 2 feet east of east house line of Broad, west.....		4	25
Rye street, from 2 feet south of south house line of Marion, north.....		4	17
Selfridge street, from 2 feet south of south house line of Bainbridge, north.....		4	27
St. Paul's avenue, from east house line of Seventh, west.....		3	33

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe taken up—Continued.</i>			
Twelfth street, from south house line of Bainbridge, north		3	26
Ward street, from Washington avenue to south house line of Carpenter.....		3	395
Washington avenue, south side, from west house line of Sixth to east house line of Seventh.....		4	402
Washington avenue, south side, from 9 feet east of west curb line of Seventh to southeast house line of Passyunk avenue.....		3	243
Washington avenue, south side, from Eighth to east house line of Ninth.....		{ 3 4	{ 260 169
Washington avenue, south side, from 17 feet east of west house line of Ninth to east house line of Tenth.....		4	419
Washington avenue, south side, from 10 feet west of east curb line of Eleventh street, west.....		6	14
Washington avenue, north side, from 9 feet east of west curb line of Seventh street to southeast house line of Passyunk avenue.....		4	192
Washington avenue, north side, from centre of Eighth street to 2 feet west of east curb line of Ninth street...		4	442
Washington avenue, north side, from 9 feet east of west curb line of Ninth street to centre of Tenth street.....		4	448
Weccacoe street, from 2 feet south of south house line of Catharine street, north.....		4	27
Wheat street, from 2 feet south of south house line of Marion street, north.....		4	22
Wyoming street, from 2 feet south of south house line of Bainbridge street, north		4	27
Total.....			10,831
<hr/>			
Fire hydrant connections taken up.....		3	12
“ “ “ “		4	117
“ “ “ “		6	42
Total.....			171
<hr/>			
<i>Pipe cut off and abandoned.</i>			
Carbon street, from north house line of Fitzwater to Bainbridge streets		4	332
Carpenter street, from Second street to Moyamensing avenue.....		3	160
Charles street, from 10 feet north of south curb line of South street, north.....		3	24
Kater street, from 160 feet west of west house line of Thirteenth street, west		3	393

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe cut off and abandoned—Continued.</i>			
Kater street, from east house line of Eighteenth street, west.....		3	296
Kater street, from 160 feet west of west house line of Nineteenth street, west.....		3	286
Kater street, from 290 feet west of west house line of Twenty-second street to Gray's Ferry road.....		4	55
Marion street, from west house line of Second street to Moyamensing avenue.....		3	330
McKean street, from centre of Broad street, west.....		6	39
Washington avenue, south side, from southeast house line of Passyunk avenue, west.....		4	32
Total.....			1,947
<hr/>			
Fire hydrant connections cut off and abandoned.....		3	7
“ “ “ “ “ “		4	296
“ “ “ “ “ “		6	96
Total.....			399

Recapitulation of First District.

Purpose for which used.	Size - Inches.						Total in feet and pounds.
	3	4	6	8	10	12		20
New pipe or feet added.	Service mains.....			29,095	4,788		33,883
	Supply mains.....						8
	Supply main connections.....		21				21
	Fire hydrant connections.....	17	1,527				1,527
	Fire connections (private).....	37	41				58
Supply connections (private).....		918				955	
Total.....	54	31,602	4,788				36,452
	1,026	1,042,866	201,096				1,246,200
Pipe used, but adding not-in the ground.	Pipe relaid.....						
	Repairs general.....			13,207	124		13,331
	Pipe taken up.....	2,927	5	979	22	45	1,054
			7,834	141			11,002
	Total.....	2,927	7,939	14,327	146	45	25,387
	43,905	150,841	472,791	6,132	2,475	676,360	
Total handled.	{ Feet.....	2,927	7,993	45,929	4,934	45	61,889
	{ Pounds.....	43,905	151,867	1,515,657	207,228	2,475	1,922,620
Pipe cut off and abandoned.....	1,496	715	135				2,346

SECOND DISTRICT.

Comprising the Fifth, Sixth, Seventh, Eighth, Ninth, Tenth, Twenty-fourth,
Twenty-seventh and Thirty-fourth Wards.

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service Mains.</i>			
Adeline street, from centre of Forty-seventh, west.....		6	471
Bellevue street, from centre of Sixty-third-and-one-half street, west.....		6	25
Bicking (or Yocum) street, from east to west house line of Sixty-seventh street		6	70
Brown street, from east house line of Fiftieth street, west		6	50
Callowhill street, from east to west house line of Sixty- fourth street.....		6	60
Columbia avenue, from Fifty-first to Fifty-second streets...		6	771
Elmwood avenue, from dead end 17 feet west of centre of Sixtieth street, to east curb line of Sixty-seventh street		6	3,552
Fiftieth street, from 12 feet southeast of southeast house line of Woodland avenue, to Greenway avenue.....		6	571
Fiftieth street, from Aspen to Parrish streets.....		6	826
Fifty-fifth-and-one-half street, from south house line of Oxford street, north.....		6	25
Fifty-fourth-and-three-quarters street, from Haverford to Westminster avenue.....		6	406
Fifty-sixth street, from 14 feet northwest of northwest house line of Paschal avenue, northwest to dead end...		6	186
Fifty-third street, from south to north house line of Media		6	60
Forty-eighth street, from dead end 2 feet south of north house line of Warrington to Baltimore avenue		6	523
Forty-ninth street, from south to north house line of Pentridge.....		6	40
Forty-ninth street, from south to north house line to Pres- cott		6	30
Forty-second street, from Woodward avenue, northwest to dead end.....		6	741
Forty-third street, from centre of Woodland avenue, north.....		6	40
Forty-third street, from dead end 9 feet south of north house line of Lancaster avenue to Ogden.....		6	327
Greenway avenue, from centre of Fiftieth, west.....		6	37
Greenway avenue, from 137 feet 5 inches east of east house line of Sixty-seventh street, west		6	207
Hamilton street, from dead end 10 feet 8 inches west of east house line of Sixty-fourth street, west.....		6	49
Hazel avenue, from Sixtieth to Sixty-first streets		6	557
Hunter's lane (or Columbia avenue), from dead end 96 feet 10 inches west of west house line of Fifty-fifth street to Fifty-fifth-and-a-half street.....		6	128
Kingsessing avenue, from east to west house line of Six- tieth street		6	50

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service Mains—Continued.</i>			
Lancaster avenue, from Oxford to Fifty-fifth street.....		6	18
Lancaster avenue, from west curb line of Fifty-fifth street to Fifty-sixth street.....		6	489
Ludlow street, from centre of Forty-fourth street, west.....		6	30
Mantua avenue, from dead end 120 feet southeast of east house line of Thirty-third street, northwest to connect		6	151
Mantua avenue, from Fairmount avenue to Thirty-fourth street		6	423
Media street, from Fifty-second to Fifty-fourth streets.		6	836
Oxford street, from 14 feet northeast of southwest curb line of Lancaster avenue to 21 feet west of east house line of Fifty-sixth street		6	461
Paachal avenue, from Gray's Ferry road to Forty-seventh street		6	199
Peach street, from south to north house line of Media street		6	60
Pentridge street from centre of Forty-ninth street, west to connect dead end		6	123
Poplar street, from centre Thirty-ninth street, west to connect dead end		6	33
Prescott street from Forty-ninth to Fiftieth streets.....		6	512
Race street, from dead end, 15 feet 6 inches west of east house line of Sixty-fourth street, west.....		6	45
Sansom street, from 24 feet west of east curb line of Broad street, west.....		6	41
Sixtieth street, from Woodland avenue to north house line of Kingessing avenue.....		6	1,251
Sixtieth street, from 3 feet northwest of southeast house line of Vine to 2 feet northwest of northwest house line of Haverford.....	10		1,266
Sixty-fourth street, from Race to Vine streets	6		563
Sixty-fourth street, from Callowhill to Haverford.....	6		1,115
Sixty-seventh street, from Woodland avenue to northwest house line of Greenway avenue.....	6		567
Sixty-third-and-a-half street, from 192 feet south of south house line of Race to Vine street.....	6		722
Spring Garden street, from dead end 15 feet west of east house line of Thirty-third street to Thirty-fifth street	12		838
Thirtieth street, from south house line of Spruce, to Locust streets.....	6		598
Thirty-fourth street, from Spring Garden street to north house line of Rockland	6		224
Thirty-ninth street, from Poplar to Eaglesfield.....	6		255
Viola street, from dead end 249 feet west of west house line of Fifty-first to Fifty-second	6		502
Warren street, from 122 feet 6 inches southeast of southeast house of line of Lansdowne avenue northwest to dead end.....	6		123
Westminster avenue, from 14 feet 4 inches east of centre of Sixtieth street, west	6		28

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service Mains—Continued.</i>			
Windsor place, from Forty-seventh to Forty-eighth streets.....		6	496
Wyalusing avenue, from Thirty-ninth to Fort eth streets..		6	730
Yocum street, from Hanson to Forty-ninth streets.....		6	222
Total			22,723
<hr/>			
Fire hydrant connections.....		6	1,774
<hr/>			
<i>Fire Connections (private).</i>			
Broad street, east side, 152 feet north of north house line of Cherry, for Winter Circus Co.....		4	54
Race street, south side, 124 feet west of west house line of of Broad, for Muhr Building.....		6	16
Total			70
<hr/>			
<i>Supply Connections (private).</i>			
Arch street, north side, 134 feet west of west house line of Eleventh.....		6	23
Arch street, south side, 103 feet east of east house line of Twelfth street, for Philadelphia and Reading Terminal Co.....		6	20
Broad street, east side, 34 feet south of south house line of South Penn Square, for Betz Bnilding.....		4	4
Cherry street, south side, 165 feet east house line of Twelfth street, for Philadelphia and Reading Terminal Co.....		4	12
Delaware avenue, east side, 17 feet 6 inches south of south house line of Spruce street, for Pennsylvania Railroad Co.....		4	7
Eleventh street, west side, 285 feet north of north house line of Race street.....		6	17
Market street, north side, 22 feet east of east house line of Twelfth street, for Philadelphia and Reading Terminal Co.....		4	13
Thirty-fifth street, west side, 135 feet south of south house line of Girard avenue, for Zoological Gardens.....		4	22
Total			118

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Meter Inspection Connections.</i>			
Clover street, north side, 9 feet east of east house line of Thirteenth.....		6	28
Eleventh street, east side, north house line of Spruce street.....		3	9
Ninth street, east side, 6 feet south of south house line of Walnut street.....		6	31
Twelfth street, west side, 13 feet south of south house line of Walnut street, for Bureau of Water.....		6	31
Total.....			99
<i>Drains.</i>			
Fifty-second street, 54 feet north of north house line of Wyalusing avenue (extended) from 36 inch main.....		6	16
<i>Pipe Relaid.</i>			
Academy street, from 4 feet east of east house line of Eleventh street, west.....		6	29
Addison street, from 4 feet east of east house line of Nineteenth street, west.....		6	29
Adelphia street, from Fifth street, west.....		6	22
Adelphia street, from 5 feet east of east house line of Sixth street, west.....		6	30
Albion street, from 3 feet north of north house line of Cherry to Race.....		6	313
Arizona street, from centre of Walnut street, west.....		6	27
Asylum court, from centre of Asylum street, west.....		6	28
Asylum street, from Broad to Fifteenth streets.....		6	449
Aurora street, from 4 feet 4 inches east of east house line of Raspberry street, west.....		6	28
Brighton street, from Broad to Fifteenth streets.....		6	446
Brogan street, from centre of Raspberry, west.....		6	14
Budd street, from 3 feet east of east house line of Dean street, west.....		6	48
Budd street, from 4 feet 10 inches east of east house line of Juniper street, west.....		6	33
Budd street, from 3 feet east of east house line of Broad street, west.....		6	26
Budden's alley, from 2 feet east of east house line of Thirteenth street, west.....		6	54
Burton street, from centre of Seventeenth street, west.....		6	29
Butler's avenue, from 2 feet 11 inches east of east house line of Juniper street, west.....		6	17
Canby street, from Twelfth street to 35 feet west of west house line of Dean street.....		6	319

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe relaid—Continued.</i>			
Canby street, from 58 feet 2 inches east of east house line of Thirteenth street, west.....		6	83
Carman street, from Arch to Winfield.....		6	184
Carver, from 3 feet east of east house line of Seventeenth street, west.....		6	57
Cope street, from centre of Walnut street, north.....		6	53
Cuthbert street, from 3 feet west of west house line of Fifteenth street, west.....		6	28
Cuthbert street, from 2 feet east of east house line of Sixteenth street, west.....		6	54
Cuthbert street, from centre of Nineteenth street, west....		6	29
Davenport street, from Eighth street, west.....		6	29
Dean street, from Pine to Spruce streets.....		6	527
Dorsey street, from 7 feet 3 inches east of east house line of Juniper street, west....		6	21
Fairfield street, from Twenty-first to Twenty-second.....		6	446
Fifty-second street, from 36 feet 2 inches south of south house line of Wyalusing avenue, north.....		6	41
Franklin street, from Race to Vine streets.....		6	697
Grace street, from 2 feet east of east house line of Seventeenth street, west.....		6	27
Grubb street, from centre of Juniper street, west.....		6	17
Hamstead street, from centre of Nineteenth street, west....		6	28
Heins street, from Twelfth to Thirteenth streets.....		6	452
Howell street, from centre of Nineteenth street, west.....		6	29
Hunter's row, from Eleventh to Quince streets.....		6	223
Iseminger street, from centre of Heins street, north.....		6	12
Jones street, from 4 feet east of east house line of Nineteenth street, west.....		6	29
Kingston street, from Thirteenth to Juniper streets.....		6	292
Lambert street, from 2 feet west of west house line of Thirteenth street, west.....		6	27
Landreth street, from 2 feet east of east house line of Thirteenth street, west.....		6	27
Lardner street, from Broad to Fifteenth streets.....		6	439
Lyndall alley, from centre of Twelfth street, west.....		6	25
Marble court, from 190 feet south of south house line of Walnut street, north.....		6	248
Mark's lane, from centre of Eleventh street, west.....		6	29
Miles street, from 5 feet east of west curb line of Tenth street, west.....		6	20
Naudain street, from 3 feet east of east house line of Nineteenth street, west.....		6	56
Orange street, from 4 feet east of east house line of Eighth street, west.....		6	29
Powell street, from centre of Fifth street, west.....		6	28
Powell street, from 3 feet east of east house line of Sixth street, west.....		6	28
Pryor's court, from 3 feet 6 inches east of east house line of Raspberry alley, west.....		6	14

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe relaid—Continued.</i>			
Pryor's court, from centre of Raspberry alley, west		6	13
Pryor's court, from 2 feet east of east house line of Tenth street, west.....		6	35
Ralston street, from 6 feet 7 inches east of east house line of Juniper street, west.		6	21
Raspberry alley, from centre of Spruce street to 11 feet north of centre of Locust street.....		6	453
Rodman street, from 3 feet 8 inches east of east house line of Juniper street, west.....		6	34
Rodman street, from 2 feet east of east house line of Broad street, west.....		6	28
Sansom street, from 3 feet east of west curb line of Broad street, west.....		6	29
Sansom street, from 308 feet 4 inches east of east house line of Thirty-sixth street, west.....		6	339
Sheaff street, from 4 feet east of east house line of Twelfth street, west.....		6	29
Steadman street, from 3 feet east of east house line of Twelfth street, west.....		6	55
Steadman street, from 3 feet east of east house line of Thirteenth street, west		6	28
Thirty-second street, from Chancellor to Sansom streets...		6	437
Truxton street, from centre of Heins street, north.....		6	12
Twenty-third street, from 39 feet 2 inches south of centre of Walnut street, north.....		6	82
Vaughn street, from Locust to Walnut streets.....		6	416
Walnut street, from Tenth street, west.....		6	61
Walnut street, from 3 feet east of east house line of Twenty-third street to Twenty-fourth street		6	300
Walnut street, from centre of Thirty-second street, west ..		6	247
Wilcox street, from centre of Nineteenth street, west.....		6	29
Winifred street from Carman to Eighth street.....		6	192
Winslow street, from centre of Twelfth street, west.....		6	29
Winslow street, from 2 feet east of east house line of Thirteenth street, west		6	54
Woodland avenue, from 7 feet east of east house line of Forty-second street to 10 feet west of west house line of Forty-fifth street		12	877
Total			10,069
<hr/>			
Fire hydrant connections relaid		6	928
<hr/>			
Repairs, general		3	12
“ “		4	25
“ “		6	894
“ “		8	40

Street.	Location.	Sizes In inches.	Distance in feet.
<i>Pipe relaid—Continued.</i>			
Repairs, general		10	203
“ “		12	130
“ “		16	16
“ “		20	5
Total.....			1,328
<i>Pipe taken up.</i>			
Academy street, from 4 feet east of east house line of Eleventh street, west		3	29
Addison street, from 4 feet east of east house line of Nineteenth street, west		3	29
Adelphia street, from centre of Fifth street, west.....		3	22
Adelphia street, from 5 feet east of east house line of Sixth street, west		3	30
Albion street, from 3 feet north of north house line of Cherry to Race.....		4	313
Arizona street, from centre of Twelfth street		3	27
Asylum court, from Asylum street, north		3	28
Asylum street, from Broad to Fifteenth street.....		3	449
Aurora street, from 4 feet 4 inches east of east house line of Raspberry alley, west.....		3	28
Brighton street, from Broad to Fifteenth street.....		3	446
Brogan street, from centre of Raspberry alley, west.....		3	14
Budd street, from 3 feet east of house line of Dean street, west.....		3	48
Budd street, from 4 feet 10 inches east of east house line of Juniper street, west.....		3	33
Budd street, from 3 feet east of east house line of Broad street, west.....		3	26
Budden's alley, from 2 feet east of east house line of Thirteenth street, west.....		3	54
Burton street, from centre of Seventeenth street, west		3	29
Butler's avenue, from 2 feet 11 inches east of east house line of Juniper street, west.....		3	17
• Canby street, from Twelfth to 85 feet west of west house line of Dean street		3	319
Canby street, from 58 feet 2 inches east of east house line of Thirteenth street, west.....		3	83
Carman street, from Arch to Winifred street.....		3	184
Carver street, from 3 feet east of east house line of Seventeenth street, west		3	57
Cuthbert street, from 3 feet west of west house line of Fifteenth street, west		3	28
Cuthbert street, from 2 feet east of east house line of Sixteenth street, west		3	54
Cuthbert street, from centre of Nineteenth street, west.....		3	29

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe taken up—Continued.</i>			
Davenport street, from centre of Eighth street, west.....		1½	29
Dean street, from Pine to Spruce streets		4	527
Dorsey street, from 7 feet 3 inches east of east house line of Juniper street, west		3	21
Eleventh street, east side, north house line of Spruce street (meter connection).....		3	9
Fairfield street, from Twenty-first to Twenty-second street		3	446
Fifty-second street, from 36 feet 2 inches south of south house line of Wyulusing avenue, north.....		6	41
Franklin street, from centre of Race street, north.....		4	18
Franklin street, from 4 feet north of centre of Vine street, north.....		4	3
Grace street, from 2 feet east of east house line of Seventeenth street, west		3	27
Grubb street, from 2 feet 10 inches east of east house line of Juniper street, west		4	17
Harmstead street, from centre of Nineteenth street west		3	28
Heins street, from Twelfth to Thirteenth streets.....		3	452
Howell street, from centre of Nineteenth street, west.....		3	29
Hunter's row, from Eleventh to Quince streets.....		3	223
Iseminger street, from centre of Heins street, north.....		3	13
Jones street, from 4 feet east of east house line of Nineteenth street, west		3	29
Kingston street, from Thirteenth street to Juniper street..		3	292
Lambert street, from 2 feet west of west house line of Thirteenth street, west		3	27
Landreth street, from 2 feet east of east house line of Thirteenth street, west.....		3	27
Lardner street, from Broad to Fifteenth streets.....		3	439
Lyndall alley, from centre of Twelfth street, west.....		3	25
Marble court, from 190 feet south of south house line of Walnut street, north.		3	249
Mark's lane, from centre of Eleventh street, west		3	29
Miles street, from 5 feet east of west curb line of Tenth street, west		3	20
Naudain street, from 3 feet east of east house line of Nineteenth street, west		3	56
Orange street, from 4 feet east of east house line of Eighth street, west.....		3	29
Powell street, from centre of Fifth street, west		3	28
Powell street, from 3 feet east of east house line of Sixth street, west.....		3	28
Pryor's court, from 3 feet 6 inches east of east house line of Raspberry alley, west.....		3	14
Pryor's court, from centre of Raspberry alley, west.....		3	13
Pryor's court, from 2 feet east of east house line of Tenth street, west.....		3	35

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe taken up—Continued.</i>			
Quince street, west side, 149 feet north of north house line of Pine street, private supply connection		4	9
Ralston street, from 6 feet 7 inches east of east house line of Juniper street, west		3	21
Raspberry alley, from centre of Spruce street to 11 feet north of centre of Locust street.....		3	453
Rodman street, from 3 feet 8 inches east of east house line of Juniper street, west.....		3	34
Rodman street, from 2 feet east of east house line of Broad street, west.....		4	28
Sansom street, from 3 feet east of west curb line of Broad street, west.....		4	29
Sansom street, from 308 feet 4 inches east of east house line of Thirty-sixth street, west.....		4	339
Sheaff street, from 4 feet east of east house line of Twelfth street, west.....		4	29
Steadman street, from 3 feet east of east house line of Twelfth street, west.....		3	55
Steadman street, from 3 feet east of east house line of Thirteenth street, west.....		3	28
Thirty-second street, from Chancellor to Sansom streets ...		4	449
Truxton street, from centre of Heins street, north.....		3	12
Twenty-third street, from 2 feet south of south house line of Walnut street, north		6	64
Vaughn street, from Locust to Walnut streets		3	416
Walnut street, from 3 feet east of east house line of Twenty-third street, west		6	199
Walnut street, from Thirty-second street, west.....		6	247
Wilcox street, from centre of Nineteenth street, west.....		3	29
Winifred street, from Carman to Eighth streets		3	192
Winslow street, from centre of Twelfth street, west.....		3	29
Winslow street, from 2 feet east of east house line of Thirteenth street, west		3	54
Woodland avenue, from 7 feet east of east house line of Forty-second street, west		6	196
Total			8,511
Fire hydrant connections taken up		3	181
“ “ “ “ “		4	973
“ “ “ “ “		6	142
Total			1,296
<i>Pipe lowered.</i>			
Arrison street, from 24 feet west of west house line of Fifteenth street, west.....		3	7

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe lowered—Continued.</i>			
Greenway avenue, from 137 feet east of east house line of Sixty-seventh street, west		6	137
Twenty-fourth street, from 75 feet south of south house line of Walnut street, north.....		6	150
Walnut street, from east house line of Twenty-fourth street, west.....		6	60
Total			354
<i>Pipe raised.</i>			
Twenty-third street, from 120 feet south of south house line of Walnut street, north		6	118
Twenty-third street, from 37 feet north of centre of Walnut street, north.....		6	106
Walnut street, from 74 feet east of east house line of Twenty-third street, west.....		6	71
Walnut street, from 217 feet west of west curb line of Thirty-second street, west.....		6	145
Woodland avenue, from west house line of Fifty-eighth street, west.....		12	886
Woodland avenue, from 116 feet west of west house line of Sixtieth street, west.....		12	1,079
Total			2,405
Fire hydrant connections raised.....		6	46
<i>Pipe cut off and abandoned.</i>			
Budden's alley, from 174 feet east of east house line of Twelfth street, west		3	18
Cope street, from centre of Walnut street, north.....		6	33
Franklin street, from Race to Vine streets.....		4	676
Jones street, from Sixteenth to Eighteenth streets.....		3	892
Walnut street, from east house line of Twenty-fourth street, west		6	465
Woodland avenue, from 189 feet west of east house line of Forty-second street to 10 feet west of west house line of Forty-fifth street.....		6	681
Total			2,765
Fire hydrant connections cut off and abandoned.....		3	89
" " " " " " "		4	488
" " " " " " "		6	53
Total			630

RECAPITULATION OF SECOND DISTRICT.

Purposes for which used.	Size—Inches.										Total in feet and pounds.			
	1 1/2													
	3	4	6	8	10	12	16	20						
New pipe or feet added.	Service mains.....			20,619					1,266	838			22,723	
	Fire-hydrant connections.....			1,774									1,774	
	Meter inspection connections.....			50									50	
	Fire connections (private).....	9	54	16									70	
	Supply connections (private).....		58	60									118	
	Drains.....			16									16	
	Total { Feet.....	9	112	22,575		1,266	838						21,800	
	{ Pounds.....	135	2,125	744,975		69,650	60,336						877,204	
	Pipe used, but adding nothing to feet in the ground.	Pipe relaid.....			10,190						877			10,997
		Repairs general.....		25	804	41	203				131	16	6	1,328
Pipe taken up.....		29	6,155	2,734									9,807	
Pipe lowered.....			7	347									354	
Pipe raised.....				486						1,965			2,451	
Total { Feet.....		29	6,174	2,759	41	203	2,973	16	6				24,957	
{ Pounds.....		203	92,610	52,421	1,722	11,165	214,056	1,760	954				795,179	
Total handled { Feet.....			29	6,183	35,311	41	1,469	3,811	16	6				49,787
		{ Pounds.....	203	92,745	1,165,263	1,722	89,795	274,392	1,760	954				1,672,383
Pipe cut off and abandoned.....			999	1,164	1,232									3,395

THIRD DISTRICT.

Comprising the Eleventh, Twelfth, Sixteenth, Seventeenth, Eighteenth, Nineteenth, Twenty-third, Twenty-fifth, and part of the Thirty-third Word.

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service Mains.</i>			
American street, from 164 feet south of centre of Indiana avenue to northeast house line of Gurney.....		6	481
Arrott street, from dead end northwest house line of P street to northwest house line of Castor road.....		6	311
Bermuda street from Margareta to Tucker streets.....		6	662
Butler street, from centre of Turner street, west.....		6	25
Carrie street, from southwest house line of Kirkbride, northeast.....		6	20
Castor road, from southwest house line of Arrott street, northeast.....		6	50
Clearfield street, from 12 feet 6 inches southeast house line of Lambert street, northwest.....		6	38
Clearfield street, from dead end, 150 feet northwest of northwest house line of Jasper to dead end southeast house line of Ruth.....		6	181
Clearfield street, from dead end, northwest house line of Ruth to Kensington avenue.....		6	142
Clearfield street, from centre of Leithgow, west.....		6	13
Clearfield street, from east house line of Fairhill to centre of Sixth.....		6	212
Clifton street, from dead end, 8 feet 9 inches southwest of southwest house line of Westmoreland, northeast.....		6	9
Como street, from Eighth to Ninth streets.....		6	280
Coral street, from Wheatsheaf lane to Vici street.....		6	451
Crooked place, from 24 feet 7 inches east of centre of New Market street, west.....		6	25
Culvert street, from centre of Waln street, northwest.....		6	16
Eighth street from Cambria to Indiana streets.....		6	525
Ella street, from centre of Ontario street, north.....		6	13
Eric avenue, from east to west house line of Turner street		6	50
Fairhill street, from 3 feet south of north house line of Westmoreland to southeast house line of Glenwood,		6	211
Fairhill street, from centre of Clearfield street, north.....		6	25
Fillmore street, from Tusculum to Indiana.....		6	512
Fisher street, from southwest house line of Wellington, northeast.....		6	15
Foust street, from centre of Tacony road, northwest.....		6	20
Franklin street, from Somerset to Indiana.....		6	1,102
Franklin street, from southwest house line of Ruan, northeast.....		6	27
Fremont street, from centre of Almond to southeast house line of Spring.....		6	145
Fremont street, from southeast line of Walker to Gaul.....		6	189
"G" street, from centre of Kensington avenue to 32 feet north of south house line of Allegheny avenue.....		6	540

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service Mains—Continued.</i>			
Geyer street, from centre of Kirkbride, northeast.....		6	20
Glenwood avenue from dead end, east house line of Sixth street, northeast to connect dead end.....		6	243
Green street, from 20 feet southeast of northwest house line of Kensington avenue, northwest.....		6	22
Gurney street, from 100 feet 7 inches southeast of centre of Somerset, northwest.....		6	216
Gurney street, from centre of Leamy, northwest.....		6	31
Gurney street, from west house line of Mascher to east house line of Mutter.....		6	99
Harper street from southwest house line of Ruan, northeast.....		6	21
Hockley street, from Montgomery to Vienna.....		6	368
Homestead street, from 308 feet southeast of southeast house line of Tacony road, northwest.....		6	338
Hope street, from 5 feet south of north house line of Westmoreland, north to dead end.....		6	154
Horrock's street, from southwest house line of Arrott, northeast.....		6	50
Howell street, from dead end, northeast house line of Kirkbride to dead end, southwest house line of Church.....		6	444
Hutchinson street, from centre of Indiana avenue to south curb line of Clearfield.....		6	537
Indiana avenue, from east house line of Mutter, to dead end, east house line of Second.....		6	367
Indiana avenue, from east house line of Eighth to 39 feet west of east house line of Tenth.....		6	766
Irving street, from southeast house line of Howell street, northwest.....		6	20
Irving street, from 27 feet southeast of centre of Thompson, northwest.....		6	27
Juliana street, from 25 feet north of south house line of Callowhill street, north.....		6	50
Kipp street, from centre of Ontario to 18 feet north of south house line of Tioga.....		6	543
Kirkbride street, from south east line of Geyer, northwest to dead end.....		6	65
Lambert street, from centre of Clearfield, northeast.....		6	30
Lambert street, from southwest house line of Jenks, northeast.....		6	20
Lambrecht street, from west house line of Fifth street, to Fairhill.....		6	352
Large street, from west house line of Arrott, northeast.....		6	50
Lawrence street, from 135 feet south of south house line of Venango, north.....		6	185
Leamy street, from Lehigh avenue to Gurney street.....		6	350
Leamy street, from centre of Indiana avenue, north.....		6	165
Leithgow street, from centre of Thayer, north.....		6	15

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service Mains—Continued.</i>			
Leithgow street, from centre of Clearfield, north.....		6	25
Mill street, from Orchard to Paul.....		6	238
Monmouth street, from northwest curb line of Amber to Frankford road.....		6	448
Mutter street, from dead end, south curb line of Indiana avenue, north		6	13
Ninth street, from dead end, 12 feet north of south house line of Indiana, north		6	43
Oakland street from southwest house line of Arrott, north-east		6	50
Ontario street, from 7 feet west of east house line of Kipp to 7 feet west of west house line of Ella.....		6	220
Onyx street, from Jenks, northeast.....		6	21
Ormes street, from dead end 13 feet south of north house line of Indiana avenue, north		6	158
P street, from centre of Arrot, northeast.....		6	25
Palethorp street, from dead end 100 feet north of north house line of Cambria to Indiana.....		6	425
Penn street, from dead end south west curb line of Wake-ling to Dyre.....		6	502
Percy street, from centre of Indiana avenue, north.....		6	25
Philip street, from Indiana avenue to Gurney.....		6	250
Philip street, from dead end 440 feet south of south house line of Ontario, north		6	300
Philip street, from dead end, north house line of Ontario to dead end, south house line of Tioga.....		6	500
Reese street, from Lambrecht to Glenwood		6	228
Richfield street, from Marshall to Seventh.....		6	235
Rosehill street, from Indiana to Clearfield.....		6	550
Ruan street, from northwest house line of Frankford avenue to Penn.....		6	670
Ruth street, from 324 feet southwest of southwest house line of Orleans, northeast.....		6	349
Sepviva street, from 410 feet south of centre of Venango, north.....		6	410
Seventh street, from Somerset to Cambria.....		6	551
Somerset street, from Gurney to Fillmore.....		6	306
Somerset street, from centre of Gurney, northeast		6	61
Spring street, from 20 feet southwest of centre of Waln, northeast		0	20
Stanton street, from centre of Clearfield, northeast		6	30
Tacony road, from dead end 83 feet southwest of south-west house line of Foust to centre of Benner		12	1,966
Tenth street, from Indiana to south curb line of Clear-field		6	537
Thayer street, from Fourth to Lawrence.....		6	266
Thompson street, from centre of Kirkbride, to dead end southwest house line of Church.....		10	520
Tivoli street, from Eighth to Ninth streets		6	279

Street.	Location.	Sizes in inches.	Distances in feet.
<i>Service Mains—Continued.</i>			
Trenton avenue, southeast side, from 100 feet southwest of southwest house line Clearfield northeast.....		6	130
Turner street, from centre of Butler, north		6	25
Van Kirk street, from centre of Tacony road, northwest..		6	25
Vici street, from Coral to Frankford avenue.....		6	331
Walker street, from 300 feet southwest of southwest house line of Lehigh avenue, northeast		6	327
Walker street, from southwest house line of Fremont, northeast		6	30
Waln street, from dead end 22 feet south of northwest house line of Spring to Unity.....		6	341
Westmoreland street, from southeast house line of Trenton avenue, northwest to dead end.....		6	81
Willow street, from centre of Second street, west.....		6	28
Willow street, from centre of Third street, west.....		6	27
Wood street, from dead end east house line of Third street, west to connect dead end.....		6	48
York avenue, from 25 feet north of south house line of Callowhill street, north.....		6	50
Total			23,502
<i>Service Main Connections.</i>			
Sixth and Wood streets, between 6 and 10 inch mains on Sixth street		6	16
Sixth and Noble streets, between 6 and 10 inch mains on Sixth street		6	13
Sixth and Buttonwood streets, between 6 and 10 inch mains on Sixth street.....		6	11
Sixth and Green streets, between 6 and 10 inch mains on Sixth street		6	8
Sixth and Brown streets, between 6 and 10 inch mains on Sixth street.....		6	12
Total			60
Fire hydrant connections		6	1,556
<i>Fire Connections (private).</i>			
Front street, west side, 70 feet north of north house line of Margaretta, for Philadelphia and Reading Railroad..		4	19
Hancock street, east side, 131 feet north of north house line of Lehigh avenue, for Star and Crescent Mills...		6	18

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Fire Connections (private)</i> —Continued.			
Lehigh avenue, north side, 50 feet west of west house line of Fourth, for Horner Bros.....		6	26
Orchard street, northwest side, 358 feet southwest of southwest house line of Tacony road, for Bromly and Burns		4	16
Total			79
<i>Supply Connections (private).</i>			
Clearfield street, south side, 52 feet 9 inches east of east house line of Sixth street, for J. Manz Brewing Co..		3	15
Coral street, southeast side, 176 feet 6 inches, northeast of northeast house line of Wheatstreet lane, for R. Forderer		4	11
Edward street, northwest side, 153 feet southwest of southwest house line of Hancock street, for C. Schmidt Brewery.....		4	17
Indiana avenue, south side, 80 feet 9 inches, west of west house line of Fillmore, for Hoyle, Harrison and Kay.		4	17
Susquehanna avenue, north side, 56 feet west of west house line of Philip street, for Northern Electric Light Co.		4	20
Total			80
<i>Drains.</i>			
Lehigh avenue, 28 feet east of west house line of Third street, from 36 inch main.		6	12
Sixth street, east side, 91 feet north of north house line of Willow street, from 10 inch main.....		4	18
Willow street, 5 feet east of west house line of Third street, from 6 inch main.....		6	9
Total.....			39
<i>Pipe Relaid.</i>			
Callowhill street, south side, from Fourth to Sixth streets...		6	894
Crown street, from south house line of Callowhill street, north		6	25
Dana street, from east curb line of New Market to Second streets.....		6	315
Davis street, from 2 feet 10 inches east of east house line of Mascher street, west.....		6	53
Fox street, from 14 feet 10 inches southeast of centre of Tulip street, northwest.....		6	37

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe relaid—Continued.</i>			
Jackson street, from southeast house line of Tulip street, northwest.....		6	20
Jackson street, from centre of Tulip street, northwest.....		6	29
Julia street, from Fairmount avenue to Brown street.....		6	384
Juliana street, from south house line of Callowhill street, north.....		6	25
Margaretta street, from southwest curb line of Cherry, northwest.....		12	36
Onas street, from Front to New Market streets.....		6	404
Parrish street, from Fifth to Sixth streets.....		6	473
Pegg street, from Centre of Second street, northeast.....		6	30
Pepper street, from southeast house line of Tulip street, northwest.....		6	14
Pepper street, from 23 feet southeast of northwest house line of Tulip street, northwest.....		6	23
Randolph street, from south house line of Parrish street, north.....		6	43
Tucker street, from southeast house line of Tulip street, northwest.....		6	14
Tucker street, from centre of Tulip street, northwest.....		6	26.
Wood street, from 5 feet east of east house line of Sixth street, west.....		6	23
York avenue, from south house line of Callowhill street, northwest.....		6	28
Total.....			2,896
Fire hydrant connections relaid.....		6	635
Repairs, general.....		4	16
Repairs, general.....		6	628
Repairs, general.....		10	115
Repairs, general.....		12	13
Total.....			772

Pipe Taken Up.

Callowhill street, south side, from 10 feet east of east house line of Fifth street, west.....	4	70
Callowhill street, south side, from 20 feet east of east house line of Sixth street, west.....	4	34
Crown street, from south house line of Callowhill street, north.....	3	25
Dana street, from east curb line of New Market street to Second street.....	4	317

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe taken up.—Continued.</i>			
Davis street, from 2 feet 10 inches east of east house line of Mascher street, west		4	53
Fox street, from 14 feet 10 inches southeast of centre of Tulip street, north west.....		4	36
Jackson street, from southeast house line of Tulip street northwest		4	20
Jackson street, from centre of Tulip street, northwest.....		4	29
Julia street, from centre of Fairmount avenue, north.....		4	25
Julia street, from south house line of Brown street, north..		4	25
Juliana street, from south house line of Callowhill street, north		4	25
Margaretta street, from southwest curb line of Cherry, northwest.....		6	36
Onas street, from centre of Front street, west.....		4	40
Onas street, from 12 feet east of east house line of New Market street, west.....		4	36
Parrish street, from centre of Fifth street, west.....		4	36
Parrish street, from 27 feet east of east house line of Randolph street, west.....		4	69
Parrish street, from 54 feet east of east house line of Sixth street, west		4	72
Pegg street, from 8 feet southwest of east house line of Second street, northeast.....		4	8
Pepper street, from southeast house line of Tulip street, northwest.....		4	14
Pepper street, from 23 feet southeast of northwest house line of Tulip street, northwest.....		4	23
Randolph street, from south house line of Parrish street, north.....		4	42
Sixth street, east side, 14 feet north of south house line of Clearfield (private supply connection).....		3	15
Susquehanna avenue wharf (Old Pumping Station), south side, from 47 feet 6 inches west of east end of wharf, west.....		30	53
Susquehanna avenue wharf (Old Pumping Station), north side, from 47 feet 6 inches west of east end of wharf, west.....		36	58
Tucker street, from southeast house line of Tulip street, northwest		4	14
Tucker street, from centre of Tulip street, northwest.....		4	26
Wood street, from 5 feet east of east house line of Sixth street, west		4	22
York avenue, from south house line of Callowhill, northwest		4	28
Total			1,256

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe taken up—Continued.</i>			
Fire hydrant connections taken up.....		4	109
“ “ “ “ “ “		6	57
Total			166
<i>Pipe Lowered.</i>			
James street, from 250 feet northeast of northeast house line of Orthodox street, to Margarett street		6	289
Keystone street, from 290 feet southwest of southwest house line of Washington, northeast (property of Tacony Water Co.).....		4	550
Orthodox street, from 84 feet northwest of northwest house line of James to southeast house line of Worth		6	342
Worth street, from centre of Margarett street, northeast.		6	85
Total			1,266
<i>Pipe Cut Off and Abandoned.</i>			
Callowhill street, south side, from Fourth street to 10 feet east of east house line of Fifth street.....		4	425
Callowhill street, south side, from 10 feet west of west house line of Fifth street to 20 feet east of east house line of Sixth.....		4	364
Julia street, from north house line of Fairmount avenue to south house line of Brown.....		4	334
Onas street, from 10 feet west of west house line of Front street to 12 feet east of east house line of New Market street		4	328
Parrish street, from 6 feet west of west house line of Fifth street to 27 feet east of east house line of Randolph street		4	111
Parrish street, from 12 feet west of west house line of Randolph street, west.....		4	186
Pegg street, from Second street, northeast.....		4	22
Total			1,770
Fire hydrant connections cut off and abandoned		4	399
“ “ “ “ “ “		6	19
Total			418

Recapitulation of Third District.

Purposes for which used.	Size—Inches.							Total in feet and pounds.
	3	4	6	10	12	30	36	
Service mains.....			21,016	520	1,966			23,502
Service main connections.....			60					60
Fire hydrant connections.....			1,556					1,556
Fire connections, (private).....		35	44					79
Supply connections, (private).....	15	65						80
Drains.....	18		21					39
Total { Feet.....	15	118	22,697	570	1,966			25,316
{ Pounds.....	225	2,242	719,001	28,600	141,552			921,020
Pipe relaid.....			3,495		36			3,531
Repairs general.....		16	628	115	13			772
Pipe taken up.....	40	1,173	93			58		1,422
Pipe lowered.....		550	716					1,266
Total { Feet.....	40	1,739	4,932	115	49	58		6,991
{ Pounds.....	600	83,041	162,706	6,325	3,328	19,256	24,476	219,982
Total handled { Feet.....	55	1,857	27,629	655	2,015	58	58	82,307
{ Pounds.....	825	35,283	911,757	31,925	145,080	19,256	24,476	1,171,602
Pipe cut off and abandoned.....		2,169	19					2,188

FOURTH DISTRICT.

Comprising the Thirteenth, Fourteenth, Fifteenth, Twentieth, Twenty-ninth, Thirty-second, and part of the Twenty-eighth Ward.

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service Mains.</i>			
Alder street, from 3 feet south of south house line of Thompson street, north		6	21
Allegheny avenue, north side, from Germantown avenue, to dead end east house line of Broad street		6	1,268
Allegheny avenue, north side, from dead end 433 feet west of east house line of Twentieth street, west to connect dead end		6	75
Amity street, from Stiles to Thompson streets		6	297
Bancroft street, from Cumberland to dead end south house line of Huntingdon street		6	526
Bancroft street, from dead end north house line of Huntingdon to 12 feet north of south house line of Lehigh avenue		6	542
Bancroft street, from south house line of Clearfield, north to dead end		6	24
Bergdoll street, from dead end south house line of Parrish street, north		6	24
Berks street, from 5 feet 6 inches east of east house line of Park avenue west		6	36
Berks street, from east house line of Thirty-first street, west		6	51
Berks street, from east house line of Thirty-second street, west		6	50
Bucknell street, from Parrish to Poplar		6	455
Camac street, from centre of Sedgely avenue, north		6	14
Carlisle street, from Rush street, north		6	17
Clearfield street, from Sedgely avenue, to dead end 43 feet west of east house line of Thirteenth		6	93
Clearfield street, from Bancroft street to Seventeenth street		6	286
Cleveland avenue, from York street to south house line of Cumberland street		6	525
Cumberland street, from 1 foot 6 inches east of east house line of Twentieth street, west		6	27
Darien street, from dead end south house line of Thompson street, north to connect		6	18
Dean street, from dead end 1 foot 6 inches north of south house line of York street, north to connect		6	28
Diamond street, south side, from centre of Twenty-third street, west		6	25
Diamond street, south side, from Ridge avenue to dead end, east house line of Thirty-first street		6	397
Diamond street, north side, from Ridge avenue, to dead end east house line of Thirty-first		6	312
Diamond street, south side, from east to west house line of Thirty-second		6	53

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service Mains—Continued.</i>			
Dover street, from York to 12 feet north of south house line of Cumberland.....		6	537
Fawn street, from dead end 4 feet north of south house line of York street, north.....		6	23
Fifteenth street, west side, from north house line of Mundell to southeast house line of Glenwood street.....		6	120
Firth street, from centre of Maple street west.....		6	19
Firth street, from east house line of Sixteenth, west.....		6	25
Fleetwood street, from 3 feet south of south house line of Thompson street, north.....		6	18
Fontain street, from dead end 20 feet east of centre of Twenty-third street, west to connect.....		6	20
Fontain street, from Thirtieth to Thirty-first streets.....		6	450
Fontain street, from dead end, west house line of Thirty-first street, to west house line of Thirty-second street.....		6	450
Fox street, from 12 feet east of west house line of Fifteenth street, to dead end 7 feet west of east house line of Philadelphia street.....		6	196
Glenwood avenue, from east house line of Sixteenth street southwest.....		6	61
Glenwood avenue, from southwest house line of Twentieth street, northeast.....		10	53
Harrold street, from 13 feet east of centre of Thirty-fourth street, west.....		6	13
Hollingee street, from Thomazine street to dead end 8 feet north of south house line of Columbia avenue.....		6	252
Hutchinson street, from south house line of Thompson street, north.....		6	17
Indiana avenue, from west house line of Twenty-first street to dead end 6 feet west of east house line of Twenty-second street.....		6	407
Knox street, from dead end south house line of Parrish street, north.....		6	24
Lambert street, from Dauphin to York streets.....		6	552
Lehigh avenue, south side, from east house line of Sixteenth street, west.....		6	50
Lehigh avenue, north side, from east house line of Sixteenth street, west.....		6	50
Lehigh avenue, south side, from east house line of Bancroft street, west.....		6	33
Lehigh avenue, south side, from east house line of Wilmington street, west.....		6	33
Lehigh avenue, south side, from east house line of Thirty-fourth street, west.....		6	56
Lisbon street, from south house line of Clearfield street, north to dead end.....		6	51
Logan avenue, from Park avenue to Broad street.....		6	328
Master street, from dead end, east house line of Thirty-third street, west to connect.....		6	15

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service mains—Continued.</i>			
Mervine street, from 1 foot 6 inches south of south house line of Thompson, north.....		6	19
Montgomery avenue, from east house line of Thirty-first street, west to dead end.....		6	45
Morse street, from centre of Thirty-first street, west.....		6	25
Mundell street, from dead end 12 feet 6 inches northeast of centre of Sixteenth street, southwest.....		6	12
Norris street, from east house line of Thirty-first street to 46 feet 3 inches west of east house line of Thirty-second.....		6	500
Olive street, from two feet east of east house line of Nineteenth street, west.....		6	29
Ontario street, from dead end north house line of Girard avenue to Thompson street.....		6	576
Ontario street, from Logan to Cambria streets.....		6	357
Page street, from dead end 24 feet east of east house line of Twenty-third street, west to connect.....		6	24
Page street, from dead end, west house line of Thirty-first street, west.....		6	76
Page street, from east house line of Thirty-second street, west.....		6	51
Parrish street, from 14 feet west of west house line of Ninth street, west.....		6	42
Parrish street, from Twenty-eighth street to west curb line of Bergdoll street.....		6	158
Pennock street, from Swain to Brown streets.....		6	147
Percy street, from south house line of Thompson street, north.....		6	18
Prospect street, from 6 inch main 17 feet 6 inches south of north house line of Thompson street, north.....		6	18
Rush street, from dead end, west house line of Broad street to Fifteenth street.....		6	421
Rush street, from west house line of Twenty-first street to dead end 5 feet ten inches west of east house line of Twenty-second.....		6	406
Sedgley avenue, from west house line of Thirteenth street to 14 feet 6 inches northeast of southwest house line of Germantown avenue.....	10		880
Sedgley avenue, from 14 feet 6 inches northeast of southwest house line of Germantown avenue, northeast.....	6		15
Sedgley avenue, from York street to dead end west house line of Twenty-second street.....	8		820
Seventeenth street, from dead end 390 feet north of north house line of Huntingdon to 6 feet 6 inches north of south house line of Lehigh avenue.....	6		137
Seventeenth street, from south house line of Clearfield street north to dead end.....	6		51
Sixteenth street, from 18 feet 4 inches north of south house line of Thompson street, north.....	6		30

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service mains—Continued.</i>			
Sixteenth street, from Cumberland to dead end 12 feet north of south house line of Huntingdon street.....		6	541
Sixteenth street, from dead end north house line of Huntingdon to Glenwood.....		6	937
Somerville street, from 331 feet east of east house line of Twenty-seventh street, west.....		6	381
Stiles street, from 49 feet east of west house line of Broad street, west.....		6	42
Stiles street, from east house line of Carlisle street, west, Susquehanna avenue, north side, from Twentieth street to dead end 78 feet 6 inches west of west house line of Van Pelt street.....		6	20
Taney street, from northeast house line of Pennsylvania avenue to Brown street.....		6	864
Thirteenth street, from 17 feet 8 inches north of southeast house line of Sedgley avenue, north.....		6	753
Thirteenth street, from Clearfield to dead end south house line of Allegheny avenue.		6	13
Thirteenth street, from two feet south of south curb line of Allegheny avenue, north		6	526
Thirteenth street, from 6 feet 6 inches north of north curb line of Allegheny avenue, north.....		6	60
Thirtieth street, from south house line of Fontain street, north.....		6	6
Thirty-first street, from dead end, north house line of Clifford street to north house line of Norris street...		6	35
Thirty-fourth street, from Huntingdon to 12 feet north of south house line of Lehigh avenue		6	1,393
Thirty-second street, from 58 feet 3 inches south of north house line of Montgomery avenue, to 4 feet south of south curb line of Diamond street.....		6	556
Thirty-third street, from dead end, 18 feet south of south house line of Master street, north to connect.....		6	1,673
Thomas avenue, from south house line of Huntingdon street, north to dead end.....		6	44
Thomas avenue, from dead end 13 feet north of centre of Huntingdon avenue, north		6	12
Thomas avenue, north side, from dead end east house line of Ninth street, west to connect.....		6	12
Thomazine street, from Hollingee street, to dead end 13 feet 10 inches west of east house line of Thirty-second street.....		6	70
Twelfth street, from dead end 12 feet south of south house line of York street, north to connect.....		6	181
Twelfth street, from Sedgely avenue to 10 feet 6 inches south of south house line of Allegheny avenue.....		6	124
Twentieth street, from 25 feet south of north house line of York street to Glenwood avenue.....		8	293
			689

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service mains—Continued.</i>			
Twentieth street, from 11 feet south of south curb line of Allegheny avenue north to connect dead end.....		6	56
Twenty-ninth-and-one-half street, from 8 feet south of north house line of Columbia avenue to 14 feet 6 inches north of southeast house line of Glenwood avenue.....		6	350
Twenty-ninth street, from dead end north house line of Columbia avenue, north.....		6	509
Twenty-seventh street, from dead end 13 feet 3 inches south of north house line of Lehigh avenue to 1 foot south of north house line of Somerville.....		6	161
Twenty-third street, from Norris street to 9 feet north of south house line of Diamond street.....		6	540
Twenty-third street, from Sedgely avenue, north to dead end.....		6	55
Wilmington street, from Cumberland street, to dead end 12 feet north of south house line of Huntingdon.....		6	539
Wilmington street, from dead end, 13 feet north of centre of Huntingdon street to 3 feet south of south curb line of Lehigh avenue.....		6	547
Willow street, from Ridge avenue, west.....		6	42
Woodstock street, from Dauphin street to York.....		6	556
York street, from 15 feet east of east house line of Twelfth street to Thirteenth street.....		12	496
Total.....			26,754
<i>Supply Mains.</i>			
Fairmount avenue, from 3 feet west of east house line of Sixteenth street to dead end 11 feet 6 inches east of west house line of west Twenty-second street.....		30	2,906
Parrish street, from west house line of Twenty-second to 19 feet 6 inches west of east house line of Twenty-sixth street.....		30	1,657
Thompson street, from Twenty-sixth street to 76 feet west of west house line of Taney street.....		36	339
Twenty-sixth street, from Parrish street to south house line of Thompson street.....		36	1,558
Cumberland street, from Broad to Thirteenth streets.....	}	30	1,731
Thirteenth street, from Cumberland street to Lehigh avenue.....			
Coffman street, from Broad street to Park avenue.....	}	12	794
Park avenue, from Lehigh avenue to Collman street.....			
Total.....			8,745
The above supply mains were laid for the Philadelphia and Reading Terminal Railroad Company on account of depressing tracks at Broad street and Lehigh avenue.			

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pumping Mains.</i>			
Spring Garden Station, from No. 5 Engine-House to a point 128 feet northeast of front of pumping station, thence northwest across Philadelphia and Reading Railroad to a dead end 293 feet 6 inches west of east house line of Thirty-third street and 88 feet north of north side of railroad		48	521
<i>Service Main Connections.</i>			
Broad and Coffmann streets, between 12-inch main on Broad street and 6-inch main on Coffman street		6	8
Broad street and Ridge avenue, between 12-inch main on Broad street and 6-inch main on Ridge avenue		6	14
Eleventh street and Ridge avenue, 14 feet south of south house line of Hamilton street, between 10-inch main on Eleventh street and 6-inch main on Ridge avenue		6	16
Total			38
<i>Supply Main Connections.</i>			
Cumberland and Thirteenth streets, between 30-inch main on Cumberland street and 6-inch main on Thirteenth street		10	24
Fairmount avenue and Sixteenth street, between 30-inch main on south side of Fairmount avenue and 20-inch main on east side of Sixteenth street		20	19
Fairmount avenue and Seventeenth street, between 30-inch main on south side of Fairmount avenue and 6-inch main on Seventeenth street		10	15
Fairmount avenue and Eighteenth street, between 30-inch main on south side of Fairmount avenue and 6-inch main on Eighteenth street		10	8
Fairmount avenue and Nineteenth street, between 30-inch main on south side of Fairmount avenue and 10-inch main on Nineteenth street		12	11
Green street, from Twenty-fourth to Twenty-fifth streets...		48	429
Parrish and Twenty-fourth streets, between 30-inch main on north side of Parrish and 6-inch main on Twenty-fourth street		10	8
Parrish and Twenty-fifth streets, between 30-inch main on north side of Parrish and 6-inch main on Twenty-fifth street		10	11
Parrish and Twenty-sixth streets, between 30- and 6-inch mains on Parrish street		10	7
Thirteenth street, from 15 feet south of northeast property line of Philadelphia and Reading Railroad, between 30-inch and 6-inch mains on Thirteenth street		6	18

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Supply main connections—Continued.</i>			
Thirteenth and Huntingdon streets, between 30-inch main on Thirteenth street and 6-inch main on Huntingdon street		10	9
Thompson street, 69 feet east of east house line of Twenty-seventh, between 20-inch main 21 feet north of south house line of Thompson and 30-inch main 35 feet north of south house line of Thompson.....		20	59
Thompson street, north side, 79 feet east of east house line of Twenty-seventh street, between 18-inch main 31 feet north of south house line of Thompson and 30-inch main 35 feet north of south house line of Thompson street.....		20	31
Thompson street, 79 feet east of east house line of Twenty-seventh street, between 18-inch main 29 feet north of south house line of Thompson and 30-inch main 35 feet north of south house line of Thompson.....		18	17
Thompson street, 145 feet east of east house line of Twenty-seventh street, between 36-inch main 21 feet north of south house line of Thompson, and 30-inch main 35 feet north of south house line of Thompson street.....		20	19
Thompson street, 145 feet east of east house line of Twenty-seventh street, between 36-inch main 21 feet north of south house line of Thompson, and 30-inch main 35 feet north of south house line of Thompson street.....		30	15
Twenty-sixth street and Girard avenue, between 36-inch main on Twenty-sixth street and 10-inch main on Girard avenue.....		12	14
Twenty-sixth street and Thompson street, between 36 inch main on Twenty-sixth street (1 foot 5 inches north of south house line of Thompson street) and 6-inch main on Thompson street.....		10	20
Total.....			734
<i>Pumping Main Connections.</i>			
Spring Garden Station, from No. 5 Pumping main 85 feet northeast of north front of No. 8 Engine House to No. 7 main.....		48	41
Spring Garden Station, from No. 5 Pumping main 128 feet northeast of north front of No. 8 Engine House to No. 10 main.....		36	73
Total.....			114
Fire hydrant connections.....		6	2,194

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Fire Connections (private).</i>			
Eighth street, west side, 39 feet 6 inches north of north house line of Dauphin street, for Wm. M. Singerly,		6	15
<i>Supply Connections (private).</i>			
Green street, north side, 118 feet west of west house line of Twenty-fourth street, for Fairmount Ice Co.....		4	15
Seventeenth street, west side, 33 feet 4 inches north of north house line of Pennsylvania avenue, for Baldwin Locomotive Works		4	7
Spring Garden street, north side, 168 feet west of west house line of Thirteenth street, for Board of Education		3	
Spring Garden street, south side, 89 feet 6 inches east of Twenty-fifth street, for Erben Search & Co.....		6	20
Twenty-first street, west side, 191 feet south of south house line of Spring Garden, for Wood and McGill.		6	0
West College avenue, from 16 inch outlet, southeast corner of Spring Garden Reservoir, 69 feet 6 inches north of south house line of Thompson street, south, to North College avenue, thence east on North College avenue to 103 feet 2 inches east of east house line of Twenty-fifth street, thence south 87 feet 6 inches, for Girard College.....		8	994
Wood street, south side, 26 feet west of west house line of Franklin street, for Hansell and Colladay.....		4	
Total.....			1,056

Drains.

Broad street, east side, from 234 feet south of south house line of Lehigh avenue, north (to connect sewer under road-bed of Philadelphia and Reading Railroad).....	36	172
Cumberland street, 11 feet 6 inches west of east house line of Park avenue, from 30 inch main.....	6	15
Fairmount avenue, 5 feet west of west house line of Sixteenth street, from 30 inch main.....	6	8
Fairmount avenue, 9 feet 6 inches east of west house line of Corinthian avenue, from 30 inch main	6	9
North College avenue, 15 feet west of east house line of West College avenue, from 8 inch supply connection to Girard College.....	8	14
Poplar street, 23 feet east of west house line of Broad street, from 6 inch main.....	6	6
Sedgely avenue, from 26 feet southwest of west house line of Thirtieth street, southwest from 48 inch main.....	6	58

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Drains—Continued.</i>			
Taney street, north house line of Meredith from, 6 inch main.....		6	6
Twenty-sixth street, northeast house line of Pennsylvania avenue, from 6 inch main.....		6	7
Total.....			295
<i>Pipe Relaid.</i>			
Alder street, from Poplar street to Girard avenue.....		6	683
Alder street, from 17 feet 6 inches south of north house line of Thompson street, north.....		6	18
Atmore street, from east house line of Broad street, west.....		6	23
Barclay street, from Broad to Fifteenth streets.....		6	483
Brandywine street, from east house line of Broad street, west.....		6	32
Brandywine street, from 58 feet east of west house line of Broad street, west.....		6	59
Broad street, east side, 172 feet north of north house line of Poplar street, to 7 feet north of south house line of Girard avenue.....		6	242
Cambridge street, from east house line of Corinthian avenue, west.....		6	41
Carlisle street, from Brown street, to 17 feet 8 inches north of south house line of Thompson street.....		6	1,951
Carlisle street, from 17 feet 6 inches south of north house line of Thompson street, to 18 feet north of south house line of Jefferson street.....		6	959
Columbia avenue, from 34 feet west of east house line of Broad street, west.....		12	33
Darien street, from south house line of Parrish street, north.....		6	52
Darien street, from Poplar to Girard avenue.....		6	867
Duane street, from south house line of Parrish street, north.....		6	26
Girard avenue, south side, from 36 feet west of east house line of Broad street west.....		6	47
Hamilton street, from northeast house line of Ridge avenue, west.....		6	38
Hutchinson street, from 17 feet 6 inches south of north house line of Thompson street, north.....		6	18
Inquirer street, from south house line of Parrish street, north.....		6	25
Irvine street, from Ridge avenue, west.....		6	34
Lehigh avenue, from 28 feet 6 inches west of east house line of Park avenue, west.....		12	13
Linden street, from Spring Garden street, north.....		6	30
Lorain street, from 2 feet 6 inches south of south house line of Spring Garden street, north.....		6	28

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe relaid—Continued.</i>			
Mervine street, from 19 feet 6 inches south of north house line of Thompson street, north.....		6	19
Myrtle street, from east house line of Ontario street, west..		6	20
Nectarine street, from Eighth street, west.....		6	35
Ogden street, from east house line of Ontario street, west..		6	22
Ogden street, from Carlisle street, west.....		6	20
Olive street, from east house line of Broad street, west....		6	35
Ontario street, from Parrish to Poplar streets.....		6	450
Ontario street, from 17 feet 6 inches south of north house line of Thompson street, north.....		6	18
Park avenue, from 17 feet 6 inches north of south house line of Thompson street, north.....		6	18
Parrish street, from 7 feet west of west house line of Twenty-second street, to 39 feet 5 inches west of west house line of Twenty-third street.....		6	317
Pearl street, from Twentieth to Twenty-first streets.....		6	533
Perth street, from 17 feet 6 inches south of north house line of Thompson street, north.....		6	18
Scott street, from east house line of Corinthian avenue, west.....		6	43
Sedgley avenue, from 14 feet 6 inches northeast of south-west house line of Germantown avenue, northeast....	10		18
Stiles street, from centre of Carlisle street, west.....		6	20
Thompson street, south side, from west house line of Franklin street to west house line of Seventeenth street.....		6	4,341
Thompson street, north side from 2 feet west of west house line of Franklin street to east house line of Ninth street.....		6	494
Thompson street, north side, from west house line of Ninth street to Tenth street.....		6	412
Thompson street, north side, from 31 feet east of west house line of Eleventh street to 34 feet west of east house line of Broad street.....		6	1,487
Thompson street, north side, from 33 feet 6 inches east of west house line of Broad street to west house line of Broad street to west house line of Seventeenth street		6	1,351
Thompson street, north side, from 141 feet west of east house line of West College avenue to 124 feet east of east house line of Twenty-seventh street.....		30	377
Torr street, from northeast house line of Ridge avenue, west.....		6	37
Warnock street, from 2 feet 10 inches south of south house line of Thompson street, north.....		6	20
Warnock street, from 17 feet 6 inches south of north house line of Thompson street, north.....		6	18
West College avenue, from 11 feet north of south house line of Thompson street, north.....		20	21
Willow street, from northeast house line of Ridge avenue, west.....		6	40

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe relaid—Continued.</i>			
Wood street, from 10 feet east of northeast house line of Ridge avenue, west.....		6	43
Total.....			15,934
<hr/>			
Fire hydrant connections relaid.....			206
<hr/>			
Repairs, general.....		4	5
Repairs, general.....		6	1,232
Repairs, general.....		10	95
Repairs, general.....		12	110
Repairs, general.....		20	15
Repairs, general.....		30	140
Repairs, general.....		36	53
Repairs, general.....		48	43
Total.....			1,693
<hr/>			
<i>Pipe Taken Up.</i>			
Alder street, from Poplar street to Girard avenue.....		4	683
Alder street, from 17 feet 6 inches south of north house line of Thompson street, north.....		4	14
Atmore street, from east house line of Broad street, west..		4	24
Barclay street, from 59 feet east of west house line of Broad street, west.....		4	358
Brandywine street, from east house line of Broad street, west		4	33
Brandywine street, from 58 feet east of west house line of Broad street, west.....		4	79
Broad street, from 14 feet 4 inches south of north house line of Cumberland street to 232 feet north of north house line of Huntingdon street.....		30	796
Broad street, from 202 feet 10 inches south of south house line of Lehigh avenue, north.....		30	243
Broad street, intersection of Lehigh avenue.....		6	5
		12	2
Cambridge street, from east house line of Corinthian avenue, west.....		4	39
Carlisle street, from centre of Brown street, north.....		4	30
Carlisle street, from 25 feet north of north house line of Brown street to 16 feet 2 inches north of south house line of Thompson street.....		4	1,894
Carlisle street, from 17 feet 6 inches south of north house line of Thompson street to Jefferson street.....		4	957

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe taken up—Continued.</i>			
Columbia avenue, from 34 feet west of east house line of Broad street, west.....		20	23
Darien street, from, south house line of Parrish street, north.....		4	50
Darien street, from 26 feet south of north house line of Poplar street, north.....		4	17
Darien street, from 2 feet south of north house line of Poplar street to 18 feet south of south house line of Girard avenue.....		4	815
Duane street, from 2 feet south of north house line or Poplar street, to 18 feet south of south house line of Girard avenue.....		4	26
Fairmount avenue, from 21 feet west of east house line of West Twenty-second street, west.....		30	17
Girard avenue, from 36 feet west of west house line or Broad street, west.....		4	46
Hamilton street, from northeast house line of Ridge avenue, west.....		4	38
Huntingdon street, intersection of Broad, supply main connection.....		12	6
Hutchinson street, from 17 feet 6 inches south of north house line of Thompson street, north.....		4	16
Inquirer street, from south house line of Parrish street, north.....		4	25
Irvine street, from Ridge avenue, west.....		4	34
Lehigh avenue, from Park avenue to Broad street.....		30	353
Lorain street, from 2 feet 6 inches south of south house line of Spring Garden street, north.....		4	28
Linden street, from Spring Garden street, north.....		4	26
Mervine street, from 19 feet 6 inches south of north house line of Thompson street, north.....		4	18
Myrtle street, from east house line of Ontario street, west.....		4	19
Nectarine street, from Eighth street, west.....		4	35
Ogden street, from Carlisle street, west.....		4	20
Olive street, from east house line of Broad street, west.....		4	33
Ontario street, from Parrish to Poplar streets.....		4	446
Ontario street, from 17 feet 6 inches south of north house line of Thompson street, north.....		4	17
Park avenue, from 17 feet 6 inches south of north house line of Thompson street, north.....		4	17
Parrish street, from 7 feet west of west house line of Twenty-second street to 39 feet 5 inches west of west house line of Twenty-third street.....		6	317
Perth street, from 17 feet 6 inches south of north house line of Thompson street, north.....		4	17
Scott street, from east house line of Corinthian avenue, west.....		4	43
Seligely avenue, from 14 feet 6 inches northeast of south west house line of Germantown avenue, northeast.....		6	18

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe taken up—Continued.</i>			
Stiles street, from centre of Carlisle street, west.....		4	20
Thompson street, south side, from west house line of Franklin street, to 10 feet west of west house line of Eighth street.....		4	288
Thompson street, south side, from 110 feet west of west house line of Eighth street to 70 feet west of west house line of Ninth street.....		4	248
Thompson street, south side, from 207 feet west of west house line of Ninth street to 266 feet west of west house line of Tenth street.....		4	495
Thompson street, south side, from east house line of Eleventh street, west.....		4	197
Thompson street, south side, from 207 feet west of west house line of Eleventh street to 10 feet west of west house line of Broad street.....		4	1,286
Thompson street, south side, from 110 feet west of west house line of Broad street to 12 feet west of east house line of Seventeenth street.....		4	1,187
Thompson street, south side, from 22 feet west of east house line of Seventeenth street, west.....		4	28
Thompson street, north side, from Franklin street to east house line of Ninth street.....		4	496
Thompson street, north side, from west house line of Ninth street to Tenth street.....		4	412
Thompson street, north side, from 31 feet east of west house line of Eleventh street to 34 feet west of east house line of Broad street.....		4	1,487
Thompson street, north side, from 33 feet 6 inches east of west house line of Broad street to 18 feet west of east house line of Seventeenth.....		4	1,319
Thompson street, north side, from 26 feet west of east house line of Seventeenth street, west.....		4	24
Thompson street, from 91 feet west of west house line of west College avenue to 30 feet west of west house line of Taney.....		30	341
Thompson street (second line), from 10 feet east of east house line of Twenty-sixth street to 20 feet west of west house line of Taney street.....		30	250
Thompson street, from 5 feet west of west house line of Twenty-sixth street, west.....		10	120
Thompson street, from 17 feet west of east house line of Twenty-sixth street to 12 feet west of east house line of Taney street.....		16	225
Thompson street, from 60 feet west of west house line of Taney street, northeast.....		36	45
Torr street, from northeast house line of Ridge avenue, west.....		4	37
Twentv-second street (west), from centre of Fairmount avenue, north.....		30	25

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe taken up—Continued.</i>			
Warnock street, from 2 feet 10 inches south of south house line of Thompson street, north.....		4	19
Warnock street, from 17 feet 6 inches south of north house line of Thompson street, north.....		4	16
West College avenue, from 11 feet north of south house line of Thompson street, north.....		16	21
Willow street, from northeast house line of Ridge avenue, west.....		4	40
Wood street, from 10 feet east of northeast house line of Ridge avenue, west.....		4	10
Total.....			16,293
Fire hydrant connections taken up.....		4	186
Fire hydrant connections taken up.....		6	4
Total.....			190
<i>Pipe Lowered.</i>			
Seventeenth street, from 430 feet south of south house line of Huntingdon street, north.....		6	426
Seventeenth street, from north house line of Huntingdon street, north.....		6	397
Thompson street, from Twenty-sixth street, northwest to Stop House at Spring Garden Reservoir.....		30	80
Total.....			903
<i>Pipe Raised.</i>			
Sedgely avenue, from 194 feet southwest of southwest house line of Twenty-ninth street to Montgomery avenue thence west to 226 feet west of west house line of Thirty-first street.....		48	1,295
<i>Pipe Shifted.</i>			
Thompson street, from 9 feet east of east house line of West College avenue, west.....		30	150
<i>Pipe Cut Off and Abandoned.</i>			
Barclay street, from 299 feet west of west house line of Broad street to Fifteenth street.....		4	124

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe Cut Off and Abandoned—Continued.</i>			
Broad street, east side, from 172 feet north of north house line of Poplar street to 7 feet north of south house line of Girard avenue.....		4	240
Broad street, from 232 feet north of north house line of Huntingdon street, north.....		30	85
Carlisle street, from 5 feet north of north house line of Brown street, north.....		4	20
Coffman street, from 18 feet west of east house line of Broad street, west.....		6	15
Darien street, from 18 feet south of south house line of Girard avenue, north.....		4	25
Darien street, from 11 feet south of north house line of Poplar street, north.....		4	9
Huntingdon street, intersection of Broad (on supply main connection).....		6	8
Ogden street, from east house line of Ontario street, west..		4	18
Pearl street, from Twentieth to Twenty-first streets.....		4	530
Poplar street, from east house line of Twenty-sixth street, northeast.....		30	14
Thompson street, south side, from 10 feet west of west house line of Eighth street, west.....		4	100
Thompson street, south side, from 70 feet west of west house line of Ninth street, west.....		4	137
Thompson street, south side, from 266 feet west of west house line of Tenth street to east house line of Eleventh.....		4	130
Thompson street, south side, from 147 feet west of west house line of Eleventh street, west.....		4	60
Thompson street, south side, from 10 feet west of west house line of Broad street west.....		4	100
Thompson street, south side, from 12 feet west of east house line of Seventeenth street, west.....		4	10
Thompson street, north side, from 18 feet west of east house line of Seventeenth street, west.....		4	8
Thompson street, from 14 feet west of east house line of West College avenue to 17 feet west of east house line of Twenty-sixth street.....		16	197
Twenty-third street, from centre of York street, north.....		6	198
West College avenue, from 10 feet north of south house line of North College avenue, north.....		8	8
Wood street, from northeast house line of Ridge avenue, west.....		4	25
Total.....			2,161
Fire hydrant connections cut off and abandoned.....		4	593
“ “ “.....		6	255
Total.....			848

FIFTH DISTRICT.

Comprising the Twenty-first and part of the Twenty-eighth Ward.

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service Mains.</i>			
Cresson street, from Seville to East street		6	214
Hermit street from dead end 16 feet southwest of centre of Manayunk avenue, northeast		6	16
Magnet street, from northwest house line of Gay to dead end northwest house line of Flint		6	243
Main street, from Ridge avenue, northwest		10	2,722
Manayunk avenue, from dead end, northwest house line of Adams to northwest house line of Hermit street.....		10	369
Queen street, from Thirty-third street to Wissahickon avenue		8	3,467
Queen lane, from Thirty-third street to dead end northwest house line of Thirty-fourth.....		6	713
Thirty-third street, from Queen lane, northwest to dead end		6	16
Thirty-third street, from dead end 311 feet northwest of northwest house line of Queen lane to centre of Queen street.....		6	616
Total.....			8,376
<i>Service Main Connections.</i>			
Main street, 927 feet south east of southeast house line of Shur's lane, between 6-inch and 10-inch mains.....		6	23
School lane and Ridge avenue, between 6-inch main on School lane and 12-inch main on Ridge avenue		6	47
Total.....			70
<i>Supply Main Connections.</i>			
Roxborough Reservoir (new) in division bank 621 feet northeast of northeast house line of Ann street, between southeast and northwest sections (extended) ...		36	22
Roxborough Reservoir (new) in division bank 971 feet northeast of northeast house line of Ann street between southeast and northwest sections		36	94
Roxborough Reservoir (new) southwest bank, 624 feet southeast of southeast house line of Port Royal avenue (extended).....		36	13
Roxborough Reservoir (new), southwest bank, 768 feet southeast of southeast house line of Port Royal avenue (extended)		36	13
Total			142

Street.	Location.	Sizes in inches.	Distance in feet
<i>Pumping Main Connections.</i>			
Roxborough Reservoir (new), between 30-inch main on Shaw's lane and 36-inch pumping main on Shawmont avenue.....		30	136
Fire hydrant connections		6	336
<i>Drains.</i>			
Roxborough Reservoir (new), south corner of southeast section (extended)		12	6
Roxborough Reservoir (new), west corner of northwest section (extended)		12	9
Total			15
<i>Pipe relaid.</i>			
East street, from Cresson, northeast		6	13
Penn street, from Ridge avenue, northeast		6	105
Total			118
Fire hydrant connections relaid		6	22
Repairs, general.....		4	11
“ “		6	75
“ “		10	2
“ “		12	9
Total			97
<i>Pipe taken up.</i>			
East street, from Cresson street, northeast.....		4	13
Fire hydrant connections taken up		4	10
<i>Pipe lowered.</i>			
Clay street, from centre of Centre street, northwest.....		6	254

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe lowered—Continued.</i>			
Cresson street, from southeast house line of Warner to Shur's lane		6	172
Jefferson street, from 410 feet southwest of southwest house line of Ridge avenue, northeast		12	410
Total			836
<hr/>			
Fire hydrant connections lowered.....		4	15
<hr/>			
<i>Pipe raised.</i>			
Livezey's lane, from 201 feet northeast of east end of bridge over Wissahickon creek, northeast		30	264
<hr/>			
<i>Pipe cut off and abandoned.</i>			
Penn street, from Ridge avenue, northeast.....		6	105

Recapitulation of Fifth District.

Purposes for which used.	Size—Inches.						Total in feet and pounds.
	4	6	8	10	12	30		36
Service mains.....		1,818	3,467	3,091			8,376
Service main connections.....		70					70
Supply main connections.....							142
Pumping main connections.....						136	136
Fire Hydrant connections.....		336			15		356
Drains.....							15
Total..... { Feet..... { Pounds.....		2,224 73,392	3,467 145,614	3,091 170,065	15	136 45,152	142 59,924
Pipe relaid.....		110					140
Repairs general.....		75		2	9		97
Pipe taken up.....	11						23
Pipe lowered.....	23						851
Pipe raised.....	15	42			410	264	261
Total..... { Feet..... { Pounds.....	49 931	641 21,153		2 110	419 30,108	264 87,648	1,375 140,010
Total handled..... { Feet..... { Pounds.....	49 931	2,865 94,545	3,467 145,614	3,093 170,115	434 31,248	400 132,800	142 59,924
Pipe cut off and abandoned.....		105					105

SIXTH DISTRICT.

Comprising the Twenty-second and part of the Twenty-ninth and Thirty-third Wards.

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service Mains.</i>			
Allen lane, from Sherman northeast to dead end, 23 feet southwest of southwest house line of Cresheim road,		10	4015
Anderson street, from southeast house line of Chelton avenue, northwest.....		6	80
Archer street, from 13 feet southeast of northwest house line Butler to Nicetown lane.....		6	391
Baker street, from Clinton to Broad streets.....		6	67
Bexley street, from 520 feet southwest of southwest house line, Morris, northeast.....		6	545
Bloyd street, from Woodbine avenue, northwest.....		6	25
Bockius street, from southeast house line of Woodbine avenue, northwest.....		6	50
Boyer street, southeast house line of Woodbine avenue, northwest.....		6	50
Boyer street, from southeast house line of Chelton avenue, northwest.....		6	80
Boyer street, from southeast house line of Mount Pleasant avenue, northwest.....		6	22
Broad street, east side, from Airdrie to Butler streets.....		6	361
Broad street, west side, from dead end southwest house line, Germantown avenue to 447 feet north of south house line Butler street.....		12	1853
Broad street, west side, from dead end 185 feet north of north house line of McFerran street, east (to connect pipe to be laid on east side).....		6	28
Brunner street, from northeast house line Clarrissa street northeast to dead end.....		6	160
Bryan street (or Mower), from southeast house line of Miller street, northwest.....		6	33
Carpenter street, from dead end 19 feet southwest of northeast house line of Wissahickon street, northeast.....		6	19
Carson street, from southeast house line of Mermaid avenue, northwest.....		6	25
Chew street from southeast house line of Mount Pleasant avenue, northwest to dead end.....		12	38
Clinton street, from southeast house line of Baker street, northwest.....		6	14
Cora street, from northeast house line of Stenton avenue, northeast.....		6	25
Cresheim road, from southeast house line of Miller street, northwest.....		6	40
Devon street, from southeast house line of Woodbine avenue, northwest.....		6	25
Devon street, from Mount Pleasant avenue, northwest.....		6	25

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service Mains—Continued.</i>			
Emlen street, from 8 feet northwest of southeast house line of Allens lane, northwest.....		6	42
Erie street, south side, from east house line of Seventeenth street, west.....		6	50
Erie street, north side, from Seventeenth street, west.....		6	20
Franklin street, from Green to McCallum.....		6	317
Green street, from southeast house line Allens lane, northwest.....		6	39
Jefferson street, from dead end 12 feet northwest of southeast house line of Allen's lane, northwest.....		6	26
Juniata street, from east house line York road to dead end east house line of Broad street.....		6	627
Lena street, from 131 feet southeast of southeast house line of Collom street, northwest.....		6	151
Mather street, from dead end 36 feet south of north house line of Venango street to 18 feet north of south house line of Erie avenue.....		6	557
McCallum Street, from Franklin street, northwest,.....		6	525
McCallum street, from southeast house line of Allens lane, northwest.....		6	50
Medary street, from Stenton avenue to northeast house line of Weiss.....		6	246
Mermaid street, from dead end northeast house line of Twenty-fifth street to northeast house line of Carson street.....		6	159
Millerstreet, from Cresheim road to Germantown avenue..		6	1382
Mount Pleasant avenue, from Devon street to 13 feet northeast of northeast house line of Sprague street....		6	116
Nice street, from southeast house line of Baker street, northwest.....		6	14
Penn street, from Patton avenue to dead end southwest house line of Pulaski avenue.....		6	322
Penn street, from dead end northeast house line of Pulaski avenue to dead end 7 feet 3 inches northeast of southwest house line of Wayne street.....		6	566
Pike street, from east house line of Broad street, west.....		6	40
Pulaski avenue, from Coulton to School lane.....		6	725
Pulaski avenue, from Chelton avenue to dead end southeast house line of Rittenhouse.....		12	787
Quincy street, from southeast house line of Allens lane, northwest.....		6	50
Roberts avenue, from southwest house line of Wayne to Green streets.....		6	350
Seventh street, from Tioga to dead end south house line of Atlantic avenue.....		6	265
Sherman street, from 13 feet northwest of southeast house line of Allens lane, northwest.....		6	26
Schurz street, from 30 feet southeast of northwest house line of Allens lane, northwest.....		6	30

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Service Mains—Continued.</i>			
Sprague street, from southeast houseline of Woodbine avenue to northwest house line of Chelton avenue.....		6	455
Sprague street, from southeast house line of Mount Pleasant avenue, northwest.....		6	25
Stenton avenue, from dead end 7 feet southeast of northwest house line of Godfrey to Chelton avenue (running southwest).....		6	1168
Sullivan street, from southeast house line of Chelton avenue, northwest.....		6	80
Tacona street, from southeast house line of Winona street, northwest.....		6	40
Taylor street, from southeast house line of Baker street, northwest.....		6	25
Tenth street, from south house line of Westmoreland street, north to connect dead end.....		6	413
Venango street, from dead end west house line of Broad to west house line of Carlisle.....		6	204
Wayne street, from Cayuga to northwest house line of Roberts avenue.....		6	300
Weiss street, from southeast house line of Medary to Chelton avenue.....		6	522
Westmoreland street, from 13 feet east of west house line of Ninth to west house line of Tenth streets.....		6	455
Wissahickon avenue, from Lehman to dead end southeast house line of Rittenhouse.....		6	563
Woodbine avenue, from Sprague, northeast.....		6	25
Total.....			19,728
<i>Service Main Connections.</i>			
Allen lane, 26 feet southwest of northeast house line of McCallum, between 16-inch and 10-inch mains.....		10	13
Broad street and Germantown avenue, 20 feet south of north house line of Airdrie, between 12-inch main on Broad street and 6-inch main on Germantown avenue.....		10	16
Broad street, 250 feet north of Baker street, between 12-inch main on west side and 6-inch main (to be laid) on the east side of Broad street.....		6	102
Thorp's lane, northeast house line of Reading pike, between 6-inch and 3-inch mains on Thorp's lane.....		6	10
Total.....			141



Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pumping Main Connections.</i>			
Mount Airy Pumping Station, northeast corner of engine house, for stand pipe on air chamber.....		20	24
<i>Bye-Pass Connections.</i>			
Johnson and Germantown avenue, between 6-inch main on Johnson street and 16-inch main on Germantown avenue		6	30
Fire hydrant connections		6	1147
<i>Supply Connections (Private).</i>			
Germantown avenue, southwest side, 228 feet southeast of southeast house line of Cresheim road, for Deaf and Dumb Asylum.....		6	43
Westmoreland, north side. 340 feet east of east house line of Tenth street, for Mather & Company.....		3	3
Total			46
<i>Pipe relaid.</i>			
Green street, from southeast house line of School lane, northwest		6	25
Norwood, from Chestnut avenue, northwest		6	971
Reading pike, from northwest house line of Chestnut avenue to 561 feet northwest of northwest house-line of Thorp's lane.....		6	3,539
Thorp's lane, from 903 feet east of east house line of Stenton avenue, west.....		6	922
Thorp's lane, from Reading pike, northeast.....		6	16
Washington lane, from Adams street, northeast.....		6	21
Wayne street, from southeast house line of School lane, northwest.....		6	30
Winona street, from northeast house line of Tacona to Wayne street.....		6	297
Total			5,821
Fire hydrant connections relaid.....		6	114

Street.	Location.	Sizes in inches.	Distance in feet.
<i>Pipe Relaid—Continued.</i>			
Repairs, general.....		4	17
“ “.....		6	235
“ “.....		10	36
“ “.....		12	13
“ “.....		16	8
Total.....			309
<i>Pipe taken up.</i>			
Green street, from southeast house line of School lane, northwest.....		4	25
Washington lane, from Adams street, northeast.....		4	21
Wayne street, from southeast house line of School lane, northwest.....		4	30
Total.....			76
Fire hydrant connections taken up.....		4	88
“ “ “ “ “.....		6	19
Total.....			107
<i>Pipe lowered.</i>			
Allen's lane, from 263 feet southwest of southwest house line of Green street, northeast.....		30	600
Allens lane, from 263 feet south-west of south-west house line Green street, north east, (lowered twice).....		30	600
Allens lane, from Green street, north east.....		30	372
Allens lane, from Green street, northeast.....		10	372
Bloyd street, from Woodbine, north west.....		6	55
Green street, from south-east house line Allens lane, north-west.....		6	39
McCallum street, from 444 feet southeast of south east house line of Mount Pleasant avenue, north west.....		16	431
Mount Pleasant avenue, from 38 feet south west of south west house line of McCallum street, northeast.....		6	44
Woodbine avenue, from 50 feet south west of southwest house line of Bloyd to 22 feet north east of north east house line of Boyer.....		6	500
Total.....			3,013
Fire hydrant connections lowered.....		6	27

Street.	Location.	Sizes in Inches.	Distance in feet.
<i>Pipe raised.</i>			
Seventh street, from 175 feet south of south house line Erie avenue, north.....		6	175
<i>Pipe cut off and abandoned.</i>			
Norwood, from Chestnut avenue, northwest.....		4	971
Reading pike, from northwest house line of Chestnut avenue to 111 feet north west of northwest house line Sunset avenue, north east.....		4	2,316
Reading pike, from 111 feet north west of northwest house line Sunset avenue, northeast, to 561 feet northwest of northwest house line of Thorps lane.....		3	1,223
Thorps lane, from 903 feet east of east house line, Stenton avenue, west.....		3	922
Thorps lane, from Reading pike, northeast.....		3	16
Winona street, from northeast house line of Tacona to Wayne street.....		4	297
Total			5,745
<hr/>			
Fire hydrant connections cut off and abandoned.....		3	5
Fire hydrant connections cut off and abandoned.....		4	294
Fire hydrant connections cut off and abandoned.....		6	96
Total			395

Recapitulation of Sixth District.

Purposes for which used.	Size—Inches.							Total in feet and pounds.	
	3	4	6	10	12	16	20		30
New pipe or feet added.	Service mains.....		13,085	4,015	2,678			19,728	
	Service main connections.....		112	29				141	
	Pumping main connections.....						24	24	
	Eye-pass connections.....		30					30	
	Fire hydrant connections.....		1,147					1,147	
	Supply connections (private).....	3	43					46	
	Total..... { Feet.....	3	14,367	4,044	2,678			21,115	
	{ Pounds.....	45	474,111	222,420	192,816		24	893,298	
							3,816		
Pipe used, but adding nothing to feet in the ground.	Pipe relaid.....		5,985					5,985	
	Repairs, general.....		17	295	13			309	
	Pipe taken up.....		164	19			8	183	
	Pipe lowered.....			665	372		431	3,040	
	Pipe raised.....			175				175	
	Total..... { Feet.....		181	7,029	408	13	439	9,642	
	{ Pounds.....		3,439	231,997	22,440	936	48,290	828,966	
Pipe cut off and abandoned.....	Total handled..... { Feet.....	3	181	21,396	4,452	2,691	439	30,758	
	{ Pounds.....	45	3,439	706,068	244,860	193,752	48,290	1,722,174	
		2,166	3,878	96				6,140	

Recapitulation of Work on the Water Pipes.

Purposes for which used.	Size—Inches.												Total in feet and pounds.		
	1 1/2	3	4	6	8	10	12	16	18	20	30	36		48	
New pipe or feet added.	Service mains.....			109,389	9,764	9,825	5,978							131,966	
	Supply mains.....						754							10,311	
	Painting mains.....									8		3,215		621	
	Service main connections.....			29	30										
	Supply main connections.....									128	15	142	429	807	
	Preparing main connections.....						102	25		24	186	73	41	274	
	By-pass connections.....				30									30	
	Fire hydrant connections.....				8,631									8,634	
	Fire connections (private).....			106	1,016	394								1,416	
	Supply connections (private).....		18	182	146	14								2,955	
	Drains.....			18				15						365	
	Meter inspection connection.....		9		90									99	
	Total..... { Feet.....	27	27	306	119,695	10,772	9,956	6,812		17	160	6,445	3,662	991	158,783
..... { Pounds.....	405	405	5,814	3,949,235	452,424	547,380	490,461		2,380	25,440	2,139,740	1,620,044	579,735	9,713,961	
Pipe used, but adding nothing to feet in the ground.	Pipe relaid.....				48,375	124	18	959						50,074	
	Repairs, general.....		12	79	4,043	63	279	24		21	140	53		5,253	
	Pipe taken up.....		29	9,122	23,700	1,486	120	246		28	2,083	108		88,920	
	Pipe lowered.....		7	585	2,977		372	410	431					6,414	
	Pipe raised.....				661			1,965				264		4,185	
	Pipe abitted.....										150			150	
	Total..... { Feet.....	29	9,141	26,344	57,742	187	1,006	3,621	701		65	4,666	156	1,338	104,996
 { Pounds.....	203	137,115	500,736	1,903,486	7,854	53,330	260,712	77,110		10,335	1,549,112	65,832	782,730	5,352,355
	Total handled { Feet.....		29	9,168	26,610	177,487	10,959	10,962	10,433	701	235	11,111	3,758	2,329	263,779
	 { Pounds.....	203	137,520	500,350	5,855,421	460,278	602,910	761,176	77,110	33,775	3,688,832	1,585,876	1,362,465	15,066,316
	Pipe cut off and abandoned.....			4,061	9,755	2,063	8	197						89	10,783

RECAPITULATION BY DISTRICTS.

DISTRICTS.	Size—Inches.													TOTAL.	
	1½	3	4	6	8	10	12	16	18	20	30	36	48	Feet.	Pounds.
New pipe or feet added.	First.....	.....	54	31,602	4,788	1,266	838	.....	.....	8	.....	.....	.....	36,452	1,216,260
	Second.....	9	112	22,575	.....	520	1,966	.....	.....	.....	.....	.....	.....	24,800	877,204
	Third.....	15	118	22,697	.....	1,055	1,315	.....	.....	.....	.....	.....	.....	25,316	921,620
	Fourth.....	.....	22	26,230	2,317	1,055	1,315	.....	17	128	6,400	3,460	991	42,024	5,280,502
	Fifth.....	.....	.....	2,224	3,467	.....	8,091	13	.....	.....	136	142	.....	9,075	495,167
Sixth.....	3	.....	14,367	.....	.....	4,014	2,678	.....	.....	24	.....	.....	21,116	893,208	
Total.....	27	306	119,635	10,772	10,772	9,966	6,812	.....	17	160	6,445	3,602	991	158,783	9,713,961
	405	5,814	3,943,935	42,424	42,424	547,580	490,464	.....	2,380	25,440	2,139,740	1,520,014	579,735	.....	.....
Pipe used but adding nothing to feet in the ground.	First.....	29	7,939	14,327	146	45	3	.....	.....	6	.....	.....	.....	25,387	676,360
	Second.....	.....	6,174	12,735	41	203	2,973	16	.....	.....	.....	.....	.....	24,937	795,179
	Third.....	40	1,739	4,932	.....	115	49	.....	.....	58	58	.....	.....	6,991	249,982
	Fourth.....	.....	13,677	18,077	.....	233	164	246	246	59	2,772	98	1,338	36,664	2,561,858
	Fifth.....	.....	49	641	.....	2	419	2	.....	.....	264	.....	.....	1,375	140,010
	Sixth.....	.....	181	7,029	.....	.....	408	13	439	.....	1,372	.....	.....	9,612	828,965
Total.....	29	9,141	21,344	57,712	187	1,006	3,621	701	.....	65	4,666	156	1,338	101,996	5,352,355
	203	137,115	500,535	1,905,486	7,854	55,330	260,712	77,110	.....	10,335	1,549,112	65,832	782,730	.....	.....
Total handled.....	.....	29	26,650	177,437	10,959	10,962	10,433	701	17	225	11,111	3,758	2,339	263,779	15,066,316
	.....	203	137,520	506,350	5,855,421	460,278	602,910	751,176	77,110	35,773	3,688,852	1,585,876	1,392,405	.....	.....
Pipe cut off and abandoned.....	.....	4,661	9,755	2,063	.....	.....	.....	.....	.....	.....	99	.....	.....	.....	10,733

NEW FIRE HYDRANTS.
FIRST DISTRICT.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.		
				Feet.	In.	No. 1.	No. 2.	No. 3.
Bainbridge street, south side, 2 feet east of east house line of Second.		4	6	18		1		
Bainbridge street, north side, west house line of Third.		4	6	10	6		1	
Bainbridge street, south side, 2 feet east of east house line of Sixth.		4	6	14	6		1	
Bainbridge street, north side, 3 feet east of east house line of Seventh.		4	6	14	6		1	
Bainbridge street, south side, 2 feet east of east house line of Eighth.		4	6	14	6		1	
Bainbridge street, south side, west house line of Tenth.		4	6	7	6		1	
Bainbridge street, south side, west house line of Seventeenth.		30	6	22			1	
Bainbridge street, south side, east house line of Eighteenth.		30	6	24			1	
Bainbridge street, south side, 2 feet east of east house line of Nineteenth.		30	6	14	6		1	
Bancroft street, east side, 2 feet north of north house line of Snyder avenue.		26	6	8	6		1	
Broad street, east side, south house line of Fitzwater.		3	6	6	6		1	
Broad street, east side, 2 feet south of south house line of Bainbridge.		3	6	15			1	
Broad street, west side, south house line of Fitzwater.		30	6	6			1	
Cantrell street, north side 160 feet east of east house line of Fifth.		1	6	8			1	
Carpenter street, north side, east house line of Seventeenth.		30	6	14	6		1	

New Fire Hydrants—First District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.		
				Feet.	In.	No. 1.	No. 2.	No. 3.
Catharine street, south side, 196 feet east of east house line of Thirteenth.....		3	6	14	6	.....	1	.....
Catharine street, north side, 2 feet east of east house line of Fifth.....		3	6	14	6	.....	.....	1
Catharine street, south side, 3 feet west of west house line of Seventh.....		3	6	14	6	.....	.....	1
Catharine street, north side, west house line of Thirteenth.....		3	6	14	6	.....	.....	1
Catharine street, south side, 171 feet east of east house line of Seventeenth.....		30	6	14	6	.....	1	.....
Catharine street, north side, 2 feet east of east house line of Eighteenth.....		30	6	14	6	.....	.....	1
Catharine street, south side, 2 feet west of west house line of Twenty-first.....		30	6	14	6	.....	.....	1
Cross street, north side, 182 feet east of southeast house line of Pasyunk avenue.....		1	4	10	.....	.....	1	.....
Cross street, north side, 2 feet west of west house line of Twenty-third.....		26	6	8	6	.....	1	.....
County Prison, west end, in yard.....		26	6	26	.....	.....	.....	1
Daly street, north side, 2 feet east of east house line of Eleventh.....		1	6	8	6	.....	1	.....
Dickinson street, north side, 66 feet east of east house line of Fourth.....		1	6	14	6	.....	1	.....
Dickinson st., north side, 2 feet east of east house line of Twentieth.....		26	6	14	6	.....	.....	1
Durfor street, north side, 2 feet east of east house line of Fourth.....		1	6	8	6	.....	1	.....
Eighteenth street, east side, 1 foot south of south house line of Snyder avenue.....		26	6	14	6	.....	.....	1
Eighteenth street west side, 2 feet north of north house line of Snyder avenue.....		26	6	14	6	.....	.....	1

New Fire Hydrants—First District—Continued

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.			
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 3.
Eighteenth street, east side, 2 feet north of north house line of McKean.....		26	6	14	6	.....	.....	1	.....
Eighteenth street, west side, 2 feet south of south house line of Moore.....		26	6	14	6	.....	.....	1	.....
Eleventh street, east side, 2 feet south of south house line of Jackson.....		1	6	14	6	.....	.....	1	.....
Eleventh street, east side, south house line of Snyder avenue.....		1	6	15	.....	.....	.....	1	.....
Emally street, south side, 106 feet of east house line of Front.....		1	6	8	.....	.....	.....	1	.....
Fifteenth street, east side, 2 feet south of south house line of Minlin.....		26	6	11	6	.....	.....	1	.....
Fifteenth street, east side, 1 foot north of north house line of Bainbridge.....		30	6	19	.....	.....	.....	1	.....
Fifth street, east side, south house line of Winton.....		1	6	14	6	.....	.....	1	.....
Fourth street, east side, south house line of Winton.....		1	6	16	6	.....	.....	1	.....
Fourth street, 16 feet north of north house line of Daly.....		1	6	16	6	.....	.....	1	.....
Fourth street, east side, 2 feet south of south house line of Catharine.....		3	6	16	6	.....	.....	1	.....
Grays Ferry road, west side, 122 feet west of west house line of Thirty-sixth.....		30	6	10	6	.....	.....	1	.....
Jackson street, south side, 182 feet east of east house line of Fourth.....		1	6	17	.....	.....	.....	1	.....
Jackson street, north side, east of east house line of Eleventh.....		1	6	16	.....	.....	.....	1	.....
Jackson street, north side, 151 feet east of east house line of Twelfth.....		1	6	16	.....	.....	.....	1	.....
Juniper street, east side, north house line of Snyder avenue.....		1	6	8	.....	.....	.....	1	.....

New Fire Hydrants—First District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.			
				Feet.	In.	O. g.	No. 1.	No. 2.	No. 3.
Juniper street, east side, 224 feet south of south house line of Federal.....		26	6	14	6	.....	1	.....	.....
Juniper street, east side, 171 feet north of north house line of Federal.....		26	6	14	6	.....	1	.....	.....
Juniper street, east side, 2 feet north of north house line of South.....		4	6	8	6	.....	1	.....	.....
Kater street, south side, 285 feet east of north house line of Twelfth.....		4	6	8	6	.....	1	.....	.....
Kater street, south side, 2 feet west of west house line of Twelfth.....		4	6	8	6	.....	.....	1	.....
Kater street, north side, 79 feet east of east house line of Broad.....		4	6	8	6	.....	1	.....	.....
Kater street, north side, 140 feet east of east house line of Sixteenth.....		30	6	8	6	.....	1	.....	.....
Kater street, north side, 2 feet east of east house line of Seventeenth.....		30	6	8	6	.....	1	.....	.....
Kater street, south side, 2 feet east of east house line of Nineteenth.....		30	6	8	8	.....	.....	1	.....
Kater street, north side, 111 feet west of west house line of Twentieth.....		30	6	8	6	.....	1	.....	.....
Kater street, south side, 2 feet west of west house line of Twenty-second.....		30	6	8	6	.....	1	.....	.....
Kimball street, south side, 2 feet east of east house line of Twenty-fifth.....		30	6	8	6	.....	1	.....	.....
Latona street, south side, 161 feet west of west house line of Twenty-seventh.....		26	6	8	6	.....	1	.....	.....
Lingo street, east side, 2 feet north of north house line of Snyder avenue.....		26	6	8	6	.....	1	.....	.....
McKean street, north side, 2 feet east of southeast house line of Moyamensing avenue.....		1	6	14	6	.....	.....	1	.....
McKean street, north side, west house line of Juniper.....		1	8	14	6	.....	.....	.....	1

New Fire Hydrants—First District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.				
				Feet.	In.	No. 1.	No. 2.	No. 3.	O. 2.	
McKean street, north side, 2 feet west of west house line of Broad.....		26	8	14	6	.....	.....	.....	1	
McKean street, north side, 2 feet west of west house line of Fifteenth.....		26	8	14	6	.....	.....	.....	1	
McKean street, south side, east house line of Sixteenth.....		26	8	14	6	.....	.....	.....	1	
Marker street, south side, 236 feet west of west house line of Second.....		2	6	8	6	.....	.....	.....	1	
Marion street, north side, 2 feet east of east house line of Second.....		2	6	9	6	.....	.....	.....	1	
Marion street, north side, 47 feet east of southeast house line of Moyamensing avenue.....		2	6	8	6	.....	.....	.....	1	
Mifflin street, north side, 68 feet west of west house line of Seventh.....		1	6	14	6	.....	.....	.....	.....	1
Mifflin street, north side, east house line of Nineteenth.....		26	6	15	.....	.....	.....	.....	.....	1
Moore street, north side, east house line of Eighteenth.....		26	6	14	6	.....	.....	.....	.....	1
Morris street, north side, 2 feet east of east house line of Fourth.....		1	6	14	6	.....	.....	.....	.....	1
Morris street south side 2 feet west of west house line of Sixth.....		1	6	14	6	.....	.....	.....	.....	1
Morris street, north side, 3 feet east of east house line of Eighth.....		1	6	14	6	.....	.....	.....	.....	1
Moyamensing avenue, northwest side 2 feet northeast of east house line of Delmore.....		1	6	17	.....	.....	.....	.....	.....	1
Moyamensing avenue, northwest side, 2 feet southwest of south house line of Federal.....		2	6	32	.....	.....	.....	.....	.....	1
Otsego street, east side, 2 feet south of south house line of Tasker.....		1	6	14	6	.....	.....	.....	.....	1
Otsego street, west side, 2 feet north of north house line of Prime.....		2	6	14	6	.....	.....	.....	.....	1

New Fire Hydrants—First District—Continued.

Street.	Location.	Ward.	Size of Mains	6-INCH CONNECTION.		STYLE.		
				Feet.	In.	No. 1.	No. 2.	No. 3.
Hierce street, south side, 2 feet east of east house line of Twenty-second.....		26	6	9	.....	1		
Sears street, south side 4 feet west of east house line of Twenty-second.....		26	6	11	6	.....	1	
Seventeenth street, west side, north house line of Passyunk avenue.....		26	6	14	6	.....	1	
Seventeenth street, east side, north house line of Snyder avenue.....		26	6	14	6	.....	1	
Seventeenth street west side, 2 feet south of south house line of Catharine.....		30	6	14	6	.....	1	
Sixth street, east side, 2 feet south of south house line of Carpenter.....		2	6	14	6	.....	1	
Snyder avenue, north side, 2 feet west of west house line of Swanson.....		1	8	13	6	.....	1	
Snyder avenue, south side, 2 feet east of east house line of Olsego....		1	8	13	6	.....	1	
Snyder avenue, south side, 2 feet east of east house line of Front.....		1	8	13	6	.....	1	
Snyder avenue, north side, 138 feet east of east house line of East Second.....		1	8	13	6	.....	1	
Snyder avenue, south side, 2 feet west of west house line of Seventeenth.....		26	6	9	6	.....	1	
South street, north side, 2 feet east of east house line of Fifth.....		5	6	7	6	.....	1	
Tasker street, south side, 2 feet west of west house line of Eighth.....		1	6	15	6	.....	1	
Tasker street, north side, 2 feet east of east house line of Twentieth.....		26	6	14	6	.....	1	
Tasker street, north side, 7 feet west of north west house line of Long lane.....		26	6	14	6	.....	1	
Taylor street, north side, 82 feet east of east house line of Seventh.....		1	6	8	.....	1		

New Fire Hydrants—First District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.			
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 3.
Taylor street, north side, 2 feet west of west house line of Twenty-third.....		26	6	8	6	.....	1		
Tenth street, west side, 2 feet south of south house line of Jackson.....		1	6	14	6	.....		1	
Tenth street, east side, 2 feet north of north house line of Wharton.....		26	6	14	6	.....		1	
Titan street north side 210 feet west of west house line of Twenty-seventh.....		26	6	9	.....	.....	1		
Tree street, north side, 2 feet east of east house line of Eleventh.....		1	6	8	6	.....	1		
Twelfth street, east side, 29 feet south of south house line of Wolf.....		1	6	14	6	.....	1		
Twelfth street, west side, south house line of Jackson.....		1	6	14	6	.....		1	
Twentieth street, east side, 2 feet south of south house line of Wharton.....		26	6	14	6	.....		1	
Twenty-fourth street, east side, 2 feet north of north house line of Washington avenue.....		30	6	14	6	.....		1	
Twenty-third street, west side, 28 feet north of north house line of Oakford.....		26	6	15	.....	.....		1	
Washington avenue, south side, west house line of Miller.....		2	6	13	.....	.....		1	
Washington avenue, north side, 139 feet east of east house line of Ninth.....		2	6	9	.....	.....		1	
Washington avenue, north side, west house line of Ninth.....		2	6	9	.....	.....		1	
Washington street, north side, west house line of Eleventh.....		2	6	9	.....	.....		1	
Washington street, north side, east house line of Twelfth.....		2	6	9	.....	.....		1	
Watts street, west side, 240 feet south of south house line of McKean.....		1	6	9	.....	.....		1	

New Fire Hydrants—First District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.			
				Feet.	In.	O.S.	No. 1.	No. 2.	No. 3.
Wharton street, north side, 2 feet east of east house line of Twenty-seventh.....		26	6	14	6			1	
Wharton street, south side, 2 feet west of west house line of Twenty-ninth.....		26	6	14	6			1	
Wharton street, south side, 2 feet west of west house line of Thirtieth.....		26	6	14	6			1	
Wolf street, south side, 2 feet east of east house line of Fourth.....		1	6	16	6			1	
Wolf street, south side, 205 feet east of east house line of Fifth.....		1	6	16	6			1	
Wolf street, south side, 2 feet west of west house line of Fifth.....		1	6	16	6			1	
Totals.....				1,527			36	81	

NEW FIRE HYDRANTS.
SECOND DISTRICT.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.		
				Feet.	In.	O S	No. 1	No. 2
Albion street, west side, 87 feet south of south house line of Race.....		10	6	3	10	.....	1	.....
Brighton street, north side, 190 feet west of west house line of Broad.....		8	6	8	4	.....	1	.....
Broad street, west side, 3 feet north of north house line of South.....		7	20	11	.....	.....	1	.....
Broad street, east side, 2 feet south of south house line of Rodman.....		7	6	5	.....	.....	1	.....
Broad street, east side, 3 feet north of north house line of Pine.....		7	6	5	.....	.....	1	.....
Broad street, west side, 9 feet 1 inch north of north house line of Asylum.....		8	6	5	.....	.....	1	.....
Broad street, east side, 2 feet south of south house line of Spruce.....		7	6	5	.....	.....	1	.....
Broad street, west side, south house line of Spruce.....		8	6	5	.....	.....	1	.....
Broad street, west side, 3 feet north of north house line of Brighton.....		8	6	6	.....	.....	1	.....
Broad street, east side, 4 feet south of south house line of Locust.....		8	6	8	8	.....	1	.....
Broad street, west side, north house line of Walnut.....		8	20	9	6	.....	1	.....
Broad street, east side, south house line of Walnut.....		8	6	4	.....	.....	1	.....
Broad street, east side, north house line of Sanson.....		8	6	5	.....	.....	1	.....
Broad street, east side, 2 feet south of south house line of Chestnut.....		8	6	5	6	.....	1	.....
Broad street, west side, 18 feet south of south house line of Chestnut.....		8	6	5	6	.....	1	.....

New Fire Hydrants—Second District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.		
				Feet.	In.	No. 1.	No. 2.	No. 3.
Cherry street, south side, east house line of Nineteenth street.....		10	6	11	11	.....	1	.....
Columbia avenue, south side, 2 feet west of west house line of Fifty-first.....		34	6	19	10	.....	1	.....
Dock street, east side, 168 feet 6 inches north of north house line of Dock.....		5	6	6	9	.....	J	.....
Eighth street, west side, 112 feet south of east line of Locust.....		8	10	14	.....	.....	1	.....
Eleventh street, west side, 97 feet north of north house line of Locust.....		8	10	14	.....	.....	1	.....
Eleventh street, west side, 5 feet south of south house line of Academy.....		10	6	19	.....	.....	1	.....
Eleventh street, west side, north house line of Marks lane.....		10	6	19	.....	.....	1	.....
Elmwood avenue, north side, east house line of Sixty-first.....		27	6	23	.....	.....	1	.....
Elmwood avenue, north side, east house line of Sixty-second.....		27	6	22	.....	.....	1	.....
Elmwood avenue, north side, east house line of Sixty-third.....		27	6	22	8	.....	1	.....
Elmwood avenue, north side, east house line of Sixty-fourth.....		27	6	23	.....	.....	1	.....
Elmwood avenue, south side, east house line of Sixty-fifth.....		27	6	23	.....	.....	1	.....
Elmwood avenue, south side, east house line of Sixty-sixth.....		27	6	23	.....	.....	1	.....
Elmwood avenue, north side, east house line of Sixty-seventh.....		27	6	23	.....	.....	1	.....
Fifth street, west side, north house line of Lombard.....		5	10	14	.....	.....	1	.....
Fiftieth street, west side, 2 feet north of north house line of Brown.....		34	6	18	.....	.....	1	.....

New Fire Hydrants—Second District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.			
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 3.
Fifty-four and three-quarters street, east side, 108 feet north of north house line of Haverford.....		34	6	8	10	.....	.....	1
Fifty-sixth street, east side, 14 feet north of north house line of Paschall.....		27	6	21	8	.....	1	.....
Filbert street, south side, 2 feet west of west house line of Thirty-third.....		24	6	10	4	.....	.....	1
Florence street, south side, west house line of Fiftieth.....		27	6	23	.....	.....	.....	1
Forty-eighth street, east side, south house line of Baltimore avenue.....		27	6	23	.....	.....	.....	1
Forty-first street, east side, south house line of Filbert.....		24	6	18	6	.....	.....	1
Forty-first street, west side, north house line of Spring Garden.....		24	6	18	6	.....	.....	1
Fourth street, west side, 163 feet north of north house line of Walnut.....		5	6	11	.....	.....	.....	1
Franklin street, west side, 177 feet south of south house line of Vine.....		10	6	8	10	.....	.....	1
Haverford avenue, north side, 25 feet east of east house line of Sixty-first.....		34	12	24	.....	.....	.....	1
Hazel avenue, north side, east house line of Sixty-first.....		27	6	14	.....	.....	.....	1
Juniper street, east side, south house line of Walnut.....		8	6	8	.....	.....	.....	1
Juniper street, east side, north house line of Sansom.....		8	6	15	.....	.....	.....	1
Juniper street, east side, 6 feet south of south house line of Chestnut.....		8	6	9	.....	.....	.....	1
Juniper street, east side, 2 feet south of south house line of Chestnut.....		8	6	17	.....	.....	.....	1
Lancaster avenue, north side, west house line of Forty-third.....		24	6	24	.....	.....	.....	1

New Fire Hydrants—Second District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.					
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 3.		
Lancaster avenue, south west side, 1 foot southeast of east house line of Fifty-sixth.....		34	6	15	10	.....	.....	.....	1		
Lardner street, north side, 196 feet 6 inches west of west house line of Broad.....		8	6	7	10	.....	.....	.....	1		
Lardner street, south side, 186 feet west of west house line of Broad.....		8	6	7	8	.....	.....	.....	1		
Locust street, north side, east house line of Juniper.....		8	6	14	.....	.....	.....	.....	1		
Lombard street, north side, west house line of Juniper.....		7	6	14	.....	.....	.....	.....	1		
Lombard street, north side, west house line of Twenty-sixth.....		7	6	14	.....	.....	.....	.....	1		
Marble street, east side, 189 feet south of south house line of Walnut.....		8	6	4	3	.....	.....	.....	1		
Market street, south side, 3 feet 6 inches west of west house line of Seventeenth.....		9	6	7	6	.....	.....	.....	1		
Market street, north side, 21 feet west of west house line of Thirty-third.....		24	10	44	.....	.....	.....	.....	1		
Market street, south side, west house line of Thirty-fourth.....		27	10	19	.....	.....	.....	.....	1		
Market street, north side, 3 feet east of east house line of Thirty-fourth.....		24	10	44	.....	.....	.....	.....	1		
Market street, north side 4 feet west of west house line of Thirty-ninth.....		24	12	14	.....	.....	.....	.....	1		
Media street, south side, 6 feet west of west house line of Fifty-third.....		14	6	17	10	.....	.....	.....	1		
Nineteenth street, east side, 10 feet south of south house line of Race.....		10	6	20	6	.....	.....	.....	1		
Nineteenth street, west side, 8 feet, south of south house line of Arch.....		9	6	14	.....	.....	.....	.....	1		
North street, north side, 173 feet east of east house line of Sixth.....		6	6	9	.....	.....	.....	.....	1		

New Fire Hydrants—Second District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.					
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 3.		
Farrish street, north side, east house line of Forty-second.....		24	6	11					1		
Pine street, north side, east house line of Juniper.....		7	6	14					1		
Prescott street, north side, 83 feet east of east house line of Fiftieth.....		34	6	8	6					1	
Sansom street, south side, 302 feet 6 inches east of east house line of Thirty-sixth.....		27	6	10	8				1		
Seventeenth street, east side, south house line of Richard.....		7	6	14							1
Seventeenth street, west side, south house line of Spruce.....		7	6	14						1	
Seventeenth street, west side, north house line of Cherry.....		10	6	14						1	
Seventeenth street, east side, south house line of Race.....		10	6	14						1	
Sixth street, west side, south house line of Locust.....		5	6	14						1	
Sixtieth street, east side, 8 feet north of north house line of Woodland avenue.....		27	6	18						1	
Sixtieth street, west side, north house line of Kingsessing avenue.....		27	6	18						1	
Sixtieth street, 1 foot north of north house line of Ludlow.....		27	6	18						1	
Sixtieth street, west side, 149 feet south of south house line of Westminster avenue.....		34	10	18	4						1
Sixty-fourth street, west side, 2 feet south of south house line of Haversford avenue.....		34	6	18	6						1
Sixty-fourth street, west side, 222 feet 6 inches south of south house line of Vine.....		34	6	18							1
Sixty-seventh street, east side, south of south house line of Greenway avenue.....		27	6	21							1

New Fire Hydrants—Second District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.			
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 3.
Sixty-third street, west side, 6 feet north of north house line of Vine.....		34	8	31	8			1	
Sixty-third-and-one-half street, east side, 245 feet south of south house line of Vine.....		31	6	14				1	
Spring Garden street, north side, 2 feet west of west house line of Thirty-third.....		24	12	12	2			1	
Spruce street, south side, east house line of Juniper.....		7	12	14				1	
Spruce street, south side, east house line of Juniper.....		7	12	14				1	
Third street, east side, 173 feet north of north house line of Race.....		6	6	15				1	
Thirteenth street, east side, 3 feet south of south house line of Race.....		10	6	14				1	
Thirteenth street, west side, south house line of Cherry.....		10	6	14				1	
Thirtieth street, west side, south house line of Spruce.....		27	6	10	7			1	
Thirty-fourth street, east side, north house line of Spruce.....		27	6	18				1	
Thirty-fourth street, east side, south house line of Chancellor.....		27	6	18	2			1	
Thirty-fourth street, west side, south house line of Rockland.....		24	6	21				1	
Thirty-ninth street, west side, 2 feet north of north house line of Poplar.....		24	6	16	10			1	
Thirty-sixth street, west side, north house line of Market.....		24	6	19	6			1	
Twelfth street, east side, 6 feet north of north house line of Spruce.....		8	6	14				1	
Twelfth street, west side, 5 feet north of north house line of Race.....		6	6	14				1	
Twenty-fourth street, west side, south house line of Walnut.....		8	6	14				1	
Twenty-second street, west side, south house line of Walnut.....		8	12	24				1	

New Fire Hydrants—Second District—Continued.

Street.	Location.	Ward.	Size of Mals.	6-INCH CONNECTION.		STYLE.				
				Feet.	In.	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
Twenty-second street, west side, 2 feet south of south house line of Cherry.....		10	6	13		1				
Vaughn street, east side, 165 feet south of south house line of Walnut.....		8	6	10	2		1			
Vine street, north side, 1 foot 6 inches west of west house line of Dillwyn.....		12	10	15	6			1		
Vine street, north side, 3 feet west of west house line of Fourth.....		12	10	12	3			1		
Vine street, north side, west house line of Crown.....		12	10	11	4			1		
Vine street, north side, 2 feet west of west house line of Fifth.....		12	12	11	3			1		
Vine street, north side, 2 feet west of west house line of Sixth.....		13	12	7	9					1
Vine street, north side, 3 feet west of west house line of Sixthleth.....		34	6	25	7			1		
Viola street, north side, 2 feet east of east house line of Fifty-second.....		34	6	11	5			1		
Walnut street, north side, 41 feet 6 inches east of east house line of Twenty-fourth.....		8	6	18	6			1		
Walnut street, north side, 4 feet west of west house line of Thirty-second.....		27	6	19	5			1		
Walnut street, south side, west house line of DeKalb square.....		27	10	21				1		
Walnut street, south side, west house line of Fifty-first.....		27	8	22	9			1		
Windsor place, north side, 157 feet 6 inches east of east house line of Forty-eighth.....		27	6	13	11			1		
Woodland avenue, southeast side, east house line of Sixty-fifth.....		27	12	22						1

NEW FIRE HYDRANTS.
THIRD DISTRICT.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.		
				Feet.	In.	No. 1.	No. 2.	No. 3.
Allegheny avenue, southwest side, northwest house line of Frankford avenue.....		25	6	10	6	.....	1	.....
Allen street, north side, west house line of Franklin		23	6	14	4	.....	1	.....
Albion street, east side, south house line of Westmoreland.....		25	6	18	7	.....	1	.....
Almond street, northwest side, northeast house line of York.....		81	6	14	2	.....	1	.....
Amber street, northwest side, southwest house line of Dreer.....		81	6	14	1	.....	1	.....
American street, east side, 137 feet south of south house line of Indiana avenue.....		88	6	9	.....	1	.....	.....
American street, west side, 10 feet south of northeast house line of Gurney.....		28	6	8	6	.....	1	.....
American street, west side, north house line of Indiana avenue.....		88	6	9	.....	1	.....	.....
Ann street, southwest side, northwest house line of Almond.....		23	6	18	6	.....	1	.....
Arrott street, southwest side, southeast house line of Castor Road.....		23	6	14	8	.....	1	.....
Bermuda street, northwest side, northeast house line of Margarella.....		23	6	14	6	.....	1	.....
Bermuda street, northwest side, southwest house line of Tucker.....		28	6	14	8	.....	1	.....
Brown street, northwest side, 220 feet northeast of northeast house line of Buckins.....		25	4	12	.....	1	.....	.....
Callowhill street, south side, west house line of Fish.....		12	6	12	.....	1	.....	.....
Canal street, northeast side, west house line of Lawrence.....		17	6	10	7	.....	1	.....

New Fire Hydrants—Third District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.		
				Feet.	In.	No. 1.	No. 2.	No. 3.
Chatham street, east side, 341 feet south of south house line of Green.....		12	4	14		1		
Clearfield street, northeast side, southeast house line of Staunton.....		25	6	18			1	
Clearfield street, northeast side, northwest house line of Lambert.....		25	6	18	4			1
Clearfield street, northeast side, southeast house line of Gaul.....		25	6	18	6			1
Clearfield street, southwest side, northwest house line of Trenton avenue.....		29	6	18	6			1
Clearfield street, southwest side, northwest house line of Peigrade.....		23	6	18	6			1
Clifton street, southeast side, southwest house line of Westmoreland.....		29	6	7	6			1
Como street, north side, west house line of Eighth street.....		33	6	10				1
Coral street, southeast side, northeast house line of Wheatshaf lane.....		25	6	8	3			1
Cook street, north side, northwest house line of Gaul.....		18	4	9				1
Dana street, south side, 110 feet east of east house line of Second street.....		11	6	4	3		1	
Dickinson street, southwest side, northwest house line of Tullip.....		31	6	14	10			1
Eighth street, east side, south house line of Lehigh avenue.....		19	6	15	6			1
Eighth street, west side, south house line of Indiana avenue.....		33	6	14	6			1
Fairhill street, west side, 106 feet north of north house line of Westmoreland.....		33	6	8	9			1
Fleming street, east side, north house line of Cambria.....		33	6	14	6			1

New Fire Hydrants—Third District—Continued.

Street.	Location.	Ward.	Size of Main.	G-INCH CONNECTION.		STYLE.					
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 8.		
Frankford avenue, southeast side, northeast house line of Erie avenue.....		25	12	30						1	
Franklin street, southeast side, 140 feet south west of southwest house line of Church.....		23	6	11				1			
Franklin street, east side, 155 feet north of north house line of Somerset.....		33	6	14	10			1			
Franklin street, east side, south house line of Indiana.....		33	6	15						1	
Franklin street, west side, north house line of Cambria.....		33	6	15						1	
Fourth street, west side, north house line of Master.....		17	6	15	2					1	
Fremont street, southwest side, southeast house line of Spring.....		25	6	8	6					1	
Fremont street, northeast side, northwest house line of Walker.....		26	6	9						1	
Front street, west side, 77 feet south of south house line of Berks.....		19	6	18	2					1	
"G" street, west side, south house line of Allegheny avenue.....		33	6	14	6					1	
Gaul street, southeast side, southwest house line of Aramingo.....		31	10	9	1					1	
Hancock street, east side, 353 feet south of south house line of Berks.....		19	6	14						1	
Hedge street, southeast side, northeast house line of Brown.....		23	6	14	3					1	
Hewson street, southwest side, southeast house line of Memphis.....		18	6	9						1	
Hockley street, northwest side, southwest house line of Vienna.....		18	6	9	4					1	
Homestead street, northeast side, 300 feet southeast of southeast house line of Tacony road.....		35	6	9						1	

New Fire Hydrants—Third District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.		
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 3.
Hope street, east side, north house line of Westmoreland.....		33	6	8	.....	.....	.....	1
Howard street, west side, south house line of York.....		19	6	14	4	.....	.....	1
Howell street, northwest side, southwest house line of Irving.....		25	6	5	10	.....	.....	1
Huntington street, north side, east house line of Ninth.....		19	6	16	2	.....	.....	1
Hutchinson street, west side, north house line of Indiana avenue.....		33	6	8	6	.....	.....	1
Hutchinson street, east side, south house line of Clearfield.....		33	6	8	8	.....	.....	1
Indiana avenue, south side, east house line of Falethorp.....		33	6	14	7	.....	.....	1
Kensington avenue, northwest side , southwest house line of Clearfield.....		25	6	11	8	.....	.....	1
Kensington avenue, northwest side , southwest house line of Lehigh avenue.....		33	6	8	7	.....	.....	1
Kensington avenue, northwest side, northeast house line of Lehigh avenue.....		33	6	10	9	.....	.....	1
Kipp street, east side, south house line of Tioga.....		33	6	10	6	.....	1	.....
Kipp street, west side, 200 feet south of south house line of Tioga.....		25	6	13	9	.....	.....	1
Kirkbride street, northeast side, northwest house line of Geyer.....		33	6	8	10	.....	.....	1
Lambrecht street, north side, west house line of Fifth.....		33	6	14	6	.....	.....	1
Lawrence street, west side, south house line of Venango.....		33	6	14	10	.....	.....	1
Leamey street, east side, north house line of Lehigh avenue.....		33	6	6	15	.....	.....	1
Leamey street, east side, north house line of Indiana avenue.....		33	6	6	15	.....	.....	1

New Fire Hydrants—Third District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.				
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 3.	
Leaney street, west side, southwest house line of Gurney.....		33	6	15				1		
Lehigh avenue, northeast side, 210 feet southeast of southeast house line of Fillmore.....		33	6	10	7				1	
Lehigh avenue, southeast side, 275 feet east of east house line of Front.....		19	6	10	8				1	
Livinston street, north west side, 189 feet 2 inches south west of southwest house line of Allegheny ave.....		25	6	7	7			1		
Melcher street, west side, south house line of Susquehanna avenue.....		19	4	8	6				1	
Mill street, north side, northeast house line of Paul.....		23	6	10	8				1	
Monmouth street, southwest side, northwest house line of Amber.....		25	6	9	4				1	
Monmouth street, southwest side, southeast house line of Frankford avenue.....		25	6	9	2				1	
Montgomery avenue, southwest side, 141 feet northwest of northwest house line of Belgrade.....		18	6	15	7				1	
New Market street, west side, north west house line of Pegg.....		11	6	14	7				1	
Onas street, south side, east house line of New Market.....		11	6	6	3				1	
Ontario street, west house line of Kipp.....		33	6	13	6				1	
Oriana street, east side, south house line of Dauphin.....		19	4	8	9				1	
Ormes street, east side, north house line of Indiana avenue.....		33	6	14	3				1	
Orthodox street, northeast side, 225 feet southeast of southeast house line of Worth.....		23	6	17				1		
Oxford street, south side, west house line of Front.....		17	10	10					1	

New Fire Hydrants—Third District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH Connection.		STYLE.				
				Feet.	In.	No. 1.	No. 2.	No. 3.		
Oxford street, northeast side, southeast house line of Josephine.....		23	6	16	7	.....	.....	.....	1	.....
Fahner street, northeast side, northwest house line of Beach.....		18	6	9	7	.....	.....	.....	1	.....
Farrish street, south side, west house line of Fifth.....		12	6	11	4	.....	.....	.....	1	.....
Penn street, southeast side, south-west house line of Pyre.....		23	6	14	6	.....	.....	.....	1	.....
Philip street, east side, 229 feet 6 inches north of north house line of Ontario.....		33	6	7	6	.....	.....	.....	1	.....
Philip street, west side, southwest house line of Gurney.....		33	6	8	3	.....	.....	.....	1	.....
Richfield street, north side, east house line of Seventh.....		33	6	8	4	.....	.....	.....	1	.....
Rosehill street, south house line of Clearfield.....		33	6	14	8	.....	.....	.....	1	.....
Ruan street, northeast side, northwest house line of Franklin.....		23	6	14	6	.....	.....	.....	1	.....
Ruth street, northwest side, 192 feet southwest of southwest house line of Orleans.....		25	6	14	10	.....	.....	.....	1	.....
St. John street, northwest corner of Canal.....		16	6	13	.....	.....	.....	.....	1	.....
Sepviva street, east side, south house line of Venango.....		25	6	14	8	.....	.....	.....	1	.....
Sepviva street, west side, 378 feet south of south house line of Venango.....		25	6	14	8	.....	.....	.....	1	.....
Seventh street, west side, north house line of Somerset.....		33	6	14	1	.....	.....	.....	1	.....
Somerset street, north side, southwest house line of Gurney.....		33	6	14	4	.....	.....	.....	1	.....
Sixth street, west side, west house line of Callohill.....		12	6	7	6	.....	.....	.....	1	.....

New Fire Hydrants—Third District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.		
				Feet.	In.	No. 1.	No. 2.	No. 3.
Sixth street, east side, 5 feet north of north house line of Willow.....		12	10	10				1
Sixth street, west side, south house line of Noble.....		12	10	16				1
Sixth street, east side, north house line of Green.....		12	10	10				1
Sixth street, east side, north line of Fairmount avenue.....		12	10	9	10			1
Tacony road, northwest side, southwest house line of Foust.....		35	12	14	6			1
Tacony road, northwest side, southwest house line of Vankirk.....		35	12	14	8			1
Tacony road, northwest side, 185 feet 7 inches northeast of northeast house line of Vankirk.....		35	12	18		1		
Tacony road, northwest side, opposite centre of Howel.....		35	12	18				1
Tacony road, northwest side, opposite centre of Homestead.....		35	12	18				1
Tacony road, northwest side, opposite centre of Baldwin.....		35	12	18				1
Tacony road, northwest side, opposite centre of Benner.....		35	12	18				1
Tacony road, northwest side, southwest house line of Comly.....		35	12	18				1
Tenth street, west side, north house line of Indiana.....		33	6	14	6			1
Thayer street, south side, opposite centre of Leithgow.....		17	6	9	6			1
Third street, west side, north house line of Wood.....		11	10	16	6			1
Third street, east side, north house line of Girard avenue.....		17	10	15				1

New Fire Hydrants—Third District—Continued.

Street.	Location.	Walt.	Size of Main.	6-INCH CONNECTION.		STYLE.			
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 3.
Thompson street, southeast side, northeast house line of Kirkbride.....		25	10	15	4	.....	.....	.....	1
Thompson street, southeast side, southwest house line of Crease.....		18	6	14	2	.....	.....	.....	1
Tivoli street, south side, east house line of Ninth.....		33	6	10	.....	.....	.....	.....	1
Trenton avenue, southeast side, 99 feet southwest of southwest house line of Clearfield.....		31	6	6	3	.....	.....	.....	1
Turner street, east side, south house line of Erie.....		33	6	14	6	.....	.....	.....	1
Viel street, southwest side, northwest house line of Coral.....		25	6	8	6	.....	.....	.....	1
Walker street, southeast side, 215 feet southwest of southwest house line of Lehigh avenue.....		25	6	8	.....	.....	.....	.....	1
Waln street, west side, west house line of Unity street.....		23	6	11	3	.....	.....	.....	1
Wellington street, southwest side, northwest house line of Edgemont.....		25	6	8	7	.....	.....	.....	1
Wellington street, northeast side, southeast house line of Clinton.....		25	6	15	11	.....	.....	.....	1
Wellington street, southwest side, northwest house line of Fisher.....		25	6	7	2	.....	.....	.....	1
Westmoreland street, southwest side, south east house line of Trenton avenue.....		25	6	17	10	.....	.....	.....	1
Total.....				1,556	.....	.....	.....	.....	15 108

**NEW FIRE HYDRANTS.
FOURTH DISTRICT.**

Street.	Location.	Wart.	Size of Main.	6-INCH CONNECTION.		STYLE.		
				Feet.	In.	No. 1.	No. 2.	No. 3.
Alder street, west side, south house line of Girard avenue.....	20	6	4	.....	.....	1	.....
Allegheny avenue, east side, south house line of Camac.....	28	6	12	.....	.....	.....	1
Allegheny avenue, south side, west house line of Camac.....	23	6	4	.....	.....	.....	1
Allegheny avenue, south side, west house line of Thirteenth.....	28	6	3	.....	.....	.....	1
Allegheny avenue, north side, 202 feet east of east house line of Thirteenth.....	28	6	6	3	.....	.....	1
Allegheny avenue, north side, west house line of Park avenue.....	23	6	3	.....	.....	.....	1
Amity street, west side, 1 foot north of north house line of Stiles.....	29	6	5	4	.....	1	.....
Barclay street, south side, 2 feet east of east house line of Fifteenth.....	15	6	10	2	.....	.....	1
Berks street, south side, east house line of Franklin.....	20	6	13	6	.....	.....	1
Berks street, north side, 5 feet 6 inches east of east house line of Park avenue.....	32	6	12	6	.....	.....	1
Biddle street, south side, 14 feet east of east house line of Twenty-fifth.....	15	6	9	9	.....	.....	1
Broad street, east side, 4 feet south of south house line of Brandywine.....	14	20	10	.....	.....	.....	1
Broad street, west side, 3 feet 4 inches south of south house line of Brandywine.....	15	12	37	.....	.....	.....	1
Broad street, east side, south house line of Green.....	14	20	10	6	.....	.....	1
Broad street, east side, 4 feet 6 inches south of south house line of Wallace.....	14	20	11	.....	.....	.....	1

New Fire Hydrants—Fourth District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYL.			
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 3.
Broad street, west side, 2 feet 9 inches south of south house line of Wallace.....		15	12	36	6	.....	.....	.....	1
Broad street, east side, 1 foot north of north house line of Wallace.....		14	20	11	.....	.....	.....	.....	1
Broad street, west side, 3 feet south of south house line of Barclay.....		15	12	35	10	.....	.....	.....	1
Broad street, east side, 2 feet south of south house line of Fairmount avenue.....		14	20	13	.....	.....	.....	.....	1
Broad street, west side, north house line of Fairmount avenue.....		15	12	39	.....	.....	.....	.....	1
Broad street, east side, south house line of Olive.....		14	20	15	6	.....	.....	.....	1
Broad street, east side, south house line of Brown.....		14	20	20	2	.....	.....	.....	1
Broad street, east side, south house line of Atmore.....		14	20	14	.....	.....	.....	.....	1
Broad street, east side, 3 feet south of south house line of Parrish.....		14	20	17	6	.....	.....	.....	1
Broad street, west side, south house line of Parrish.....		15	12	89	.....	.....	.....	.....	1
Broad street, east side, south house line of Girard avenue.....		20	20	14	.....	.....	.....	.....	1
Broad street, west side, south house line of Girard avenue.....		29	12	6	.....	.....	.....	.....	1
Broad street, east side, north house line of Girard avenue.....		20	6	6	.....	.....	.....	.....	1
Broad street, west side, north house line of Girard avenue.....		29	10	16	.....	.....	.....	.....	1
Broad street, east side, north house line of Stiles.....		20	6	6	10	.....	.....	.....	1
Broad street, west side, 8 feet north of north house line of Stiles.....		20	6	7	6	.....	.....	.....	1

New Fire Hydrants—Fourth District—Continued.

Street.	Location.	Ward.	Size of Main.		6-INCH CONNECTION.		STYLE.							
			Feet.	In.	Feet.	In.	No. 1.	No. 2.	No. 3.	No. 4.				
Broad street, east side, 106 feet south of south house line of Master.....		20	6	5	6	.....	.....	.....	.....	.....	.....	.....	.....	.....
Broad street, west side, south house line of Master.....		29	6	7	4	.....	.....	.....	.....	.....	.....	.....	.....	.....
Broad street, east side, south house line of Jefferson.....		20	6	7	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Broad street, west side, south house line of Jefferson.....		29	6	6	8	.....	.....	.....	.....	.....	.....	.....	.....	.....
Broad street, east side, south house line of Oxford.....		20	6	6	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
Broad street, east side, south house line of Columbia avenue.....		20	6	6	10	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brown street, north side, 22 feet west of west house line of Burns.....		15	6	17	6	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brown street, north side, 8 feet east of southeast house line of Francis.....		15	6	14	5	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bucknell street, east side, 8 feet 6 inches north of north house line of Parrish.....		15	6	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Burns street, west side, 5 feet 8 inches south of south house line of Parrish.....		15	6	4	4	.....	.....	.....	.....	.....	.....	.....	.....	.....
Callowhill street, north side, 101 feet west of west house line of Eighth.....		13	10	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Callowhill street, north side, 6 feet east of east house line of Eleventh.....		14	10	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Callowhill street, north side, east house line of Twenty-first.....		15	22	12	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carlisle street, east side, north house line of Ogden.....		15	6	11	10	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carlisle street, west side, 2 feet 6 inches south of south house line of Girard avenue.....		29	6	11	6	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carlisle street, west side, 5 feet north of north house line of Girard avenue.....		29	6	11	6	.....	.....	.....	.....	.....	.....	.....	.....	.....

New Fire Hydrants—Fourth District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.			
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 3.
Carlisle street, west side, 1 foot of south house line of Master.....	29	6	11	6	.....	1	.....	.....
Carlisle street, east side, 2 feet south of south house line of Jefferson.....	29	6	10	.....	.....	1	.....	.....
Carlisle street, west side, north house line of Susquahanna avenue.....	28	6	13	3	.....	.....	.....	1
Cleveland avenue, east side, south house line of Cumberland.....	28	6	7	6	.....	.....	.....	1
Clifford street, east side, 5 feet 8 inches south of south house line of Montgomery.....	29	6	12	.....	.....	.....	.....	1
Cumberland street, north side, 25 feet west of west house line of Thirteenth.....	28	30	6	.....	.....	.....	.....	1
Diamond street, south side, 3 feet 6 inches east of east house line of Thirty-first.....	32	6	2	8	.....	.....	.....	1
Diamond street, north side, east house line of Thirty-first.....	32	6	5	3	.....	.....	.....	1
Diamond street, south side, east house line of Thirty-second.....	32	6	3	7	.....	.....	.....	1
Dover street, east side, 197 feet north of north house line of York.....	28	6	7	.....	.....	.....	.....	1
Eighth street, east side, north house line of Callowhill.....	13	10	23	6	.....	.....	.....	1
Eighth street, east side, 3 feet south of south house line of Noble.....	13	10	14	.....	.....	.....	.....	1
Fairmount avenue, south side, 1 foot 2 inches east of east house line of Seventeenth.....	15	30	12	6	.....	.....	.....	1
Fifteenth street, west side, south house line of Swain.....	15	6	14	6	.....	.....	.....	1
Fifteenth street, west side, north house line of Barclay.....	15	6	13	6	.....	.....	.....	1
Fifteenth street, east side, 2 feet south of south house line of Parrish.....	15	6	14	6	.....	.....	.....	1

New Fire Hydrants—Fourth District—Continued.

111

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.			
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 3.
Fontaine street, north side, east house line of Thirty-first.....		28	6	9	8			1	
Fontaine street, north side, east house line of Thirty-second.....		32	6	10	11		1		
Girard avenue, south side, west house line of Corinthian avenue.....		29	6	28				1	
Glenwood avenue, southeast side, east house line of Twentieth....		28	10	18				1	
Green street, north side, west house line of Linden.....		13	6	16	4			1	
Hamilton street, south side, east house line of Twenty-fifth.....		15	6	19	6			1	
Hamilton street, north side, west house line of Twenty-fifth.....		15	6	20				1	
Henrietta street, south side, 2 feet west of west house line of Twenty-first.....		29	6	7	11		1		
Huntingdon street, south side, east house line of Sixteenth.....		28	6	15				1	
Huntingdon street, east house line of Willington.....		28	6	16				1	
Huntingdon street, north side, west house line of Willington.....		28	6	16				1	
Huntingdon street, south side, west house line of Twenty-third.....		28	6	15	3			1	
Huntingdon street, south side, east house line of Twenty-fifth.....		28	6	14	6			1	
Huntingdon street, south side, 3 feet east of east house line of Twenty-sixth.....		28	6	13	10			1	
Huntingdon street, south side, east house line of Twenty-seventh.....		28	6	13	10			1	
Indiana avenue, north side, 2 feet east of east house line of Twenty-second.....		28	6	14	8			1	

New Fire Hydrants—Fourth District—Continued.

Street.	Location.	Ward.	Size.	6-INCH CONNECTION.		STYLE.		
				Feet.	In.	No. 1.	No. 2.	No. 3.
Parrish street, north side, east house line of Twelfth.....		14	6	16	8	.....	1	.....
Parrish street, north side, 2 feet 6 inches east of east house line of Thirteenth.....		14	6	11	5	.....	1	.....
Parrish street, north side, east house line of Ontario.....		14	6	15	5	.....	1	.....
Parrish street, north side, 53 feet east of east house line of Fifteenth.....		15	6	14	6	.....	1	.....
Parrish street, north side, west house line of Twenty-fifth.....		15	8	6	8	.....	1	.....
Parrish street, north side, 1 foot west of west house line of Twenty-eighth.....		15	6	13	10	.....	1	.....
Pearl street, south side, 2 feet 9 inches west of west house line of Twentieth.....		15	6	3	.....	.....	1	.....
Perot street, north side, east house line of Twenty-sixth.....		15	6	24	2	.....	1	.....
Poplar street, north side east house line of Ontario.....		20	6	17	5	.....	1	.....
Ridge avenue, northeast side, north house line of Wood.....		13	6	18	2	.....	1	.....
Ridge avenue, northeast side, south house line of Willow.....		14	6	17	9	.....	1	.....
Ridge avenue, southwest side, south house line of Spring Garden.....		14	6	17	5	.....	1	.....
Ridge avenue, southwest side, 7 feet 6 inches southeast of south house line of Green.....		14	6	17	6	.....	1	.....
Ridge avenue, northeast side, 11 feet south of south house line of Mt. Vernon.....		14	6	19	.....	.....	1	.....
Ridge avenue, southwest side, 187 feet southeast of southeast house line of Seligley avenue.....		28	12	7	6	.....	1	.....
Ridge avenue, northeast side, 2 feet northwest of northwest house line of Huntington.....		28	6	5	4	.....	1	.....

New Fire Hydrants—Fourth District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.				
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 3.	
Ridge avenue, northeast side, south house line of Lehigh avenue.....		28	6	4	8	.....	.....	.....	.....	1
Sedgley avenue, southeast side, southwest house line of Germantown avenue.....		28	10	13	3	.....	.....	.....	.....	1
Sedgley avenue, northwest side, 350 feet northeast of north house line of York.....		28	8	19	1	.....	.....	.....	.....	1
Seventeenth street, east side, south house line of Huntingdon.....		28	6	21	6	.....	.....	.....	.....	1
Seventeenth street, west side, north house line of Huntingdon.....		28	6	14	10	.....	.....	.....	.....	1
Seventh street, west side, 102 feet north of north house line of Wood.....		13	6	15	.....	.....	.....	.....	.....	1
Sixteenth street, west side, 2 feet south of south house line of Brown.....		15	6	13	6	.....	.....	.....	.....	1
Sixteenth street, east side, southeast house line of Mundell.....		28	6	14	6	.....	.....	.....	.....	1
Sixteenth street, west side, south house line of Huntingdon.....		28	6	14	6	.....	.....	.....	.....	1
Susquehanna avenue, south side, west house line of Eleventh.....		32	6	15	8	.....	.....	.....	.....	1
Taney street, east side, south house line of Brown.....		15	6	9	.....	.....	.....	.....	.....	1
Tenth street, east side, south house line of Wood.....		13	6	20	4	.....	.....	.....	.....	1
Tenth street, east side, 22 feet north of northeast house line of Ridge avenue.....		13	6	22	9	.....	.....	.....	.....	1
Tenth street, west side, south house line of Willow.....		11	6	10	.....	.....	.....	.....	.....	1
Tenth street, east side, 2 feet south of south house line of Spring Garden.....		14	6	23	.....	.....	.....	.....	.....	1
Thirteenth street, east side, north house line of Whitehall.....		14	6	14	8	.....	.....	.....	.....	1

New Fire Hydrants—Fourth District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.		
				Feet.	In.	No. 1.	No. 2.	No. 3.
Thirteenth street, east side, south house line of Huntington.....		28	30	6	2			1
Thirteenth street, east side, 2 feet south of south house line of Lehigh avenue.....		28	30	7				1
Thirteenth street, east side, south house line of Allegheny avenue.....		28	6	15				1
Thirty-first street, west side, 1 foot north of north house line of Clifford.....		29	6	13				1
Thirty-first street, west side, south house line of Berks.....		32	6	13	2			1
Thirty-first street, west side, south house line of Norris.....		32	6	13				1
Thirteenth street, west side, 12 feet south of south house line of Diamond.....		32	6	13				1
Thirty-fourth street, west side, north house line of Huntington.....		28	6	14			1	
Thomazine street, south side, 2 feet west of west house line of Hollingee.....		29	6	7	9			1
Thompson street, north side, east house line of Eighth.....		20	6	6			1	
Thompson street, south side, 3 feet 6 inches east of east house line of Ninth.....		20	6	6	10			1
Thompson street, south side, 2 feet 9 inches west of west house line of Ninth.....		20	6	6	8			1
Thompson street, north side, east house line of Tenth.....		20	6	6			1	
Thompson street, south side, east house line of Eleventh.....		20	6	7	1			1
Thompson street, north side, east house line of Twelfth.....		20	6	6			1	
Thompson street, north side, east house line of Thirteenth.....		20	6	6				1

New Fire Hydrants—Fourth District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.					
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 3.		
Thompson street, south side, 2 feet east of east house line of Broad.....		20	6	6					1		
Thompson street, north side, east house line of Fifteenth.....		29	6	6					1		
Thompson street, south side, east house line of Sixteenth.....		29	6	6	4			1			
Thompson street, south side, east house line of Eighteenth.....		29	6	15	6					1	
Thompson street, south side, east house line of Nineteenth.....		29	6	14	5					1	
Thompson street, 13 feet west of west house line of Thirty-second.....		29	18	20						1	
Twelfth street, west side, 4 feet 6 inches south of south house line of Willow.....		14	6	16	8					1	
Twelfth street, east side, south house line of Allegheny avenue.....		28	6	15	9					1	
Twentieth street, east side, south house line of Cumberland.....		28	8	14	8					1	
Twenty-eighth street, west side, 1 foot south of south house line of York.....		28	6	15						1	
Twenty-eighth street, east side, south house line of Cumberland.....		28	6	18	10					1	
Twenty-fifth street, west side, north house line of Church.....		15	6	7	4					1	
Twenty-first street, west side, 3 feet south of south house line of Mt. Vernon.....		15	6	15	5					1	
Twenty-fourth street, west side, north house line of Green.....		15	6	7	6					1	
Twenty-seventh street, east side, 4 feet north of north house line of Cumberland.....		28	6	14						1	
Twenty-seventh street, west side, 4 feet north of north house line of Cumberland.....		28	6	16	5					1	

New Fire Hydrants—Fourth District—Continued.

Street	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.					
				Feet.	In.	O.	No. 1.	No. 2.	No. 3.		
Twenty-sixth street, east side, south house line of Poplar.....		15	36	9	6	.....	.....	.....	.....	1	.....
Twenty-third street, west side, south house line of Berks.....		32	6	14	.....	.....	.....	.....	.....	1	.....
Twenty-third street, east side, 4 feet 6 inches south of south house line of Norris.....		32	6	14	9	.....	.....	.....	.....	1	.....
Twenty-third street, west side, opposite north curb line of Fontaine.....		32	6	14	.....	.....	.....	.....	.....	1	.....
Vanpelt street, west side, north house line of Susquehanna avenue.....		28	6	13	4	.....	.....	.....	.....	1	.....
Willow street, south side, 117 feet west of west house line of Twelfth.....		14	4	8	.....	.....	.....	.....	.....	1	.....
Woodstock street, west side, north house line of Susquehanna avenue.....		28	6	12	6	.....	.....	.....	.....	1	.....
Woodstock street, west side, north house line of Dauphin.....		28	6	10	7	.....	.....	.....	.....	1	.....
York street, north side, 33 feet west of west house line of Twelfth.....		28	12	14	.....	.....	.....	.....	.....	1	.....
York street, north side, 107 feet west of west house line of Norfolk.....		28	6	14	2	.....	.....	.....	.....	1	.....
York street, south side, 253 feet west of west house line of Twenty-sixth.....		28	6	14	5	.....	.....	.....	.....	1	.....
Totals.....				2,194	.....	.....	.....	.....	.....	19	151

NEW FIRE HYDRANTS.
FIFTH DISTRICT.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.		
				Feet.	In.	No. 1.	No. 2.	No. 3.
Hemlock street, southeast side, 215 feet southwest of southwest house line of Vicaric.....		21	6	14	.....	.....	.....	1
Leverington avenue, southeast side, 115 feet southwest of southwest house line of Ridge avenue.....		21	6	15	6	.....	.....	1
Magnet street, southwest side, 12 feet 6 inches northwest of northwest house line of Gay.....		21	6	11	6	.....	1	.....
Main street, southwest side, 3,775 feet 6 inches southeast of southeast house line of Shurs lane.....		21	10	5	.....	.....	.....	1
Main street, southwest side, 3,022 feet 6 inches southeast of southeast house line of Shurs lane.....		21	10	11	.....	.....	.....	1
Main street, southwest side, 2,482 feet 6 inches southeast of southeast house line of Shurs lane.....		21	10	6	6	.....	.....	1
Main street, southwest side, 1,967 feet 6 inches southeast of southeast house line of Shurs lane.....		21	10	6	6	.....	.....	1
Main street, southwest side, 1,465 feet 6 inches southeast of southeast house line of Shurs lane.....		21	10	6	6	.....	.....	1
Main street, southwest side, 1,119 feet : inches southeast of southeast house line of Shurs lane.....		21	10	6	6	.....	.....	1
Main street, southwest side, 81 feet northwest of northwest house line of Robinson.....		21	10	8	6	.....	.....	1
Manayunk avenue, southwest side, 16 feet 6 inches northwest of northwest house line of Adams.....		21	10	14	6	.....	.....	1
Manayunk avenue, northeast side, 10 feet southeast of southeast house line of Hermit.....		21	10	14	6	.....	.....	1
New Queen street, northwest side, 983 feet southwest of southwest house line of Wisablickon avenue.....		28	8	22	6	.....	.....	1
New Queen street, northwest side, 2 feet southwest of southwest house line of Thirty-first.....		28	8	22	6	.....	.....	1
New Queen street, southeast side, 424 feet northeast of northeast house line of Thirty-first.....		28	8	23	6	.....	.....	1

New Fire Hydrants—Fifth District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.		
				Feet.	In.	No. 1.	No. 2.	No. 3.
New Queen street, northwest side, 2 feet southwest of southwest house line of Thirty-second street.....		28	8	22	6	.....	1	
Shurs lane, southeast side, 2 feet southwest of southwest house line of Mitchell.....		21	6	15	.....	.....	1	
Terrace street, northeast side. 173 feet northwest of northwest house line of Hermit.....		21	6	14	6	.....	.....	1
Thirty-third street, southwest side, 22 feet northwest of northwest house line of Fairview avenue.....		28	6	2	.....	.....	1	
Thirty-third street, southwest side, 3 feet southeast of southeast house line of New Queen,		28	6	31	6	.....	1	
Thirty-third street, southwest side 6 feet northwest of north west house line of Queen Lane.....		28	6	35	6	.....	1	
Total.....				336	.....	.....	9	11
								1

NEW FIRE HYDRANTS.
SIXTH DISTRICT.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.		
				Feet.	In.	No. 1.	No. 2.	No. 3.
Allens lane, southeast side, northeast house line of Sherman.....		22	10	16			1	
Allens lane, southeast side, southwest house line of Green.....		22	10	16			1	
Allens lane, southeast side, northeast house line of Green.....		22	20	12			1	
Allens lane, southeast side, south west house line of McCallum.....		22	10	16			1	
Allens lane, north west side, 87 feet southwest of southwest house line of Jefferson.....		22	10	19		1		
Allens lane, southeast side, northeast house line of Emlen.....		22	10	10			1	
Allens lane, north west side, northeast house line of Quincy.....		22	10	14			1	
Allens lane, southeast side, 276 feet southwest of southwest house line of Cresheim.....		22	10	14			1	
Allens lane, north west side 23 feet southwest of southwest house line of Cresheim.....		22	10	10		1		
Archer street, northeast side, northwest house line of Butler.....		28	6	8	4		1	
Archer street, northeast side, southeast house line of Nicetown lane.....		28	6	8	4		1	
Bake street, north west side, northeast house line of Nice.....		33	6	7			1	
Berkley street, southeast side, 520 feet southwest of southwest house line of Morris.....		22	6	10			1	
Berkley street, north west side, 289 feet southwest of southwest house line of Morris.....		22	6	10			1	
Broad street, east side, north house line of Cayuga.....		22	12	9				1

New Fire Hydrants—Sixth District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.					
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 3.		
Broad street, east side, south house line of Butler.....		33	6	10					1		
Broad street, west side, north house line of Butler.....		33	12	10					1		
Broad street, west side, south house line of McFerran.....		33	12	10					1		
Broad street, east side, south house line of Pike.....		33	6	17						1	
Broad street, west side, 91 feet south of south house line of Baker.....		33	12	10				1			
Broad street, west side, 308 feet north of north house line of Baker.....		33	12	18					1		
Brunner street, southeast side, northeast house line of Clarissa.....		28	6	11						1	
Cayuga street, northwest side, east house line of Eighteenth.....		33	6	11						1	
Chelton avenue, northwest side, 3 feet northeast of northeast house line of Wassuhickon avenue.....		22	6	3						1	
Coulter street, northwest side, northeast house line of Pulaski avenue.....		22	6	11						1	
Coulter street, southeast side, northeast house line of Tazona.....		22	6	19						1	
Franklin street, northwest side, northeast house line of Green.....		22	6	13						1	
Garfield street, southeast side, northeast house line of Germantown avenue.....		22	6	11						1	
Garfield street, northwest side, 498 feet northeast of northeast house line of Germantown avenue.....		22	6	9					1		
Garfield street, southeast side, southwest house line of Wakefield.....		22	6	14						1	
Germantown avenue, southwest side, 5 feet northwest of northwest house line of Tlga.....		28	6	8		6					1

New Fire Hydrants—Sixth District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.				
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 3.	
Mt. Pleasant street, southeast side, northeast house line of Germantown avenue.....		22	6	14	.....	.....	.....	1	.....	.....
Mt. Pleasant street, northwest side, northeast house line of Boyer.....		22	6	17	.....	.....	.....	1	.....	.....
Mt. Pleasant street, southeast side, southwest house line of Sprague.....		22	6	15	.....	.....	.....	1	.....	.....
Nineteenth street, west side, 3 feet north of north house line of Ontario.....		28	6	16	.....	.....	.....	1	.....	.....
Norwood street, southwest side, northwest house line of Chestnut ave.....		22	6	9	.....	.....	.....	1	.....	.....
Norwood street, southwest side, 405 feet northwest of northwest house line of Chestnut ave.....		22	6	9	.....	.....	.....	1	.....	.....
Penn street, southeast side, northeast house line of Baird.....		22	6	16	.....	.....	.....	1	.....	.....
Pulaski street, southwest side, southeast house line of Chelton avenue.....		22	6	19	.....	.....	.....	1	.....	.....
Pulaski street, southwest side, northwest house line of Chelton avenue.....		22	12	7	.....	.....	.....	1	.....	.....
Pulaski street, southwest side, 340 feet southeast of southeast house line of Rittenhouse.....		22	12	7	.....	.....	.....	1	.....	.....
Pulaski street, southwest side, 3 feet southeast of southeast house line of Rittenhouse.....		22	12	7	.....	.....	.....	1	.....	.....
Reading pike, northeast side, northwest house line of Chestnut avenue.....		22	6	7	.....	.....	.....	1	.....	.....
Reading pike, northeast side, 687 feet northwest of northwest house line of Chestnut avenue.....		22	6	7	.....	.....	.....	1	.....	.....
Reading pike, northeast side, 730 feet southeast of southeast house line of Sunset avenue southwest.....		22	6	7	.....	.....	.....	1	.....	.....
Reading pike, northeast side, southeast house line of Sunset avenue northeast.....		22	6	7	.....	.....	.....	1	.....	.....
Reading pike, northeast side, southeast house line of Thorp's lane.....		22	6	7	.....	.....	.....	1	.....	.....

New Fire Hydrants—Sixth District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.				
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 3.	
Rittenhouse street, northwest side, 339 feet southwest of southwest house line of Morris.....		22	6	12	.....	.....	.....	1	.....	.....
Roberts avenue, northwest side, southwest house line of Green.....		22	6	11	.....	.....	.....	.....	1	.....
Ross street, northeast side, northwest house line of Penn.....		22	6	15	.....	.....	.....	.....	1	.....
Ross street, southwest side, 481 feet northwest of northwest house line of Penn.....		22	6	16	.....	.....	.....	1	.....	.....
Schiller street, south side, west house line of Tenth.....		33	6	7	.....	.....	.....	.....	1	.....
Schiller street, north side, east house line of Eleventh.....		33	6	10	.....	.....	.....	.....	1	.....
School lane, southeast side, northeast house line of Pulaski avenue.....		22	6	20	6	.....	.....	.....	1	.....
School lane, southeast side, 119 feet 6 inches northeast of northeast house line of Wayne.....		22	6	21	6	.....	.....	1	.....	.....
School lane, northwest side, 419 feet southwest of southwest house line of Green.....		22	6	6	.....	.....	.....	.....	1	.....
School lane, northwest side, southwest house line of Green.....		22	6	12	.....	.....	.....	.....	1	.....
Seventh street, west side, north house line of Toga.....		33	6	14	.....	.....	.....	.....	1	.....
<i>Seventh street, west side, south house line of Venango.....</i>		33	6	15	.....	.....	.....	.....	1	.....
Seventh street, west side, south house line of Erie avenue.....		33	6	14	.....	.....	.....	.....	1	.....
Sprague street, southwest side, southeast house line of Chelton avenue.....		22	6	16	.....	.....	.....	.....	1	.....
Stenton avenue, northeast side, northwest house line of Medary.....		22	6	16	.....	.....	.....	.....	1	.....
Stenton avenue, northeast side, southeast house line of Chelton avenue.....		22	6	16	.....	.....	.....	.....	1	.....

New Fire Hydrants—Sixth District—Continued.

New Fire Hydrants—Sixth District—Continued.

Street.	Location.	Ward.	Size of Main.	6-INCH CONNECTION.		STYLE.				
				Feet.	In.	O. S.	No. 1.	No. 2.	No. 3.	
Tenth street, east side, north house line of Westmoreland.....		38	6	14	.....	.....	.....	1	.....	.....
Thorps' lane, north side, east house line of Stenton avenue.....		22	6	8	.....	.....	.....	1	.....	.....
Thorps' lane, north side, 438 feet east of east house line of Stenton avenue.....		22	6	6	.....	.....	.....	1	.....	.....
Thorps' lane, north side, 860 feet east of east house line of Stenton avenue.....		22	6	6	.....	.....	.....	1	.....	.....
Washington street, southeast side, northeast house line of Adams.....		22	6	11	.....	.....	.....	.....	.....	1
Wayne street, southwest side, southeast house line of Roberts avenue.....		28	6	19	.....	.....	.....	.....	.....	1
Weiss street, southwest side, northwest house line of Medary.....		22	6	13	.....	.....	.....	.....	.....	1
Weiss street, northeast side, southeast house line of Chellen avenue.....		22	6	13	.....	.....	.....	.....	.....	1
Westmoreland street, north side, west house line of Ninth.....		33	6	14	.....	.....	.....	.....	.....	1
Winona street, southeast side, southwest house line of Wayne.....		22	6	19	.....	6	.....	.....	.....	1
Winona street, southeast side, northeast house line of Fulaski avenue.....		22	6	19	.....	6	.....	.....	.....	1
Woodbine street, southeast side, 12 feet northeast of northeast house line of Devon.....		22	6	14	.....	.....	.....	.....	.....	1
Total.....				1,147	.....	.....	.....	.....	21	70

FIRE HYDRANTS RENEWED.

FIRST DISTRICT.

Street.	Location.	Ward.	SIZE OF MAIN.		6-INCH CONNECTION		STYLE.												
			Old.	New.	Feet.	In.	TAKEN OUT.			PUT IN.									
							No. 1.	No. 2.	No. 3.	No. 1.	No. 2.	No. 3.							
Bainbridge street, north side, 189 feet west of west house line of Eleventh.....		4	6		15														
Broad street, west side, 9 feet north of north house line of Bainbridge.....		30	6		5	6													
Cantrell street, south side, 118 feet east of east house line of Tenth.....		1	4		9														
Catharine street, north side, 191 feet west of west house line of Third.....		3	6		14	6													
Catharine street, north side, 3 feet east of southeast house line of Passyunk ave.....		3	6		14	6													
Catharine street, south side, 190 feet east of east house line of Seventh.....		3	6		14	6													
Catharine street, south side, 169 feet east of east house line of Eighth.....		3	6		14	6													
Chippewa street, east side, north house line of Bainbridge.....		30	6		4														
Christian street, south side, 10 feet west of west house line of Vernet.....		30	6		19														
Eighteenth street, east side, 1 foot north of north house line of Kater.....		30	6		14	6													
Gray's Ferry road, northwest side, 176 feet northeast of north house line of Christian.....		30	6		18	6													
Kater street, north side, 80 feet east of east house line of Fifteenth.....		30	6		7	6													
Kater street, north side, 110 feet east of east house line of Seventeenth.....		30	6		8	6													
Kater street, south side, 183 feet west of west house line of Seventeenth.....		30	6		8	6													

Fire Hydrants Renewed—Second District—Continued.

Street.	Location.	SIZE OF MAIN CONNECTION		STYLE.													
		6-INCH CONNECTION		TAKEN OUT.					PUT IN.								
		Old.	New.	Feet.	In.	O. 2.	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	O. 5.	No. 1.	No. 2.	No. 3.		
		Ward.															
Nineteenth street, east side, 10 feet north of north house line of Addison.....		7	6	14	1												
Nineteenth street, west side, 18 feet north of north house line of Wilcox.....		7	6	14	1												
Nineteenth street, east side, south house line of Dobbin.....		7	6	11	1												
Nineteenth street, east side, south house line of Dobbin.....		7	6			1											
Nineteenth street, east side, south house line of Jones.....		9	6	11	1												
Ninth street, east side, 140 feet north of north house line of Walnut.....		8	6				1										
North street, north side, 178 feet east of east house line of Sixth.....		6	6				1										
North street, north side, 13 feet east of east house line of Island road.....		27	6				1										
Penn street, west side, north house line of South.....		5	6	4	1										1		
Pine street, south side, 152 feet east of east house line of Fourth.....		5	6	14	1												
Pine street, north side, west house line of bean.....		7	6	13	8	1											
Race street, north side, 8 feet west of east house line of Front.....		6	6												1		
Race street, southwest corner of Jacoby.....		10	6												1		
Race street, south side, east house line of Allbon.....		10	6	14	1												
Sansou street, north side, 186 feet east of east house line of Twenty-second.....		8	6												1		

Fire Hydrants Renewed—Second District—Continued.

Street.	Location.	Ward.	SIZE OF MAIN.		6-INCH CONNECTION.		STYLE.													
			Old.	New.	Feet.	In.	TAKEN OUT.			PUT IN.										
							No. 1.	No. 2.	No. 3.	No. 1.	No. 2.	No. 3.								
Second street, east side, 30 feet north of north house line of South (market house).....		5	10			1														
Second street, west side, 7 feet south of south house line of Pine (market house).....		5	6			1														
Seventeenth street, east side, north house line of Carver.....		7	6			14														
Sixteenth street, west side, south house line of Cutbert.....		9	6			8														
Sixth street, east side, 215 feet south of south house line of Vine.....		6	6			9														
Sixth street, west side, 152 feet north of north house line of Race.....		6	6			20														
Sixtieth street, west side, 26 feet south of south house line of Hazel ave.....		27	8																	
Spruce street, south side, west house line of Dean.....		7	12			14	6													
Tenth street, west side, south house line of Morgan.....		10	6																	
Third street, east side, 22 feet south of south house line of New.....		6	6			15														
Thirtieth street, east side, 193 feet north of north house line of Race.....		10	6			14														
Thirty-fourth street, east side, 312 feet south of south house line of Chestnut.....		27	6			18														
Thirty-fourth street, west side, south house line of Rockland.....		24	6																	
Thirty-second street, east side, south house line of Spring Garden.....		24	6																	
Twelfth street, east side, 100 feet north of north house line of Market.....		9	6																	

Fire Hydrants Renewed—Second District—Continued.

Street.	Location.	Ward.	SIZE OF MAIN.		6-INCH CONNECTION		STYLE.												
			Old.	New.	Feet.	In.	TAKEN OUT.			PUT IN.									
							No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 1.	No. 2.	No. 3.					
Walnut street, north side, 298 feet west of west house line of Thirty-ninth.....		27	12		44				1								1		
Water street, west side, 3 feet south of south house line of Arch.....		6	6						1									1	
Water street, west side, 290 feet north of north house line of Race.....		6	6						1									1	
Woodland avenue, south side, 192 feet west of west house line of Woodward.....		27	6	12	22	8	1											1	
Woodland ave., north west side, 12 feet south west of southwest house line of Fifty-eighth.....		27	12															1	
Woodland ave., north west side, 12 feet southwest of southwest house line of Fifty-eighth.....		27	12															1	
Woodland ave., north west side, 44 feet southwest of southwest house line of Fifty-ninth.....		27	12															1	
Woodland ave., north west side, 17 feet southwest of southwest house line of Sixty-first.....		27	12															1	
Woodland ave., north west side, 23 feet southwest of southwest house line of Sixty-second.....		27	12															1	
Totals						928		71	6	30	4	2	5	13	92	3			

Fire Hydrants Renewed—Third District—Continued.

Street.	Location.	Ward.	SIZE OF MAIN.		6-INCH CONNECTION		STYLE.								
			Old.	New.	Feet.	In.	TAKEN OUT.			PUT IN.					
							No. 1.	No. 2.	No. 3.	No. 1.	No. 2.	No. 3.			
Ontario street, southwest side, northwest house line of Tulip.....		25	8	...	20	8	...	...	...	1	...	...	...	1	...
Palmer street, south west side, 7 feet northwest of northwest house line of Wildey.....		18	6	...	14	3	...	...	...	1	...	...	...	1	...
Farrish street, south side, east house line of Sixth street.....		12	4	6	11	6	1	...	...	1	...	...	...	1	...
Penn street, northwest side, southwest house line of Allen.....		23	6	...	14	6	...	...	...	1	...	...	...	1	...
Putnam street, northwest side, west house line of Hancock.....		19	6	...	14	6	1	...	...	1	...	...	...	1	...
Richmond street, southeast side, 22 feet southwest of southwest house line of Linden.....		25	6	...	18	6	1	...	...	1	...	...	...	1	...
Salmon street, northwest side, 5 feet northeast of northeast house line of York.....		18	4	...	11	6	1	...	...	1	...	...	...	1	...
Second street, west side, 230 feet south of south house line of Master.....		17	10	...	18	8	1	...	...	1	...	...	...	1	...
Second street, west side, 101 feet south of south house line of Jefferson.....		17	10	...	18	8	1	...	...	1	...	...	...	1	...
Sixth street, west side, 107 feet 6 inches north of north house line of Wood.....		12	6	...	7	6	1	...	...	1	...	...	...	1	...
Sixth street, east side, south house line of Callowhill.....		12	10	...	9	...	...	...	...	1	...	...	...	1	...
Sixth street, east side, 268 feet south of south house line of Green.....		12	10	...	10	7	1	...	...	1	...	...	...	1	...
Sixth street, west side, 72 feet 6 inches south of south house line of Green.....		12	6	...	14	1	1	...	...	1	...	...	...	1	...
Sixth street, west side, 62 feet south of south house line of Poplar.....		13	6	...	8	8	1	...	...	1	...	...	...	1	...
Susquahanna avenue, southeast corner of Iodine street.....		19	6	...	...	...	...	...	...	1	...	...	...	1	...

FIRE HYDRANTS RENEWED.

SIXTH DISTRICT.

Street.	Location.	Ward.	SIZE OF MAIN CONNECTION		6-INCH CONNECTION		STYLE.												
			Old.	New.	Feet.	In.	TAKEN OUT.		FOR IN.										
							O. S.	No. 1.	No. 2.	No. 3.	O. S.	No. 1.	No. 2.	No. 3.					
Adams st., southwest side, 281 ft. 4 in. southeast of southeast house line of Tulpehocken..		22	6		13			1											
Adams st., south west side, 281 ft. 4 in. southeast of southeast house line of Tulpehocken..		22	6						1										
Allens lane, northwest side, 115 ft. 8 in. south west of southwest house line of Creshelm..		22	16					1											
Allens lane, southeast side, southwest house line of Green.....		22	10							1									
Broad street, west side, north house line of Juniata.....		33		6							1								
Broad street, west side, north house line of Bristol.....		33	6								1								
Camac street, east side, north house line of Louden.....		22	6								1								
Chelton avenue, southeast side, 294 feet southwest of southwest house line of Morris.....		22	6		30					1									
Chelton avenue, southeast side, 3 ft. 6 in. southwest of southwest house line of Morris.....		22	6									1							
Chelton avenue, southeast side 3 ft. 6 in. southwest of southwest house line of Morris.....		22	6										1						
Coulter street, northwest side, southwest house line of Alfred.....		22	6											1					
Dennie street, southeast side, northeast house line of Clarissa.....		28	6												1				
German town avenue, southwest side, southeast house line of Chelton.....		22	6													1			
German town avenue, northeast side, southeast house line of Price.....		22	6														1		

Fire Hydrants Renewed—Sixth District—Continued.

Street.	Location.	Ward.	SIZE OF MAIN.		6-INCH CONNECTION		STYLE.										
			Old.	New.	Feet.	In.	TAKEN OUT.			PUT IN.							
							No. 1.	No. 2.	No. 3.	O. S.	No. 1.	No. 2.	No. 3.				
Haines street, southeast side, 195 feet southwest of southwest house line of Hancock.....		22	6					1									
High street, northwest side, southwest house line of Helskell.....		22	6						1								1
McCallum st., south west side, 263 ft. 7 in. southeast of southeast house line of Mt. Pleasant		22	16						1								1
Nineteenth street, east side, 265 feet south of south house line of Ontario.....		23	16						1								1
Norwood street, southwest side, 946 ft. northwest of north west house line of Chestnut av.		22	4	6	9				1								1
Reading pike, northeast side, southeast house line of Thorps lane.....		22	6							1							1
Reading pike, northeast side, southeast house line of Thorps lane.....		22	6								1						1
Reading pike, northeast side, 561 ft. northwest of northwest house line of Thorps lane...		22	4	6	7				1								1
Rittenhouse st., southe't side, 24 ft. northe't of northe't house line of Wissabickon ave....		22	16								1						1
Rittenhouse st., southe't side, 24 ft. northe't of northe't house line of Wissabickon ave....		22	16									1					1
Rittenhouse st., southe't side, 24 ft. northe't of northe't house line of Wissabickon ave....		22	16										1				1
Rittenhouse street, southeast side, southwest house line of Pulaski avenue.....		22	16											1			1
School lane, northwest side, 43 ft. northeast of northeast house line of Wissabickon ave.		22	6												1		1
School lane, northwest side, 43 ft. northeast of northeast house line of Wissabickon ave.		22	6													1	1
School lane, southeast side, 414 ft. northeast of northeast house line, Wissabickon ave.....		22	6			20											1

Five Hydrants Renewed—Sixth District—Continued.

Street.	Location.	Ward.	SIZE OF MAIN.		6-INCH CONNECTION		STYLE.										
			Old.	New.	Feet.	In.	TAKEN OUT.			PUT IN.							
							No. 1	No. 2	No. 3	O. S.	No. 1	No. 2	No. 3				
Spring House pike, north side, 1,017 feet northw't of northw't house line of New st.....		22	6			1					1						
Stenton, southwest side, southeast house line of Seminole.....		22	6							1							1
Walnut lane, southeast side, southwest house line of Adams.....		22	6							1							1
Wayne, southwest side, southeast house line of Roberts avenue.....		28	6	6						1							1
Wayne, southwest side, 124 feet 8 inches northwest of northwest house line of Lehman.....		22	6							1							1
Willow Grove avenue, southeast side, northeast house line of Seminole.....		22	6							1							1
Willow Grove ave., northw't side, 33 ft. southw't of southw't house line of Thirty-second.....		22	6							1							1
Winona, northwest side, northeast house line of Tacona street.....		22	4	6	15					1							1
Wissabickon avenue, northeast side, 2 feet southeast of southeast house line of Lehman.....		22	6							1							1
Wister, southeast side, 123 ft. northeast of northeast property line of P. & R. R. R.....		22	6														1
Woodbine, northwest side, 295 feet southwest of southwest house line of Chew street.....		22	6							1							1
Total						16	2	22			3	14	23				

Recapitulation of Fire Hydrants Set, Renewed, and Removed.

DISTRICTS.		STYLE.				Total.	
		Old.	No. 1. 1 Way.	No. 2. 2 Way.	No. 3. 3 Way.		No. 5.
Set.	First		36	81		117	
	Second		4	104	3	1	112
	Third		15	108			123
	Fourth		19	151			170
	Fifth		9	11	1		21
	Sixth		21	70			91
	Total		104	525	4	1	634
Renewed.	First		22	19			41
	Second	11	33	171	7		222
	Third		27	30			57
	Fourth	1	3	21			25
	Fifth	13	4	10			27
	Sixth	3	14	23			40
	Total	28	103	274	7		412
Total new hydrants.....						1,046	
Removed.	First	36	1	2	14		53
	Second	50		10	9	1	70
	Third	47			2		49
	Fourth	64	2	3	19		88
	Fifth						
	Sixth	28	1	2	1		32
	Total	225	4	17	45	1	292
Total added during 1892.....						342	

Fire Hydrants by Purveyor's Districts.

DISTRICTS.	STYLE.						Totals.
	Old.	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	
First.....	507	263	544	188			1,502
Second.....	834	221	646	179	1	24	1,905
Third.....	885	267	702	186	2		2,042
Fourth.....	486	178	713	210	1	4	1,592
Fifth.....	217	36	125	12			390
Sixth.....	360	235	317	104			1,016
Totals.....	3,289	1,200	3,047	879	4	28	8,447

Fire Hydrants by Wards.

Wards.	STYLE.						Total
	O. S.	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	
First	178	74	115	44			411
Second	60	28	71	29			188
Third	40	18	36	9			103
Fourth	30	17	27	18			92
Fifth	66	25	43	31		3	168
Sixth	27	17	48	34	1	3	130
Seventh	71	12	73	12		1	169
Eighth	57	27	88	16		2	190
Ninth	86	27	64	21		3	151
Tenth	40	27	55	12		7	141
Eleventh	38	13	33	2		1	87
Twelfth	42	8	26	9			85
Thirteenth	53	14	47	15			129
Fourteenth	34	10	64	13			121
Fifteenth	93	46	129	61	1	2	332
Sixteenth	87	13	37	8	1		96
Seventeenth	43	20	28	9			100
Eighteenth	103	25	51	19			198
Nineteenth	146	37	114	34			331
Twentieth	108	21	97	25			251
Twenty-first	193	24	112	9			338
Twenty-second	292	197	227	80			796
Twenty-third	144	27	79	18			268
Twenty-fourth	220	38	110	16		1	380
Twenty-fifth	161	55	129	13			358
Twenty-sixth	130	84	168	68			450
Twenty-seventh	200	38	123	20		1	382
Twenty-eighth	119	65	263	60			507
Twenty-ninth	106	36	123	41		1	307
Thirtieth	56	40	95	18			209
Thirty-first	81	28	64	25			198
Thirty-second	51	16	64	25		1	157
Thirty-third	103	59	165	55	1		383
Thirty-fourth	131	18	70	10		2	231
Thirty-fifth		1	9				10
Totals	3,289	1,200	3,047	879	4	28	8,447

*Attachments, etc., made by the Purveyors, in accordance with permits issued by the Bureau of Water.
Arranged by months.*

MONTHS.	NEW ATTACHMENTS.						SHUT OFF BY PERMIT.						WORK DONE WITHOUT PERMIT.						
	SIZE.						Re-attached.	Discontinued.	Transfer.	Repairs.		Totals.	DRAWN.						
	1/2-inch.	3/8-inch.	1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.				2-inch.	Totals.		Not drawn.	Drawn and re-driven.	Discontinued and abandoned.	Juplicates.	Deficient.	Leak.	Totals.	Drawn and re-driven.
January	86	2	.....	1	1	3	53	3	12	.....	4	6	85	4	.....	11	15	.....
February	171	6	2	5	.....	2	186	2	14	6	1	8	36	1	.....	17	18	3	
March	277	11	9	6	3	4	310	10	14	20	3	.....	72	12	7	6	7	82	2
April	775	22	16	17	3	3	853	13	15	28	.....	155	24	2	6	18	14	38	50
May	570	40	42	38	6	8	704	19	42	44	1	.....	130	20	.....	9	29	76	
June	697	46	27	31	3	5	812	34	41	36	5	1	156	13	.....	2	11	26	581
July	947	23	11	19	1	6	967	22	35	11	12	2	100	7	.....	11	13	31	163
August	601	30	23	29	6	7	696	8	68	26	2	6	113	8	.....	1	24	33	16
September	1,075	18	20	22	4	5	1,144	24	32	31	6	.....	131	11	.....	16	27	42	.....
October	1,074	21	16	27	5	6	1,152	30	17	43	1	1	126	266	.....	24	290	.....	.....
November	1,210	58	24	11	6	9	1,318	14	25	50	6	1	152	23	.....	10	28	61	.....
December	650	9	8	9	3	3	682	4	27	11	1	6	68	13	.....	30	52	2	.....
Totals	8,003	259	198	218	41	61	8,900	187	312	300	37	184	312	364	7	48	213	652	956

*Attachments, etc., made by the Purveyors, in accordance with permits issued by the Bureau of Water.
Arranged by Districts.*

DISTRICTS.	NEW ATTACHMENTS.						SHUT OFF BY PERMIT.				WORK DONE WITHOUT PERMIT.							
	SIZE.						Repaired for larger Attachments.	Re driven.	Discontinued.	Transfer.	REPAIRS.		DRAWN.					
	1/2-inch.	3/4-inch.	1-inch.	1 1/4-inch.	2-inch.	Totals.					Not drawn.	Drawn and Re-driven.	Discouraged and Abandoned.	Duplicate.	Delinquent.	Leak.	Totals.	Drawn and Re-driven.
First	1,917	19	42	32	6	7	2,023	49	53	9	29	140	80	10	33	73	316	
Second	1,031	120	43	46	15	21	1,276	69	116	10	155	321	295	56	56	351	276	
Third	2,063	61	53	87	6	24	2,303	136	103	10	14	318	52	7	15	147	.....
Fourth	2,217	54	39	38	11	7	2,366	74	17	2	10	270	4	16	16	66	294	
Fifth	182	1	1	4	1	.....	189	5	2	3	4	28	.....	1	5	6	4
Sixth	677	31	20	11	2	2	743	19	15	3	1	54	3	6	.....	9	45
Totals.....	8,093	289	198	218	41	61	8,960	342	306	37	184	1,861	384	7	48	213	652	935

Account of New Stops for 1892.

DISTRICTS.	BUREAU OF WATER.		VINEY.				Total.
	2-Way.	Butterfly.	2-Way.	3-Way.	4-Way.	5-Way.	
First.....	239						239
Second.....	175						175
Third.....	166			21	1		188
Fourth.....	255	12		12	1	7	287
Fifth.....	37	1					38
Sixth.....	98						98
Total.....	970	13		33	2	7	1,025

Repairs to Mains, Stops and Fire Hydrants ; also, Stops and Fire Hydrants removed during 1892.

DISTRICTS.	Repairs to Mains.	STOPS.			FIRE HYDRANTS.		
		Repaired.	Renewed.	Removed.	Repaired.	Renewed.	Removed.
First.....	48	548	142	9	577	41	53
Second.....	123	159	95	14	490	113	70
Third.....	206	891	17	2	421	57	49
Fourth.....	259	281	19	34	1,136	25	83
Fifth.....	26	53	3	1	40	27	
Sixth.....	70	10	40	4	24	40	68
Total.....	732	1,942	316	64	2,688	303	323

Number of Valves raised in the several Districts during the year 1892; also in each year since 1873.

DISTRICT.	6-inch Barton.	8-inch Barton.	6-inch Viney.	3-inch.	4-inch.	6-inch.	8-inch.	10-inch.	12-inch.	16-inch.	20-inch.	30-inch.	36-inch.	Total.
First.....						3				2				5
Second.....	4			3	2	5		1	1					16
Third.....	2		1		4	14		1						22
Fourth.....					1	10		1						12
Totals for 1892.....	6		1	3	7	32		3	1	2				55
" 1891.....	2	2	1	6	10	37		3	1		1	2		65
" 1890.....	8	3		3	23	68		7	1	1				114
" 1889.....	15		2	4	23	73		4	1	1		1		124
" 1888.....	6			8	26	74		10	1	2		1		128
" 1887.....	11			11	16	61		10	3	4	2	1	1	120
" 1886.....	12			13	18	57	1	3				1		105
" 1885.....				11	24	97	1	9		2		1		145
" 1884.....				7	13	71	1	4	2	1	3	6	1	109
" 1883.....				4	27	88		8		1		1	1	130
" 1882.....		1		14	25	58	1	5	1			1		106
" 1881.....				15	44	90		5	7					161
" 1880.....				7	23	47		8	1			1		87
" 1879.....				9	16	60	1	3	2			1	1	93
" 1878.....				27	22	100		3	1		1	1		155
" 1877.....				12	6	50		1			1			70
" 1876.....				3	17	49		3			1			73
" 1875.....				17	55	120	4	12	2	4	1	2		217
" 1874.....				13	32	111	6	6	3	3				174
Totals for 19 years....	60	6	4	187	427	1,343	15	107	27	21	10	20	4	2,231

Number of Complaints and Examinations during 1891 and 1892.

Months.	Hydrants.		Service Pipes.		Wash Paves.		Spigots.		Water-Closets.		Horse Troughs.		No Leaks.		Total.	
	1891.	1892.	1891.	1892.	1891.	1892.	1891.	1892.	1891.	1892.	1891.	1892.	1891.	1892.	1891.	1892.
January	178	103	83	6	9	4	2	2	6	1	62	22	431	296		
February	108	61	84	5	3	2	4	1	2	1	33	38	217	337		
March	144	64	73	9	1	.....	4	4	3	.....	48	17	255	262
April	88	63	71	5	5	1	4	.....	.....	.....	62	24	245	185
May	90	67	49	6	3	1	2	4	.....	.....	49	27	243	173
June	86	71	76	.....	2	1	.....	4	.....	.....	40	26	195	198
July	119	43	79	5	1	.....	2	3	3	.....	36	24	278	198
August	68	64	56	5	2	.....	3	1	.....	.....	39	18	224	148
September	143	62	68	3	4	.....	5	3	3	1	33	27	264	250	
October	180	83	76	6	4	.....	6	6	.....	.....	44	28	284	301
November	129	86	72	3	2	.....	5	1	9	.....	33	24	252	241
December	174	222	138	4	6	.....	4	7	.....	.....	29	27	272	405
Totals	1,618	822	929	56	50	32	50	43	15	5	498	322	3,190	2,984		



Tabular Statement of Work Connected with the Distribution for the Years, 1880 to 1892 inclusive.

Years	PIPE.										Additional stops.	Additional fire hydrants.	Fire hydrants in use.	Meters in use.	SERVICE ATTACHMENTS.								
	Extensions.		Repairs and Relays.		Total pipe handled.		Total amount in use.		Total amount handled.						Additional fire hydrants.	Fire hydrants in use.	Meters in use.	½ in.	¾ in.	1 in.	1½ in.	2 in.	Total.
	Feet.	Pounds.	Feet.	Pounds.	Feet.	Pounds.	Feet.	Pounds.	Feet.	Pounds.													
1880...	23,085	544,946	9,557	262,526	32,642	1,107,772	3,927,623	192,816,906	4,164,768	200,136,708	138	70	5,338	34	2,687	118	40	89	.....	.....	2,913
1881...	56,616	2,832,623	3,832	199,649	60,448	3,032,272	3,981,239	193,649,529	4,225,216	203,168,980	219	144	5,502	42	3,166	137	59	121	.....	.....	3,483
1882....	56,960	5,396,165	7,740	484,092	61,600	5,880,277	4,081,180	202,202,522	4,289,816	200,019,237	312	120	5,612	45	3,169	110	76	129	.....	.....	3,481
1883....	63,215	3,018,645	12,605	675,420	75,890	3,724,065	4,144,395	203,251,167	4,365,696	212,773,301	281	130	5,752	63	4,576	97	71	133	.....	.....	4,877
1884....	84,451	7,155,385	18,079	1,380,271	102,530	8,535,656	4,228,946	212,406,552	4,468,226	221,308,937	324	147	5,887	360	5,529	185	84	149	.....	.....	7
1885....	137,967	12,234,074	93,783	3,265,537	231,850	15,499,611	4,366,813	224,640,525	4,700,076	236,808,563	539	307	6,195	305	6,734	254	121	160	.....	.....	16
1886....	136,891	18,238,457	121,210	4,883,526	238,011	23,122,243	4,503,644	242,879,083	4,918,117	259,930,851	736	285	6,490	284	7,482	258	101	133	.....	.....	32
1887....	122,790	14,780,082	34,098	1,329,083	156,898	16,109,165	4,626,434	257,659,165	6,115,005	276,040,016	546	429	6,715	253	7,892	317	124	143	.....	.....	2
1888....	133,552	6,356,379	45,943	1,486,631	179,495	7,843,010	4,719,986	264,015,541	5,291,500	283,883,026	772	214	6,929	267	8,260	193	139	118	.....	.....	23
1889....	147,171	12,270,311	57,836	2,410,677	208,007	14,680,988	4,907,157	276,253,855	5,499,507	298,514,014	601	247	7,433	304	8,950	263	149	119	.....	.....	17
1890....	159,176	14,164,305	70,546	3,085,294	223,722	17,222,599	5,066,333	290,450,160	5,729,229	315,786,613	840	316	7,749	552	9,248	426	167	164	.....	.....	30
1891....	218,931	21,319,926	64,491	2,051,782	283,422	23,371,708	5,285,264	310,770,086	6,012,651	339,108,321	1,136	356	8,105	697	7,607	243	130	152	.....	.....	18
1892....	158,783	9,713,961	104,996	5,352,335	263,779	15,066,316	5,444,047	327,484,047	6,276,430	354,174,637	1,025	342	8,447	789	8,993	289	198	218	.....	.....	41

New Meters Set.

Ward.	Occupant.	Location.	Date when Set.	Name of Meter.	SIZE.								Gallons Consumed.	Remarks.	
					3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.	6-inch.	Total.			
1	Rugari, Charles.....	65-27 McClellan st.	Aug. 9...	Nash.....	1								1	149,250	
1	Taylor, N. & G.....	N. S. Tasker—Meadow to Swanson..	Oct. 9...	Gem.....				1					1	2,205,750	
1	Taylor, Geo. M.....	N. S. Dudley, 55 ft. W. of Swanson..	Dec. 5...	Gem.....					1				1		On fire attachment.
1	Taylor, Geo. M.....	N. S. Dudley, 55 ft. W. of Swanson..	Dec. 5...	Gem.....				1					1	20,250	
2	Martin, T. J.....	1201 Washington ave., N. W. c. 12th	Feb. 6...	Crown.....		1							1	No water used.	
2	Martin, T. J.....	1201 Washington ave., N. W. c. 12th	Feb. 6...	Gem.....					1				1	No water used.	On fire attachment.
2	Williams, J. & Sons.....	S. W. cor. 12th and Carpenter sts...	May 10...	Gem.....						1			1	No water used.	On fire attachment.
3	Merton, R. P.....	770-72 and rear S. 24 st.....	Nov. 18...	Gem.....				1					1	104,250	
5	Holy Trinity Church.....	601-3 Spruce st., N. W. cor. 6th st..	July 14...	Gem.....				1					1	22,500	
5	Providence Steamship Co.	Ter 17 S. Del. ave., below Spruce...	Aug. 13...	Gem.....					1				1	12,000	
5	Bailey, Thos. W.....	622-24 Lombard st. and rear.....	Jan. 19...	Crown.....					1				1	560,250	
6	Bell Telephone Co.....	406-08 Market st.....	Jan. 23...	Gem.....					1				1	7,662,300	
6	Crantzberg, Mary F.....	421-25 Arch st.....	Nov. 28...	Gem.....				1					1	No water used	
6	Philada. National Bank...	419-23 Chestnut st.....	Dec. 20...	Gem.....					1				1	No water used.	
7	Gladstone Apartm't House	828-38 S. 11th and 831-36 Quince....	Feb. 19...	Gem.....									1	30,480,000	

New Meters Set—Continued.

Wards.	Occupant.	Location.	Date when set.	Name of meter.	SIZE.							Total.	Gallons Consumed.	Remarks.	
					½ nch.	¾-inch.	1-inch.	1½-inch.	2-inch.	3-inch.	4-inch.				6-inch.
9	Fuller, D. B.....	1812½-16 Market and 1817 Barker (to 16 s. Eighteenth st.....)	Sept. 23.	Nash.....				1					1	955,500	
9	Fuller, D. B.....	1812½-16 Market and 1817 Barker (6 to 16 s. Eighteenth st.....)	Sept. 23.	Nash.....				1					1		
9	Phillips estate.....	13-21 s. Eleventh, S. E. c. Marbleal.	Feb. 2.....	Gem.....						1			1	No water used.	On fire attachment.
9	P. & R. Terminal Co.....	Market st., N. E. cor. Twelfth.....	Sept. 28.	Gem.....						1			1	741,000	
9	P. & R. Terminal Co.....	Arch st., S. E. cor. Twelfth.....	Sept. 28.	Gem.....							1		1	No water used.	On fire attachment.
9	P. & R. Terminal Co.....	Arch st., S. E. cor. Twelfth.....	Oct. 7.....	Gem.....							1		1	No water used.	
9	P. & R. Terminal Co.....	Market st., N. E. cor. Twelfth.....	Oct. 21.....	Gem.....							1		1	No water used.	
10	Eighth Street Theatre.....	209-17 N. Eighth st.....	Jan. 20.....	Gem.....									1	70,950	On fire attachment.
10	P. & R. Terminal Co.....	s. s. Cherry st., 152 ft. 6 in. E. of 12th	Nov. 26.....	Gem.....							1		1	No water used.	
10	P. & R. Terminal Co.....	w. s. Eleventh st. 71 ft. n. of Sheat.	Nov. 30.....	Gem.....								1	1	10,500	
10	P. & R. Terminal Co.....	n. s. Arch st. 122 ft. 6 in. E. of 12th.	Dec. 1.....	Gem.....									1		
11	Haman, W. H.....	227 Buttonwood st.....	Dec. 9.....	Nash.....							1			No water used.	
11	P. & R. Co.....	n. w. c. Front and Margaretta.....	Mar. 29.....	Gem.....									1	1,313,250	On fire attachment.
12	John F. Betz & Son.....	s. w. c. York ave. and Willow st.....	Oct. 16.....	Gem.....								1	1	63,000	
13	P. & R. Terminal Co.....	Melon st. west of Ninth.....	July 19.....	Gem.....									1	39,658,350	

New Meters Sec.—Continued.

Wards.	Occupant.	Location.	Date when Set.	Name of Meter.	Size.							Gallons Consumed.	Remarks.						
					½-inch.	¾-inch.	1-inch.	1½-inch.	2-inch.	3-inch.	4-inch.			6-inch.	Total.				
8	Bureau of Water.....	S. W. cor. 12th and Walnut streets.	Sept. 7..	Deacon															
8	Bureau of Water.....	S. E. cor. 9th and Walnut streets....	Oct. 19 ..	Deacon															
8	Bureau of Water.....	S. W. cor. 12th and Walnut streets.	Nov. 10..	Gem.....															
8	Bureau of Water.....	11th and Spruce streets.....	Nov. 19..	Gem.....					1										
8	Continental Hotel.....	S. E. cor. 9th and Chestnut streets..	Dec. 2 ..	Nash.....	1														
8	Continental Hotel.....	S. E. cor. 9th and Chestnut streets....	Dec. 2 ..	Nash.....		1													
8	Payne, J. A.....	219 S. Broad street.....	July 5..	Gem.....						1									
8	Union League.....	S. W. Broad and Sansom streets.....	Nov. 4..	Gem.....							1								
9	Bennett, J. M.....	1023-27 Chestnut street.....	Feb. 5..	Gem.....								1							
9	Bureau of Water.....	1321 Filbert street.....	Oct. 13..	Crown ..	1														
9	Boothby.....	1233 Chestnut street.....	Nov. 18..	Nash.....		1													
9	Bureau of Water	N. s. Clover E. of 18th street.....	Dec. 8..	Deacon															
9	Cochran, W. G.....	1211-15 Chestnut street	Jan. 21..	Gem.....															
9	Croft & Allen	Rear 1226-28 Market street	Jan. 24..	Gem.....															
9	Fuller, D. B.....	{ 6 to 16 E. 18th st., 1812½-16 Market and 1817 Barker sts.....	Sept. 23..	Nash.....															

New Meters Set—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	SIZE.							Gallons Consumed.	Remarks.	
					1/2-inch.	3/4-inch.	1-inch.	1 1/8-inch.	2-inch.	3-inch.	4-inch.			6-inch.
13	P. & R. Terminal Co.....	9th and Fairmount ave.....	Aug. 30.....	Gen							1	1		
15	Fairm't Ice Machine Co.	2401 Green st.....	Oct. 6.....	Gen							1	1	5,364,750	
15	Fairm't Ice Machine Co.	2401 Green st.....	Oct. 27.....	Nash							1	1		
15	Green & Coates P.R.W. Co	S. W. 24th and Fairmount ave.....	May 4.....	Gen		1					1	1	No water used..	On fire attachment.
15	Irvine, Wm. B.....	2218-24 Pennsylvania ave.....	May 18.....	Crown.			1					1		
15	Simms, J.....	1414-20 Calowhill st.....	Aug. 10.....	Nash		1						1	29,250	
16	North Liberties Gas Wks	S. W. Laurel & Canal sts.....	May 15.....	Gen							1	1	No water used..	On fire attachment.
16	Schmidt, C, Brewing Co.	111-29 Edward st.....	May 20.....	Crown.			1					1	44,100	
17	Arrott Mills Co.....	Howard st., W. S., S. W. c. Jefferson	May 2.....	Gen							1	1	75,900	On fire attachment.
17	Wilson, Andrew.....	312-18 Columbia ave.....	Mar. 3	Gen							1	1	7,509	On fire attachment.
18	Oak Mills Co.....	E. S. Tulip st., 100 feet n. of Palmer	Mar. 7.....	Gen							1	1	7,500	On fire attachment.
19	Consolidated Ice Co.....	2345 Bodine st.....	July 26.....	Nash			1					1	459,750	
19	Cox, A., stove works.....	2301 American, n. e. cor. Dauphin..	Dec. 21.....	Nash			1					1	1,837	
19	French, Hugh.....	N. W. Cumberland and Third st.....	Mar. 21.....	Gen							1	1	1,102,800	On fire attachment.
19	Hennings & Schaeffer.....	1609-45 N. Fifth st.....	Mar. 23.....	Gen							1	1	No water used..	On fire attachment.

New Meters Set—Continued.

Wart.	Occupant.	Location.	Date when set.	Name of meter.	SIZE.							Gallons Consumed.	Remarks.	
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.			6-inch.	Total.
19	Northern Electric I. A. Co.	213 Susquehanna ave.....	Aug. 27...	Gen.....								1	250,500	
19	Montague & White.....	Berks S.W. c. Hope to S. E. c. Howard	Mar. 8....	Gen								1	No water used..	On fire attachment.
19	Montague & White.....	Berks S.W. c. Hope to S. E. c. Howard	Mar. 8....	Gen								1	No water used..	On fire attachment.
19	Montague & White.....	Berks S.W. c. Hope to S. E. c. Howard	Mar. 8....	Gen								1	No water used..	On fire attachment.
19	Sheppard, I. A.....	N. E. cor. 4th & Montgomery ave....	Feb. 19...	Gen								1	No water used..	On fire attachment.
19	Schofield, Mason & Co....	N. E. cor. Fairhill & Cumberland st	Feb. 29...	Gen								1	No water used..	On fire attachment.
19	Stewart, Ralph & Co.....	1641-13 Hancock st.,	Sept. 27...	Nash.....			1					1	1,766,250	
20	Reardwood, T., & Bro.....	1640-44 N. 6th st.....	Mar. 17...	Crown.....		1						1	136,995	
20	Dessalt, Charles.....	1742-48 Mervine st and rear.....	Oct. 24...	Gen				1				1	476,250	
20	Dessalt, Charles.....	1742-48 Mervine st and rear.....	Oct. 24...	Nash		1						1		
21	Nixon, Edate of Martin.....	W. S. Main st N. of Fountain st.....	May 9.....	Gen.....								1	No water used..	On fire attachment.
21	Johnson, William.....	Leverington ave., S. E. c. Hamilton	Dec. 4....	Nash.....					1			1	86,725	
21	Johnson, William.....	Leverington ave., S. E. c. Hamilton	Dec. 4....	Gen								1		On fire attachment.
21	Wallace, D.....	N. W. Main st. & Shurs lane.....	April 6...	Crown.....								1	30,000	
22	Jewish Hospital.....	Cottage ave. E. of York ave.....	Oct. 12...	Gen.....								1	3,206,200	

New Meters Set—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	Size.							Gallons Consumed.	Remarks.
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.		
25	Stewart John.....	3340 Waterloost, 1st h. n. of Westm d	Feb. 13....	Crown.....	1							30,000	
25	Wright James.....	N. W. Rush st. & Trenton ave.....	Apr. 27....	Gem.....		1						7,500	On fire attachment.
26	American Sew'g Mach. Co	S. W. 20th & Washington ave.....	Mar. 11....	Crown.....			1					2,139,130	
26	Ammonia Co. of Philada.	2901-29 Gray's Ferry road.....	Dec. 21....	Gem.....			1					No water used.	
26	Bureau of Water.....	12th and Reed streets.....	Jan. 10....	Crown.....			1					519,750	
26	Philada Pa k. & Prov. Co	w. s. Gray's Ferry rd., 192 ft. w. of 36th	Oct. 10....	Gem.....				1				151,500	
26	South Branch Y. M. C. A.	N. W. Broad and Federal streets....	Nov. 11....	Gem.....				1				No water used.	
27	Conway Wm. (estate)....	e. s. 50th st., 60 feet s. of Locust....	July 13....	Nash.....		1						552,270	
28	Bradbury S.....	n s. Bristol st., 248 ft. e. of Wayne..	Nov. 26....	Gem.....				1				15,750	
28	Folson J. & J.....	Ridge ave. e. s., cor. P. & R. R., R. E..	Oct. 2.....	Gem.....				1					
28	Dobson J. & J.....	Ridge ave. e. s., cor. P. & R. R., R. E..	Oct. 2.....	Gem.....				1				36,148,925	
28	Dobson J. & J.....	Ridge ave., e. s. cor. P. & R. R., R. E..	Oct. 2.....	Gem.....				1					
28	Mills F. B.....	1663 York street.....	Dec. 13....	Nash						1		No water used.	
28	Sullivan J. & Sons.....	2254 N. 9th st., 98 ft. N of Susq'na av	Oct. 21....	Gem.....						1		341,250	
29	West End Electric Lt. Co	w. s. 31st st., 1st h. n. of Girard av..	Aug. 7....	Gem.....						1		2,319,000	
											Total.		

New Meters set—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of Meter.	Size.								Gallons Consumed.	Remarks.
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.	6-inch.			Total.
22	Stokes, Ellen.....	Franklin av., n. s., 90 ft. e. of Wayne	Oct. 26....	Nash....	1								50,750	
22	Wood, Samuel.....	Collum st., n. s., w. of P. & R. R....	Jan. 24....	Crown....		1							31,000	On fire attachment.
22	Wood, Samuel.....	Collum st., n. s., w. of P. & R. R....	Jan. 24....	Gem....			1							
22	Y. M. C. A.....	5019-21 Germant'n av., 167 ft. 5 in. n. of Centre.....	April 30....	Crown....			1						591,250	
23	Berkshire Manuff'ng Co.	2133-41 Church or Pine st.....	May 6....	Gem.....				1					No water used.	On fire attachment.
23	Crankshaw Mills.....	1334 Unity, s. w. co. Elizabeth st.....	May 3....	Gem....				1					No water used.	On fire attachment.
23	Greenwood and Bault.....	4520 Worth st., n. w. cor. Oxford....	April 28....	Gem....				1					No water used.	On fire attachment.
23	Hiller, W.....	2212-14 Bridge st.....	July 7....	Gem....					1				1,773,000	
21	Jones, G. A.....	Adams st., s. w. cor. Pine.....	Aug. 11....	Nash....	1								6,000	
25	Adamsom Estate.....	538 E. Clearfield, n. e. c. Trenton av.	April 25....	Crown....				1					916,500	
25	Buck, J. V.....	2736 Church st.....	Aug. 11....	Nash....				1					248,250	
25	Foerclerer, R. H.....	N. E. c. Wheat Sheaf lane & Coral...	Dec. 11....	Gem.....					1				1,670,625	
25	Lodge.....	Emerald st. w. s., D. w. c. Hart lane...	April 25....	Gem....					1				22,500	On fire attachment.
25	Henry, T.....	E. Tioga s. s., s. 88 ft. w. of Trent. av.	April 26....	Gem....					1				11,250	On fire attachment.
25	Moore, J. C.....	W. s. Trenton av., n. w. c. Virginia	April 23....	Crown....					1				3,381,500	

New Meters Set—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	Size.							Gallons Consumed.	Remarks.
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.		
29	Vieweger, Max.....	E. S. 23d st., 1st h. E. of Col. ave.....	July 3.....	Gem .....	.....	.....	.....	.....	.....	.....	.....	7,837,250	On fire attachment.
31	Almy, E. P. & A. H.....	N. E. Huntington st. & Kens. ave.....	Mar. 9.....	Gem .....	.....	.....	.....	.....	.....	.....	.....	No water used.	On fire attachment.
31	Beatty, W.....	N. W. Coral and Adams sts.....	Feb. 11.....	Gem .....	.....	.....	.....	.....	.....	.....	.....	614,250	On fire attachment.
31	Bromley & Bro.....	N. E. York & Jasper & 1901-15 York	Feb. 15.....	Gem .....	.....	.....	.....	.....	.....	.....	.....	52,875	On fire attachment.
31	Bromley & Bro.....	N. E. York & Jasper & 1901-15 York	Feb. 15.....	Gem .....	.....	.....	.....	.....	.....	.....	.....	15,975	On fire attachment.
31	Bromley J.....	N. E. Front and Jasper sts.....	Feb. 18.....	Gem .....	.....	.....	.....	.....	.....	.....	.....	907,500	On fire attachment.
31	Cramp, B. H. & Co.....	E. s. Thompson st., 150 ft. s. Adams	Feb. 4.....	Gem .....	.....	.....	.....	1	.....	.....	.....	No water used.	On fire attachment.
31	Doak J., Jr.....	N. W. Norris & Blair & 2185 e. Norris	Feb. 18.....	Gem .....	.....	.....	.....	.....	.....	.....	.....	691,500	On fire attachment.
31	Fifth & Sixth Sts. Depot {	E. s. Kens. ave. from n. e. c. Cumber- land to s. e. c. Sargeant.....}	Mar. 4.....	Gem .....	.....	.....	.....	.....	.....	.....	.....	No water used.	On fire attachment.
31	Giazler, J. J. & Bro.....	1818-28 Taylor st. and rear.....	Mar. 11.....	Gem .....	.....	.....	.....	.....	.....	.....	.....	480,000	On fire attachment.
31	Hightman, D.....	2642-52 E. Cumberland st.....	Feb. 9.....	Gem .....	.....	.....	.....	.....	.....	.....	.....	No water used.	On fire attachment.
31	Meadowcroft, J.....	2536-30 Emerald, s. w. c. Sargeant.....	Mar. 9.....	Gem .....	.....	.....	.....	.....	.....	.....	.....	No water used.	On fire attachment.
31	Pearson, J. T.....	1815-21 Taylor st.....	Mar. 22.....	Gem .....	.....	.....	.....	.....	.....	.....	.....	No water used.	On fire attachment.
31	Sykes, David.....	S. W. Amber and Dauphin.....	Mar. 12.....	Gem .....	.....	.....	.....	.....	.....	.....	.....	No water used.	On fire attachment.
31	Walsbrod & Hess.....	2198-40 F'kd. ave., s. w. cor. Adams.	Jan. 4.....	Crown.....	.....	.....	.....	.....	.....	.....	.....	180,000	On fire attachment.

New Meters Set—Continued.

Ward.	Occupant.	Location.	Date when Set.	Name of meter.	Size.								Gallons Consumed.	Remarks.	
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.	6-inch.			Total.
31	Kitchennan, Jas.....	S. E. cor. Huntington and Jasper..	Feb. 8....	Gem.....							1			1,471,500	On fire attachment.
31	Kitchennan, Jas.....	S. E. cor. Huntington and Jasper..	Feb. 8....	Gem.....							1				On fire attachment.
31	Whittaker & Bro.....	N. E. c. Sergeant and Trenton ave..	Mar. 7....	Gem.....							1			6,900	On fire attachment.
32	Vieweger, Max.....	2137 and rear N. Broad street.....	Nov. 21..	Nash....	1									5,000	
33	Bowens, S. & Son.....	S. side Venango, 133 ft. E. of 4th....	Aug. 15..	Gem.....				1						7,18,000	
33	Blood & Co.....	N. W. cor. 7th and Somerset sts.....	May 8....	Gem.....							1			1,920,000	On fire attachment.
33	Dearuley, J. H.....	N. E. cor. 8th and Somerset streets, E. side 3rd st, 100 ft. N. of Som- }	May 8....	Gem.....							1			No water used.	On fire attachment.
33	Folwell & Bro.....	erset st., S. E. cor. Cambria.....	Apr. 12...	Gem.....							1			No water used	On fire attachment.
33	Horner Bros.....	N. side Lehigh ave., N. W. cor. 4th.	Apr. 14...	Gem.....							1			No water used.	On fire attachment.
33	Hoyle, Harrison & Kay...	S. W. cor. Indians and Fillmore.....	Nov. 2....	Gem.....							1			No water used.	
33	Rothwell, C.....	W. side 2d, 165 ft. N. of Somerset...	Apr. 1....	Gem.....							1			No water used.	On fire attachment.
33	Smith, W. T.....	W. side 3d, 300 ft. N. of Lehigh.....	Apr. 7....	Gem.....							1			No water used.	On fire attachment.
34	Morrison.....	N. side Melrose, 41 ft. W. of 55th...	July 19..	Nash....		1								134,250	
		Total.....			4	11	8	6	18	14	61	11	183	168,638,197	

Old Meters.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	SIZE.							Gallons Consumed.	Remarks.	
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.			6-inch.	Total.
1	Alburger & Co.....	S. S. Snyder ave. 100 ft. E. of Second	Feb. 24, '91.	Gem ..	.....	.....	.....	.....	.....	.....	.....	.....	1,179,500	
1	Delaware Sugar Ref. Co.....	N. E. Reed and Swanson sts.....	Aug. 16, '89.	Crown ..	.....	.....	.....	.....	.....	.....	.....	.....	196,050	
1	Elkinton, J. & T.....	Mifflin st., n. w. c. 8th to n. e. c. 9th.	Dec. 22, '91.	Gem ..	.....	.....	.....	.....	.....	.....	.....	.....	313,500	On fire attachment.
1	Elkinton, J. & T.....	Mifflin st., n. w. c. 8th to n. e. c. 9th.	Dec. 22, '91.	Crown ..	.....	.....	.....	.....	.....	.....	.....	.....	No water used	Vacant.
1	Hopper, J.....	138-12 Anthony st.....	May 2, '90.	Crown ..	.....	.....	.....	.....	.....	.....	.....	.....	489,630	
1	Harding, J.....	152-26 Oscego st.....	Dec. 19, '90.	Crown ..	.....	.....	.....	.....	.....	.....	.....	.....	79,050	
1	McCahan, W. J. & Co.....	N. W. Oscego and Morris sts.....	Mar. 4, '84.	Crown ..	.....	.....	.....	.....	.....	.....	.....	.....	451,990	
1	Rice, T. B.....	N. S. Mifflin, 70 ft. E. of Ash st.	Aug. 3, '92.	Gem ..	.....	.....	.....	.....	.....	.....	.....	.....	3,506,300	Not charged by meter.
1	Rowley, E. H.....	Oscego and Mifflin sts.....	April 30, '84	Crown ..	.....	.....	.....	.....	.....	.....	.....	.....
1	Spreckels, Claus.....	Reed st., 156 ft. E. of Meadow.....	Dec. 27, '89.	Crown ..	.....	.....	.....	.....	.....	.....	.....	.....
1	Spreckels, Claus.....	Reed st., 156 ft. E. of Meadow.....	Dec. 27, '89.	Crown ..	.....	.....	.....	.....	.....	.....	.....	.....
1	Spreckels, Claus.....	Reed st., 156 ft. E. of Meadow.....	Dec. 27, '89.	Crown ..	.....	.....	.....	.....	.....	.....	.....	.....	513,892	
1	Spreckels, Claus.....	Reed st., 156 ft. E. of Meadow.....	Feb. 27, '90.	Crown ..	.....	.....	.....	.....	.....	.....	.....	.....
1	Spreckels, Claus.....	Reed st., 156 ft. E. of Meadow.....	Mar. 4, '90.	Crown ..	.....	.....	.....	.....	.....	.....	.....	.....
2	Heyl Bros.....	43 Washington ave., n. w. c. Oscego.	April 5, '83.	Crown ..	.....	.....	.....	.....	.....	.....	.....	.....	107,210	

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	Size.							Gallons Consumed.	Remarks.		
					½-inch.	¾-inch.	1-inch.	1½-inch.	2-inch.	3-inch.	4-inch.			6-inch.	Total.
2	Martin, T. J.	1201 Washington ave., n. w. c. 12th.	Jan. 20, '84.	Crown.				1					1	No water used.	Vacant.
2	Wyeth, J. & Bro.	{ 11-0 Washington ave., S. W. } { cor. 11th, and rear. }	Oct. 15, '92.	Gem.					1				1	7,035,350	
2	Williams, J. & Sons.	S. W. 12th & Carpenter streets.	May 16, '91.	Crown.				1					1		
2	Williams, J. & Sons.	S. W. 12th & Carpenter streets.	May 16, '91	Crown.				1					1	5,277,750	Not charged by meter.
3	Eleventh St. Market Co.	743-69 south Eleventh street.	July 15, '90	Gem.				1					1	No water used	Vacant.
3	Horstman, J. F.	314 Stanley street.	Oct. 8, '92.	Gem.					1				1	3,488,750	Not charged by meter.
3	Horstman, J. F.	314 Stanley street.	Aug. 29, '92	Nash.					1				1	420,140	
3	McClusker, P.	729 Campbell street.	Feb. 11, '90.	Crown.				1					1		
3	Welde & Thomas.	S. W. Juniper and Fitzwater sts.	Apr. 5, '91.	Gem.				1					1		
3	Welde & Thomas.	S. W. Juniper and Fitzwater sts.	Apr. 5, '91.	Gem.				1					1		
3	Welde & Thomas.	S. W. Juniper and Fitzwater sts.	Apr. 5, '91.	Gem.				1					1	3,715,312	
3	Welde & Thomas.	S. W. Juniper and Fitzwater sts.	Apr. 5, '91.	Crown.				1					1		
4	Knight, E. C. & Co.	N. E. Swanson & Rainbridge sts.	Apr. 10, '88.	Crown.				1					1	88,640	
5	Ballitt Estate.	{ 131-45 S. Fourth st., N. E. cor. } { Harmony court. }	Dec 6, '87.	Crown.								1	1	3,769,050	
5	Bernshady, N.	436 Lombard street.	Sept. 2, '90.	Gem.				1					1	1,425,375	

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of Meter.	Size.							Total	Gallons Consumed.	Remarks.	
					½-inch.	¾-inch.	1-inch.	1½-inch.	2-inch.	3-inch.	4-inch.				6-inch.
5	Bailey, Thos. W.....	622-24 Lombard street and rear.....	Jan. 27, '90.	Crown.....				1					1	347,500	
5	Drexel A, J.....	422-28 Chestnut street.....	July 19, '88.	Crown.....					1				1	4,737,000	
6	Dyott, M. A.....	114 S. 2d st., N.W. cor. Carter's al.....	April 5, '90.	Crown.....	1								1	28,695	
6	Electric Dynamic Co.....	212-21 Carter's alley.....	Aug. 25, '92.	Nash.....		1							1	771,777	
6	Fisher Estate.....	622 Chestnut street and rear.....	June 3, '89.	Crown.....						1			1	No water used.	
5	Guarantee T. & S. D. Co.....	316-20 Chestnut street.....	Oct. 10, '81.	Crown.....			1						1	10,950	
5	Hachinkin, J.....	418-22 Library street.....	April 25, '90	Crown.....			1						1	1,013,037	
5	Jayne Estate.....	236 Carter's alley.....	July 13, '89.	Crown.....			1						1	1,510,500	
5	Miller, Geo. & Son.....	255-57 South 3d street.....	April 25, '91	Gem.....				1					1	1,805,000	
5	Miller, Geo. & Son.....	255-57 South 3d street.....	April 25, '91	Nash.....	1								1		
5	P. R. R. Co.....	300-6 S. Decl. ave., S.W. cor. Spruce.	June 19, '90	Crown.....			1						1	140,570	
6	Tatham Bros.....	224-23 South 5th street.....	Oct. 29, '91.	Gem.....				1					1	1,504,030	
5	Wiler, W.....	223-25 South 5th street.....	March 25, '90	Crown.....		1							1	36,885	
5	Yeaton & Harris.....	260 South 5th street.....	Nov. 9, '92.	Nash.....			1						1	39,240	
6	Allen, G. W. & Co.....	402-8 Race street.....	April 5, '90.	Crown.....				1					1	415,635	

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of Meter.	Size.								Gallons Consumed.	Remarks.
					1/8-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.	6-inch.	Total.		
6	Butcher's, W. Sons.....	146-48 N. Front st.....	May 7, '85	Crown.....		1							689,752	
6	Collins, W. P.....	238-10 N. Front st., S. W. cor. New.....	Oct. 6, '90	Gem.....		1							1,196,025	
6	McCambridge Estate.....	52-27 Cherry st.....	April 9, '81	Crown.....		1							1,377,750	Not charged by meter.
6	McCambridge Estate.....	52-27 Cherry st.....	April 9, '84	Union.....		1							461,370	
6	Pröff, J. & Co.....	222-26 Race st.....	April 25, '90	Crown.....		1							358,192	Not charged by meter.
6	Uhler, T. M.....	Pier No. 11, N. Delaware ave.....	June 9, '91	Crown.....		1							905,685	
6	Wilbur, H. O. & Sons.....	235-41 N. 3d st.....	Mar. 16, '88	Crown.....	1								122,840	
6	Wilbur, H. O. & Sons.....	235-41 N. 3d st.....	Mar. 16, '88	Crown.....	1								787,470	
6	Vantine, G. W.....	210-12 N. 3d st.....	April 25, '90	Crown.....	1								8,400	On fire attachment.
6	Wetherill, John Est.....	65 & 67 N. Front, & 66-68 N. Water.....	Sept. 3, '92	Nash.....	1								1,848,622	
6	West Jersey Ferry Co.....	Delaware ave. and Market st. S. S.....	Feb. 23, '91	Gem.....			1						21,003,600	
7	Kershaw R. Estate.....	072-40 Naudain st.....	Mar. 3, '84	Crown.....		1							600,375	
7	Kershaw R. Estate.....	2032-40 Naudain st.....	Mar. 3, '84	Crown.....		1								
7	Phillada, Rubber Co.....	2417-21 South st.....	Sept. 5, '89	Crown.....						1				
7	Thunder, H. G.....	313 S. 10th st.....	Aug. 28, '90	Gem.....										

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when Set.	Name of Meter.	SIZE.								Gallons Consumed.	Remarks.	
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.	6-inch.			Total.
7	Tracey, J. F.	N. W. 25th and Factory streets.....	Aug. 19, '90	Crown.					1					1	
7	Tracey, J. F.	N. W. 25th and Factory streets.....	Aug. 20, '90	Crown.					1					1	135,000
7	Tracey, J. F.	N. W. 25th and Factory streets.....	Aug. 21, '90	Crown.				1						1	
7	Vandusen, H. R.	W. s. 27th st. 150 ft. S. of Lombard..	Mar. 27, '90	Crown.			1							1	714,112
8	Aldine Hotel.	1908-14 Chestnut street.....	Dec. 24, '85	Crown.							1			1	11,786,700
8	Aldine Hotel.	1908-14 Chestnut street.....	Dec. 24, '85	Crown.								1		1	On fire attachment.
8	Continental Hotel.....	S. E. 9th and Chestnut streets.....	Jan. 26, '84	Crown.			1							1	On fire attachment.
8	Continental Hotel.....	S. E. 9th and Chestnut streets.....	Jan. 26, '84	Crown.			1							1	
8	Continental Hotel.....	S. E. 9th and Chestnut streets.....	Jan. 26, '84	Crown.				1						1	13,571,685
8	Continental Hotel.....	S. E. 9th and Chestnut streets.....	July 7, '87	Crown.					1					1	
8	Continental Hotel.....	S. E. 9th and Chestnut streets.....	July 7, '87	Crown.						1				1	
8	Continental Hotel.....	S. E. 9th and Chestnut streets.....	Jan. 26, '84	Crown.							1			1	800,000
8	Edison Electric Light Co.	901-12 Sanson street.....	Oct. 5, '90	Nash... 1										1	3,167,100
8	Hazeltine, H.	1416-18 Chestnut street and rear....	May 17, '88	Crown.									1	1	5,331,000
8	Lafayette Hotel.....	N. W. Broad and Sanson streets....	Feb. 17, '88	Crown.									1	1	

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	Size.							Gallons Consumed.	Remarks.	
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.			6-inch.
8	Lewis Estate.....	1101 Walnut st.....	Apr. 27, '89.	Crown.....					1				2,553,630	Not included.
8	Payne, J. A.....	219 South Broad st.....	Mar. 18, '89	Crown.....					1					
8	Payne, J. A.....	219 South Broad st.....	July 5, '92.	Gem.....				1					1,607,325	
8	Times Publishing Co.....	800-04 Chestnut st., S. W. cor. 8th.....	Feb. 4, '84.	Crown.....			1						5,753,852	
8	Union League.....	S. W. Broad and Sanson sts.....	Sept. 22, '90	Gem.....					1				1,206,625	
8	Undergr'nd Elect. L.L. Co.	Rear 123 S. Eleventh st.....	Feb. 18, '84	Crown.....					1				707,640	
8	Wells, Hon. Calvin.....	700-02 Chestnut st.....	Apr. 11, '88	Crown.....						1			491,700	
9	Athletic As. Schy'l'd N.Y.	1625-28 Arch st.....	Sept. 28, '90	Gem.....						1			10,890,225	
9	Betta, P. H.....	2042 Arch st.....	Apr. 25, '90	Crown.....									7,800	
9	Brush Electric L.L. Co.....	2007-09 Johnson st.....	Aug. 15, '81	Crown.....							1			
9	Brush Electric L.L. Co.....	2007-09 Johnson st.....	Aug. 15, '84	Crown.....	1								14,662,190	
9	Girard L. Ins. & Trust Co.	N. E. Broad and Chestnut sts.....	July 25, '89	Crown.....						1			10,941,100	
9	Hall, E. L.....	N. W. Twenty-third and Filbert.....	Dec. 21, '91.	Crown.....									9,905	
9	Lardner, Perot Estate.....	2101-17 Market, N. W. cor. 21st.....	Aug. 20, '89	Crown.....								1		
9	Lardner, Perot Estate.....	2101-17 Market, N. W. cor. 21st.....	Aug. 30, '89	Crown.....								1	4,711,992	

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	Size.							Gallons Consumed.	Remarks.	
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.			6-inch.	Total.
11	Cunning & Patterson.....	131-37 Margaretta street.....	Sept. 12, '91..	Gem.....					1				10,003,500	Not charged by meter.
11	Devine, M.....	143-45 Margaretta street.....	Jan. 3, '84.....	Crown.....				1					1,860,000	Not charged by meter.
11	Devine, M.....	143-45 Margaretta street.....	Aug. 17, '92.....	Gem.....				1						Not charged by meter.
11	Duncan, J. A. & Co.....	431-35 St. John street.....	Jan. 16, '81.....	Crown.....									1,939,560	Not charged by meter.
11	Duncan, J. A. & Co.....	431-35 St. John street.....	Jan. 10, '91.....	Crown.....	1									Not charged by meter.
11	Evans, Edw. & Co.....	427-29 St. John st, N. E. cor. Willow	Jan. 15, '90.....	Crown.....		1								Vacant.
11	Evans, Edw. & Co.....	427-29 St. John st, N. E. cor. Willow	Jan. 15, '90.....	Crown.....		1								Vacant.
11	Evans, Edw. & Co.....	427-29 St. John st, N. E. cor. Willow	Jan. 15, '91.....	Crown.....		1								Vacant.
11	Fisher, F.....	151-53 Willow street.....	Jan. 12, '84.....	Crown.....					1				No water used	Vacant.
11	Fisher, Caroline.....	N. E. Second and Willow streets.....	Sept 9, '91.....	Crown.....					1				3,321,000	Not charged by meter.
11	Frank, J. & Son.....	213 Willow street.....	July 2, '81.....	Crown.....					1				1,053,500	Not charged by meter.
11	Frank, G. & Son.....	149 Willow street.....	Aug. 17, '92.....	Nash.....					1				933,750	Not charged by meter.
11	Franklin, Wm.....	317 N. Third street.....	Aug. 23, '92.....	Nash.....						1			117,000	Not charged by meter.
11	Hawkins, Wm. & Co.....	206 Willow street.....	Nov. 10, '91.....	Crown.....						1			97,500	Not charged by meter.
11	Huber, A. C.....	123-25 Margaretta street.....	Jan. 14, '84.....	Crown.....						1			No water used	Vacant.

Oil Meter.—Continued.

No.	Occupant.	Location.	Date when set.	Name of meter.	Size.							Gallons Consumed.	Remarks.	
					3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.	6-inch.			Total.
7	Born, Wm. H. & Bro.....	451 55 N. Third street.....	Aug. 23, '92.	Nash.....	1								780,215	
8	Born, Wm. H. & Bro.....	451 55 N. Third street.....	Aug. 23, '92.	Nash.....	1								856,045	
11	Martin, P. D.	295 Willow street.....	Sept. 9, '91.	Crown.....	1								5,788,500	Not charged by meter.
11	Mutlow, M. C.	215 Willow street.....	Jan. 25, '94.	Crown.....	1								9,162,250	
11	Public Warehouse & Storage Co.	509 13 N. Front street.....	Mar. 6, '91.	Gem.....	1				1				394,500	
11	Public Warehouse & Storage Co.	509 13 N. Front street.....	Mar. 7, '91.	Crown.....	1								773,250	
11	Powers Estate.....	594 05 N. Delaware avenue.....	Oct. 3, '90.....	Crown.....	1								No water used.	Vacant.
11	Rosch, Chas. & Sons.....	839 13 St. John street.....	July 25, '90.	Crown.....	1								6,447,600	Not charged by meter.
11	Smith, F. A.	200 11 Willow street.....	Jan. 19, '84.	Crown.....	1								3,649,250	Not charged by meter.
11	Stein, Samuel.....	603 16 New Market street.....	Aug. 25, '91.	Crown.....			1						143,873,250	Not charged by meter.
11	Swadlow, V. C. & Co.....	N. E. New Market & Callowhill sts.....	Sept. 25, '84.	Crown.....			1							Not charged by meter.
11	Swadlow, V. C. & Co.....	N. E. New Market & Callowhill sts.....	Jan. 20, '84.	Crown.....			1							Not charged by meter.
11	Swadlow, V. C. & Co.....	N. E. New Market & Callowhill sts.....	Sept. 6, '91.	Nash.....	1									Not charged by meter.
10	Holt, J. P. & Sons.....	N. W. York ave. and Willow street.....	Oct. 16, '92.	Gem.....					1					Not charged by meter.
10	Holt, J. P. & Sons.....	N. W. York ave. and Willow street.....	Oct. 16, '92.	Gem.....					1					Not charged by meter.

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	Size.							Gallons Consumed.	Remarks.			
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.			6-inch.	Totals.	
12	Betz, J. F. & Son.....	S. W. York ave. and Willow st.....	Nov. 2, '80.	Gem							1					
12	Carey Estate.....	341 Dillwyn street.....	Aug. 5, '89.	Crown.....	1											
12	Creery Estate.....	341 Dillwyn street.....	Aug. 5, '89.	Crown.....	1										135,000	
12	Dungan, Hood & Co.....	{ 434-36 N. Third st., and 429-53 } Dillwyn st.....	Oct. 26, '89.	Gem			1									
12	Dungan, Hood & Co.....	{ 434-36 N. Third st., and 429-53 } Dillwyn st.....	Aug. 19, '92.	Nash.....			1									
12	Dungan, Hood & Co.....	{ 434-36 N. Third st., and 429-53 } Dillwyn st.....	Aug. 21, '92.	Nash.....			1								11,878,125	Not charged by meter.
12	Dungan, Hood & Co.....	{ 434-36 N. Third st., and 429-53 } Dillwyn st.....	Nov. 1, '92.	Gem				1								
12	Dwyer, Michael.....	424 Dillwyn street.....	Aug. 22, '92.	Gem				1							5,207,870	Not charged by meter.
12	Evans, J. L., Son & Co.....	{ S. E. York ave. and Willow, and } { 435-37 York st.....	Sept. 11, '91.	Crown.....			1								2,541,615	Not charged by meter.
12	Kenworthy, E. C.....	438-46 N. Third st.....	Aug. 17, '92.	Nash.....				1							2,962,750	Not charged by meter.
12	Kenworthy, E. C.....	438-46 N. Third st.....	Apr. 13, '87.	Crown.....					1							
12	O'Callaghan, B. F.....	458-66 N. Third st.....	Sept. 11, '91.	Crown.....		1									761,490	Not charged by meter.
12	O'Callaghan, B. F.....	458-66 N. Third st.....	Sept. 11, '91.	Crown.....		1										
12	Pierson, C. W.....	440-42 Dillwyn st.....	Aug. 22, '92.	Nash.....		1									2,520,000	Not charged by meter.
12	Pierson, C. W.....	440-42 Dillwyn st.....	Aug. 28, '92.	Nash.....		1										

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	Size.							Gallons Consumed.	Remarks.	
					3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.	6-inch.			
12	Pierson, John W.	425 N. Third street.	Nov. 9, '91.	Gem.			1					1	10,753,500	Not charged by meter.
12	Pierson, John W.	425 N. Third street.	Nov. 9, '91.	Crown.	1							1		
12	Martin, D. B.	422-24 N. Third street.	'84.	Crown.		1						1	1,632,000	Not charged by meter.
12	Roehm, John.	847-51 N. Fourth street.	May 14, '90.	Crown.			1					1	5,290,000	
12	Stern, Jacob & Son.	428 N. Third street.	Nov. 9, '91.	Gem.			1					1		
12	Stern, Jacob & Son.	428 N. Third street.	Nov. 9, '91.	Crown.	1							1	1,998,000	Not charged by meter.
12	Walton, S. D.	814 Lawrence street.	Dec. 14, '88.	Crown.			1					1	No water used	Vacant.
13	E-slinger, George.	415-21 Rujan st., rear 415 N. Tenth.	Mar. 5, '90.	Crown.	1							1		
13	E-slinger, George.	415-21 Rujan st., rear 415 N. Tenth.	Nov. 9, '92.	Nash.			1					1	1,079,815	
13	Hance, E. H. & J. C.	621-25 Callowhill street.	Mar. 5, '84.	Crown.	2	1						3	1,768,500	
13	Jewett, A. & Co.	906-24 Noble street.	June 20, '91.	Gem.				1				1		
13	Jewett, A. & Co.	906-24 Noble street.	Sept. 16, '90.	Crown.	1							1	6,597,000	
13	Miskey, W. T.	819 Wood st., N. E. cor. Garden.	July 3, '85.	Crown.				1				1	516,282	
13	Welman, J.	401-05 N. Tenth and rear.	Aug. 6, '90.	Crown.	1	2	1					4	3,229,462	
14	Haines, Jones & Cadbury.	{ 1134-10 Ridgeave, 505 N. Twelfth } { 1109 Buttonwood..... }	Aug. 5, '90.	Crown.								1	1,124,880	

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	Size.							Gallons Consumed.	Remarks.	
					½-inch.	¾-inch.	1-inch.	1½-inch.	2-inch.	3-inch.	4-inch.			6-inch.	Total.
14	Pedrick & Ayer.....	1002-04 Buttonwood street.....	Mar. 29, '90	Crown.					1				1,058,024	
14	Sweeney, Geo. & Co.....	1330-31 Ridge, rear on Pemberton...	June 21, '90	Crown.	1								92,325	
14	Windrim, Jas. H.....	817 N. Broad street.....	Oct. 10, '91	Nash	1								91,500	Not charged by meter.
15	Austin, Wm. L.....	1025 Green street.....	Apr. 25, '91	Crown.				1					51,675	
15	B. & O. R. R. Co.....	2500 Callowhill, S. W. cor. 25th st..	Apr. 22, '90	Crown.				1					3,429,885	
15	R. & O. R. R. Co.....	2500 Callowhill, S. W. cor. 25th st..	Dec. 29, '92	Nash				1					231,600	On fire attachment.
15	Bement, Miles & Co.....	N. E. cor. 24th and Wood and 1st } and Callowhill streets.....	Aug. 28, '91	Gem						2			53,992,500	
15	Bergtoll Brg. Co.....	829 N. 20th, N. E. cor. Parrish	Aug. 7, '92	Gem						2				
15	Bergtoll Brg. Co.....	829 N. 20th, N. E. cor. Parrish.....	Sept. 22, '87	Crown.				2	2	1				
15	Beswick & Kay.....	S. side Callowhill, W. of 25th.....	Apr. 23, '90	Crown.							1		445,800	On fire attachment.
15	Beswick & Kay.....	S. side Callowhill, W. of 25th.....	Apr. 23, '90	Crown.	1								4,127,470	
15	Bornott, A. F.....	S. E. cor. Fairmount ave. and 17th	Nov. 13, '92	Gem							1		1,127,080	
15	Brooke, Benj.....	2314-16 Wood street.....	Oct. 4, '92	Nash				1						
15	Brooke, Benj.....	2314-16 Wood street.....	Jan 8, '92	Gem							1			
15	Conrad, J.....	N. W. cor. 27th and Parrish sts.....	June 23, '90	Crown.							1		3,477,150	

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when Set.	Name of Meter.	Size.							Gallons Consumed.	Remarks.			
					1/2-Inch.	3/4-Inch.	1-Inch.	1 1/2-Inch.	2-Inch.	3-Inch.	4-Inch.			6-Inch.	Total.	
15	Conrad, J.	N. W. cor. 27th and Parrish sts.	Oct. 15, '91	Gem.	1											
13	Fleisher, S. B. & R. W.	S. E. cor. 25th and Biddle sts. & N. E. cor. 25th & Hamilton	Mar. 1, '90	Crown.	1											
15	Fleisher, S. B. & R. W.	S. E. cor. 25th and Biddle sts. & N. F. cor. 25th & Hamilton	April 19, '90	Crown.										23,257,174	On fire attachment.	
15	Fleisher, S. B. & B. W.	S. E. cor. 25th and Biddle sts. & N. E. cor. 25th & Hamilton	Aug. 27, '91	Gem.											On fire attachment.	
15	Godshalk, The E. H. Co.	S. W. cor. 23d & Hamilton sts.	Sept. 4, '91	Gem.										4,474,950	On fire attachment.	
15	Godshalk, The E. H. Co.	S. W. cor. 23d & Hamilton sts.	Sept. 13, '91	Gem.												
15	Kohnte, Joseph	1711-23 Buttonwood st.	Sept. 1, '91	Gem.										1,536,259	On fire attachment (Not charged by meter.)	
15	Lang, John	N. W. cor. 24th and Vine sts.	April 11, '90	Crown.												
15	Lang, John	N. W. cor. 24th and Vine sts.	April 11, '90	Crown.										913,822	On fire attachment.	
15	McKeone, C. & Sons	2546-54 Callowhill, and 2600-08.	Oct. 7, '90	Crown.												
15	P. & R. R. Co.	S. E. cor. 16th and Penna. ave.	'91	Gem.										No water used.		
15	Peoples Pass. R. W. Co.	2646-48 Callowhill st.	Dec. 20, '89	Crown.										132,000	On fire attachment.	
15	Sellers, Wm. & Co.	S. W. c. 16th to S. E. c. 17th & Hamilton	July 9, '90	Crown.										1,094,072		
15	Sellers, Wm. & Co.	S. W. c. 16th to S. E. c. 17th & Hamilton	Dec. 8, '90	Gem.										1,191,915		
15	Stratton, H. D.	2610-12 Callowhill st. and rear.	Oct. 9, '92	Gem.										9,418,000		

Old Meters—Continued.

Ward.	Occupation.	Location.	Date when Set.	Name of Meter.	SIZE.								Gallons Consumed.	Remarks.	
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.	6-inch.			Total.
15	Whitney, A. & Son	N. s. Callowhill from N. W. cor. 16th to N. E. cor. 17th street...	Dec. 13, '91	Crown	1									4,282,500	
15	Whitney, A. & Son	N. s. Callowhill from N. W. cor. 16th to N. E. cor. 17th street...	Dec. 13, '91	Gem				1							
16	Adams & Keen	931 St. John street	Jan. 31, '84	Crown	1		2							8,433,000	Not charged by meter.
16	Carey, Geo. & Co.	934 42 N. 3d street	May 13, '84	Crown			1							No water used.	Vacant.
16	Carey, Mrs.	1005-7 Canal street	Oct. 27, '91	Crown	1									3,546,000	Not charged by meter.
16	Disston, Henry & Son	42 to 58 Canal street	Oct. 22, '91	Crown			1							1,855,560	Not charged by meter.
16	Doll, Louisa	1631 Canal street	Oct. 27, '91	Crown	1									1,470,000	Not charged by meter.
16	Doll, Louisa	1633 Canal street	Nov. 27, '91	Crown	1									277,500	Not charged by water.
16	Gill, T. H.	Llewellyn av. 3d h. W. of Ghent st.	May 28, '90	Crown	1									1,005,000	
16	Landrell, Chas. W.	1116-20 Canal street	Nov. 1, '91	Crown			1							222,000	Not charged by meter.
16	Magargee estate	912-18 N. Delaware ave.	Feb. 12, '91	Crown	2									254,250	
16	McCutchen, Mrs.	5 to 11 Canal street	Oct. 9, '91	Gem			1							3,298,500	Not charged by meter.
16	McNeely & Co.	N. W. Charlotte and Canal street	Jan. 29, '84	Crown			1							No water used.	Vacant.
16	Naulty, J. L.	1035-9 N. Front street	Feb. 6, '84	Crown			2							1,641,000	Not charged by meter.
16	Nicholson, W. R.	929-31 N. 3d street	Sept. 30, '90	Gem				1						349,800	

Old Meters—Continued.

Warrd.	Occupant.	Location.	Date when set.	Name of Meter.	Size.							Total.	Gallons Consumed.	Remarks.	
					½-inch.	¾-inch.	1-inch.	1½-inch.	2-inch.	3-inch.	4-inch.				6-inch.
16	Nicholson, W. R.	929-31 North 3d street	Feb. 4, '84.	Crown.				1					1		
16	N. Liberties Gas Works.	S. W. cor. Laurel and Canal sts.	Sept. 13, '90	Gem.				1					1	2,150,000	
16	Orr, Grace & Allen	930-41 N. Front street.	Sept. 21, '92	Nash.			2						2	9,891,000	Not charged by meter.
16	Orr, Grace & Allen	930-41 N. Front street.	March 11, '84	Worth			2						2		Private meter.
16	Schmidt, C. Brg. Co.	111-29 Edward street	May 17, '85.	Crown.			1			1			3	40,837,350	
16	Schmidt, C. Brg. Co.	111-29 Edward street	May 20, '92.	Gem.							1		1		
16	St. Peters Church	S. E. cor 5th and Girard ave.	Oct. 8, '89.	Crown.				2					2	3,364,015	
16	Schutt, D. & Son.	1148 Charlotte street and rear.	Sept. 10, '91	Crown.			1						1	2,110,500	Not charged by meter.
16	Schumann & Sons.	10-7 and 1028-28 Canal street.	Sept. 14, '91	Crown.		1							2		Not charged by meter.
16	Schladenaky, F. W.	150 Laurel street	Oct. 22, '91.	Crown.			1						1	195,000	Not charged by meter.
16	Schoenherr, John.	Rear 915-17 N. Front street.	Nov. 15, '91	Gem.						1			1	970,500	Not charged by meter.
16	Schimnel, J. O. Co.	948-50 Beach street	Dec. 29, '91.	Gem.						1			1	1,272,000	Not charged by meter.
16	Stevenson	20 Slossmann street.	Sept. 10, '91.	Crown.			1						1	949,380	Not charged by meter.
16	Warthman, A. H. & Co.	35-37 Poplar st. N.W. cor. Glenat st.	Feb. 5, '84.	Crown.							1		1	3,975,500	Not charged by meter.
17	Baum, Geo. & Son.	1341-49 Hope street.	Oct. 14, '91.	Crown.							1		1	1,606,500	Not charged by meter.

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	Size.							Gallons Consumed.	Remarks.	
					½-inch.	¾-inch.	1-inch.	1½-inch.	2-inch.	3-inch.	4-inch.			6-inch.	Total.
17	Schoering, J. & Son.....	1532-45 Randolph st.....	Oct. 12, '91.	Gen.....					1					Not charged by meter.
17	Schoering, J. & Son.....	1532-45 Randolph st.....	Oct. 17, '92.	Nash.....		1							7,977,750	Not charged by meter.
17	Schoering, J. & Son.....	1531-45 Randolph st.....	Oct. 12, '91.	Crown.....		1								Not charged by meter.
17	Vohnar, Mrs.....	1420-24 Randolph st. and rear.....	Apr. 5, '90.	Crown.....	1				1				164,500	
18	Bradlee & Co.....	S. W. Beach and Otis.....	Sept. 1, '92.	Nash.....	1								866,250	
18	Burgin & Sons.....	1201-26 E. Montgomery avenue.....	Apr. 8, '90.	Crown.....				1					1,152,465	
18	Dougherty & Downs.....	1345-49 Frankford avenue.....	Oct. 3, '90....	Gen.....					1				27,000	
18	Hanifen, John & Co.....	S. W. Thompson & Savery sts.....	Sept. 22, '92	Nash.....						1			450,000	
18	Hamilton, Thomas.....	1330-52 Vienna st.....	May 2, '90.	Crown.....		1							1,146,000	
18	Kens'ngt'n Eng. Wks. Lt	S. E. Beach & Vienna sts.....	Apr. 5, '90.	Crown.....					1				60,000	
18	Liebrandt McDowell, Co.	S. E. Girard av. & Ash to Gun'rs run	June 10, '90	Crown.....		1	2						927,500	
18	Morse & Williams.....	1101-65 Frank'ld av., n. e. c. Wildey	Apr. 9, '90....	Crown.....	1						1		194,625	On fire attachment.
18	Neafe & Levy.....	1365 Beach st., S. E. cor. Palmer.	May 28, '90	Crown.....	1		2							
18	Neafe & Levy.....	1365 Beach st., S. E. cor. Palmer.....	Aug. 16, '92	Nash.....	1	2							4,063,500	On fire attachment.
18	Neafe & Levy.....	1365 Beach st., S. E. cor. Palmer.....	Apr. 14, '91.	Gen.....							1			

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	Size.								Gallons Consumed.	Remarks.	
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.	6-inch.			Total.
17	Baum, Geo. & Son.....	1341-49 Hope st.....	Oct. 14, '91..	Gen.....					1						Not charged by meter.
17	Branson, Geo.....	217 Jefferson st.....	Mar. 15, '84.	Crown.....					1						Not charged by meter.
17	Bark & Bro.....	1212-24 and rear N. Third st.....	Oct. 7, '91..	Gen.....					2	1				3	
17	Craig, A. H. & J.....	531 Jefferson, N. W. cor. Randolph.	Oct. 12, '92.	Nash.....				1						1	Not charged by meter.
17	DeLaney & Co.....	1445 Hancock, S. E. cor. Jefferson.....	Oct. 8, '90..	Crown.....				1						1	
17	Hacker, J.....	N. W. Jefferson and Mascher sts.....	July 9, '87..	Crown.....					1					1	Not charged by meter.
17	Kitchenman, Chas.....	1230-34 Charlotte st.....	Mar. 12, '84	Crown.....					1					1	Not charged by meter.
17	Kindsvatery G.....	528 Oxford, S. W. cor. Randolph.....	Oct. 13, '91.	Gen.....						1				1	Not charged by meter.
17	Lafferty, C. & Son.....	1523-28 Hancock st.....	Dec. 11, '92.	Gen.....					1					1	Not charged by meter.
17	Long, James.....	S. W. Oxford and Palethorp sts.....	Dec. 7, '91..	Gen.....							1			1	Not charged by meter.
17	Long, James.....	S. W. Oxford and Palethorp sts.....	Jan. 16, '91.	Crown.....					1					1	Not charged by meter.
17	McConnell, J. J.....	1214-36 Canal st.....	Dec. 26, '92.	Gen.....					1					1	Not charged by meter.
17	McConnell, J. J.....	1214-36 Canal st.....	Oct. 17, '91.	Crown.....		1								2	Not charged by meter.
17	Printz, G. & Son.....	1421-23 Randolph st.....	Dec. 1, '91..	Gen.....					1					1	Not charged by meter.
17	Reifer & Gretz.....	1538 and rear Germantown ave.....	Aug. 10, '90	Crown.....						1				1	Not charged by meter.

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	Size.							Gallons Consumed.	Remarks.	
					½-inch.	¾-inch.	1-inch.	1½-inch.	2-inch.	3-inch.	4-inch.			6-inch.	Total.
18	Paxon, J. W. & Co.....	1015-21 N. Delaware ave.....	Feb. 7, '91.	Nash ..	1								5,656,500	
18	Paxon, J. W. & Co.....	1015-21 N. Delaware ave.....	Feb. 7, '91.	Crown.		1								
18	Penna. Sugar Refining Co.....	1033-39 N. Delaware ave.....	Oct. 11, '90.	Crown.			1						220,500	On fire attachment.
18	Penna. Sugar Refining Co.....	1033-39 N. Delaware ave.....	Oct. 11, '90.	Gem ..				1						
18	Torpin, Warner & White	943 Richmond st.....	May 23, '90.	Crown.	1								540,000	On fire attachment.
18	Torpin, Warner & White	943 Richmond st.....	May 23, '90.	Crown.				1						
19	Boyer, G., Estate.....	543 Diamond st.....	Aug. 5 '89.	Crown					1				16,715,950	
19	Blessing, Chas.....	S. w. Ranolph st. & Montgomery av.	Feb. 25, '91.	Gem ..			1						636,000	4 in. meter on fire attachment.
19	Crawford, George.....	1710-14 Howard st.....	Aug. 21, '92.	Gem ..				1					2,304,000	Not charged by meter.
19	Consolidated Ice Co.....	2345 Bodine st.....	Apr. 24, '91.	Gem ..					1				10,677,000	
19	Cox, A., Stove Works.....	2301 American, N. E. cor. Dauphin.	Dec. 16, '91.	Crown.									1,072,500	
19	Feite, F.....	2204-06 Fairhill & 2205-07 N. 6th st.	Oct. 28, '92.	Nash ..				1						
19	Feite, F.....	2204-06 Fairhill & 2205-07 N. 6th st.	Sept. 6, '90.	Crown.			1						3,228,000	
19	Finkenaur, T.....	1715 N. 5th st.....	Feb. 11, '91.	Crown.		2				1				
19	Finkenaur, T.....	1715 N. 5th st.....	Dec. 8, '91.	Gem ..					1				1,030,500	

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	Size.							Total.	Gallons Consumed.	Remarks.	
					1/8-inch.	1/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.				6-inch.
19	Foerderer, E.	1716 Randolph st.	Aug. 16, 91.	Nash.	1								1	6,198,125	Not charged by meter.
19	French, Hugh.	N. W. Cumberland & 3rd sts.	Oct. 4, 90.	Gem.		1	2						3	30,201,825	{ 4-inch meter on fire attachment.
19	French, Hugh.	N. W. Cumberland & 3rd sts.	Nov. 30, 91.	Crown.		1							1		
19	Hogg & Metzger.	S. W. 2d & Huntington sts.	Aug. 21, 92.	Gem.				1					1	6,311,250	{ 4-inch meter on fire attachment.
19	Harvey's, J, Estate.	1647-44 N. 5th, S. W. Columbia ave.	Jan. 21, 91.	Gem.					1				2	2,276,500	
19	Harvey's, J, Estate.	S. E. Randolph & Columbia ave.	Feb. 3, 91.	Crown.		1				1			2	2,142,000	
19	Illingsworth, Chas.	N. W. Mascher st. & Columbia ave.	Nov. 16, 91.	Gem.					1				1		Not charged by meter.
19	Illingsworth, Chas.	N. W. Mascher st. & Columbia ave.	Nov. 16, 91.	Crown.					1				1	2,049,000	
19	Loughridge.	2309-13 N. 7th st.	91.	Crown.						1			1	45,000	
19	McKee, J.	N. E. Howard & Harrison.	Aug. 31, 92.	Nash.				1					1	803,250	Not charged by meter.
19	McNeely & Co.	1733-41 N. 6th st.	June 3, 90.	Crown.						3			4	71,167,725	On fire attachment.
19	McNeely & Co.	1733-41 N. 6th st.	Apr. 9, 91.	Gem.							1		1		
19	Merchants Electric Lt Co.	2217-23 Hope st.	Feb. 10, 91.	Crown.					1				1	5,284,500	
19	Reiger, J.	1708-14 Cadwallader st.	Aug. 10, 90.	Crown.						1			1	3,073,200	
19	Richards, George.	N. E. Howard & Huntington sts.	May 28, 90.	Crown.					1				1	190,500	

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	SIZE.							Gallons Consumed.	Remarks.	
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.			6-inch.
19	Reinke, H.	e. s. Randolph st., 100 ft. S. Col. ave.	Oct. 13, '91.	Gen.					1				5,911,500	Not charged by meter.
19	Schollenberger & Sons	S. E. Putnam & Mascher streets	Feb. 29, '84.	Crown	1					1			3,031,500	
19	Schollenberger & Sons	S. E. Putnam & Mascher streets	Sep. 23, '91.	Gen.					1					
19	Stuson Bros. & Kuribain	N. W. Huntington & Reese streets	Sep. 4, '90.	Gen.							1		No water used	On fire attachment.
19	Weinman, T. & Son	1732-38 Howard street	Mar. 18, '84.	Crown				1					4,651,500	Not charged by meter.
19	Western White Lead Wk.	1833 Hancock street	Feb. 25, '92.	Gen.					1				4,566,000	
20	Beardwood, T. & Bro.	1640-11 N. Sixth street	May 2, '84.	Crown					1				3,509,000	
20	Bessalt, Chas.	1742-48 Mervine and rear	Aug. 11, '90.	Crown					1				3,434,400	
20	Gindele, George	1025-39 Girard avenue	June 30, '87	Crown					1				47,500	
20	Gindele, George	1025-39 Girard avenue	Sep. 1, '92.	Nash	1									
20	Girard Avenue Theatre	Marshall street & Girard avenue	June 12, '91	Gen.						1			No water used	On fire attachment.
20	Jewish Synagogue	1707 North Seventh street	May 16, '87.	Crown					1				82,500	
20	Kasper, Charles	1703 and rear N. Twelfth street	Aug. 12, '90	Crown					1				1,608,750	
20	Kasper, Charles	1703 and rear N. Twelfth street	Oct. 18, '92.	Nash						1				
20	Lawrence H.	1719-29 Sixty street	Sep. 13, '91.	Crown					1				10,003,500	Not charged by meter.

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	Size.								Gallons Consumed.	Remarks.	
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.	6-inch.			
20	Noelsh, Wm.....	1911 N. Eighth street.....	Sept. 12, '92	Nash.....	1									21,750	
20	Sullivan, J. & Sons.....	902 Montgomery avenue.....	Aug. 8, '84.	Crown.....		1								3,576,500	
20	Tenbrook & Bro.....	1735-37 N. 12th and 1740 Mervine sts	Sept. 20, '92	Nash.....		1								8,663,500	
20	Tenbrook & Bro.....	1735-37 N. 12th and 1740 Mervine sts	(Oct. 1, '90.....	Gem.....			1								
20	Wolters, Chas.....	1600-04 N. 11th, N. W. cor. Oxford st	Mar. 22, '84	Crown.....			2							14,937,070	
21	Adams, J. M.....	{ W. s. Main st, 2d h. n. of Belmont, opposite centre. }	Feb. 28, '91.	Gem.....					1					186,000	
21	Ball H. C. & Co.....	E. s. Main st, 4th h. n. Ridge ave....	Nov. 20, '91	Gem.....						1				228,300	On fire attachment.
21	Bond, R. D. S.....	E. s. Main st, 2d h. n. Washington.	Oct. 17, '90.	Gem.....						1				28,775	On fire attachment.
21	Campbell, A. C.....	{ W. s. Main street, rear on canal bank, S. S. Robinson	Mar. 13, '90	Crown.....			1							123,802	3-in. meter on fire at- tachment.
21	Uampbell, J. A.....	{ W. s. Main st., 2d h. s. of Bridge, w. s. canal..... }	Sept. 17, '90	Gem.....						1				450,700	On fire attachment.
21	Canton Mills Co.....	N. E. High and Walnut streets.....	Nov. 13, '90.	Gem.....			1			1				9,120,750	4-in. meter on fire at- tachment.
21	Canton Mills Co.....	N. E. High and Walnut streets.....	Dec. 22, '92.	Nash.....			1								
21	Canton Mills Co.....	N. E. High and Walnut streets.....	Nov. 15, '92	Crown.....	1									1,227,825	On fire attachment.
21	Canton Mills Co.....	E. s. Main st., 7th h. n. Ridge ave....	Aug. 18, 92.	Nash.....		1									
21	Canton Mills Co.....	E. s. Main st., 7th h. n. Ridge ave....	Nov. 28, '90	Gem.....								1			

Old Meters—Continued.

Ward	Occupant.	Location.	Date when set.	Name of meter.	Size.							Gallons Consumed.	Remarks.	
					½-inch.	¾-inch.	1-inch.	1½-inch.	2-inch.	3-inch.	4-inch.			6-inch.
21	Carter & Lord.....	Rear 4402-16 Main st.....	Nov. 24 '90.	Gem								1	10,500	On fire attachment.
21	Erdis & Roatch.....	E. s. Main st., 3d h. n. of Wash.....	Nov. 12, '90.	Gem								1	825,000	On fire attachment.
21	Fianagan Bros.....	{ W. s. Main st., 3d h. s. Bridge, w. s. canal. }	Nov. 3, '90.	Gem								1	30,750	On fire attachment.
21	Fianagan Bros.....	Freeland st., 1st h. n. of Shur's lane.	Nov. 24, '90.	Gem								1	30,000	On fire attachment.
21	Harding, W. G.....	4361-72 Main st.....	Feb. 11, '91.	Crown.....				1				1	1,609,735	
21	Heft, J. D. & Son.....	W. s. Main st., 1st h. n. of Shur's lane.	Jan. 5, '86...	Crown.....				1				1		
21	Heft, J. D. & Son.....	W. s. Main st., 1st h. n. of Shur's lane.	Jan. 5, '86...	Crown.....						1		1		On fire attachment.
21	Hey, R. & Son.....	W. s. Main st., 12th h. n. of Ridge av.	Nov. 7, '90.	Gem					1			2		
21	Hey, R. & Son.....	W. s. Main st., 12th h. n. of Ridge av.	Nov. 10, '90.	Crown.....	1							1	60,000	On fire attachment.
21	Kennedy, D. S.....	E. s. Main st., 1st h. n. Washington.	Sept. 29, '90.	Crown.....	1							1		
21	Kennedy, D. S.....	E. s. Main st., 1st h. n. Washington.	Sept. 29, '90.	Gem						1		1	115,440	On fire attachment.
21	Kenworthy, & Bro.....	N. W. Shur's lane & Freeland ave.....	Mar. 10, '90.	Crown.....					1			2	54,450	On fire attachment.
21	Keely, S. S. & Sons.....	{ Rear e. s. Main st., 3d h. n. Wash- ington. }	Dec. 2, '90...	Gem						1		1		
21	Keely, S. S. & Sons.....	{ Rear e. s. Main st., 3d h. n. Wash- ington. }	Dec. 2, '90...	Crown.....	1							1	719,950	On fire attachment.
21	Leach, J. & Bro.....	N. E. Shur's lane and Ashland st.....	Nov. 11, '90.	Gem							1	1		On fire attachment.

Old Meters—Continued.

Ward	Occupant.	Location.	Date when set.	Name of meter.	Size.							Gallons Consumed.	Remarks.
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.		
21	Leach, J. & Bro.....	N. E. Shur's lane and Ashland st.....	Nov. 11, '90..	Crown.	1							133,282	
21	Leibert & Obert.....	158-60 Oak st. and rear 153.....	Nov. 11, '90..	Crown.		2						1,553,715	
21	Littlewood, G. J. & Co.....	E. s. Main st., 10th h. n. Ridge ave.	Mar. 20, '90..	Crown.			1					333,150	On fire attachment.
21	McBowel, F.....	{ W. s. Main st., op. Levering, on { w. s. canal.....	Oct. 14, '90..	Gem			1					3,000	On fire attachment.
21	McCullough & Co.....	Rear 418-58 Main street.....	Oct. 24, '90..	Gem			1					1,309,650	On fire attachment.
21	McBride, J.....	W. s. Main st., 1st h. s. Bridge, { w. s. canal.....	Dec. 1, '90..	Gem			1					8,668,800	On fire attachment.
21	McBride, J.....	W. s. Main st., 1st h. s. Bridge, { w. s. canal.....	Dec. 1, '90..	Gem	1								
21	Nixon, Estate of Martin.....	W. s. Main st., 4th and 5th h. n. { of Fountain.....	Aug. 30, '90..	Crown.	2	1							
21	Nixon, Estate of Martin.....	W. s. Main st., 4th and 5th h. n. { of Fountain.....	Aug. 24, '90..	Gem			3					6,080,105	2 meters on fire attachment.
21	Pennsylvania R. R. Co.....	Schuykill River road, 628 ft. n. { Shawmont ave.....	Sept. 16, '91	Gem			1					3,657,000	
21	Platt Bros.....	E. s. Main st., 8th h. n. of Ridge av.	Nov. 21, '90..	Gem				1				233,250	On fire attachment.
21	Platt Bros.....	E. s. Main st., 8th h. n. of Ridge av.	Nov. 21, '90..	Crown.	1								
21	Rice & Bean.....	N. E. cor. Cresson st. & Shur's lane.	Apr. 10, '90..	Crown.	2		1					233,177	4 inch meter on fire attachment.
21	Schofield, S.....	{ 4312 Main st. and rear 4236 Main } { st., w. s. Main, 1st h. n. Belmont }	Apr. 6, '90..	Crown.			4					3,835,000	On fire attachment.
21	Schofield, S.....	{ 1312 Main st. and rear 4236 Main } { st., w. s. Main, 1st h. n. Belmont }	Aug. 19, '90..	Naah		1							

Old Meters—Continued.

Ward	Occupant	Location.	Date when set.	Name of meter.	Size.							Total.	Gallons Consumed.	Remarks.
					½-inch.	¾-inch.	1-inch.	1½-inch.	2-inch.	3-inch.	4-inch.			
21	Stafford, A.....	N. E. s. Church, 4th b. e. of Hamil'n	Oct. 21, '90	Gem ..								1	4,500	On fire attachment.
21	Stafford, J.....	S. s. Church st., 14th b.e.of Hamil'n	Nov. 22, '90	Crown.....	2							2	255,750	On fire attachment.
21	Stafford, J.....	S. s. Church It., 14th b.e.of Hamil'n	Nov. 18, '90	Gem ..							1			
21	Simister, C. R.....	4515-17 Main st.....	Sept. 29, '90	Crown.....	1							1	184,500	On fire attachment.
21	Simister, C. R.....	4515-17 Main st.....	Sept. 29, '90	Gem ..							1			
21	Wallace, D.....	N. W. Main st., and Shurs' lane.....	Apr. 7, '90	Crown.....					1			1	36,390	On fire attachment.
21	West Mannyuk Gas Co.	E. s. Main st., 4th h. n. of Wash.....	Feb. 26, '91	Gem ..			1					1	3,702,000	
22	Carbutt, John.....	N. s. Berkley st., 120 ft. w. of Green	May 31, '88	Crown.....					1			1	7,700,400	
22	Clower, Wm. L.....	4807 Germantown ave. and rear.....	Apr. 26, '91	Gem.....					1			1	1,820,250	
22	Cope & Co.....	W. s. Wayne st., 180 ft. s. of Berkley	Feb. 9, '91	Gem ..					1			2	5,452,500	4-in. meter on fire attachment.
22	Cope & Co.....	W. s. Wayne st., 180 ft. s. of Berkley	Feb. 9, '91	Crown.....					1			1		
22	Fling, J.....	N. E. Wister and Armstrong sts.....	Mar. 10, '91	Gem ..					1			2	312,750	4-in. meter on fire attachment.
22	Fling, J.....	N. E. Wister and Armstrong sts.....	Mar. 12, '91	Crown.....	1							1		
22	Germantown Electric Lt. Co	Cumberland, 109 ft. s. of Armat.....	Feb. 23, '90	Crown.....								1	6,420,161	
22	Germantown Ice Co.....	Heiskell st., 271 ft. n. of High st.....	June 20, '91	Gem ..								1	9,272,531	

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of Meter.	Size.							Total.	Gallons Consumed.	Remarks.
					3/4-Inch.	1-Inch.	1 1/2-Inch.	2-Inch.	3-Inch.	4-Inch.	6-Inch.			
22	Hocker, Charles.....	4655 Green st.....	Dec. 5, '89...	Crown.....	.....	.....	.....	.....	.....	.....	.....	.....	514,500	
22	Lelling, L.....	rear 236-38 Queen st., N. W. c. Baird	Oct. 9, '90...	Gem.....	.....	.....	.....	.....	.....	.....	.....	.....	No water used.	Vacant.
22	McCallum & Sloan.....	Wayne st., 1st mill S. Berkeley ....	.....	Crown.....	.....	.....	.....	.....	.....	.....	.....	.....	344,655	
22	Miller, J. C.....	N. W. Ashmead and Wakefield sts.	Oct. 26, '90...	Gem .....	.....	.....	.....	.....	.....	.....	.....	.....	4,912,500	
22	Mills, R. B.....	34-44 Wister st. and rear	Oct. 25, '90...	Gem .....	.....	.....	.....	.....	.....	.....	.....	.....	331,500	
22	Wagner, Gen. Louis.....	N. W. Locust ave. and Chew st.....	Feb. 12, '91..	Crown.....	.....	.....	.....	.....	.....	.....	.....	.....	90,000	Not charged by meter.
23	Arsenal, U. S.....	N. E. Bridge and Tacony sts.....	Feb. 6, '81..	Crown.....	.....	.....	.....	.....	.....	.....	.....	.....	10,061,250	
23	Erdrich, A.....	Bridge above Harrison st.....	Sept. 3, '90..	Gem .....	.....	.....	.....	.....	.....	.....	.....	.....	2,098,100	4-in. meter on fire attachment.
23	Foerderer, R. H.....	r'r 3971 Frank'd av. n. Bridgewater	Dec. 27, '91..	Gem .....	.....	.....	.....	.....	.....	.....	.....	.....	5,632,500	Not charged by meter.
23	Fritsch, John.....	rear 424-36 Penn or Edward st.....	Sept. 8, '90..	Crown.....	.....	.....	.....	.....	.....	.....	.....	.....	6,840,000	
23	Grauch, J., Estate.....	rear 4240 Edward st.....	Aug. 1, '87..	Crown.....	.....	.....	.....	.....	.....	.....	.....	.....	6,556,875	
23	Horrlich	N. S. Adams, W. of Sellers st.....	Apr. 15, '90..	Crown.....	.....	.....	.....	.....	.....	.....	.....	.....	4,045,190	
23	Oldham, George.....	rear 4326 Tackawanna st.....	May 27, '90..	Crown.....	.....	.....	.....	.....	.....	.....	.....	.....	27,000	
23	White Hall Dye Works.....	S. E. S. Frankford st., 200 ft. E. Silco	Dec. 23, '92..	Nash .....	.....	.....	.....	.....	.....	.....	.....	.....	337,500	
24	Aman & Bro.....	8721 Filbert st.....	Oct. 4, '92..	Nash .....	.....	.....	.....	.....	.....	.....	.....	.....	484,000	

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	SIZE.							Totals.	Gallons Consumed.	Remarks.	
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.				6-inch.
24	Avil Printing Co.....	3941-43 Market street and rear.....	Dec. 23, '91..	Crown.	2								2	779,775	
24	Beiswanger.....	N. W. cor. 41st and Warren streets.	Sept. 9, '90..	Crown.		1							1	345,000	
24	Filter Co.....	Belmont Pumping Station.....	Aug. 25, '91	Gem ..			1						1		Not charge 1 by meter.
24	Hestonville P. R. W. Co..	S. W. cor. Lancaster ave. and 43rd.	Aug. 6, '90..	Crown.	1								1	1,125,000	
24	McCann Estate.....	3901-13 Market, N. W. cor. 39th.....	Mar. 21, '90..	Crown.		1	1						3	327,500	
24	Mantua Market Co.....	N. E. cor. Haverford ave and 36th..	Sept. 8, '90..	Crown.	1								1	No water used.	
24	Penna. R. R. Co.....	Spring Garden, E. side of 31st st....	May 20, '91..	Gem ..							1		1	1,485,000	
24	Penna. R. R. Co.....	N. E. cor. 32d and Market sts....	Sept. 30, '91	Gem ..				1					1	12,298,800	
24	Penna. R. R. Co.....	S. E. cor. 30th and Race streets.....	Feb. 24, '88..	Crown.				1					1	8,038,500	
24	Stockyard, Philada.....	E. side 30th, S. of Race street	Mar. 2, '87..	Crown.					1				1	8,850,650	
24	Smith, R., Brg. Co.....	S. side Girard, 143 ft. E. of 38th.....	Mar. 2, '87..	Crown.						1			1	6,967,500	
25	Baeder, Adamson & Co...	N. E. cor. Richmond & Allegheny..	Sept. 10, '90	Gem ..						1			1	No water used.	
25	Brehm & Stehl.....	E. s. Trenton, 582 ft. N. of Cl'rfeld.	Apr. 10, '90..	Crown.				1					1	1,792,500	
25	Bleaching.....	2800-04 and 2808 Jasper street.....	May 21, '90..	Crown.		1	1						2		
25	Bleaching.....	2800-04 and 2808 Jasper street.....	Nov. 3, '92..	Nash ..		1	1						2	1,105,455	

Old Meters—Continued.

No. d.	Occupant.	Location.	Date when set.	Name of meter.	Size.							Gallons Consumed.	Remarks.	
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.			6-inch.	Total.
25	Blood & Bro.....	N. W. cor. Alligheny av. & Janney st.	Feb 2, '91.	Crown.	1								37,000	
25	Rueck, J. V.....	2736 Church st.....	Oct. 3, '90....	Crown.	1								241,072	
25	Bridesburg Manuf'g Co..	N. E. Richmond and Orchard sts....	Sept. 11, '92	Nash.		1								
25	Bridesburg Manuf'g Co..	N. E. Richmond and Orchard sts....	April 10, '81	Crown.		1							1,131,250	
25	Bridesburg Manuf'g Co..	N. E. Richmond and Orchard sts....	Sept. 11, '91	Gem.			1							
25	Children of Israel.....	2262 Wayne st.....	Sept. 15, '92	Nash.	1								33,270	
25	Goldschmid, T. J.....	Rear 2344 & all of 3256 Frankf'd av.	June 4, '90....	Crown.	1		1						14,937,600	
25	P. & R. R. Co.....	N. E. Lehigh and Trenton ave.....	Mar. 25, '87	Crown.				1					13,995,000	
25	P. & R. R. Co.....	N. E. Lehigh and Richmond st.....	Nov. 12, '92	Gem.					1				642,660	
25	Phila. Grain Elevator Co.	William and Brabant streets.....	Nov. 18, '87	Crown.						1			700,620	
25	Schlichter.....	N. E. Erie ave and Amber st.....	April 14, '90	Crown.		1							19,965	
25	Tate, W. J.....	3523 Lewis st. and rear.....	Aug. 29, '90	Crown.		1							No water used.	On fire attachment.
26	Am. Sewing Machine } and Buttonhole Co. }	S. W. Twentieth & Washington ave.	Sept. 3, '91..	Gem.							1			
26	Ammonia Co. of Phila.....	2901-09 Gray's Ferry road.....	Mar. 27, '91	Gem.								1		
26	Ammonia Co. of Phila.....	2901-09 Gray's Ferry road.....	Jan. 21, '90	Crown.	1								11,451,730	

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when Set.	Name of Meter.	Size.								Gallons Consumed.	Remarks.	
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.	6-inch.			Total.
21	Campbell, Geo. W.	S. W. 31st and Reed streets.	Feb. 22, '88	Crown					1					17,201,392	4-inch meter on fire attachment.
25	Campbell, Geo. W.	S. E. Washington ave. and 21st st.	Oct. 18, '91	Gem					1					10,211,550	3-inch meter on fire attachment.
25	Campbell, Geo. W.	S. E. Washington ave. and 21st st.	Feb. 23, '84	Crown				1					3		
25	Gardiner, J.	S. W. Washington ave and 21st st.	April 4, '81	Crown					1					10,189,500	On fire attachment.
25	Gardiner, J.	S. W. Washington ave. and 21st st.	Sept. 5, '90	Gem					1				1		
25	Harrison Bros.	N. W. Grays Ferry road and 35th.	Nov. 19, '80	Crown				1	3					11,37,007	3 1/2-inch meters on fire attachment.
25	Harrison Bros.	N. W. Grays Ferry road and 35th.	Dec. 7, '92	Nash									1		
25	Harrison Bros.	N. W. Grays Ferry road and 35th.	Oct. 19, '91	Gem					1					165,000	
25	Miller, J. & Co.	S. E. 16th and Reed streets.	May 7, '91	Gem					1				1		
25	Miller, J. & Co.	S. E. 16th and Reed streets.	May 7, '91	Crown	1								2	1,239,000	
25	Stewart, John.	N. W. 24th and Ellsworth streets.	May 3, '90	Crown					1				1		
27	Allison Manufg Co	E. s. 32d street cor. Walnut.	Feb. 12, '90	Crown				1	1	6	1		9	18,525,000	1 4-inch meter on supply attachment.
27	B. & O. R. Co.	S. s. Woodland av. bet. 59th & 60th.	Apr. 28, '91	Gem									1	43 684,500	
27	Consumer's Ice Co.	E. s. 31st, S. of Chestnut street.		Crown					1					9,808,500	
27	Croft & Allen.	Market st. S. E. cor. 33d & Lanc. av.	Aug. 31, '89	Crown					1					7,088,910	

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	Size.							Gallons Consumed.	Remarks.	
					½-Inch.	¾-Inch.	1-Inch.	1½-Inch.	2-Inch.	3-Inch.	4-Inch.			6-Inch.
28	Omnibus Co.....	w. a. 15th, 155 ft. n. of Huntington	Oct. 16, '90.	Gen					1				112,500	
28	Peoples' Pass. R. W. Co.....	Dauphin st., S. W. cor. Eighth.	Aug. 10, '92	Nash.		2	1						565,100	
28	Phila. & Reading R. R.....	{ N. S. Cumberland, S. E. cor. G. & N. Railroad.....	Sept. 4, '83.	Crown.									1,879,860	
28	Phila. & Reading R. R.....	{ W. S. G. & N. R. R. 400 ft. N. of Nitetown lane.....	May 14, '83	Crown.				1					8,792,000	
28	Fowers & Weightman.....	{ S. E. S. School lane, S. W. cor. Norristown Railroad.....	Sept. 7, '84	Crown.				1					2,152,500	
28	Stengel, Chris.....	{ 3402-01 Germantown ave., & 2405 N. Ninth st.....	July 18, '90	Crown.					1				465,000	
28	Stengel, Chris.....	{ 2022-04 Germantown ave., & 2165 N. Ninth st.....	Sept. 30, '92	Nash.					1				30,000	
28	13th & 15th P. W. R. R.....	{ N. S. Cumberland, N. W. cor. Car-Isle & to N. E. cor. Fifteenth.....	Feb. 4, '91.	Crown.									6,979,500	
29	Arnolt & Schaeffer.....	N. S. Thompson, E. of Thirty-first.	June 15, '90	Crown.				1					26,374,500	
29	Arnolt & Schaeffer.....	N. S. Thompson, E. of Thirty-first.	Sept. 21, '92	Nash.									75,000	
29	Baltz, J. & P. B'w'g Co.....	Thompson st., 120 ft. W. of 31st.....	Apr. 24, '84	Crown.	1				1				87,750	
29	Baltz, J. & P. B'w'g Co.....	Thompson st., 120 ft. W. of 31st.....	Dec. 3, '92.	Gen					1	1			3,937,500	
29	Barnhurst, J. Estate.....	S. W. Twenty-first & Nicholas sts.....	Nov. 15, '92	Nash.	1									
29	Barrington, Clara C.....	1636 North Fifteenth st.....	Oct. 31, '91.	Crown.					1					
29	Burg & Pfander.....	E. S. 23d st., 1st h. N. of Thompson..	Aug. 12, '91.	Gen							1			

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	SIZE.							Total.	Gallons Consumed.	Remarks.	
					½-inch.	¾-inch.	1-inch.	1½-inch.	2-inch.	3-inch.	4-inch.				6-inch.
29	Bergner & Engel, Brew. Co.	N. s. Thompson, 3d h. w. of 31st st.	May 10, '81.	Crown.			3		2		1		6		
29	Bergner & Engel, Brew. Co.	N. s. Thompson, 3d h. w. of 31st st.	Sep. 29, '91.	Gem.						2			2	165,834,000	
29	Bergner & Engel, Brew. Co.	N. s. Thompson, 3d h. w. of 31st st.	Oct. 5, '92.	Nash.			1						1		
29	Bergner & Engel, Brew. Co.	1415-17 N. 31st st.	Apr. 24, '84.	Crown.			1	1					2	4,673,000	
29	Columbia Elec. Light Co.	1426-34 N. 20th st.	Jan. 15, '91.	Gem.					1				1	2,491,500	
27	Ehle & Herter.	Thompson st., N. E. cor. 33d st.	June 18, '87.	Crown.						1			1	8,911,500	
29	Flach, Henry	Master st., N. W. cor. 31st st.	Aug. 2, '91.	Gem.				1					1	9,891,000	On fire attachment.
29	Flach, Henry	Master st., N. W. cor. 31st st.	Aug. 19, '84.	Crown.					1				1		
29	Franconi & Son.	N. s. Harland st., 1st h. w. of 18th st.	Mar. 26, '91.	Crown.									1	130,500	
29	Germania Brewing Co.	W. s. Broad st., 1st h. n. of Col. ave	May 10, '91.	Gem.						1			1	13,270,500	
29	Gourley, S.	S. W. 21st and Ridge ave.	May 12, '90.	Crown.									1	564,000	
29	Graham, Walter	1923-33 Seybert st.	June 5, '91.	Crown.							1		1	826,500	
29	Hines, H.	1807-09 N. 27th st.	Sep. 29, '92.	Nash.									1	30,000	
29	Keller, Geo.	E. s. 33d st., 2d h. n. Thompson.	Apr. 20, '91.	Gem.								1	1	8,039,000	
29	Kalkreuth Ico Co.	N. s. Columbia av. & Connect. R. R.	May 9, '90.	Crown.									1	219,250	

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	Size.							Gallons Consumed.	Remarks.		
					½-inch.	¾-inch.	1-inch.	1½-inch.	2-inch.	3-inch.	4-inch.			6-inch.	Total.
29	Muller, Henry Estate.....	N. E. Thirty-first and Jefferson sts	Apr. 24, '89..	Crown.....					1				1	14,529,000	
29	Muller, Henry Estate.....	N. E. Thirty-first and Jefferson sts	Aug. 6, '91..	Gen.....					1				1		
29	Muller, Henry Estate.....	E. s. 31st st. 150 ft. n. of Jefferson....	Aug. 11, '91..	Crown.....									1	1,699,500	
29	N. Broad St. Market Co.	W. s Broad st., 2d house n. of Col. av	Dec. 16, '90..	Crown.....				2					2	10,660,250	
29	P. & R. R. Co.....	N. s. Thompson, 50 ft. w of 33d st....	May 3, '92..	Gen.....							1		1	2,560,500	
29	Poth, F. A. Brg. Co.....	N. W. Thirty-first and Jefferson sts	Feb. 20, '91..	Gen.....							1		2	34,069,500	
29	Rothacher & Son.....	W. s. 31st st., 1st h. n. of Thompson	Apr. 23, '84..	Crown.....							1		1	1,993,500	
29	Rubland, H. & Co.....	1404-08 N. 22d st., S. W. cor. Stewart	Mar. 27, '90..	Crown.....						1			2	484,250	
29	Schenm, Peter.....	{ 908-22 W. College ave. N. W. cor. } { Poplar street..... }	Aug. 14, '91..	Gen.....							2		2	14,344,500	
29	Schlemmer.....	2705 Columbia avenue.....	Sep. 2, '90..	Gen.....							1		1	273,000	
29	Weger, C. & F. Bros.....	N. W. 32d st., 1st h. n. Thompson....	July 13, '90..	Crown.....							1		1	37,747,250	{ 3-inch meter on fire attachment. On fire attachment.
30	Howell.....	N. W. 21st st., & Washington ave....	Sep. 20, '91..	Gen.....								1	1	5,082,000	
30	Rosengarten.....	{ S. W. 17th & Filzwater to N. W. } { cor. Catharine street..... }	May 19, '84..	Crown.....					1	1	2		4	6,850,000	
31	Bromley, J. & G. D.....	N. W. Adams & Jasper streets.....	Apr. 7, '84..	Crown.....							1		1	3,228,000	Not charged by meter.
31	Bureau of Water.....	Emerald street below Lehigh ave....	Oct. 27, '91..	Gen.....									1		Not charged by meter.

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	Size.								Total.	Gallons Consumed.	Remarks.
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.	6-inch.			
31	Burgess, J.....	N. E. Amber & Burgess sts.....	April 11, 84.	Crown.....					2					2,528,500	Not charged by meter.
31	Ensley, Wm., & Bro.....	N. W. Adams & Emerald sts.....	Nov. 20, 92.	Gem.....					2		1			4,102,500	{ 4-inch meter on fire attachment.
31	Glazier, J. J., & Bro.....	1818-28 Taylor st. and rear.....	April 8, 84.	Crown.....				2						8,875,500	
31	Glazier, J. J., & Bro.....	1818-28 Taylor st. and rear.....	Feb. 11, 91.	Gem.....				1							
31	Greenwood, J., & Son.....	N. E. Emerald & Huntingdon sts.....	Nov. 13, 90.	Crown.....				1						8,827,500	Not charged by meter.
31	Greenwood, J., & Son.....	N. E. Emerald & Huntingdon sts.....	Aug. 22, 91.	Nash.....			1								
31	Kitchennan, Jas.....	S. E. Huntingdon & Jasper sts.....	April 3, 84.	Crown.....				1		1				2,559,000	
31	Leberman, L. M.....	2:23-44 Martha st.....	April 8, 84.	Crown.....				1						2,911,500	Not charged by meter.
31	McStravog, R.....	2223 E. Huntingdon st.....	Nov. 1, 90.	Crown.....		1								3,750	
31	Morgan, Hannah.....	1925-27 E. Huntingdon st.....	Jan. 23, 91.	Gem.....						2				4,392,250	
31	Peoples' Theatre.....	1810-18 E. Cumberland st.....	Sept. 26, 90.	Gem.....								1		No water used..	On fire attachment.
31	Straubmuller, J.....	2143-45 E. York st., N. E. c. Trenton	July 25, 91.	Gem.....		1								8,547,750	
31	Straubmuller, J.....	2143-45 E. York st., N. E. c. Trenton	Aug. 7, 92.	Nash.....											
31	Webbrod & Hess.....	9130-40 Frankford av. S. W. c. Adams	Jan. 25, 90.	Crown.....	2									4,865,000	
32	Bougher, J. C.....	1823 N. Broad st.....	July 28, 91.	Crown.....	1									301,500	

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of Meter.	SIZE.							Gallons Consumed.	Remarks.	
					½-inch.	¾-inch.	1-inch.	1½	2-inch.	3 inch.	4-inch.			6-inch.	Total.
32	West, John.....	S. E. Susquehanna av. & Carlisle st.	April 22, '91	Crown.	1								357,500	
33	American Machine Co...	N. E. Lehigh ave. and American st.	March 17, '91	Gen		1							471,750	
33	Amrhein, L.....	305 6 N. Sixth street and rear.....	April 24, '90	Crown.		1							612,000	
33	Carpenter, A. E.....	240 W. Somerset, S. W. c. American..	April 26, '90	Crown.			1						5,222,700	
33	Carpenter, A. E.....	240 W. Somerset, S. W. c. American..	July 26, '92	Nash	1								1,156,000	
33	Davenport, J.....	N. W. Somerset and Hancock sts...	Aug. 16, '92	Nash		1							2,298,000	
33	Davenport, J.....	N. W. Somerset and Hancock sts...	Feb. 13, '91..	Crown.		1							No water used.	Not charged by meter.
33	Hammer A.....	N. S. Ontario st., 215 ft. E. of 10th...	Jan. 15, '91..	Gen			1						12,798,000	
33	Harrison, Joseph.....	N. W. Lehigh ave. and Front st.....	March 8, '81	Wort'n									11,831,500	Not charged by meter, on fire attachment.
33	Mantz, G. Prg. Co.....	S. E. 6th and Clearfield sts.....	Nov. 19, '92	Gen			1						10,819,500	
33	Mathen, J. P.....	{ N. s. Sedgeley ave., from 9th to Westmoreland	Dec. 4, '91..	Gen			1						351,000	
33	Phillips Townsend & Co.	{ N. s. Glenwood ave. 85 ft. E. of N. P. R.	Dec. 16, '90..	Gen			1						8,805,000	
33	Phillips Townsend & Co..	{ W. s. Kensington ave., 45 ft. N. E. of I street.	Dec. 16, '90.	Crown.		1								
33	Webster.....	{ Pennycroft or Brooks st., N. s. E. of 56th street.....	April 14, '90	Crown			1							
34	Frook & Son.....	E. of 56th street.....	July 14, '90	Crown.			1							

Old Meters—Continued.

Ward.	Occupant.	Location.	Date when set.	Name of meter.	Size.								Gallons Consumed.	Remarks.	
					1/2-inch.	3/4-inch.	1-inch.	1 1/2-inch.	2-inch.	3-inch.	4-inch.	6-inch.			Total.
34	Pennsylvania R. R. Co....	S. E. Forty-eighth and Elm ave....	June 22, '88.	Crown.							1	1	30,819,000		
34	Pennsylvania R. R. Co....	{ Bear n. s. Girard ave, 656 ft. w. } { of 4th st..... }	Mar. 2, '87.	Crown.						1		1	18,450,000		
			Total.....		28	66	114	85	163	87	107	7	657	1,848,757,245	
			Total not charged by meter.....											251,914,095	
			Total charged by meter.....											1,596,843,150	



THE UNIVERSITY OF CHICAGO

THE UNIVERSITY OF CHICAGO

1911

APPENDIX E.

REPORT

ON THE

Operations of the Construction and Repair Shop

DURING 1892.

TWELFTH AND REED STREETS,

Philadelphia, January 15, 1893.

JOHN L. OGDEN,

Chief of Bureau of Water.

SIR :—I respectfully herewith submit the annual report of the operations of the Construction and Repair Shop for the year ending December 31, 1892.

Respectfully,

JAMES H. DEAN,

Superintendent of Shop.

	MERCHANDISE.	DR.
Dec. 31. To stock on hand per inventory, Jan. 1, 1892.....		\$20,416 56
Steel.....		172 67
Lumber.....		2,380 15
Machinery		2,085 84
Iron castings.....		24,729 16
Brass castings.....		6,792 82
Wrought iron.....		2,182 69
Hardware.....		1,931 88
Bolts and nuts.....		1,337 24
Gum goods.....		5,721 23

Lead coating.....	\$508 58
Brass fittings.....e.....	11 96
Chandlery	227 87
Coal.....	1,065 60
Coke.....	24 10
Paints, Brushes, etc.....	58 90
Oils and Tallow.....	106 06
Miscellaneous.....	1,070 31
Wages	27,792 57
	<hr/>
	\$98,616 19

MERCHANDISE.	Cr.	
First District.....	\$15,852 99	
Second District.....	15,930 60	
Third District.....	12,886 11	
Fourth District.....	28,960 36	
Fifth District.....	1,604 99	
Sixth District.....	9,319 70	
	<hr/>	\$84,554 75

FAIRMOUNT PUMPING STATION.

Machinery	189 39	
Buildings and grounds... ..	31 94	
	<hr/>	221 33

SPRING GARDEN PUMPING STATION.

Machinery.....	\$2,341 00	
Boilers	190 61	
Buildings and grounds.....,.....	147 15	
	<hr/>	2,678 76

BELMONT PUMPING STATION.

Machinery	\$144 51	
Boilers	75 15	
	<hr/>	219 66

FRANKFORD PUMPING STATION.

Machinery.....	\$249 45	
Boilers	6 18	
	<hr/>	255 63

ROXBOROUGH PUMPING STATION.

Machinery.....	\$260 53	
Boilers	98 06	
	<hr/>	358 59

MOUNT AIRY PUMPING STATION.

Machinery	\$178 19	\$178 19
Main office.....		132 78
Old metals.....		808 65
Fixed patterns.....		559 75
Holmesburg Water Co.....		56 00
Meters.....		467 35
Machinery.....		503 31
Construction and repair shop.....		1,530 79
Distribution.....		886 57
Ferrules.....		52 20
General buildings and grounds.....		201 23
		<u>\$93,665 54</u>
Stock on hand January 1, 1893.....		18,121 47
	Cr.	<u>\$111,787 01</u>
	Dr.	98,616 19
		<u>\$13,170 82</u>
	Balance to Cr.	

Articles Delivered, etc.—Continued.

DISTRICTS.	S. Hooks.	Clevises.	Hook Bolts.—Pairs.	Stub End Straps.	Mandrels.	Hammers.	Eye Bolts.	Fall Clamps.	Keeners.	Wrenches.	Wedges.	Plug Risers.	Iron Furnaces.	Gasket Irons.	Caulking Tools—Sets.	Glands.	Fire Hydrant Reducers.	Set Screws for Drill Machines.	Gun Joint Rings.	
First.....	168	72	2		1	2			1	10	30			8	4	19			41	
Second.....	144	144	4			2			3	6	51	16		7	4	18	2		72	
Third.....	144	144	6		2														15	60
Fourth.....			9		10										6					
Fifth.....								1							5		2	2		57
Sixth.....	72		2				60	84		5										12
Works.....																				
Total.....	528	360	23		13	4	60	85	4	21	81	16		11	19	\$7	4		17	240

Stop Cocks, Fire Hydrants, etc., delivered from Bureau of Water Construction and Repair Shop to Purveyor's Districts, Works, etc., 1892.

DISTRICTS.	STOP COCKS.										STOP SCREWS.							STOP BOXES AND RISERS.											
	+1-inch.	6-inch.	8-inch.	10-inch.	12-inch.	16-inch.	20-inch Rotary.	20-inch Wedge.	30-inch Rotary.	30-inch Wedge.	36-inch Rotary.	36-inch Wedge.	48-inch Rotary.	48-inch Wedge.	6-inch.	8-inch.	10-inch.	12-inch.	16-inch.	20-inch.	30-inch.	36-inch.	48-inch.	Boxes.	Risers.	New fire hoses.	Hoe handles.		
First.....	.....	358	19	13	7	.....	2	.....	.....	.....	.....	.....	.....	.....	6	1	.....	.....	.....	.....	.....	.....	.....	530	11	.....	.....
Second.....	10	219	6	8	10	2	2	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	268	95	.....	.....
Third.....	10	156	.....	8	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	6	.....	.....	.....	.....	2	2	.....	.....	473	44	.....	.....
Fourth.....	9	283	16	19	16	1	5r 1w	3	1w	5	3	5	2	12	12	2	2	2	2	426	120	
Fifth.....	2	2	3	101	
Sixth.....	6	126	18	9	6	232	132	
Works.....
Total.....	37	1,142	61	60	46	3	5	5	3	1	5	3	5	2	24	3	4	4	2	2	1,980	402	224	21	224	24

Stop Cocks, etc.—Continued.

DISTRICTS.	IRON BANDS.										SOCKET SCREWS.						STOP.							
	4-inch.	6-inch.	8-inch.	10-inch.	12-inch.	16-inch.	20-inch.	30-inch.	36-inch.	48-inch.	4-inch.	6-inch.	8-inch.	10-inch.	12-inch.	16-inch.	Cast Iron Monkey Legs.	Wrought Iron Monkey Legs.	Cross Heads.	Nuts.	Spindles.	Barton Bonnet and Screws.		
First.....	6	6	6	7								2								3			4	
Second.....	6	19	6								6	6	6								36	36	12	36
Third.....	108										38	24	23								36	6		6
Fourth.....	81					4	10	6	30												12	24	12	10
Fifth.....																							5	5
Sixth.....	24																							
Works.....																								
Total.....	6	238	6	7	10	4	4	10	6	30	42	30	8	23		18	60	53	54	42	4			4

INVENTORY.

45 No. 2 fire hydrants, at \$35 00.....	\$1,575 00	
		\$1,575 00
13 6-inch stops, at \$15 00.....	\$195 00	
7 10-inch " 31 90.....	217 00	
10 12-inch " 37 00.....	370 00	
1 16-inch " 60 00.....	60 00	
		\$842 00
Finished parts of fire hydrants.....	\$57 96	
Finished parts of stop cocks	2,464 42	
		\$2,522 38
18 4-inch stop screws, at \$1 50.....	\$27 00	
162 6-inch " " 2 25.....	364 50	
8 8-inch " " 3 25.....	26 00	
6 10-inch " " 4 50.....	27 00	
12 12-inch " " 5 00.....	60 00	
19 16-inch " " 6 50.....	123 50	
4 20-inch " " 8 25.....	33 00	
8 30-inch " " 10 25.....	82 90	
7 36-inch " " 12 00.....	84 00	
1 48-inch " " 15 00.....	15 00	
		\$842 00
36 4-inch socket screws, at \$1 50.....	\$54 00	
50 3-inch " " 1 50.....	75 00	
44 6-inch " " 1 75.....	77 00	
12 8-inch " " 2 00.....	24 00	
4 Barton valve screws, at \$3.25.....	13 00	
16 Viney valve screws, at \$2.00.....	32 00	
10 Barton bonnets, at \$3.50.....	35 00	
		\$310 00
3 10-inch O. S. square-top screws, at \$4 50.....	\$13 50	
3 12-inch " " " 5 00.....	15 00	
20 16-inch " " " 6 50.....	130 00	
23 20-inch " " " 8 25.....	187 75	
6 30-inch " " " 10 25.....	61 50	
		\$407 75
20 3-inch spindles, at \$1 50.....	\$30 00	
36 4-inch " 1 50.....	4 00	
24 6-inch " 1 75.....	42 00	
12 8-inch " 2 00.....	24 00	
27 10-inch " 2 25.....	60 75	
15 12-inch " 2 50.....	37 50	
		\$248 25

48 6-inch bead bands, at \$2 00.....	\$96 00	
61 8-inch " " 4 00.....	244 00	
12 10-inch " " 5 00.....	60 00	
20 12-inch " " 6 00.....	120 00	
10 16-inch " " 7 50.....	75 00	
30 48-inch " " 20 00.....	600 00	
	<hr/>	\$1,195 00
14 lead pots (large and small, at \$2.50.....	\$35 00	
3 large furnaces, at \$17.00.....	51 00	
3 8-inch fire plug risers, at \$2.25.....	6 75	
7 6-inch fire plug risers, at \$2.00.....	14 06	
10 pairs c. i. monkey legs, at 1.50.....	15 00	
24 pairs w. i. monkey legs, at \$3.25.....	78 00	
2 crow heads, at \$4.50.....	9 00	
6 lead skimmers, at \$3.00.....	18 00	
4 hydrant keys, at \$2.25.....	9 00	
	<hr/>	\$235 75
11 3-inch cast-iron plugs, at \$ 50.....	\$5 50	
81 4-inch " " 50.....	40 50	
26 6-inch " " 1 00.....	26 00	
43 8-inch " " 1 00.....	43 00	
	<hr/>	\$115 00
17 air-pump straps (stub en l), at \$9.50.....	\$161 50	
80,297 pounds cast-iron, at \$1.93.....	1,588 10	
5,217 pounds cast-iron, at 2 cts.....	104 34	
	<hr/>	\$1,853 94
592 pounds cast iron, at 2½ cents.....	\$13 32	
2,433 pounds cast iron rotary, at 2.06 cents....	50 12	
43,620 pounds wrought iron, at 2 cents.....	872 40	
13,717 pounds steel, at 4½ cents.....	582 97	
9,542 pounds brass castings, at 11½ cents	1,109 26	
5,279 pounds finished brass castings, at 20 cents ...	1,055 80	
1,212 pounds white expansion metal, at 14⅞ cents	180 58	
125 pounds brass rods, rolled, at 19 cents	23 75	
12 pounds brass press, at \$2 25	27 00	
3 brass plug wrenches, at \$2.....	6 00	
679 pounds gum washers, at 48 cents.....	325 92	
212 pounds sheet gum, at 40 cents	84 80	
Lumber.....	437 44	
325 wooden plugs, at 50 cents.....	162 50	
33 stop boxes, at \$2 50.....	82 50	
254 6-inch fire hydrant valves, at \$3 75.....	952 50	
199 4-inch fire hydrant valves, at 2 75.....	547 25	
	<hr/>	\$5,514 11

Hardware.....	\$166 45	
Bolts and nuts.....	459 63	
Oils and tallow	21 79	
Chandlery.....	9 19	
Paints, oils, brushes, etc.....	1 25	
		<hr/>
		\$658 31
8 doz. S hooks, at 75 cents.....	\$6 00	
7 doz. clevises, at 75 cents.....	5 25	
38 flat drills, at 35 cents	13 30	
39 gasket irons, at 60 cents.....	23 40	
11 handled gouges, at 60 cents	6 60	
42 hand gouges, at 50 cents	21 00	
48 handled diamond points, at 90 cents	43 20	
60 hand diamond points, at 35 cents	21 00	
56 pipe cutters, at 60 cents.....	33 60	
29 hammers, at \$1	29 00	
18 sets handled caulking tools, at \$4 50.....	81 00	
25 sets hand caulking tools, at \$2 50	62 50	
16 cape chisels, at 35 cents.....	5 60	
39 flat chisels, at 35 cents.....	10 50	
14 lead cutters, at 35 cents.....	4 90	
4 plug wrenches, iron, at 50 cents	2 00	
24 drill mandrils, at \$1	24 00	
40 reamers, at \$3.50	140 00	
24 drill sockets, at 75 cents.....	18 00	
		<hr/>
		\$550 85
		<hr/>
		\$17,870 34

ARTICLES MANUFACTURED DURING 1892.

251 No. 1 fire hydrants, at \$28 00	\$7,028 00
882 No. 2 fire hydrants, at 35 00	30,870 00
24 4-inch stops at \$13 00	312 00
1,163 6-inch " 15 00	17,520 00
46 8-inch " 24 00	1,104 00
63 10-inch " 31 00	1,953 00
52 12-inch " 37 00	1,924 00
5 20-inch " 95 00	475 00
1 30-inch stop, at \$190.00.....	190 00
2 36-inch stops, at 300.00.....	600 00
2 48-inch stops, at 600.00.....	1,200 00
5 20-inch rotary valves, at \$265.00.....	1,325 00
5 30-inch rotary valves, at 335.00.....	1,675 00
5 36-inch rotary valves, at 525.00.....	2,625 00
5 48-inch rotary valves, at 665.00.....	3,325 00

75	6-inch stop screws, at \$ 2.50...	\$187 50
6	8-inch stop screws, at 3.25.....	19 50
72	10-inch stop screws, at 4.50.....	324 00
36	12-inch stop screws, at 5.00.....	180 00
8	16-inch stop screws, at 6.00.....	48 00
6	20-inch stop screws, at 6.50.....	39 00
6	30-inch stop screws, at 10.25.....	61 50
5	36-inch stop screws, at 12.00	60 00
3	48-inch stop screws, at 15.00.....	45 00
23	Barton bonnets and screws, at \$8.00.....	224 00
2	Iron furnaces, at \$17.00	34 00
30	4-inch socket screws, at \$1.50.....	45 00
118	6-inch socket screws, at 1.75	206 50
14	8-inch socket screws, at 2.00.....	28 00
48	6-inch iron bands, at \$2.15.....	103 20
6	8-inch iron bands, at 3.50.....	21 00
7	10-inch iron bands, at 5.00.....	35 00
10	12-inch iron bands, at 6.00.....	60 00
52	pairs wrought iron monkey legs, at \$3.25.....	169 00
85	pairs cast iron monkey legs, at \$1.50.....	127 50
36	cross heads and nuts, at \$1.50.....	54 00
92	spindles, at \$3.50.....	322 00
1,210	wooden plugs, at 50 cents.....	605 00
984	brass plugs, at 50 cents.....	492 00
60	iron plugs, at 50 cents.....	30 00
2,050	stop boxes, at \$2.50.....	5,200 00
702	stop box risers, at 35 cents.....	245 70
30	flat chisels, at 35 cents.....	10 50
33	handled gouges, at 50 cents.....	16 50
60	hand diamond points, at 35 cents.....	21 00
48	handled diamond points at 90 cents.....	43 20
56	pipe cutters, at 60 cents.....	33 60
16	cape chisels, at 35 cents.....	5 60
24	mandrils, at \$1.25.....	30 00
24	reamers, at \$3.50.....	84 00
17	stub end straps, at \$9.50.....	161 50
3	reducing caps, at \$2.25.....	6 75
29	sets caulking tools, at \$2.50.....	72 50
28	gasket irons, at 60 cents.....	16 80
		<hr/>
		\$81,748 30

APPENDIX F.

REPORT OF JOHN E. CODMAN, IN CHARGE OF HYDROGRAPHIC WORK.

BUREAU OF WATER.

Philadelphia, January 13, 1893.

JOHN L. OGDEN,
Chief of Bureau.

SIR:—The following report of hydrographic work and data collected during the year 1892 in connection with the investigations of the sources for a future water supply, is respectfully submitted.

Rain-fall observations at twenty-one stations, three of which are provided with automatic rain gauges, have been continued throughout the year, completing ten years continuous record of data relating to the precipitation.

Stream-flow observations on the Perkiomen, Neshaminy and Tohickon streams have also been continued, completing nine years continuous records.

Attention is directed to the fact that the tables showing the computations of the average rain-fall and stream flow are based upon data collected in which the year begins with October 1st and ends with September 30th. Other tables are prepared in which the yearly rain-fall and flow of streams is computed from data beginning January 1st.

The rain-fall from September 30, 1891 to October 1, 1892, over the eastern counties of the State of Pennsylvania was

about seven inches below the preceding nine year's average. The least monthly rain-fall between September 30, 1891 and October 1, 1892, occurred in February, and the greatest in May. The amount of rain-fall during the months of December, January, March, May and July, was above the yearly average.

The months of November, February, April, August and September were somewhat less than the yearly average. The remaining months gave the average rain-fall for those months. The distribution of the rain-fall throughout the months of the year was very unequal. The heaviest rain-fall occurred in the months when the evaporation from the surface was at a maximum, and the least when it was at a minimum.

The effect of this distribution is shown in the reduced flow of the streams, and extremely low water in surface wells and springs for the months of July, August and September, although the stream-flow for these months was much less than the average flow. Still a minimum flow was not reached. The flour mills on both the Perkiomen and Tohickon were able to run from ten to twelve hours daily during the summer. During the year no heavy or unusual freshets occurred in any of the streams under observation.

The total precipitation registered by the Automatic Gauges at Thirty-second and Spruce streets, for the year ending December 31, 1892, was 35.13 inches. The total amount registered by the ground gauge was 39.35 inches. Observations begun in 1891 with the five gauges at different elevations have been continued throughout the year. At the end of every rain-storm the amount of precipitation and the direction of the wind has been recorded.

The results further confirm those taken in 1891 and prove plainly that there is no material difference between 50 feet elevation and the surface of the ground.

Discrepancies will be found in gauges placed in positions where surrounding objects produce counter currents of air.

The tabulated results in Table V have been compared with

those obtained from the gauge on the ground and the automatic gauge. The variations are caused by the wind acting upon the mast. The Automatic Rain Gauges continue to give satisfaction. The comparative observations begun in 1890 on these gauges to obtain the error due to the force of the wind acting upon the roof beneath the collectors, have been continued through the year. The error between the automatic gauges and one placed upon the ground, in nearly three years observation is found to vary in single storms from zero to twenty-five per cent; those gauges with a sharp gable roof beneath the collectors showing a variation from zero to fifteen per cent., the flat roof showing a variation from five to twenty-five per cent.

The mean of the three years' observation is nearly eight per cent for the gable roof and ten per cent. for the flat roof.

This correction is obtained from rain-storms only, and can be added to the total amount of precipitation obtained at the end of the year. The snow is collected and measured in a separate gauge. The Automatic Gauge cannot be relied upon to correctly register snow. The Automatic Gauge in this city recorded twenty-seven storms in which the rate exceeded 0.25 of an inch per hour, and one hundred and fifteen days in which the precipitation exceeded 0.01 of an inch. The greatest amount of rain recorded in a single storm was on November 5th, when 2.40 inches fell in fourteen hours. The greatest amount for a short period of time was on July 3d, when 0.75 of an inch fell in twenty-five minutes, or at the rate of 2.25 inches per hour. The amount of rain recorded at stations outside of the city varied from four to thirty per cent. more than was recorded by the gauges in use by the Bureau, or the Signal Service.

The greatest amount recorded at any station outside of the city was 45.72 inches at West Chester.

The Automatic Gauge at the Forks of the Neshaminy recorded twenty-seven storms in which the rate exceeded 0.25 of an inch per hour. The greatest amount of rain recorded

in a single storm was on November 15th, when 2.89 inches fell in nineteen hours and forty minutes. The greatest amount for a short period of time was during a rain-storm on September 14th, when 1.30 inches fell in forty minutes, or at the rate of 1.95 inches per hour.

The Automatic Gauge at Spring Mount, P. R. R., recorded twenty-five storms in which the rate exceeded 0.25 of an inch per hour. The greatest amount recorded in a single storm was on November 15th and 16th, when 2.56 inches fell in twenty-two hours and twenty-five minutes.

The greatest amount for a short period of time was on July 30th, when 1.55 inches fell in fifty-five minutes, or at the rate of 2.06 inches per hour.

The rain-fall for the month of October in this city was 0.37 of an inch by the ground gauge and 0.32 of an inch by the Automatic Gauge. The average for the eastern portion of the State was 0.40 of an inch, being by the records kept at the Pennsylvania Hospital, nearly three inches less than the mean of the past seventy years. Mr. Thomas J. Beans, of Moorestown, N. J. furnishing voluntary rain-fall data for the Bureau, says in his report, "Rainfall for the month of October, 0.38 of an inch, was the lightest recorded for that month during 29 years. The rain-fall for November, 8.61 inches, is the heaviest for that month during the same period."

A marked decrease in flow for the month was observed in the Schuylkill river and all its tributaries. The Perkiomen, Neshaminy and Tohickon streams were very low, but did not reach as low a daily flow as shown in former years.

From inquiries made in regard to height of water in the Delaware River at Point Pleasant, nothing definite could be obtained from any source. Sand bars and large stones were exposed which it was said had not been uncovered for many years. The river at this point is continually changing its bed; sand bars are formed and removed, new channels are scoured out and without a knowledge of these changes no very accurate idea can be formed of the volume of flow. From general

observations it seemed probable that the river at this point was not as low as in preceeding years.

The various tables of data collected during the year relating to rain-fall and stream-flow are continued as in former years.

Table I. shows the monthly and total precipitation for 1892, compared with the United Signal States Service, and the average comparison for the past ten years, at twenty-one different stations in Eastern Pennsylvania.

Tables II, III and IV are compiled from the records of the Automatic Gauges and show the number, amount and intensity of all rain-storms during the year that exceeded 0.25 of an inch per hour.

Table V. shows the amount of rain collected each month at different elevations above the surface of the ground, the number of observations, and the general direction of the wind during the time rain was falling.

The average daily flow of the Perkiomen for the past nine years was 185,254,855 gallons, the year ending September 30th. The daily flow of this stream for the year 1892 was 142,678,400 gallons, or 23 per cent. less than the average for the past nine years. The rain-fall on the water-shed was 6.88 inches less than the average. The flow of the Perkiomen from September 30, 1891 to October 1, 1892 was nearly forty-four million of gallons per day less than the flow for the year ending September 30, 1891, and ninety-four million of gallons per day less than the flow for the year ending September 30, 1890. The average per cent. of rain-fall flowing in the Perkiomen for the past nine years was 51.1, equivalent to 25.2 inches of rain-fall over the whole water-shed, or 1.886 cubic feet per second per square inch.

The average daily flow of the Neshaminy for the past nine years was 158,543,534 gallons. The daily flow of this stream for the year ending September 30, 1892 was 117,928,370 gallons, or 26 per cent. less than the average for the past nine years.

The rain-fall on the water-shed was 6.92 inches less than the average.

The flow of the Neshaminy from September 30, 1891 to October 1, 1892, was nearly forty-five million of gallons per day less than the flow for the year ending September 30, 1891. and fifty-five million of gallons per day less than the flow for the year ending September 30, 1890. The average per cent. of rain-fall flowing in the Neshaminy for the past nine years was 48.62, equivalent to 23.92 inches over the whole watershed, or 1.76 cubic feet per second per square mile.

The average daily flow of the Tohickon for the past nine years was 149,244,444 gallons. The flow of this stream for the year ending September 30, 1892 was 110,310,963 gallons, or 27 per cent. less than the average for the past nine years. The rain-fall on the water-shed was 8.12 inches less than the average. The flow of the Tohickon from September 30, 1891 to October 1, 1892, was over thirty-seven million of gallons per day less than the flow for the year ending September 30, 1891, and over fifty-two million of gallons per day less than the flow ending September 30, 1890. The average per cent. of rain-fall flowing in the Tohickon for the past nine years was 59.7, equivalent to 30.72 inches of rain-fall over the whole water-shed, or 2.26 cubic feet per second per square mile.

The yearly flow of these streams has decreased since 1889, which year was a maximum. It will probably be several years before a minimum flow is reached.

The records kept at Fairmount of the amount of water flowing over the flash-boards of Fairmount dam during 1892 showed a total of 71.5 feet,—being 6.7 less than the record of 1891, and 124.3 feet less than the record for 1889.

The rain-fall on the Schuylkill valley for 1892 was 40.40 inches,—being 9.6 inches less than the average for 1891. The computed flow from these records gives 530,281,880,571 gallons as the total flow for the year, or 42 per cent. of the rain-fall.

The average daily flow of the Schuylkill for 1892 from this computation, would be 1,448,857,597 gallons.

There were but three days in July, two in August, and none in September and October, when water flowed over the flash boards.

The following named persons have been engaged as observers and rodmen during the entire year :

John G. Hilsman, rodman and gauge observer, Rush Valley P. O.

George W. Wood, rodman and gauge observer, Spring Mount, Pa.

R. G. Stover, rodman and gauge observer, Point Pleasant, Pa.

Dr. George M. Grim, gauge observer, Ottsville.

George Louder, gauge observer, Smith's Corner.

Dr. J. A. Roth, gauge observer, Seisholtzville.

A. W. Walton, gauge observer, Doylestown.

H. L. Schull, gauge observer, Lansdale.

The Bureau is indebted to the following persons who have kindly furnished rain-fall records :

Mr. Thomas MacKellar, Geymantown, Philadelphia.

Mr. J. L. Heacock, Quakertown, Pa.

Sergeant L. M. Dey, U. S. Signal Service.

Mr. Benjamin Shoemaker, Pennsylvania Hospital, Philadelphia.

Mr. E. F. Smith, Chief Engineer of Canals, Reading, Pa.

Mr. Thomas J. Beans, Moorestown, N. J.

Dr. Charles Moore, Pottstown, Pa.

Professor J. W. Moore, Lafayette College, Easton, Pa.

Professor Seldon, Lafayette College, Easton, Pa.

During 1892 all observations on rain-fall were taken uniformly in accordance with the instructions given at the beginning of the year.

Respectfully,

JOHN E. CODMAN,

In Charge of Hydrographic Work.

TABLE 2.

Rain Storms exceeding in Rate 0.25 Inches per Hour, as Recorded by the Automatic Gauge at Philadelphia, Pa., for the Year 1892.

Date of Observation, 1892.	AUTOMATIC RAIN GAUGE.				
	TOTAL FALL.		MAXIMUM FALL.		
	Amount in Inches.	Duration in Hr. Min.	Amount in Inches.	Duration in Minutes.	Rate per Hour dur- ing Maxi- mum fall.
January 2d, S. E. rain storm.....	.88	8—20	.15	.15	.60
Jan. 12th & 13th, N. E. rain & snow.	1.32	18—05	.15	.20	.45
March 1st, rain and snow.....	1.43	27—40	.25	.60	.25
March 8th, N. E. rain storm.....	1.45	9—30	.25	.24	.63
March 23d, N. E. rain storm.....	.18	9—10	.10	.20	.30
May 2d, shower.....	.80	2—00	.57	.36	.95
May 6th, shower.....	.21	0—20	.20	.20	.60
May 11th, rain and storm.....	.59	19—25	.10	.15	.40
May 15th & 16th, thunder shower..	1.04	3 showers.	.24	.08	1.80
May 19th, showers.....	.57	10—20	.10	.08	1.00
May 26th and 27th, showers.....	1.09	11—55	.15	.12	.75
June 21st, thunder shower.....	.33	0—28	.32	.16	1.20
June 27th, 2 thunder showers.....	.80	4—30	.27	.24	.67
June 30th, 2 showers.....	.49	1—35	.43	.16	1.61
July 1st, shower.....	.64	11—15	.25	.60	.25
July 3d, shower 1st.....	1.55	2—20	.75	.20	2.25
July 3d, shower 2d.....		4—30	.60	.28	1.30
July 30th, shower.....	.82	1—35	.20	.20	.60
August 5th, shower.....	.17	0—12	.15	.10	.90
August 12th, shower.....	.46	8—35	.35	.20	1.05
August 26th, rain storm.....	1.68	6—45	.55	.16	2.06
September 6th, shower.....	.29	3—25	.10	.12	.59
September 14th, rain storm.....	1.30	16—50	.85	.25	2.04
September 23d, shower.....	.26	1—10	.22	.15	.88
November 9th, rain and snow.....	1.40	23—10	.20	.40	.30
November 15th, rain storms.....	2.40	13—55	.20	.24	.50
November 18th, rain storm.....	.75	4—35	.25	.15	1.00

TABLE 3.

Rain Storms exceeding in Rate 0.25 inches per hour as Recorded by the Automatic Rain Gauge at Forks of Neshaminy, for the year 1892.

Date of Observation, 1892.	AUTOMATIC RANGE GAUGE.				
	TOTAL FALL.		MAXIMUM FALL.		
	Amount in Inches.	Duration in Hr. Min.	Amount in Inches.	Duration in Minutes.	Rate per Hour during Maximum Fall.
January 2d, S. E. rain storm.....	10.2	14—30	.20	.12	1.00
January 12th to 15th, snow & rain..	1.78	67—10	.20	.60	.20
March 1st, rain and snow.....	1.38	19—00	.10	.10	.60
March 8th, N. E. rain storm.....	.85	8—00	.15	.20	.45
March 18th, N. E. snow and rain...	.70	24—10	.85	.12	1.75
April 14th and 15th, rain and snow	.55	17—50	.15	.66	.16
April 21st, rain storm.....	.83	46—10	.15	.48	.19
May 2d, thunder shower.....	.58	2—45	.51	.32	.96
May 15th and 16th, showers.....	1.09	22—10	.10	8	.75
May 19th, showers.....	1.44	19—10	.65	.60	.65
May 26th and 27th, rain and snow..	.93	20—00	.15	.60	.15
June 3d, shower.....	.33	0—30	.28	.15	1.12
June 9th, shower.....	.23	20—40	.16	8	1.20
June 25th, shower.....	.68	4—50	.35	.15	1.40
June 27th, shower.....	.65	3—50	.15	8	1.13
July 3d, shower.....	1.58	4—20	1.25	.48	1.56
July 27, shower.....	.31	1—55	.15	8	1.13
July 29th, shower.....	.29	3—25	.45	.10	.90
July 31st, shower.....	.53	10—00	.40	.20	1.20
August 10th, shower.....	.41	3—20	.30	.15	1.20
August 12th, shower.....	.72	1—50	.50	.25	1.20
August 21st, shower.....	.18	0—20	.15	.12	.75
August 26, rain storm.....	1.05	33—50	.62	.20	1.86
September 14, rain storm.....	1.89	13—20	1.30	.40	1.95
November 10th, rain storm.....	1.41	19—30	.10	.15	.40
November 15th & 16th, rain storm..	2.89	19—40	.45	.60	.45
November 18th, rain storm .....	.61	4—10	.15	.15	.60

TABLE 4.

Rain Storms exceeding in Rate 0.25 inches per Hour as Recorded by the Automatic Rain Gauge, at Frederick, for the year 1892.

Date of Observation, 1892.	AUTOMATIC RAIN GAUGE.				
	TOTAL FALL.		MAXIMUM FALL.		
	Amount in Inches.	Duration in Hr. Min.	Amount in Inches.	Duration in Minutes.	Rate per Hour during Maximum Fall.
January 2d S. E. rain storm.....	.76	14—20	.15	.15	.60
January 12th to 16th, snow and rain	1.97	51—10	.15	.20	.45
March 1st, N. E. rain storm.....	1.63	24—00	.25	.16	.84
March 8th, N. E. rain storm.....	.87	7—30	.10	.8	.75
April 14th and 15th rain and snow.	.74	20—30	.15	.40	.22
May 2d, shower.....	.52	3—20	.42	.24	1.05
May 19th, shower.....	.71	17—00	.10	.6	1.00
May 26th to 27th, rain and snow....	1.18	35—55	.20	.40	.30
May 26, shower.....	.16	0—20	.10	.8	.75
June 17th, shower.....	.81	2—5	.30	.10	1.30
June 21, shower.....	.23	0—25	.20	.10	1.20
June 25, shower.....	.67	2—30	.15	.8	1.12
June 27, (4) showers.....	.80	6—35	.30	.12	1.50
June 30th, shower.....	.60	0—40	.55	.30	1.10
July 1st, shower.....	1.00	10—40	.40	.16	1.50
July 3d, shower.....	1.50	8—45	1.05	.45	1.40
July 23d, shower.....	.29	1—45	.10	.5	1.20
July 30th, shower.....	1.70	4—15	1.55	.45	2.06
July 31st, shower.....	1.50	13—30	.85	.35	1.44
August 2d, shower.....	.59	10—05	.15	.8	1.13
August 25th, shower.....	.89	4—55	.59	.24	1.23
August 31st, shower.....	.23	4—55	.15	.8	1.13
September 14th, rain storm.....	.78	13—10	.23	.15	.92
November 9th and 10th, rain storm.	1.82	19—0	.15	.20	.45
November 15th and 16th, rain storm	2.56	22—25	.20	.12	1.00
November 18th, rain storm.....	.83	4—10	.27	.15	1.08

TABLE 5.
Table Showing Observations on Rainfall at Different Elevations Above the Surface of the Ground.

Month.	ELEVATION ABOVE THE GROUND IN FEET.					Number of Observations.	DIRECTION OF WIND.				Automatic Gauge.	Remarks.	
	●	5	10	15	25		50	N. E.	S. E.				N. W.
									S. W.	N. W.			
January.....	4.44	3.71	3.62	3.57	3.62	3.54	4	1	1	3	3.81	4 inches of snow.	
February.....	1.04	0.87	1.06	0.99	0.94	1.14	4	2	1	1	0.84		
March.....	5.06	4.45	4.47	4.14	4.34	3.96	11	.....	.....	2	4.29
April.....	2.40	2.36	2.45	2.40	2.11	2.43	9	.....	2.	2	2.03	
May.....	5.68	5.45	5.45	5.62	5.25	5.92	10	4	2	2	5.16		
June.....	2.31	2.30	2.28	2.14	2.20	2.52	8	3	2	3	2.13		
July.....	3.38	2.89	3.19	3.14	3.19	3.25	7	2	1	.....	3.23	
August.....	8.25	3.10	3.15	3.13	3.08	3.14	9	3	3	1	3.02		
September.....	2.47	2.23	2.33	2.27	2.13	2.43	5	.....	2	1	2.21	
October.....	0.37	0.35	0.34	0.36	0.33	0.37	2	.....	1	1	0.32	
November.....	6.81	5.94	6.66	6.98	6.58	6.81	10	5	3	5.95		●
December.....	2.14	1.76	1.90	2.06	1.88	1.96	6	4	2	2.14		3 inches of snow.
Totals.....	39.35	35.41	36.90	36.70	35.65	37.46	94	43	13	16	22	35.13	

Gauge at five feet on south side of mast.
 Gauge at ten feet on west side of mast.
 Gauge at fifteen feet on north side of mast.
 Gauge at twenty-five feet on east side of mast.
 Gauge at fifty feet on southeast side of mast.

TABLE 6.
Comparative Statistics of Watersheds.

WATERSHEDS.	Area in miles.	STATISTICS OF WATERSHEDS IN PERCENTAGE OF TOTAL AREA.				AVERAGE PERCENTAGE OF RAINFALL REACHING THE STREAMS.												
		Woodlands.	Cultivated.	Plats.	Roads.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
Perkiomen, at Frederick, nine years.....	152	25	71	2	2	81	87	101	84	33	26	19	35	29	24	47	61	51.1
Neshaminy, below Forks, nine years.....	133.3	6	92	¼	2	93	97	99	74	27	15	16	21	19	19	39	72	48.6
Tohickon, nine years.....	102.2	24	72	2	2	108	115	118	84	30	22	20	27	30	25	53	70	50.7
Perkiomen at Frederick.....						96	111	191	114	49	39	40	62	50	49	78	75	
Minimum in nine years.....						72	49	65	41	29	13	8	16	15	9	25	32	
Neshaminy, below Forks.....						103	133	177	122	36	23	44	71	41	50	74	100	
Minimum in nine years.....						77	70	62	43	18	6	2	6	3	2	14	47	
Tohickon.....						138	191	190	148	49	53	52	81	66	51	90	97	
Minimum in nine years.....						93	64	90	42	17	9	2	7	2	2	18	49	

TABLE 7—Average Annual Yield of Sundry Streams, October 1, 1891, to October 1, 1892.

Watersheds.	Area in miles.	Average rainfall, inches.	Average rainfall collected, inches.	Per cent. collected.	Average annual yield in gallons.	Average daily yield in gallons.	Average yield in cubic ft. per square mile of drainage area.	Average yield in cubic ft. per second of rainfall.
Perkiomen at Frederick, nine years.....	152.0	43.316	25.200	51.1	67,638,235,876	185,254,855	1.8860	0.0382
Neshaminy below Forks, nine years.....	139.3	49.216	23.918	48.6	57,476,261,785	158,541,584	1.7611	0.0358
Tohickon, nine years.....	102.2	51.462	30.722	59.7	54,573,780,403	149,344,444	2.2536	0.0438
Subsary, Pass, sixteen years.....	75.2	45.800	22.670	49.5	29,616,392,040	81,140,800	1.6700	0.0364
Croton, New York, seventeen years.....	838.0	45.970	22.760	49.5	135,400,000,000	371,600,000	1.6800	0.0365

TABLE 8—Observed Minimum Stream and Minimum Flow, October 1, 1891, to October 1, 1892.

Stream.	PREVIOUSLY OBSERVED MINIMUM FLOW.	Date.	MINIMUM FLOW 1892.	Date.
	Cubic feet per 24 hours.		Cubic feet per 24 hours.	
Perkiomen at Frederick.....	653,184	September 4, 1885.....	1,702,080	September 13th.
Neshaminy below Forks.....	108,854	September 23, 1885.....	293,760	September 30th.
Tohickon.....	18,280	July 23, 1885.....	406,080	July 28th.

TABLE 9—Observed Maximum Stream Flow and Maximum Flow, October 1, 1891, to October 1, 1892.

Stream.	PREVIOUSLY OBSERVED MAXIMUM FLOW.	Date.	MAXIMUM FLOW, 1892.	Date.
	Cubic feet per 24 hours.		Cubic feet per 24 hours.	
Perkiomen at Frederick.....	458,302,000	September 18, 1888.....	325,641,600	January 14th.
Neshaminy below Forks.....	498,268,800	February 11, 1886.....	809,671,200	January 13th.
Tohickon.....	479,174,400	September 18, 1888.....	272,808,000	January 14th.

RSHEDS.

TOHICKON.

AREA OF WATERSHED 102.2 SQUARE MILES.

DATE.	Percentage flowing off.	Inches collectible.	Monthly yield.	Average daily	Average yield in cubic feet per second per square mile of drainage area.
			of stream.	yield of stream.	
			Cubic feet.	Cubic feet.	
1891					
October	12	0.467	104,690,520	3,377,404	0.329
November	32	0.632	149,973,120	4,999,104	0.566
December	84	4.277	1,015,372,800	32,753,951	3.709
1892					
January	119	6.530	1,552,176,000	50,070,200	5.670
February	97	1.188	283,063,680	9,760,817	1.102
March	118	4.873	1,159,600,320	37,406,462	4.236
April	43	.836	199,082,880	6,636,096	.751
May	37	2.054	503,988,440	16,276,992	1.811
June	22	0.703	169,257,600	5,641,920	0.639
July	12	0.512	120,061,440	3,872,950	0.438
August	8	0.301	77,335,360	2,501,140	0.283
September	9	0.189	61,757,360	2,031,912	0.237
Totals	£2	22.540	5,397,568,520	14,747,460	1.536

TABLE 7—Average Annual Yield of Sundry Streams, October 1, 1891, to October 1, 1899.

TABLE 10.
Yield of Sundry Streams for the year 1892.

Months.	PERKIOMEN AT FREDERICK.				NESHAMINY BELOW FORKS.				TOHICKON.			
	MONTHLY YIELD.		AVERAGE DAILY YIELD.		MONTHLY YIELD.		AVERAGE DAILY YIELD.		MONTHLY YIELD.		AVERAGE DAILY YIELD.	
	Cubic feet.	Gallons.	Cubic feet.	Gallons.	Cubic feet.	Gallons.	Cubic feet.	Gallons.	Cubic feet.	Gallons.	Cubic feet.	Gallons.
January	1,696,899,680	54,741,925	409,498,041	1,661,175,360	53,586,300	400,853,335	1,552,176,000	50,070,200	374,351,106	1,552,176,000	50,070,200	374,351,106
February	411,310,720	13,838,300	103,517,666	312,033,600	10,780,000	80,639,989	283,063,680	9,760,517	73,015,982	283,063,680	9,760,517	73,015,982
March	1,435,700,160	46,312,908	346,441,609	1,156,022,480	37,293,300	278,973,257	1,159,000,320	37,406,462	279,819,767	1,159,000,320	37,406,462	279,819,767
April	410,123,520	13,670,784	102,264,760	324,859,040	10,881,968	81,028,747	199,082,800	6,636,036	49,591,561	199,082,800	6,636,036	49,591,561
May	644,561,280	20,792,300	156,385,235	518,811,720	16,735,960	123,103,667	503,983,440	16,257,692	121,615,974	503,983,440	16,257,692	121,615,974
June	822,414,800	10,748,160	80,401,818	183,081,600	6,102,720	45,651,513	169,257,600	5,641,320	42,206,028	169,257,600	5,641,320	42,206,028
July	269,663,040	8,698,808	63,071,601	177,318,720	5,736,090	42,908,930	120,061,440	3,872,950	28,971,677	120,061,440	3,872,950	28,971,677
August	267,368,800	8,025,961	64,526,668	62,412,480	2,073,306	15,509,405	77,535,360	2,501,140	18,709,826	77,535,360	2,501,140	18,709,826
September	113,382,720	3,779,424	28,272,033	34,439,040	1,147,938	8,587,397	62,757,360	2,091,912	15,548,575	62,757,360	2,091,912	15,548,575
October	73,085,760	2,357,600	17,597,772	13,452,480	433,951	3,246,179	22,524,480	726,600	5,435,346	22,524,480	726,600	5,435,346
November	745,701,120	24,856,704	183,193,003	509,221,480	18,974,016	140,439,384	756,639,360	25,221,312	113,863,313	756,639,360	25,221,312	113,863,313
December	433,800,000	13,993,550	104,680,017	372,654,560	12,020,470	89,919,358	397,055,760	12,809,217	93,819,586	397,055,760	12,809,217	93,819,586
Total	6,814,441,600	19,617,873	139,271,363	5,385,634,560	14,714,818	110,074,705	5,303,772,680	14,491,182	108,401,667	5,303,772,680	14,491,182	108,401,667

TESTS OF STEEL BOILER PLATE.
Made by John E. Codman, Chief Draughtsman, Bureau of Water, at Homestead, Pa.

No. of Plate.	Location in Boiler.	Elastic Limit.	Ultimate Strength.	Reduction of area Per centage.	ELONGATION.		No. of Coupons.	Remarks.
					In Inches.	In Percentage.		
400 A	Front end. Shell ring.	30,080	59,590	60.6	2.20	27.5		
400 B	"	28,220	55,620	63.2	2.14	26.75		
400 C	"	28,960	52,950	69.2	2.25	28.12		
400 D	"	28,380	53,520	66.8	2.64	33.00		
400 E	"	29,400	58,220	59.9	2.08	26.0		
400 F	"	30,020	57,300	64.1	2.40	30.0		
400 G	"	27,450	54,760	61.5	2.14	26.75		
400 H	"	29,020	53,260	66.3	2.28	28.6		
400 I	"	28,330	56,530	64.8	2.82	29.0		
400 J	"	29,190	57,040	64.4	2.24	28.0		
400 K	"	29,780	53,640	68.1	2.06	25.75		
400 L	"	29,250	54,690	63.4	2.02	23.25		
401 A	Back end. Shell ring.	28,560	56,840	62.4	2.29	28.25		
401 B	"	28,630	54,590	69.1	2.48	31.00		
401 C	"	28,980	54,660	68.0	2.54	31.75		
401 D	"	28,520	52,280	59.1	2.06	25.75		

Tests of Steel Boiler Plates—Continued.

No of Plate.	Location in Boiler.	Elastic Limit.	Ultimate Strength.	Reduction of area Percentage.	ELONGATION.		No. of Coupons.	Remarks.
					In Inches.	In Per centage.		
401 E	Back end. Shell ring.	{ 28,980	56,920	61.6	2.02	25.25	3	New sheet. Sheet rejected.
401 F	" "	{ 28,640	57,270	46.2	1.90	23.75		
401 G	" "	28,750	56,010	59.1	2.04	25.50		
401 H	" "	28,630	56,730	56.2	1.98	24.75		
401 I	" "	30,110	57,080	63.0	2.60	32.50		
401 J	" "	29,620	55,430	61.5	2.14	26.75		
401 K	" "	29,350	58,000	60.4	2.40	30.00		
401 L	" "	28,290	54,840	65.8	2.58	32.25		
402 A	Middle. Shell rings.	28,530	55,210	66.5	2.90	36.25		
402 B	" "	29,480	58,950	75.50	2.06	25.75		
402 C	" "	29,930	58,430	56.00	2.40	30.00		
402 D	" "	28,840	61,010	55.1	2.00	25.00		
402 E	" "	28,270	59,140	50.1	1.72	21.5		
402 F	" "	28,900	58,200	57.2	2.08	26.00		
402 G	" "	28,770	57,400	58.8	2.06	25.75		
402 H	" "	30,420	58,870	57.2	2.04	25.50		
402 I	" "	29,430	5,010	55.4	1.96	24.5		
402 J	" "	29,380	56,230	49.5	1.80	22.5		

Tests of Steel Boiler Plates—Continued.

No. of Plate.	Location in Boiler.	Elastic Limit.	Ultimate Strength.	Reduction of Area, Percentage.	ELONGATION.		No. of Coupons.	Remarks.
					In Inches.	In Percentage.		
402 F	Middle Shell Range.	19,500	58,690	57.2	2.04	25.05		
402 G	"	20,500	58,590	57.3	2.18	27.25		
402 H	"	28,880	57,500	54.5	2.10	26.25		
402 I	"	27,670	58,760	53.5	2.04	25.05		
402 J	"	29,040	58,340	51.4	2.02	25.25		
402 K	"	27,010	57,270	50.7	1.76	22.00		
402 K	"	28,980	57,850	53.5	2.12	26.05		Defective Coupon, Duplicate.
402 L	"	30,000	58,300	73.2	1.40	17.05		Defective Coupon.
402 L	"	29,390	58,450	49.4	2.14	26.75		
403 A	Reinforce Ring for Manholes in Shell.	27,890	55,920	54.1	2.08	26.00		
403 B	"	"	"	"	"	"		
403 C	"	"	"	"	"	"		
403 D	"	"	"	"	"	"		
403 E	"	"	"	"	"	"		
403 F	"	"	"	"	"	"		
403 G	"	"	"	"	"	"		
403 H	"	"	"	"	"	"		

Tests of Steel Boiler Plates—Continued.

No. of Plate.	Location in Boiler.	Elastic Limit.	Ultimate Strength.	Reduction of Area, Percentage.	ELONGATION.		No. of Coupon.	Remarks.
					In Inches.	In Percentage.		
403 I	Reinforce Ring for Manholes in Shell.	27,890	55,920	54.1	2.08	26.0		
403 J	" "	"	"	"	"	"		
403 K	" "	"	"	"	"	"		
403 L	" "	"	"	"	"	"		
404 A	Top Piece, Front Head.	28,750	57,350	63.5	2.44	30.5		
404 B	" "	28,360	57,600	64.2	2.35	29.3		
404 C	" "	28,680	57,510	62.4	2.28	28.5		
404 D	" "	28,300	56,900	64.6	2.24	28.0		
404 E	" "	28,690	57,380	62.7	2.38	29.75		
404 F	" "	28,170	55,750	64.9	2.20	27.5		
405 A	Bottom Piece, Front Head.	29,100	52,910	69.7	2.48	31.0		
405 B	" "	"	"	"	"	"		
405 C	" "	28,490	57,250	60.6	2.48	31.0		
405 D	" "	"	"	"	"	31.0		
405 E	" "	28,740	57,200	60.9	2.40	30.0		
405 F	" "	"	"	"	"	"		
406 A	Top Piece, Back Head.	29,280	58,430	54.8	2.16	27.0		

Tests of Steel Boiler Plates—Continued.

No. of Plate.	Location in Boiler.	Elastic Limit.	Ultimate Strength.	Reduction of Area. Percentage.	ELONGATION.		No. of Coupons.	Remarks.
					In inches.	In percentage.		
406 B	Top Piece, Back Head.	28,250	56,220	65.0	2.48	31.0		
406 C	" "	28,640	57,140	62.9	2.45	30.62		
406 D	" "	28,150	58,230	68.9	2.54	31.75		
406 E	" "	28,800	57,700	60.9	2.30	28.75		
406 F	" "	29,210	57,830	63.3	2.26	28.25		
407 A	Bottom Piece, Back Head.	28,670	51,680	70.1	2.46	30.87		
407 B	" "	"	"	"	"	"		
407 C	" "	27,530	53,170	68.7	2.60	32.5		
407 D	" "	"	"	"	"	"		
407 E	" "	28,650	54,110	67.4	2.56	32		
407 F	" "	"	"	"	"	"		
408	Butt Straps.	28,510	55,930	67.7	2.56	32	24 pieces,	3 from 417 A B C. 4 from 408 A & B.
409	" "	29,040	56,500	66.2	2.02	25.25	24 pieces.	4 from 420 A & C. 3 from 423 A B C
410	" "	"	"	"	"	"	12 pieces.	5 from 407 A B. 4 from 407 C D.
411	" "	"	"	"	"	"	12 pieces.	4 from 407 E F. 5 from 408 C D E & F.
413	Gusset Plates for Combustion Chamber.	29,000	55,020	58.7	2.36	29.5	48 pieces.	

Tests of Steel Boiler Plates—Continued.

No. of Plate.	Location in Boiler.	Elastic Limit.	Ultimate Strength.	Reduction of Area Percentage.	ELONGATION.		No. of Coupons.
					In Inches.	In Percentage.	
421 G	Side Shell, Combustion Chamber.	29,470	58,590	62.0	4.04	25.5	
421 H	"	"	"	"	"	"	
421 I	"	"	"	"	"	"	
421 J	"	29,130	57,650	62.5	2.28	28.0	
421 K	"	"	"	"	"	"	
421 L	"	"	"	"	"	"	
422 A	Bottom Piece of Back Head for Combustion Chamber.	23,650	54,500	66.1	2.30	28.75	
422 B	"	"	"	"	"	"	
422 C	"	30,380	54,970	64.1	2.36	29.5	
422 D	"	"	"	"	"	"	
422 E	"	29,190	53,930	68.0	2.50	31.25	
422 F	"	"	"	"	"	"	
423 A	Tube Sheet in Combustion Chamber.	28,460	55,250	65.4	2.48	31.0	
423 B	"	"	"	"	"	"	
423 C	"	"	"	"	"	"	

Tests of Steel Boiler Plates—Continued.

No. of Plate.	Location in Boiler.	Elastic Limit.	Ultimate Strength.	Reduction of Area Percentage.	ELONGATION.		No. of Coupons.
					In Inches.	In Percentage.	
419 A	Reinforce Plate for Manhole in Drum Shell	Cut from	403 A. L.				
419 B	"						
419 C	"						
420 A	Combustion Chamber, Back Shell.	30.070	57,380	66.	2.36	29.5	
420 B	"	"	"	"	"	"	
420 C	"	"	"	"	"	"	
420 D	"	27.850	55,560	61.2	2.40	30.	
420 E	"	"	"	"	"	"	
420 F	"	"	"	"	"	"	
421 A	Side Shell, Combustion Chamber.	27.730	56,620	57.5	2.30	28.75	
421 B	"	"	"	"	"	"	
421 C	"	"	"	"	"	"	
421 D	"	{ 29.240	57,500	63.4	1.70	"	
421 E	"	{ 28.130	57,030	56.3	2.44	30.5	First Coupon.
421 F	"	"	"	"	"	"	Duplicate.

Tests of Steel Boiler Plates—Continued.

No. of Plate.	Location in Boiler.	Elastic Limit.	Ultimate Strength.	Reduction of Area Percentage.	ELONGATION.		No. of Coupons.
					In Inches.	In Percentage.	
415 A	Head for Dome	28,670	57,910	62.2	2.24	28.0	
415 B	"	"	"	"	"	"	
415 C	"	"	"	"	"	"	
416 A	Combustion Chamber Head for Drum.	"	"	"	"	"	
416 B	"	"	"	"	"	"	
416 C	"	"	"	"	"	"	
417 A	Shell Rings for Drum.	28,430	52,740	70.5	2.40	30.0	
417 B	"	"	"	"	"	"	
417 C	"	"	"	"	"	"	
417 D	"	29,350	54,010	57.3	2.50	31.25	
417 E	"	"	"	"	"	"	
417 F	"	"	"	"	"	"	
418 A	"	28,250	53,260	64.1	2.25	28.1	
418 B	"	"	"	"	"	"	
418 C	"	"	"	"	"	"	

Tests of Steel Boiler Plates—Continued.

No. of Plate.	Location in Boiler.	Elastic Limit.	Ultimate Strength.	Reduction of area Percentage.	ELONGATION.		No. of Coupons.
					In Inches.	In Percentage.	
423 D	Tube sheet in Combustion Chamber.	27,970	56,380	59.3	2.14	26.75	
423 E	"	"	"	"	"	"	
423 F	"	"	"	"	"	"	
424 A	Middle Breeches plate.	27,850	55,320	63.6	2.24	28.0	
424 B	"	"	"	"	"	"	
424 C	"	"	"	"	"	"	
424 D	"	"	"	"	"	"	
424 E	"	"	"	"	"	"	
424 F	"	"	"	"	"	"	

Tests of Steel Boiler Plates—Continued.

No. of Plate.	Location in Boiler.	Elastic Limit.	Ultimate Strength.	Reduction of Area Percentage.	ELONGATION.		No. of Coupons.
					In Inches.	In Percentage.	
425 A	Side breeches plate.	20,120	58,100	53.3	2.02	25.25	
425 B	"	"	"	"	"	"	
425 C	"	"	"	"	"	"	
425 D	"	"	"	"	"	"	
425 E	"	"	"	"	"	"	
425 F	"	"	"	"	"	"	
425 G	"	"	"	"	"	"	
425 H	"	"	"	"	"	"	
425 I	"	"	"	"	"	"	
425 J	"	"	"	"	"	"	
425 K	"	"	"	"	"	"	
425 L	"	"	"	"	"	"	
430	Reinforce plates for manholes.	28,120	54,940	67.	2.04	25.5	12 pieces.
433	Gusset stays.	28,630	56,680	59.3	2.86	.....	6 "
438	"	28,690	57,380	68.8	2.60	32.5	12 "
439	"	28,000	55,410	69.6	2.16	27.0	12 "
440	"	"	"	"	"	"	12 "

TESTS OF STEEL BOILER PLATE

*For the Department of Public Works, Bureau of Water,
Philadelphia, by the University of Pennsylvania.*

No. of Plate.	Location in Boiler.	Elastic Limit.	Ultimate Strength.	Reduction of area Percentage.	ELONGATION.	
					In Inches.	In Percentage.
A 1	Outside shell.....	32.740	55.165	58.	1.73	22.
2	Outside shell.....	33.443	53.377	63.	2.08	26.
3	Outside shell.....	29.173	57.374	57.6	1.87	22.5
4	Outside shell.....		53.978	62.9	2.00	25.
A 5	Inside shell.....	32.110	55.910	56.2	2.31	28.4
6	Inside shell.....	34.634	53.569	58.	1.90	23.75
7	Inside shell.....	26.164	51.558	62.	2.03	25.31
8	Inside shell.....	32.651	56.282	58.6	1.91	23.10
B 1	Outside shell.....		59.172	57.	2.02	25.50
2	Outside shell.....	32.260	60.274	57.	1.88	23.50
3	Outside shell.....	31.301	60.988	46.	1.60	20.
4	Outside shell.....	33.230	60.340	56.	1.53	19.
B 5	Inside shell.....	33.625	52.680	63.3	2.07	25.75
6	Inside shell.....		52.085	59.7	1.88	23.50
7	Inside shell.....	31.680	54.850	57.	2.02	25.50
8	Inside shell.....	31.210	51.370	65.4	2.02	25.50
A 9	Steam Dome.....	31.025	57.200	55.5	2.01	25.1
B 9	Steam Dome.....	31.047	54.038	62.0	1.96	24.50
A 10	Combustion chamber bottom.....		57.201	66.5	1.92	24.
11	Combustion Chamber bottom.....	32.576	64.520	53.2	1.44	18.
B 10	Combustion Chamber bottom.....	33.010	54.267	49.	1.63	20.30
11	Combustion chamber bottom.....	35.350	60.530	59.	1.62	20.25
A 12	Spandrel.....	28.160	57.412	52.	2.00	25.00
13	Inner tube sheet...	34.098	65.888	59.	1.94	24.
B 13	Inner tube sheet...					
A 14	Front Head.....					
B 14	Front Head.....					
A 15	Back Head.....					
B 15	Back Head.....					

APPENDIX G.

REPORT OF JOHN E. CODMAN,

CHIEF DRAUGHTSMAN.

BUREAU OF WATER.

Philadelphia, January, 1893.

MR. JOHN L. OGDEN,
Chief, Bureau of Water.

SIR:—The following report of work under my charge in the draughting room for the year 1892 is respectfully submitted:

Ninety drawings relating to buildings, engines, reservoirs and grounds have been made and recorded. These comprise general drawings and details as follows:

Twenty-five drawings, including specifications, showing alteration in engine house and the construction of an iron roof and overhead trolley at the Spring Garden Pumping Station. Thirty-one drawings, including specifications, showing construction and details of six marine steel boilers, eleven feet six inches in diameter, and ten feet ten inches long, to carry one hundred pounds of steam pressure. Twenty-seven drawings relating to reservoirs, grounds, and special pipe connections. Forty-four drawings, comprising views, plans, sketches for reports, etc., which were not recorded. One draughtsman was employed continuously on drawings showing water pipe on street plans.

1911

Calculations of horse power of nearly three hundred boilers and engines were made from the data furnished by the Inspectors.

Over nine hundred blue prints were printed.

Plans and specifications are now being prepared for a new engine house and a new boiler house, and construction details and specifications for twelve marine steel boilers at the Spring Garden Pumping Station.

By your direction the chief draughtsman supervised the construction of the six steel boilers built by the Southwark Foundry and Machine Company. The steel plates were made and rolled by the Homestead Steel Company, Carnegie, Phipps & Co., Homestead, Pa. At the suggestion of the contractors it was agreed that the chief draughtsman should inspect and test the steel plates used in the construction of the boilers at the Homestead Works.

Ninety steel plates were inspected on the rolls. Two coupons were sheared from each plate, one of which was sent to the machine shop to be finished as per drawing, the other reserved in case a defect should be found in the first one. Each plate was stamped with the number of the steel ingot it was rolled from, the number of the plate, and the position it occupied in the boilers. Four observations of applied force and elongation were made on each coupon. One hundred and six coupons were tested. The results obtained from the tests are tabulated in the preceding tables. An inspection of this data shows that the material is particularly suitable for boiler construction, many of the coupons showing an elongation of 32 per cent. in eight inches, and a contraction of area of 70 per cent.

The two furnace flue tubular boilers were built by the I. P. Morris Company from drawings and designs furnished by the Bureau under the supervision of the chief draughtsman. The steel plates were made and rolled by the Lukens Steel and Iron Company, Coatesville, Pa. Part of the coupons were tested at the University of Pennsylvania, and the re-

mainder at the steel works, as was done in the case of the former six boilers. Twenty-eight plates were inspected and thirty-two coupons tested. The plates were stamped with the number of the ingot they were rolled from, the number of the plate and the position the plate occupied in the boiler. Copies of the results obtained are given in the table.

The daily pumpage chart for the report of the Chief Engineer and the stream flow charts for the hydrographic work report have been prepared as in previous years.

Respectfully,

JOHN E. CODMAN,

Chief Draughtsman.





YC 04929

TD225
P5A2
1892
52729

