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ANNUAL REPORT

OF THE

CHIEF ENGINEER SURVEYOR

OF THE

CITY OF PHILADELPHIA,

FOR THE YEAR 1885.

SAMUEL L. SMEDLEY, 
Chief Engineer and Surveyor.

PHILADELPHIA:

DUNLAP & CLARKE, PRINTERS AND BINDERS, 819-21 FILBERT STREET.

1886.

SPECIAL INDEX		
BUREAU OF SURVEYS,		
BRIDGE DIVISION.		
COMPART. No.	SECTION No.	SHEET No.

DEPARTMENT OF SURVEYS.

OFFICERS, 1885.

Chief Engineer and Surveyor,
SAMUEL L. SMEDLEY.

Principal Assistant Engineer,
J. MILTON TITLOW.

Assistant Engineer, J. KAY LITTLE. *Recording Clerk,* GEORGE STURGES.

Sewer Register, EDWARD H. THOMPSON.

Sewer Clerk, WILLIAM CALVERT.

Draftsmen.

William G. Walbridge, Carl A. Trik, George E. Datesman.

Rodman, J. Henry F. Dixon. *Messenger,* Isaac Holland.

REGISTRY BUREAU.

Registrar, JOHN H. DYE.

Search Clerk, James W. Simmons. *Registry Clerk,* Richard B. Davis.

Draftsmen.

Jonathan Eggleton, William H. Wester, George H. Mercer,

Henry C. Glenn, Francis Lightfoot, Henry C. Hamer.

Inspectors of Sewer Connections.

J. Sellers Kite, George F. Uber.

Inspectors of Sewer Construction.

Henry M. Smith, William Wilson, Charles Y. Lauderbach, Benjamin E.

Hooven, William Yetter, Abraham Ruth, George L. Deitz,

James McGill, William May, John Abel, Jr., S. R.

Franklin, James Duffy, George Moore, Newton

B. Beam, C. P. McCally, C. R. Van

Horn, Findley J. Watt,

Joel P. Colebaugh.

ANNUAL REPORT

OF THE

CHIEF ENGINEER AND SURVEYOR, FOR THE YEAR 1885.

Philadelphia, January, 1886.

HON. WILLIAM B. SMITH,
Mayor of Philadelphia,

DEAR SIR:—I present herewith a statement of the receipts and expenditures and a report of the work done in the Department of Surveys during the year 1885:

The General Appropriation under Ordinance of December 31, 1884, was	\$339,870
By Ordinance of February 3, 1885, transfers were made from Item 9, \$25,000; from Item 30, \$25,000; by Ordinance of December 18, 1885, from Item 30½, \$1,500, and Item 33, \$4,000; total reduction,	55,500
Leaving	<u>\$284,370</u>
There was added by Ordinance to Item 31, \$2,000; by Ordinance November 11, 1885, \$3,000, and by Ordinance of December 18, 1885, \$5,087.38, making	10,087.38
Total amount appropriated during the year	<u>\$294,457.38</u>
Expended during the year, \$204,944.91; balances transferred to the year 1886, \$81,795.65; balance which merged, \$7,836.77; making,	\$294,457.38

The receipts of the Department from various sources amounted to \$14,628.94, an increase of \$5,997.94 over last year; \$9,409 were received for permits, \$1,987 for certificates and searches in Registry Bureau, \$3,223.94 from sewer bills collected and in balancing estimates, and \$9 from miscellaneous accounts.

REGISTRY BUREAU.

The records show considerable increase in the receipts and amount of work done in this bureau during the year; 7,948 certificates of search have been made out, for which \$1,990.50 have been received, an increase of \$196. During the year 19,681 descriptions have been received, making the number now filed 407,996, an increase of 2,036.

Transfers of property titles entered in 1885, 17,561; increase, 1,700; total, 253,588.

Lots plotted in 1885, 6,854; increase, 1,223; total, 204,413.

Total entries for 1885, 24,415, an increase of 2,923 over 1884.

In addition to keeping up the daily entries of lots sold and transferred in the built-up portion of the city heretofore plotted, a greater advance has been made than heretofore in plotting the rural districts.

The value of this work to the Assessors and Board of Revision of Taxes is very great, and it is more and more appreciated by the general public, as is shown by the numbers who daily visit the office in search for information as to the ownership of properties. The first cost of the 120 large books of entry is greatly enhanced by the years of work and plotting and recording which they contain, so that their preservation from wear and destruction is a matter of great importance. It has, therefore, become advisable to guard against the abuse of the free use and privilege of examination granted by ordinance to conveyancers, lawyers and interested property owners—some parties have sent boys with long lists of proper-

ties to find the names of owners with the intent of disposing of the information for speculative purposes, or of selling it to storekeepers as an index to the standing of customers desiring credit.

After twenty-one years of practical test of the details of the system of Registry, it is gratifying to be able to assert that no material change in the original design has been called for, and while criticism has been invited and suggestions for improvements from those who make constant use of the books, none have been offered. It has certainly been a great success and an acknowledged improvement over the systems that were in use in various cities previous to its adoption here. The percentage of errors has been very small, and those which have been discovered and corrected have nearly all been caused by defective information furnished by property owners themselves or their agents in the first year of the existence of the Bureau.

The Act of Assembly under which the Registry Bureau was organized, requires that descriptions of property returned by the owners thereof shall be arranged and filed alphabetically. There are over 400,000 of these descriptions, which have been so arranged and should be filed in cases so that any original paper could be obtained for comparison or examination in a few minutes, but this is impossible at the present time because the facilities for storing them are so inadequate.

The mezzanine rooms in the City Hall over the General Office, has been designated for storage and filing of plans and papers, a great many of which are temporarily packed away in boxes and closets removed from the old office on Fifth street. A complete set of cases and drawers are required, but the Building Commission has not responded to the request to have the rooms fitted up and cases made, and the City Controller has refused to pay bills for the same if paid out of the Department funds. That this work should be done speedily is apparent, as many valuable papers are being injured by dust, or destroyed by mice; and also on account of the need

of having them in such order that they can always be readily and speedily referred to.

CITY PLANS AND SURVEYS.

There were no original sectional plans filed during the year. This class of work, which is done by the District Surveyors, has been limited to the revision of old plans, amounting to an area of 878 acres. The appropriation for this purpose was divided up into such small sums, and so widely distributed, that the plans are but partly done and await future appropriations for completion and filing.

There were 1,315 acres of topographical surveys added, making the total area 25,951 acres.

The insufficiency of the width of many of the old streets of the city is apparent in many places, where the great value of improvements fronting on them makes the experiment of increasing their capacity enormously expensive.

An Act of Assembly was passed April 28, 1870, widening Chestnut street 5 feet on the south side, and on March 31, 1884, an Ordinance passed Councils to increase the width 5 feet on the north side, making it 60 feet wide on the city plan. This width was confirmed by the Board of Surveyors on the 2d of March, 1885, so that the buildings hereafter to be erected will have to recede to the new line.

The Board of Surveyors has also recommended that the line of Arch street west of Eighth street should be established so as to increase its width from 66 feet to 72 feet. This need not be attended with very great expense, because most of the buildings have been erected so as to recede to that extent.

The Board has also recommended that Columbia avenue, now 60 feet wide, should be made 100 feet wide, because it is so situated that it will become one of the most important thoroughfares leading to the Park. There are only four houses erected on the north side from Twenty-fifth street to Thirty-third street, therefore a grand avenue might be secured at but little more cost than the land damages.

They have also recommended that Oxford street should be widened to 80 feet between Twenty-eighth and Thirtieth street where no houses have as yet been built.

The growth of the city to the westward and northward has created a demand for room to deposit surplus earth from cellar excavations and other work, so that the grades of many streets can be elevated and improved without heavy cost and the filling of the intermediate vacant ground also. This is particularly the case in the vicinity of the Park, where old valleys can be filled up and good grades established on Park approaches. A complete plan for filling up Thirty-third street from Girard avenue to Columbia avenue, and carrying it over the Reading and Connecting Railroads by bridges, affording a safe and convenient entrance into the East Park, and also for public travel; it has never been acted upon favorably by Councils, although presented for consideration several years ago. The public convenience demands that it should be acted upon as soon as practicable.

Several of the buildings having been destroyed by fire at the east end of Chestnut street bridge, the opportunity was embraced for revising the city plan so as to make a lighter grade on the bridge approach. The grades on Walnut street, in the vicinity of the Schuylkill river, should be adjusted for easy bridge approaches before being further interfered with by the erection of buildings.

The revision of the grade of Market street, from Thirtieth to Thirty-second streets, has been such an improvement to that great thoroughfare that this work should be continued by raising the grade at Twenty-third street six or eight feet, so that the grade on the east approach will not be greater than the revised grade to the westward.

The Board of Surveyors has approved several important changes in the elevation of streets authorized by Councils to avoid grade crossings of railroads along the line of the Philadelphia and West Chester Railroad, at Sixth street and Connecting Railroad, at Church Street Station, Frankford, and at other points.

The Baltimore and Philadelphia Railroad and the Schuylkill River East Side Railroad were authorized by Ordinance of Councils to proceed with the construction of their road on the 3d of July, 1885. The determined efforts of the companies to enter and pass through the city regardless of the dangers of grade crossings, were abandoned after the feasibility of dispensing with many of them in the Twenty-seventh and Twenty-sixth wards had been fully demonstrated by the Chief Engineer and Surveyor, and expensive bridges at Gray's avenue and Woodland avenue, Wharton street and Gray's Ferry road are now being built, which will avoid the terrible dangers to which citizens and travelers at such crossings are perpetually liable.

The plan submitted and advocated by the Chief Engineer and Surveyor for a tunnel in Twenty-fifth street and Pennsylvania avenue, whereby the whole freight and rapid passenger travel of the new line can be brought nearly to the heart of the city, without in the least interfering with the safety or appearance of the approaches to the Park in the vicinity of Green street and Fairmount avenue, was also adopted after much discussion by Councils and the committees. The legal barrier to any entrance by railroads within the Park limits, which at first was thought to be insurmountable, was removed when the fact was established that ground sufficient for a necessary curve at Twenty-fifth street and Pennsylvania avenue was held in fee by the City of Philadelphia and independent of Park Laws. When the tunnel, which is thirty feet below the street at this point, is completed, this space will be covered with earth and replanted, leaving no surface indications of the railroad, and its traffic constantly passing beneath.

We may confidently hope that this arrangement will demonstrate the feasibility and necessity for similar treatment of the Philadelphia and Reading Railroad on Pennsylvania avenue, whereby this approach to the Park can be made safe and attractive.

BRIDGES.

Rebuilding West Approach of South Street Bridge.

This important work, furnishing a safe means of communication between populous portions of the city, is now completed. After the usual delays caused by continuing the work during the winter months, which has proved very unsatisfactory, no better progress was made by the contractor in the spring; the work proceeded very slowly, in spite of the constant urging of this department for the adoption of more vigorous measures for its completion.

The work came to a standstill on the 27th of June in consequence of the financial embarrassment of the contractor. The Chief Commissioner of Highways was notified. He advertised for proposals to complete the work, and on July 28th, 1885, a contract was entered into by H. G. Clement to complete the old contract for the sum of \$7,025. On July 30th the steel rails for the Lombard and South Streets Passenger Railway Company's tracks, which had been delivered upon the roadway of the bridge by the former contractors without the freight charges being paid, were removed by parties said to be in the employ of the Pennsylvania Railroad Company for the purpose of securing said charges.

The loss of the rails caused further delay and complications between the contractor, H. G. Clement, and the city. These were finally adjusted, and work was recommenced August 20th, and it proceeded slowly until completion, December 12th, 1885.

Brayton's patent girder rail of steel, now used on a number of the street railways in the City of Providence, was laid on this bridge as an experiment. The rail is T in section, and has a depth of seven inches, weighs 56 pounds to the yard. In laying, it is placed in chairs of cast-iron 24 inches long and $8\frac{1}{2}$ inches wide. These are set $7\frac{1}{2}$ feet apart on foundations of concrete. These chairs have grooves cast in them larger than the bottom of the rail, into these iron wedges are

driven, holding the rails in vertical position; iron tie rods inserted through the stem of the rail, with nuts on both sides, keep the lines in position horizontally; the whole is kept rigid and firm by the pavement.

On this portion of the South street bridge the joints of the granite block pavement were filled with Portland cement grout, and the blocks laid so as to fit snugly against the rails, the heads of rails and surface of blocks being at the same elevation; the corners of the latter next the inner side of the former were chipped off to give space for the flange of the car-wheel.

The advantages claimed for these rails are, that having no trams, wagon traffic will not seek them, and they can be crossed with great ease, and as no wood or other perishable material is used, the cost for repairs and maintenance is lessened.

The following estimates were made in 1885 on account of work:

To Messrs. Child & Conklin,	\$13,434 88
To H. G. Clement,	5,620 00
Total,	<u>\$19,054 88</u>

The cost of inspection is chargeable to the contractors, and \$323.10 is due on this account.

CRESHEIM CREEK BRIDGE ON GERMANTOWN AVENUE.

This work was continued in favorable weather during the winter, and completed on May 16th, 1885.

Estimates were made during the year amounting to \$1,732.95.

FOUNTAIN STREET BRIDGE, MANAYUNK.

This bridge is situated on the line of Fountain street, and spans the canal of the Schuylkill Navigation Company.

It consists of two wrought iron quadrangular trusses, with inclined end posts. The trusses are 18 feet apart; the trans-

verse floor beams are five 15-inch I beams suspended from the panel points of the trusses; upon these are laid seven longitudinal 9-inch channel beams extending twelve inches over the back walls of the abutments.

The old wooden superstructure was removed, the parapet walls rebuilt and the old abutments raised and repaired to the extent rendered necessary by the new work.

Contractors, the "King Iron Bridge Manufacturing Company," of Cleveland, Ohio.

Contract price, \$3,188.

Work commenced September 1, 1885, finished September 28, 1885.

SEWER CONSTRUCTION.

All sewers, whether of brick or pipe, built at private expense, were inspected, as required by the resolution of the Committee on Surveys of May 1, 1883, at the cost of the parties laying the same.

The Ordinance of the Select and Common Councils, approved the 5th day of April A. D., 1884, provides "that the building of all new sewers, drains and inlets shall be under control, supervision and management of the Chief Engineer and Surveyor, and that the appropriation for the same shall be made to the Department of Surveys, and that warrants for said work shall be drawn by the Chief Engineer and Surveyor and he shall advertise for the same and award contracts as provided by law." Previous to the passage of this Ordinance all appropriations for works of sewerage were made to the Department of Highways.

Although this Ordinance was passed in April, 1884, yet its provisions were not carried into effect until January 1, 1885, for the reason that the appropriation for sewers and inlets for the year 1884 was made to the Highway Department, and to have placed these items to the credit of the Survey Department would have required legislation which was deemed inadvisable, and in addition to this, some sewers were advertised by the Chief Commissioner of Highways as early as the 28th

day of February, 1884, or prior to the date of the Ordinance quoted.

MAIN SEWERS.

5,843.46 linear feet of main sewers were built in various parts of the city, several were uncompleted at the end of the year and work will be continued in the spring. A brief account of each is given below:

Dauphin street sewer, from Nineteenth street to Sedgley avenue, has been completed to the west line of Twenty-fourth street; this is as far as it can be built for the reason that the appropriation has been exhausted. The work of this sewer was commenced in 1883, continued in 1884 and finished in 1885.

The Pennsylvania Railroad Company objected to the building of the sewer under their roadway unless the contractor would file a bond indemnifying the company against accidents of every kind, and further, that the work should be done by and under the direction of the company at the expense of the contractors. After correspondence and delays incident thereto, in the belief that the city had a right to perform the work, using all needful precautions for safety, the contractors were directed to go ahead with the construction, which they did successfully, without any further interference from the company.

Dauphin street sewer, from Twenty-fourth street to Sedgley avenue, including curve to connect the sewers at Sedgley avenue and Susquehanna avenue, has been contracted for at \$19.50 per foot. Its completion will be of great benefit to that part of the Twenty-eighth ward in which it is situated; the main sewer on Sedgley avenue having no outlet, it is necessary to carry all the sewage discharged by the Susquehanna avenue sewer into a small stream, where it becomes a positive nuisance from the refuse matter of slaughter houses being discharged into it. The completion of this sewer will carry to the outlet this offensive matter under cover, but the pollution

should be removed at its source and not be permitted to enter the sewers.

Clearfield street sewer across Sixteenth-street. The sewer was built at this point to replace a wooden trunk which carried the creek under Sixteenth street; it connects with one already built in Clearfield street east of Sixteenth street and extends a short distance west of Sixteenth street.

Clearfield street sewer, from Broad to Thirteenth street, takes the place of the creek; its completion allows contemplated improvements to be made and removes the nuisance which existed at Broad street and rendered the properties in the vicinity undesirable as residences. We have now on the line of Clearfield street a continuous sewer from Thirteenth to Sixteenth street.

Snyder avenue sewer has been extended from Thirteenth street to Sixteenth street, where it will be connected with the Sixteenth street sewer by means of a chamber 20 feet long. Inlets were built at Broad street and Sixteenth street, besides manholes and ventilators.

Sixteenth street sewer extends from Snyder avenue to a point 188 feet north of Mifflin street. It has two chambers, one at Snyder avenue, the other at Mifflin street; two inlets at Passyunk road, two at McKean street, and four at Mifflin street, and two manholes and three ventilators.

The chamber at Mifflin street furnishes a connection for the sewer to be constructed on Mifflin street west of Sixteenth street. It is 15 feet long.

The chamber at Snyder avenue, which connects the Sixteenth street and Snyder avenue sewers deserves special attention; the sewage which flows through Sixteenth street sewer is turned by means of a weir 18 inches high, built in the chamber, into the Snyder avenue sewer, and thence into the Delaware river; in case of a heavy rain-fall the increased volume of water will pass over the weir, through the chamber, into the stream beyond, and thence into the river.

When this sewer and its connections are extended it will

relieve that section north of Snyder avenue and west of Sixteenth street. Considerable relief will be afforded at the present time to the over-charged Snyder avenue sewer by means of this chamber; all the back water will be discharged into it, and thence into the stream leading to the Delaware river.

The contract for extending the Mill Creek sewer, on Meadow and Sansom streets from Forty-sixth street to Chesnut street has been contracted for at \$49.99 per foot. Considerable delay was experienced in getting the matter of securities adjusted. Finally, October 14, 1885, work was commenced and continued until the close of the year, when the length of completed sewer was 158 feet. The total length to be built under this contract will be 388 feet of a diameter of 20 feet.

Sewer on Annsbury street, extending across Fifth street, is nearly completed. The work, although called a sewer, is really an arched bridge, spanning the Wingohocking Creek; it is built of Conshohocken stone, has a span of 24 feet, and a rise of $15\frac{1}{4}$ feet, with four wing walls, each 23 33-100 feet long.

The foundations are six feet deep below the water line, and seven feet six inches thick at the bottom; the ring stones are of Hummelstown brown stone; length 104 feet; contract price \$7,686.

Twenty-fourth street sewer, from Dauphin street to York street, was commenced September 23, 1885, and at the end of the year 300 feet had been completed. It is the intention to extend this sewer as far north as Huntingdon street, where it will connect with the sewer at that point. When this is done West Cohocksink Creek will cease to exist, as all the water will be diverted from the old course into sewers located in city streets.

Lombard street sewer was built from a point 108 feet east of Seventh street to 122 feet west of Eighth street, a distance of 726 feet, with seven inlets, two well-holes, two man-holes, and one ventilator, at a cost of \$12,937.32.

BRANCH SEWERS.

62,534.77 linear feet of egg-shaped sewers of brick, varying in size from three feet six inches vertical diameter and two feet

four inches horizontal diameter to two feet three inches vertical diameter by one foot six inches horizontal diameter, and

The brick sewers were generally built with a ring of four 9,212.37 linear feet of terra-cotta pipe sewers of 12 and 15 inches diameter, were laid during the year.

inches, or one course thick, laid in natural cement mortar, of the proportion of two of sand and one of cement. Where the nature of the ground required it additional brick or stone work was put in, so as to render the work substantial, solid, and enduring.

The terra cotta pipes were laid in a bed of concrete six inches thick around the bottom and sides of the pipe. The concrete was composed of natural cement mortar, same proportion as for brick sewers, and three parts of broken stone or screenings from the gravel pits.

SLANTS.

Slants were walled in the brick sewers at distances not exceeding 15 feet, on pipe sewers, taps or hubs moulded on the pipes, were placed at the same distances, so that it will not be necessary to break either a pipe or a brick sewer to make a connection for house or other drainage.

These slants are six inches in diameter, but by application of property owners larger pipes were inserted while the sewer was being constructed, if the area to be drained demanded it. Slants have also been put in for future inlet connections. About 5,000 slants have been inserted in branch sewers.

MANHOLES.

Manholes were built on an average of one manhole for every 165 feet of sewer, generally they are at a distance of 200 feet on brick sewers and 100 feet on pipe sewers; the walls are nine inches thick and are started from the springing line of the sewer, at which point the manholes are three feet long and as wide as the sewer. At one point of the wall it is carried up plumb, at all other points it is gathered into a circle

two feet in diameter at the surface of the street; the cover is of cast-iron, weighing 275 pounds, with openings in the lids for ventilation. When these ventilating lids are found objectionable galvanized plates are bolted to them, thus preventing the gases from mingling with the atmosphere. Galvanized wrought-iron ladder bars are placed at intervals of eighteen inches, allowing of an easy mode of ingress and egress. The average cost of manholes was \$24.13 each.

WELLHOLES.

Where connections have been made with sewers of great depths, wellholes are built; they are generally four feet in diameter with walls thirteen inches thick, laid in Portland cement; drip-stones are placed at intervals of five feet and alternate in position so as to break the fall of sewage.

Number built, seven; average cost of each, \$67.46, or \$4.75 per vertical foot. Total cost, \$472.25.

INSPECTION.

The high standard heretofore adopted for all work done under the direction of this Department has been faithfully adhered to; the specifications are very explicit and comprehensive, and the results obtained cannot be otherwise than beneficial to the City at large.

Our methods of inspection require the presence of an inspector *at all times* when work is being performed, whether day or night; his duty is to see that only proper materials and workmanship are incorporated into the structures, and after completion, to make an affidavit that the work has been done in every respect in strict accordance with the plans, specifications and contract.

The Inspectors are men selected by reason of their peculiar fitness for the position, of ripe experience and good judgment, fully capable of giving practical instructions to the mechanics employed and possessing the necessary firmness to see that all directions of the Engineer relating to materials or workmanship are carried into effect.

The character of materials used during the year was first-class; inferior bricks were condemned and removed from the line of the work and a better class substituted. In all cases the bricks have been culled, under the direction of the Inspectors, by men furnished by and at the expense of the contractors.

It is well understood by the contractors that poor materials and workmanship are not allowed in public work built under the direction of this Department.

The cost of inspection for each lineal foot of branch sewers, including manholes, inlets and wellholes for 1885 was 12 cents against 15 cents for 1884, a reduction of two cents per foot.

Inspectors, when actually engaged in the work, are paid at the rate of \$100 per month.

CEMENT.

The natural cements used during the year were the "Improved Union, manufactured by the American Cement Company at Egypt, Penna., and the "Improved Anchor," manufactured by the Coplay Cement Company, at Coplay, Penna:

These cements have given a very high test and the breakages show very little difference in their tensile strength. Many tests of each were made, the average being as follows:

Brand.	Age in Air.	Age in Water.	Tensile Strength of One Sq. In. Sect.
Improved Union.....	30 Min.	24 Hrs.	63.13 Lbs.
Improved Anchor.....	30 "	24 "	61.69 "

Portland cements used included "Saylor's," "Dykerhoff's," "Fewer," "K. B. & S." and "Giant," the first and last being of American manufacture, the others imported.

All tests are made of briquettes of one inch section instead of two and a quarter as used last year; the results of using the former are shown in the higher tests. The quality of the cement has been improved also.

COST OF BRANCH SEWERS.

The average cost of branch sewers, including all details, was \$2.08 per lineal foot, against \$2.54 for 1884, and including all details, \$2.57 for 1885 against \$3.08 for 1884, a difference of 51 cents per lineal foot. This can be accounted for in a measure by the fact that about 9,000 feet of pipe sewers enter into the calculation for 1885, but excluding these we still have \$2.19 against \$2.54 and \$2.62 against \$3.08, showing conclusively that the cost per lineal foot of brick sewers has been greatly reduced during 1885, notwithstanding the high standard of work is still maintained.

The average cost of smallest size brick sewer, 1 foot 6 inches by 2 feet 3 inches, without details, was \$2.07 per foot, while that of the next larger was \$2.05 per lineal foot. The small sewers are built in narrow tramway streets, where there is little room to place the bricks and materials required for the work. The mortar has to be made in the adjacent street and wheeled a great distance; the curbs have to be re-set, etc., thus increasing the cost above what it would be on wider streets.

INLETS.

The amount expended under the inlet contract was \$6,976.97.

These inlets were inspected by Abraham Ruth and Christian Breininger. Total cost of inspection \$695, or \$7.81 each.

One hundred and eighty-nine inlets were built in connection with the branch sewers, of the following sizes: 3 of No. 1, 53 of No. 2, and 133 of No. 3; average cost of each, for No. 1, \$95; for No. 2, \$87.58; for No. 3, \$75.14. Amount expended \$10,474.34. One inlet was put in for every 400 feet of sewer built.

SEWERS BUILT AT PRIVATE EXPENSE.

Nine hundred and eight feet of oval sewers of brick, and 6,499 feet of pipe sewers were laid at private expense during the year. All were inspected in the same manner as the public sewers, slants inserted for house connections, and man-holes built where necessary.

SEWER BILLS.

When the amount of the assessment bills exceeds the cost of the sewer the excess bills are stamped payable at the Survey Department, served upon the owners of the property, and if not paid within thirty days from the date of service they are returned to the Law Department for collection and lien. A record is kept of each bill in a book prepared for the purpose.

INSPECTORS OF HOUSE CONNECTIONS.

Inspectors of sewer connections have been on duty continuously during the year. During the busier season they have been materially assisted by the regular inspectors on sewers, who have superintended such connections as were made to the sewers while under construction.

All possible facilities and encouragement have been given to such property owners as proposed to connect their houses while the sewers were being built. Such a practice is of benefit to the city, as it prevents frequent and unnecessary opening of the streets, and the plan adopted of requiring the written consent of the contractor to connect, and holding him responsible for the cleaning up of the entire surface of the street has prevented the final payments for the sewer being delayed by the officers of the Highway Department, and the shifting of responsibility from the contractor to the plumber, formerly so common.

Of the 2,204 connections authorized 2,088 have been supervised by the Inspectors, leaving 168 unexamined by them, of which the other Inspectors have taken charge of 79.

This statement gives an imperfect idea of the work performed, as some jobs have required as many as five visits before completion.

Of the connections omitted, a large proportion were situated at such distant points from the central portion of the city that the Inspectors could not attend without missing one or more closer at hand. The progress of the sewerage of the city has caused connections to be made the same day in Germantown,

Frankford, and Manayunk, and an Inspector might, with advantage, be employed for that portion of the city north of Lehigh avenue.

INTERCEPTING SEWER.

The work on the intercepting sewer was continued during the year, and 6,708 2-10 feet or 1.27 miles completed, comprising section 1 (outlet), section 6 (tunnel), and sections 7 and 8.

There is now a completed sewer extending from the Schuylkill river near Callowhill street along the river to a point about 200 feet north of the Reading Railroad bridge, crossing the Schuylkill river at Falls Village, a distance of 19,271 5-10 feet, or 3 65-100 miles, with flushing gates, manholes and ventilators, etc.

Total cost,	.	.	.	.	\$259,358	89
Average cost per foot,	.	.	.	.	13	46
Average cost per mile,	.	.	.	.	71,056	00

Section 11, consisting of iron pipe sewer 42 inches in diameter, to be laid in the canal at Manayunk near the locks, was advertised for and awarded to R. J. Malone & Bro. for the sum of \$13 per lineal foot. Nothing but excavation has been done thus far.

The Engineer Corps, under Assistant Engineer George H. Paddock, has been engaged in giving the lines and grades for the sewer, also in general superintendence of the construction; they have extended the surveys from Falls stone bridge to Manayunk and prepared notes and plans of same, from which the office drawings have been plotted. They have made tests of the cements used in the construction of the sewer and kept records showing the tensile strength of each car load received.

Section 1 "Outlet" was awarded to John J. Kennedy. The work included about 15 feet of brick sewer four feet six inches in diameter, and about 90 feet of wrought iron pipe three feet in diameter, to be laid on the bottom of the river, and a special casting to connect the brick sewer and wrought

iron pipe. A manhole was placed immediately over this connection. The contractor employed the American Dredging Company to make a submarine excavation and lay the pipe. A diver was constantly employed.

After the excavation was made the trench was carefully sounded and found to be correct for grade and line; the pipe was lowered into position and covered with concrete and the brick work completed. The price is \$38.99 per foot for 124.2 feet, costing \$4,842.55. Work commenced June 25 and finished September 10, 1885.

Section 1 B. The footwalks and lawns disturbed during 1884 by reason of building this section, were restored by the contractor in the early spring. The final estimate was paid, amounting to \$6,197.40.

Sections 3, 4 and 5. The final payments for these sections were made in 1885, the work being completed late in 1884. The 30 days allowed for advertising did not expire until this year.

Final estimate for Section 3, paid January 31, 1885,	\$8,142 42
Final estimate for Section 4, paid February 6, 1885,	4,006 36
Final estimate for Section 5, paid February 9, 1885,	8,729 00

Section 6 (Tunnel Section), connecting sections 2 and 3. The brick work of this section is complete; the invert yet remains to be plastered; its length is 804 feet with one flushing gate and manholes.

The River Drive through the Park tunnel has been put in good order and travel has been resumed on it.

Price per foot, \$14.38.

Payments, \$7,296.

Work commenced June 25, 1885.

Section 7 extends from station 532+20 to station 562+50, a length of 3,030 feet; it includes one flushing gate and seven

manholes. This section begins near Strawberry Landing, and is located along the river bank until opposite Strawberry Spring, where it enters the line of the river drive, and continues along the same to a point near Nicetown lane (the end of the section). The stream entering the Schuylkill at this point has been culverted and carried under the intercepting sewer. All other streams were carried over by means of rectangular stone drains.

2,340 cubic yards of filling were placed upon the drive.

The section is completed, and has been advertised for final payment.

Price per foot, \$9.00.

Payments, \$22,752.00.

Work commenced April 13, 1885.

Work finished, December 8, 1885.

Section 8 Continues in the river drive from Laurel Hill landing to a point just south of the Reading Railroad bridge, where it is carried through the embankment of the Reading Railroad, and thence to the end of the section about 200 feet northward.

6,080 cubic yards of filling have been placed upon the drive, the top course being cinder, making a road suitable for ordinary park travel.

Price per foot, \$8.50.

Price per cubic yard for filling, 50 cents.

Payments, \$21,132.

Work commenced, April 13, 1885.

Work finished, December 8, 1885.

OLD SEWERS AND VENTILATION.

The yearly addition of fifteen miles of sewers of first-class workmanship and materials with self-cleansing grades and provision for ventilation is rapidly changing their average condition for the better, but the improvement of the condition of old sewers is not progressing as it should, and cannot until Councils appropriate a liberal sum of money to put in man-

holes and ventilators, by which easy access can be obtained to make examination of their defects. Most of the old sewers are deficient in this respect, and as this is a manufacturing city, many are filled with hot water, vapor, and gases, which render them difficult or unsafe for interior investigations or repairs. For a number of years this subject has been urged upon the attention of Committees of Councils without their being sufficiently awakened to the great necessity of the case to make the needed appropriation. The grades of the old sewers are generally sufficient to secure self-cleaning velocities, and if all defects and obstructions were removed and the interiors properly plastered so as to insure the speedy removal of all sewage, ventilation in the streets could be generally adopted by means of open manholes and ventilators at frequent intervals, permitting free ingress and egress of the air and gases. This mode is now so generally adopted in improved sewerage systems as to be almost universally accepted as the best by experienced engineers.

The admixture of sewer gas in limited quantities with the atmosphere speedily neutralizes its injurious effects, while a partial ventilation, with too few outlets, causes concentration of the gases, which become offensive and dangerous to health.

Efforts to ventilate by an insufficient number of openings is likely to result in failure. Therefore it is important that ventilation by this means should be completed throughout the whole drainage area in order to secure success.

DELAWARE RIVER SURVEY.

The triangulation points established last year along both sides of the Delaware river, between Brädesburg and Poques-sink creek, have been made use of in the topographical survey of the shores. Five large sheets of the scale of 200 feet to the inch have been completed by means of the plane table, showing high and low water marks, the marshes and islands and wharves and buildings near the river. They have been inked in so that they can be photographically reduced to 800

feet to the inch, so as to correspond in character with the plans heretofore made between Bridesburg and the mouth of the Schuylkill river.

The work was supervised by the officers of the United States Coast and Geodetic Surveys. The details of the survey are complete and accurate, Mr. John H. Webster, Jr., having charge of the field work. When the organization was made in the spring it was ascertained that the corps of United States engineers were about taking soundings and correct observations over the same territory, and it was expected that the data obtained by them could be used in completing the hydrography on our charts, but at the close of the season it was discovered that these observations were insufficient, therefore it will be necessary to continue the river observations next year in order to complete the plans. Two thousand dollars has been expended during the year on the work.

Test lines and levels of surveys and topography have been made in several districts, demonstrating the accuracy of the work. The triangulation points established throughout the city last year have, by calculations, been referred to the centre line of Broad street as a base line, so that the exact distances by the United States standard from Broad street and Market street are now recorded for points in various parts of the city.

In conclusion, I wish to report to you the general interest in the welfare of the Department manifested by the employees generally. Their industry and attention to duty is well worthy of favorable mention. The large amount of work done in the Engineering Department, under the efficient management of Mr. J. Milton Titlow, Principal Assistant Engineer, who has held this position for thirteen years, is shown in the large accumulation of valuable and complete drawings and designs of bridges, sewers and miscellaneous charts—aided by efficient draughtsmen—many of the drawings are models of excellence.

Mr. John K. Little, Assistant Engineer, having charge of sewer building and most of bridge construction, has managed

this division of the service so as to maintain the high standard of workmanship which our specifications call for.

The great increase in the business of the Department and the transfers of additional duties from others to this, has increased the labors of the Chief Clerk, Mr. George Sturges, who has served the city continually in this capacity since the organization of the department in 1855, and the service has been divided.

Mr. Edward H. Thompson has charge of issuing licenses for sewer connections, the custody of the sewer records and the direction and control of the Inspectors of house drainage.

The Registrar, Mr. John H. Dye, has had charge of the Registry Bureau since its organization in 1865, and also the records of dedication and opening of streets, and the certifying thereto for each and every street before the laying of water pipes and sewers, or paving and grading, as now required by Councils Committees before the passage of ordinances relating thereto, which involves a large amount of additional labor and care.

The custody of the plans of city streets and explaining them to citizens and attending the courts generally twice in a week and also upon all road juries appointed for opening streets, consumes much time.

The large appropriations made at the first of the year for sewers and bridges has thrown upon us such an amount of labor, especially the necessity of promptly proceeding with the Manayunk Intercepting Sewer and the projected iron bridge over the River Schuylkill at Market street, that these have been given precedence over the other work and will explain to you the lateness of furnishing you with this report. Several tables giving details relative to work and expenditures are herewith appended.

Respectfully submitted,

SAML. L. SMEDLEY,

Chief Engineer and Surveyor.

HOUSE DRAINAGE, ETC.

The number of licenses to connect with sewers issued during the year ending December 31, 1885, was 2,204, distributed throughout the year as follows:

January.....	32	July.....	282
February.....	8	August.....	234
March.....	72	September.....	243
April.....	257	October.....	245
May.....	273	November.....	224
June.....	252	December.....	82
		Total.....	2,204

The following table shows the number of connections made in each ward:

WARDS.	No.	WARDS.	No.
First.....	41	Seventeenth.....	31
Second.....	23	Eighteenth.....	38
Third.....	22	Nineteenth.....	202
Fourth.....	20	Twentieth.....	101
Fifth.....	46	Twenty-first.....	6
Sixth.....	61	Twenty-second.....	75
Seventh.....	43	Twenty-third.....	6
Eighth.....	92	Twenty-fourth.....	216
Ninth.....	56	Twenty-fifth.....	52
Tenth.....	68	Twenty-sixth.....	34
Eleventh.....	24	Twenty-seventh.....	94
Twelfth.....	26	Twenty-eighth.....	251
Thirteenth.....	13	Twenty-ninth.....	232
Fourteenth.....	72	Thirtieth.....	30
Fifteenth.....	104	Thirty-first.....	53
Sixteenth.....	25	Fairmont Park.....	9

The character of the drainage was:

Surface.....	836	Factories.....	7
Water-closets.....	2,552	Icc houses.....	1
Water-prives.....	330	Market house.....	1
Sinks.....	264	Brewery.....	5
Cellars.....	220	Water motor.....	1
Stables.....	26	Dye-house.....	2
Slaughter houses.....	9	For future use.....	12
Public bath.....	1	Miscellaneous.....	5

Length and Cost of Sewers Built during the year 1885.

Location.	Size.	Length in feet.	INLETS.			MANHOLES, WELLS, &c.			PAYMENTS.		Excess bills and balances.	Total cost.	Inspector.	Contractor.
			No. built.	Cost each.	No. built.	Cost each.	No. built.	Cost each.	In assess-ment bills.	In city wat-ers.					Cost per foot.
Amboy street, from Jefferson to 288 feet north of Oxford.....	3 ft. 0 in. x 2 ft. 0 in.	814	3	\$85 00	4	\$23 00	.....	.....	.....	.....	\$16 24	\$1950 65	S. R. Frank- lin	M. C. Hong.
American street, from Somerset to Cambria to Reese streets.....	3 ft. 6 in. x 2 ft. 4 in. 2 ft. 0 in. x 2 ft. 0 in. 2 ft. 6 in. x 1 ft. 8 in.	874.33 285.67 723.25	2 3 4	90 00 88 00	10	20 00	.....	.....	.....	.....	3807 81	\$1279 86	W. May	M. O'Rourke.
Addison street, from Eighteenth to Nineteenth streets.....	12-inch pipe.....	421	.....	.....	4	29 00	.....	.....	.....	.....	958 00	.....	James Duffy	W. H. H. Aebur.
Alder street, from Columbia ave- nue to summit, south.....	3 ft. 0 in. x 2 ft. 0 in.	287	.....	.....	2	23 00	.....	.....	.....	.....	674 53	.....	B. E. Hooveh.	M. C. Hong.
Albion street, between Locust and Spruce street.....	12-inch pipe.....	321	.....	.....	3	25 00	.....	.....	.....	.....	482 67	.....	A. Ruth.	J. B. Foster.
Broad street, from Arch to Race streets.....	3 ft. 0 in. x 2 ft. 0 in.	660	3	75 00	4	27 00	.....	.....	.....	.....	784 00	4955 30	S. H. Colbon	H. C. Eyre.
Broad street, from Washington avenue to S. Marshall street.....	2-inch pipe.....	221	3	90 00	2	25 00	.....	.....	.....	.....	274 37	120 83	A. Ruth.	J. B. Foster.
Badley street, from Zimmerman to Oxford street.....	3 ft. 0 in. x 2 ft. 0 in.	274	1	100 00	2	25 00	.....	.....	.....	.....	633 50	402 88	S. R. Frank- lin	G. H. Miller.
Barker street, from Twenty-first to Twenty-second streets.....	12-inch pipe.....	443	.....	.....	4	23 00	.....	.....	.....	.....	698 91	.....	N. B. Beam	M. C. Hong.
Barker street, from Eighteenth to Nineteenth streets.....	2 ft. 3 in. x 1 ft. 6 in.	453	.....	.....	3	23 00	.....	.....	.....	.....	1015 77	.....	C. R. Vanhorn	M. C. Hong.
Brown st., fr. Corinthian ave. to Capital, and on Capital to Par- rish street.....	2 ft. 6 in. x 1 ft. 8 in.	590	.....	.....	5	25 00	.....	.....	.....	.....	1246 09	.....	S. R. Frank- lin	Joseph McDon- ald.
Brandywine st., from Sixteenth to Seventeenth streets.....	2 ft. 3 in. x 1 ft. 6 in.	485	.....	.....	3	24 00	.....	.....	.....	.....	894 15	.....	E. Y. Shel- mire	M. C. Hong.
Church street, from Third st. to summit, east.....	12-inch pipe.....	386.50	.....	.....	4	25 00	.....	.....	.....	.....	702 27	.....	George Moore	S. Cox.

Length and Cost of Sewers Built during the year 1885—(Continued.)

Location.	Size.	Length in feet.	INLETS.		MANHOLE'S, WELLS'S.		PAYMENTS.		Total cost.	Inspectors.	Contractor.			
			No. built.	Cost each.	No. built.	Cost each.	In assessments.	In city warrants.				Excess bills and balances.		
Cambria street, from German-town avenue to Hancock street.	3 ft. 6 in. x 2 ft. 4 in.	222			1	\$20 00	1	49 00	2 37	585 81	69 33	605 14	G. L. Deitz	S. A. Miller.
Carlisle street, from Master to Columbia avenue.	3 ft. 6 in. x 2 ft. 0 in.	1545	3	86 00	8	24 00			2 15	3812 54	133 36	3945 90	G. Moore	S. Cox.
Centre street, from Germantown avenue to Hancock street.	2 ft. 6 in. x 1 ft. 8 in.	1255.50	3	80 00	6	24 00			2 33	3117 21	192 10	3309 31	B. E. Hooven	J. Nolan.
Coulter street, from Hancock to Cumberland street.	3 ft. 6 in. x 2 ft. 0 in.	440			1	25 00			2 19	988 60		988 60	F. J. Wahl	J. Noonan.
Columbia avenue, from Fifteenth to Sydenham street.	2 ft. 3 in. x 1 ft. 6 in.	173			1	25 00			2 15	396 95		396 95	J. P. Colebaugh	J. Noonan.
Carlisle street, from Susquehanna avenue to Dauphin street.	2 ft. 6 in. x 1 ft. 8 in.	567	3	71 00	4	23 00			2 42	1426 50	131 32	1557 82	J. Abel, Jr.	H. C. Eyre.
D street, from Hart lane to Indiana street.	3 ft. 6 in. x 2 ft. 4 in.	493.75	3	75 00	3	27 00			2 37	1276 11	125 08	1401 19	C. Breininger	H. C. Eyre.
Dauphin street, from Teuth to Eleventh streets.	3 ft. 0 in. x 2 ft. 0 in.	423			2	25 00			2 20	950 60		980 69	Jas. McGill	F. P. Deehan.
Diamond street, from Twenty-second to Croskey and on Croskey to Norris streets.	3 ft. 0 in. x 2 ft. 0 in.	808			4	23 00			2 07	1364 92	383 00	1753 92	R. Franklin	M. C. Hong.
Darien street, from Poplar to summit, north.	2 ft. 3 in. x 1 ft. 6 in.	487			3	23 00			2 05	1067 35	204 20	1067 35	G. L. Deitz	H. C. Eyre.
Eighth street, from Venango to Rising Sun lane.	3 ft. 6 in. x 2 ft. 4 in.	280	2	90 00	1	23 00			4 47	625 64	779 19	1404 83	C. Y. Lauderbach	M. C. Hong.
Eighteenth street, from Girard avenue to south of Hammond st.	12 inch pipe.	233	3	80 00	2	30 00			1 24	329 97	98 95	428 92	G. L. Deitz	G. H. Miller.
Eighth street, from Huntington street to Lehigh avenue.	3 ft. 6 in. x 2 ft. 4 in.	545	2	80 00	4	23 00			1 98	1240 00	171 10	1411 10	C. R. Van Horn	T. McCann.

Length and Cost of Sewers Built during the year 1885—(Continued.)

Location.	Size.	Length in feet.	INLETS.		MANHOLE'S.		WELLS.		Cost per foot.	PAYMENTS.		Excess bills and balances.	Total cost.	Inspector.	Contractor.
			Blck.	No. built.	Cost each.	No. built.	Cost each.	No. built.		Cost each.	In assessment bills.					In city warrants.
Ellsworth street, from Twenty-third to Twenty-fourth streets.	2 ft. 3 in. x 1 ft. 6 in.	475	3	4	880 00	3	325 00		2 03	\$1105 50	\$280 16		\$1387 75	B. E. Hooven.....	G. H. Miller.
Eighth street, from Cherry to 300 feet north.....	12 in. pipe.....	329				3	23 00		1 83		671 07		671 07	George Moore.....	M. C. Hong.
Eighth street, from Wharton to Reed streets.....	3 ft. 6 in. x 2 ft. 4 in.	429.50	3	4	71 00	3	23 00		2 30	938 63	436 37		1375 00	James McGill.....	H. C. Eyre.
Fairmount avenue, from Orion to Thirty-third streets.....	2 ft. 6 in. x 1 ft. 8 in.	600	2	2	90 00	3	24 00		2 33	1151 64	498 36		1650 00	S. R. Franklin.....	M. C. Hong.
Fawn street, from Jefferson to summit, north.....	2 ft. 3 in. x 1 ft. 6 in.	974	3	2	75 00	5	23 00		2 09	2300 66	862 89		2300 66	R. R. Franklin.....	M. C. Hong.
Fortieth street, from Filbert to summit, north.....	2 ft. 3 in. x 1 ft. 6 in.	295				1	23 00		1 73	533 35	114 59		533 35	N. B. Bean.....	J. McParland.
Forty-seventh street, from Westminster to Wynusing avenues.	2 ft. 6 in. x 1 ft. 8 in.	606.70	2	4	89 00	3	23 00		1 90	1295 21	318 92		1614 13	N. B. Bean.....	J. McParland.
Franklin street, from Lehigh av. to Huntington street, thence to Seventh.....	3 ft. 0 in. x 2 ft. 0 in.	727.50	2	3	80 00	5	23 00		1 94	1625 08	141 27		1766 35	C. R. Van Horn.....	T. McCann.
Fifth street, from Venango street to Sedgley avenue.....	3 ft. 0 in. x 2 ft. 0 in.	401.16				3	22 00		2 02	876 33	39 56		876 33	J. P. Colebaugh.....	W. H. Yeast.
Fifth street, from Venango street to Erie avenue.....	3 ft. 0 in. x 2 ft. 0 in.	548.67	3	1	80 00	3	23 00		2 13	1317 66	32 34		1317 66	J. P. Colebaugh.....	M. C. Hong.
Fourth street, from Cambria to Indiana street.....	15 in. pipe.....	531.50				5	25 00		1 15	736 22	504 78		736 22	William May.....	M. O'Rourke.
Fourth street, from Cambria to Somerset street.....	15 in. pipe.....	547	2	1	100 00	5	25 00		1 15	854 95	461 08		854 95	William May.....	M. O'Rourke.
Fourth street, from Cumberland to York street.....	2 ft. 3 in. x 1 ft. 6 in.	556	3	1	69 00	4	22 00		1 91	1218 96	148 04		1218 96	J. P. Colebaugh.....	W. H. Yeast.

Length and Cost of Sewers Built during the year 1885—(Continued.)

Location.	Size.	Length in feet.	INLETS.		MANHOLES, WELLS		Cost per foot.	PAYMENTS.		Excess bills and balances.	Total cost.	Inspector.	Contractor.
			No. built.	Cost each.	No. built.	Cost each.		In assess- ment bills.	In city war- rents.				
Front street, from South to Christian streets.....	12-inch pipe.....	275					1 50						
	2 ft. 6 in. x 1 ft. 8 in.	519	2	75 00	10	22 00	1 31 50	4774 16	91 42		4855 58	C. R. Van Horn.....	J. M. Mack.
	3 ft. 0 in. x 2 ft. 0 in.	575.75					2 25						
	3 ft. 6 in. x 2 ft. 4 in.	666.50					2 50						
Fifth street, from York to sum- mit.....	3 ft. 0 in. x 2 ft. 0 in.	285			2	23 00		698 65		34 33	698 65	S. R. Franklin.....	M. C. Hoag.
Fifth street, from Germantown avenue to Berks street.....	3 ft. 0 in. x 2 ft. 0 in.	435			3	23 00		838 78	182 87		1021 65	G. L. Deitz.....	M. C. Hoag.
Fifteenth street, from Federal to Wharton streets.....	3 ft. 0 in. x 2 ft. 0 in.	333	3	75 00	3	23 00		1424 82	222 54		1647 36	C. Breibinger.....	T. McCann.
Girard avenue (north side), from Twenty-seventh to Twenty- eighth streets.....	2 ft. 3 in. x 1 ft. 6 in.	381			3	23 00		483 08	321 25		804 33	Jas. McGill.....	M. C. Hoag.
Hutchinson street, from Thomp- son to Master streets.....	3 ft. 0 in. x 2 ft. 0 in.	457	3	95 00	3	28 00		1179 83		0 02	1179 83	J. Abel, Jr.....	W. H. Yoast.
Huntington street, from Eighth to Ninth streets.....	3 ft. 0 in. x 2 ft. 0 in.	262	2	80 00	1	20 50		515 00	154 04		669 04	C. R. Van Horn.....	B. McNichol.
Holly street, from Baring to Spring Garden streets.....	2 ft. 0 in. x 2 ft. 0 in.	429			3	17 00		876 90	19 23		896 13	S. R. Franklin { E. Y. Shelburne	J. J. Gorman.
Johnson street, from 10th feet southwest of Germantown ave. to Adams streets, thence to Duval street.....	2 ft. 6 in. x 2 ft. 3 in.	1662	2	110 00	8	27 00		4682 45	1229 69		5892 14	C. P. McJully.....	J. Nolan.
Juliana street, from Wood to Callowhill streets.....	2 ft. 3 in. x 1 ft. 6 in.	300	3	100 00	2	28 00		725 00		19 37	725 00	J. P. Cotebaugh.....	T. H. Regan.
Lawrence street, from Indiana to Clearfield streets, thence westward.....	3 ft. 0 in. x 2 ft. 0 in. 15-inch pipe.....	96 555.25	3	71 00	6	23 00		1300 60		371 31	1300 60	J. McGill.....	H. C. Eyre.

Length and Cost of Sewers Built during the year 1885—(Continued.)

Location.	Size.	Length in feet.	INLETS.		MANHOL'S.		WELLS.		Cost per foot.	PAYMENTS.		Excess bills and balances.	Total cost.	Inspector.	Contractor.
			No. built.	Cost each.	No. built.	Cost each.	No. built.	Cost each.		In assess-ment bills.	In city war-rants.				
Lancaster avenue, from Forty-fifth to Forty-eighth streets.	3 ft. 6 in. x 2 ft. 4 in. 2 ft. 6 in. x 1 ft. 8 in.	1014 560	2 2	93 00 59 00	8 2	25 00 50 00	2 2	2 24 2 15	2 24 2 15	3944 86	113 85	4058 71	G. L. Deitz.....	S. Cox.	
Lancaster avenue, from Baring to Hamilton streets.	2 ft. 3 in. x 1 ft. 6 in.	323			2	25 00	2	1 90	1 90	663 70	68 50	683 70	S. R. Frankl.....	J. McDonald.	
Leithgow street, from Cambria to summit, south.	12 in. pipe.	404			4	825 00	4	80	80	8423 20	637 57	8423 20	W. May.....	M. O'Rourke.	
Leithgow street, from George to Canal streets.	3 ft. 0 in. x 2 ft. 0 in.	555			3	22 00	3	2 19	2 19	1281 45	12 23	1281 45	J. P. Colebaugh.....	W. H. Yoast.	
Locust street, from Sixteenth to Seventeenth streets.	2 ft. 3 in. x 1 ft. 6 in.	437			3	25 00	3	2 13	2 13	825 00	180 81	1005 81	C. Y. Lauderbach.....	S. A. Miller.	
Laurel street, from New Market to Canal streets.	3 ft. 0 in. x 2 ft. 0 in.	341	3	1 880 00	2	29 00	2	2 57	2 57	809 15	205 22	1014 37	C. Breibinger.....	W. H. H. Achuff.	
Lawrence street, from Cambria to summit.	15 in. pipe.	400			4	30 00	4	1 20	1 20	610 80	554 70	810 80	Jas. McGill.....	G. H. Miller.	
Marshall street, from Norris street to Montgomery avenue.	2 ft. 3 in. x 1 ft. 6 in.	1,021	3	4 75 00	6	22 00	6	2 05	2 05	2525 05	203 58	2725 05	J. P. Colebaugh.....	W. H. Yoast.	
Mutter street, from Huntingdon to Dauphin streets.	3 ft. 0 in. x 2 ft. 0 in.	1,652	3	3 73 00	9	20 00	9	2 19	2 19	4016 88	193 97	4016 88	B. F. Hooven.....	B. McNichol.	
Mutter street, from Norris to Berks street.	3 ft. 0 in. x 2 ft. 0 in.	459			2	27 00	2	2 16	2 16	1045 44	243 06	1045 44	J. Abel, Jr.....	T. H. Regan.	
Master street, from Thirtieth to Thirty-first streets.	3 ft. 0 in. x 2 ft. 0 in.	459			3	23 00	3	2 95	2 95	915 00	525 00	1440 00	F. J. Watt.....	H. C. Eyre.	
Montgomery street, from Twenty-seventh to Stillman streets.	2 ft. 6 in. x 1 ft. 8 in.	486	3	62 00	3	22 00	3	1 98	1 98	1152 28	11 96	1162 28	J. P. Colebaugh.....	W. H. Yoast.	
Myrtle street, from Eleventh to Twelfth streets.	2 ft. 3 in. x 1 ft. 6 in.	446	3	75 00	3	25 00	3	3 45	3 45	1107 70	135 00	1242 70	G. McLean.....	J. Noonan.	
McL. Vernon street, from Fortieth to Union streets.	2 ft. 3 in. x 1 ft. 6 in.	238			2	25 00	2	1 92	1 92	422 00	84 96	506 96	N. B. Beam.....	J. Noonan.	

Length and Cost of Sewers Built during the year 1885—(Continued.)

Location.	Size.	Length in feet.	INLETS.			MANHOLE'S, WELLS			Cost per foot.	PAYMENTS			Total costs.	Inspector.	Contractor.
			No. built.	Cost each.	No. built.	Cost each.	No. built.	Cost each.		In assessments.	In city warrants.	Excess bills and balances.			
Moravian street, from Fifteenth to Broad streets.....	12 in pipe.....	451			4	23 00			1 42	732 42	342 58	732 42	N. B. Beam.....	M. C. Hong.	
McKean street, from Ninth to Tenth streets.....	2 ft. 3 in. x 1 ft. 6 in.	445.15	3	68 00	2	25 00		2 00	905 90	104 43	1010 33	1010 33	J. Duffy.....	F. P. Deehan.	
Melloy street, from Sixteenth to Seventeenth streets.....	12 inch pipe.....	439			2	24 00		1 37	649 43		447 63	649 43	G. Moore.....	M. C. Hong.	
Marja street, from Fifth to Urich Streets.....	12 inch pipe.....	186			1	25 00		1 25	258 33		84 05	258 33	W. May.....	F. P. Murray, Jr.	
Ninth street, from Lehigh avenue to Cumberland street, {	3 ft. 6 in. x 2 ft. 4 in.	558						2 30							
Ogden street, from Fifteenth to Carlisle streets.....	3 ft. 0 in. x 2 ft. 0 in.	542	2	80 25	8	22 00		2 20	2609 36	309 50		3008 86	W. May.....	J. M. Mack.	
Oliver street, from Tenth to Eleventh streets.....	2 ft. 3 in. x 1 ft. 6 in.	226			2	24 00		1 89	475 14	31 70		475 14	C. R. Van Horn.....	V. L. McGhee.	
Ontario street, from Eighteenth to Nineteenth streets.....	2 ft. 3 in. x 1 ft. 6 in.	290.25	3	79 00	2	28 00		2 13	673 68	79 55		753 23	{ J. Abel, Jr. F. J. Watt.....	{ T. H. Regan.	
Orkney street, from Cambria street to Indiana avenue.....	2 ft. 3 in. x 1 ft. 6 in.	435			3	25 00		2 00	945 00	189 25		945 00	F. J. Watt.....	J. Noonan.	
Price street, from Evans to Hancock streets.....	15 inch pipe.....	532.50			5	25 00		1 15	737 37	731 63		737 37	W. May.....	M. O'Rourke.	
Parrish street, from Twenty-fifth to Bucknell streets.....	3 ft. 0 in. x 2 ft. 0 in.	821	3	80 00	4	24 00		2 30	1878 23	290 00		2168 23	C. F. McCally.....	J. Nolan.	
Pine street, between Fortieth and Forty-first streets.....	3 ft. 6 in. x 2 ft. 4 in.	634	3	68 00	3	25 00		2 30	908 43	1073 27		1981 70	J. McGILL.....	F. P. Deehan.	
Pennock street, from Brown to Pennsylvania ave., from Twenty-fourth to Gold streets.....	2 ft. 3 in. x 1 ft. 6 in.	504	1	85 00	3	25 00		1 90	1032 60	290 40		1632 60	N. B. Beam.....	J. McDonald.	
	2 ft. 6 in. x 1 ft. 8 in.	841	3	64 00	6	19 00		1 23	752 16	390 48		2203 31	{ J. Abel, Jr. J. McGill.....	{ T. H. Regan.	
	2 ft. 3 in. x 1 ft. 6 in.	312	3	80 00	3	29 00		2 90	277 50	794 30		1071 80	D. S. Rorer.....	W. H. H. Achuff.	

Length and Cost of Sewers Built during the year 1885—(Continued.)

Location.	Size.	Length in feet.	INLETS.				MANHOLE'S WELLS.				Cost per foot.	PAYMENTS.				Inspector.	Contractor.
			No. built.	Cost each.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Cost each.		In assess-ment bills.	In city war-rants.	Excess bills and balances.	Total cost.		
Potts street, from Thirteenth to Broad streets.....	2 ft. 3 in. x 1 ft. 6 in.	555	3	875 00	4	822 00	2	39	1428 06	85 29		1513 3	J. Abel, Jr.....	T. H. Regan.			
Parrish street, from Twenty-third to Bucknell streets.....	3 ft. 0 in. x 2 ft. 0 in.	274	3	71 00	2	23 00	2	26	324 03	483 24		807 27	J. McGill.....	H. C. Eyre.			
Queen st., from Fifth to Sixth sts.	3 ft. 0 in. x 2 ft. 0 in.	435	3	75 00	2	27 00	2	16	1053 29	13 31		1066 60	J. Abel, Jr.....	T. H. Regan.			
Queen street, from Germantown avenue to Wayne street.....	3 ft. 0 in. x 2 ft. 4 in.	1818	3	71 00	9	23 00	2	31	3391 71	1022 87		5314 58	H. Colborn.....	H. C. Eyre.			
Race street, from Thirty-second to Thirty-third streets.....	2 ft. 6 in. x 1 ft. 8 in.	426	3	70 00	2	25 00	2	00	965 95	5 05		972 00	C. Y. Lauderbach.	J. Noonan.			
Rittenhouse street, from Twen-tieth to Twenty-first streets.....	42-inch pipe.....	525			4	23 00	1	37	811 25		550 50	811 25	C. Moore.....	M. C. Hong.			
Rittenhouse street, from Nine-teenth to Twentieth, thence to Locust street.....	12-inch pipe.....	453.30			3	30 00	1	21	638 73		285 02	638 73	C. Y. Lauderbach } C. Moore.....	G. H. Miller.			
Susquehanna avenue, from Sev-enth to Germantown avenue...	2 ft. 3 in. x 1 ft. 6 in.	386			2	22 00	1	53	435 36	350 00		785 36	C. Y. Lauderbach.	M. C. Hong.			
Spring Garden st., from Thirty-second to Thirty-third streets...	3 ft. 0 in. x 3 ft. 0 in.	286.50			2	23 00	2	37	682 84		20 28	682 34	J. Abel, Jr.....	M. C. Hong.			
Somerset st., from Germantown avenue to Franklin street.....	3 ft. 0 in. x 2 ft. 0 in.	977.16			4	23 00	2	35	2040 97			2040 97	W. Yetter.....	J. Nolan.			
Spring Garden street, between Twentieth and Twenty-first sts.	2 ft. 3 in. x 1 ft. 6 in.	440 00			3	25 00	1	99	623 96	320 64		959 60	C. Y. Lauderbach.	J. Noonan.			
Spring Garden street, between Twentieth and Twenty-first sts.	2 ft. 3 in. x 1 ft. 6 in.	103 00	3	75 00	1	22 00	1	95		207 85		397 85	E. Y. Shehmir.	T. H. Regan.			
Scott street, from Nineteenth to Twentieth street.....	3 ft. 0 in. x 2 ft. 0 in.	430			3	25 00	2	30	1034 00			1064 00	C. Y. Lauderbach.	J. Noonan.			

Length and Cost of Sewers Built during the year 1885—(Continued.)

Location.	Size.	Length in feet.	INDERS.			MANHOLE'S.			WELLS'S.			Per foot.	PAYMENTS.		Excess bills and balances.	Total cost.	Inspector.	Contractor.
			No. built.	Cost each.	No. built.	Cost each.	No. built.	Cost each.	No. built.	Cost each.	In assess- ment bills.		In city war- rants.					
Sixteenth street, from Dauphin street to Susquehanna avenue.	3 ft. 6 in. x 2 ft. 4 in.	624	2	4	\$79 00	3	\$23 00			2	29	\$539 56	1273 44	\$1813 00	N. B. Beam	H. C. Eyre.		
Sixteenth street, from Allegheny avenue to Westmoreland street.	2 ft. 6 in. x 1 ft. 8 in.	591				3	25 00			2	00	1257 00	168 00	1257 00	F. J. Watt	J. Noonan.		
Sixth street, from Thompson st. to Girard avenue.	2 ft. 3 in. x 1 ft. 6 in.	384				2	24 00			1	97	804 48	122 16	804 48	J. P. Colebaugh	V. L. McElnea.		
St. Joseph's avenue, from Seven- teenth to Eighteenth streets.	2 ft. 3 in. x 1 ft. 6 in.	428	3	1	75 00	3	27 00			2	17	1084 75	80 74	1084 76	N. R. Beam	T. H. Regan		
St. John street, from Brown to Poplar streets.	2 ft. 6 in. x 1 ft. 8 in.	459	3	1	85 00	3	25 00			2	21	1255 26	7 53	1262 79	C. Bretninger	W. B. M. Conklin.		
Sansom street, from Eighteenth to Nineteenth streets.	2 ft. 3 in. x 1 ft. 6 in.	431				3	23 00			2	05	965 48	82 68	965 46	N. B. Beam	T. McCann.		
Smeilley street, from Venango to Erie streets.	2 ft. 6 in. x 1 ft. 8 in.	538				3	25 00			2	05	1218 90	131 19	1218 90	F. J. Watt	J. Noonan.		
Smedley street, from Ontario to Tioga streets.	2 ft. 3 in. x 1 ft. 5 in.	540				3	19 00			1	87	1066 80	150 70	1066 80	G. L. Deitz	T. H. Regan.		
South street, from Eighteenth to Nineteenth streets.	2 ft. 6 in. x 1 ft. 8 in.	424	3	3	80 00	3	24 00			1	93	1125 00	63 00	1125 00	C. R. Vanhorn	M. C. Hong.		
Seventeenth street, from Pine to Addison streets, thence to High- tenth street.	12 in. pipe. 15 in. pipe.	459.50 194.50	3	3	85 00	5	27 00			{	1 31 1 37	1258 46	229 85	1258 46	A. Ruth	J. R. Foster.		
Seneca street, from Forty-eighth to Market streets.	3 ft. 0 in. x 2 ft. 0 in.	628.50	2	4	90 00	3	24 00			2	03	1328 73	369 12	1707 85	N. B. Beam	M. C. Hong.		
Thirty-third street, from Penn- sylvania avenue to Master street	3 ft. 6 in. x 2 ft. 4 in.	496	2	1	79 00	3	27 00			2	63	558 00	669 78	1227 78	W. Wilson	H. C. Eyre.		
Twenty-second st., from Wash- ington avenue to Federal street	3 ft. 6 in. x 2 ft. 4 in.	567	3	7	79 50	3	27 89			2	32	1074 68	875 32	1950 00	E. Y. Shelburne	T. H. Regan.		

Length and Cost of Sewers Built during the year 1885—(Continued.)

Location.	Size.	Length in feet.	INLETS.		MANHOLES.		WELLS.		PAYMENTS.		Total cost.	Inspector.	Contractor.
			No. built.	Cost each.	No. built.	Cost each.	No. built.	Cost each.	In assessment bills.	In city warrants.				Excess balances.
Twelfth street, from Melon to Totts, thence to Thirteenth st.	2 ft. 3 in. x 1 ft. 6 in.	553	3	1 80 00	4	24 00			1321 93	142 56	1464 49	{ J. Abel, Jr. B. E. Hood	M. C. Hong.
	2 ft. 8 in. x 1 ft. 8 in.	854	{ 2 3	{ 90 00 80 00	4	29 00			356 57	1200 00	1556 57			J. McGhill.	W. H. H. Achuff.
Thirteenth street, from Market to Walnut streets.	2 ft. 6 in. x 1 ft. 8 in.	428.50			2	23 00			885 86		885 86		M. C. Hong.
Thirteenth street, from Powelton avenue to Baring street.	2 ft. 6 in. x 1 ft. 8 in.	383			3	24 00			577 79	109 57	687 36		M. C. Hong.
Twenty-first street, from North College avenue to Master street.	2 ft. 6 in. x 1 ft. 8 in.	378			3	25 00			793 20		793 20		J. Noonan.
Twenty-fourth st., from Brown to Parrish streets.	2 ft. 3 in. x 1 ft. 6 in.	190.25	3	1 70 00					377 57	118 16	495 73		B. McNichol.
Thirty-seventh street, from Rockland to Haverford streets.	3 ft. 0 in. x 2 ft. 0 in.	547.25	3	1 100 00	5	25 00			854 83		854 83		M. O'Rourke.
Third street, from Cambria to Somerset streets.	15-inch pipe.	550			3	25 00			1175 00		1175 00		G. W. Hansell.
Twenty-fifth street, from Columbia to Montgomery avenues.	3 ft. 0 in. x 2 ft. 0 in.	413			1	28 00			862 82		862 82		T. H. Regan.
Twenty-fifth street, from North College avenue to Thompson st.	2 ft. 3 in. x 1 ft. 6 in.	847			3	30 00			551 92	108 16	660 08		M. C. Hong.
Twentieth street, from Lombard to South streets.	12-inch pipe.	551			4	23 00			1254 61	60 23	1254 61		H. C. Frye.
Twenty-first street, from Parrish to Myrtle, thence to Thirteenth st.	2 ft. 3 in. x 1 ft. 6 in.	392	3	2 75 00	3	28 00			930 50	107 10	1037 60		T. H. Regan.
Twenty-sixth street, from Brown to Parrish streets.	2 ft. 3 in. x 1 ft. 6 in.	37.50							84 37		84 37		F. P. Murray, Jr.
Taney street, from Church street northward.	2 ft. 3 in. x 1 ft. 6 in.	205	3	1 80 00	1	25 00			3819 73	254 72	4074 45		F. P. Murray, Jr.
Ulrich street, from Fairmount avenue to Maria street.	2 ft. 6 in. x 1 ft. 8 in.												F. P. Murray, Jr.

Length and Cost of Sewers Built during the year 1885—(Continued.)

Location.	Size.	Length in feet.	INLETS.		MANHOL'S, WELLS'S		Cost per foot.	PAYMENTS		Excess bills and balances.	Total cost.	Inspector.	Contractor.
			No. built.	Cost each.	No. built.	Cost each.		In assess-ment bills.	In city war-rants.				
Valeria street, from Sixteenth to Seventeenth streets.	2 ft. 3 in. x 1 ft. 6 in.	420			2	25 00			932 00	\$50 86	982 86	G. L. Deitz.	G. W. Hansel.
Venango street, from Seventeenth to Eighteenth streets.	3 ft. 6 in. x 2 ft. 4 in.	447			1	23 00			1022 00		1022 00	C. P. McCally.	J. Nolan & Co.
Waterloo street, from Lehigh av. to Huntington street.	3 ft. 0 in. x 2 ft. 0 in.	580	3	1 95 00	3	28 00			1437 60	3 90	1437 60	M. A. McGrath.	W. H. Yoast.
Warlock street, from Columbia avenue to summit, south.	3 ft. 0 in. x 2 ft. 0 in.	232			1	23 00			544 50		544 50	S. R. Franklin.	M. C. Hong.
Wakefield street, from Blinghurst to Ashmead streets.	3 ft. 6 in. x 2 ft. 4 in.	243	3	95 00	1	25 00			635 82		635 82	R. E. Hooven.	J. Nolan.
Warlock street, from Berks street to Montgomery avenue.	3 ft. 0 in. x 2 ft. 0 in.	540	3	79 50	3	27 89			1223 00		1223 00	J. Abel, Jr.	T. H. Regan.
Wharton street, from Thirteenth to Nineteenth streets.	3 ft. 6 in. x 2 ft. 4 in.	1524.67	3	65 00	15	23 00			5704 10		5704 10	M. A. McGrath.	M. C. Hong.
Wallace street, 100 feet east from Forty-first to Ludwick streets.	3 ft. 0 in. x 2 ft. 0 in.	1313	3	2 03	15	23 00			2006 48		2006 48	G. L. Deitz.	M. C. Hong.
Wayne street, from Mt. Vernon to Wallace streets.	2 ft. 6 in. x 1 ft. 8 in.	215	2	90 60	1	25 00			441 12		441 12	B. E. Hooven.	W. H. H. Achuff.
York street, from Broad to Fifteenth streets.	2 ft. 3 in. x 1 ft. 6 in.	250	3	76 00	2	30 00			510 40		510 40	B. E. Hooven.	G. H. Miller.
York street, from Twenty-second street to Sedgley avenue.	3 ft. 0 in. x 2 ft. 0 in.	517	2	78 00	3	27 60			870 60		870 60	J. Abel, Jr.	H. C. Eyre.
	3 ft. 0 in. x 2 ft. 0 in.	653	2	90 00	3	25 00			964 14		964 14	W. May	G. H. Miller.

Detailed Statement of Branch Sewers Built by the City during 1885.

Branch sewers.		Brick and stone Inlets.			Manholes.			Wellholes.			Payments		Inspection.		Total costs, including all details.	Average cost per foot, including all details.		
Length.	Feet.	Excluding details.		Number built.	Total cost.	Cost each.	Number built.	Total cost.	Cost each.	Number built.	Total cost.	Cost per foot.	In city warrants.	In assessment bills.	Total cost.	Cost per foot.	Average cost per foot, including all details.	
		Cost per foot.	Size.															
				1	\$285	\$85 00												
				2	4,642	87 58												
				3	9,993	75 14												
71,747.14	13,588	\$149,375 94	\$2 08				484	\$10,474 34	\$24 13	7	\$472 25	\$4 75	\$149,358 27	\$25,760 67	\$9,396 45	.13	\$184,515 39	\$2 57

Size.	Length in feet.	AVERAGE COST PER FOOT INCLUDING		
		Average cost per foot including manholes.	Manholes and Inlets.	All details.
Egg shaped, 3 feet 6 inches x 2 feet 4 inches.....	13,021.75	\$2 44	\$2 96	\$3 10
Egg shaped, 3 feet 0 inches x 2 feet 0 inches.....	22,314.16	2 20	2 55	2 68
Egg shaped, 2 feet 6 inches x 1 foot 8 inches.....	11,290.95	2 05	2 19	2 54
Egg shaped, 2 feet 3 inches x 1 foot 6 inches.....	15,907.01	2 07	2 23	2 46
Circular 15 inches.....	3,317.00	1 24	1 48	1 75
Circular 12 inches.....	5,895.37	1 38	1 60	1 81
Total.....	71,747.14			

Length and Sizes of Branch Sewers Built during 1885.

	EGG-SHAPED SEWERS.					CIRCULAR.		Total length in miles.	
						15 ins.	12 ins.		Total length in feet.
	3 ft. 6 in. x 2 ft. 4 in.	3 ft. 6 in. x 2 ft. 0 in.	2 ft. 6 in. x 1 ft. 8 in.	2 ft. 3 in. x 1 ft. 6 in.					
At public cost.....	18,621.75	22,814.16	11,290.95	15,907.91		3,817.00	5,895.87	71,747.14	
At private cost.....		814.00	94.00			100.00	5,399.60	7,407.00	
Total.....	18,621.75	23,128.16	11,384.95	15,907.91		3,817.00	12,294.87	79,154.14	

Total Length of Sewers Built during 1885.

Description.	Feet.	Miles.
Main sewers.....	12,531.66	2.377
Branch sewers.....	71,747.14	13.558
Branch sewers (private cost).....	7,407.00	1.403
Total.....	91,705.80	17.368

* Includes Intercepting Sewer.

Main Sewers—Statement for 1885.

Location.	Diameter. In feet.	Price Per foot.	Length in feet.	PAYMENTS.		Total cost.	Contractor.
				In city warrants.	In assess- ment bills.		
Dauphin street, from Nineteenth street to Seeligey avenue, one chamber, \$860 00	$8\frac{1}{2}$ $7\frac{3}{4}$ $6\frac{1}{2}$	\$22 25 17 80 16 80	487.75 67.00	\$18,411 41		\$49,555 00	McCafferty & Malloy.
Broad street, from Dauphin street to Lehigh avenue, and on Cumberland street, east of Broad street.	5.	10 87	158.97				
Clearfield street, across Sixteenth street.	$7\frac{1}{2}$	13 75	598.00	8,200 25	\$3,189 18	21,889 07	Jas. F. Kennedy.
Clearfield street, from Thirteenth to Broad streets.	$4\frac{1}{2}$ x 6	17 82	726.00	1,799 98	283 67	2,055 63	H. C. Eyre.
Lombard street, from east of Seventh to west of Eighth street.	$7\frac{1}{2}$			7,066 66	1,115 84	8,222 50	Jas. Sullivan.
Snyder avenue, from Thirteenth to Six- teenth streets.	$2\frac{1}{2}$ x 4 $6\frac{1}{2}$	6 15	1,594.39	11,239 12	1,698 20	12,937 32	Jas. F. Kennedy.
Sixteenth street, from Snyder avenue to north of Mifflin street, one chamber.	$8\frac{1}{2}$ x 4 $5\frac{1}{2}$	9 35	49.00	6,422 78	2,852 30	9,375 08	F. P. Deehan.
" " " \$700 00	$8\frac{1}{2}$ x $5\frac{1}{4}$	8 43	797.85	6,727 86		10,673 60	M. C. Hong.
" " " 960 00	$2\frac{1}{2}$ x 4	5 87	236.60				
Twenty-fourth street, from Dauphin to York streets.	7.	16 80	800.00	4,032 00			Jas. Sullivan.
Twenty-second street, from Dauphin to York streets.	$5\frac{1}{2}$ x $3\frac{1}{2}$	9 87	579.00	4,956 11	1,264 62	5,910 73	M. C. Hong.
Dauphin street, from Twenty-fourth street to Seeligey avenue.	$6\frac{1}{2}$	19 50	100.00	1,580 00			F. P. Deehan.
Annabury street, across Fifth street.	$15\frac{1}{2}$ x 24		164.00	4,320 00			Jas. F. Kennedy.
Sansou and Meadow streets, from near Forty-sixth street to near Chestnut street	20 x 20	49 99	160.00	6,400 00			M. O'Rourke.
Total.			5,843.46	\$75,836 12	\$10,413 81		

Intercepting Sewer—Statement for 1885.

Section.	Length in feet.	Price per foot.	Cost per section.	Amount expended.	Commenced.	Finished.	Contractors.
1	124.2	\$32 99	\$4,842 55	\$4,842 55	June 25, 1885.....	October 10, 1885.....	Jno. J. Kennedy.
6	804.	14 38	11,661 52	7,296 00	June 25, 1885.....	.....	S. E. Moore & Co.
7	3,030.	9 00	28,440 00	22,752 00	April 13, 1885.....	.....	B. Malone & Co.
8	2,750.	8 50	26,415 00	21,182 00	April 13, 1885.....	.....	B. Malone & Co.
Total.....	6,706.2	.....	\$71,259 07	\$56,022 55			