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Bureau of Survey Annual Reports
Indexes to volumes from 1883 to 1923.

Indexes contain material related to sewers and streams only.

NOTE

These indexes were compiled by several interns between 2002 and 2004. Some are more detailed than others, depending on the initiative of the individual intern. While they have not been meticulously proofread, they should provide a good indication of the selected contents of each volume.

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List of the number of permits issued each month and then it shows a list of the number of permits issued in each Ward

Page 81

List of receipts of the Bureau from all sources (except District Surveyors) throughout the year and a list of recapitulation

“Testing Laboratory”

Page 82

“Bridges”

Opp. is a photo, caption “Gray’s Ferry Bridge – Portion of West Approach Over Railroad Tracks”

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List of officers in the Department of Public Works, Bureau of Surveys

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Table with appropriations and expenditures for the year ending December 31, 1900

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“Board of Surveyors and Regulators”

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“Main Sewers”

Page 62 opp.

Photo, caption “Concrete Sewer on Swanson St. at Snyder Ave.”

Page 63 opp.

Photo, caption “Concrete Sewer at Snyder Ave. and Swanson St.”

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“Intercepting System”

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“Wingohocking Creek System”

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“Frankford Intercepting System”

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“Drainage in the First and Twenty-sixth Wards”

“Aramingo Canal Main Sewer”

Page 73 opp.

Photo, caption “Cradle of Twin Sewers in Aramingo Canal”

Page 74 opp.

Photo, caption “Twin Sewers in Aramingo Canal”

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“Cohocksink System”

Page 76 opp.

Photo, caption "Reconstruction of the Cohocksink Sewer on Eleventh St. North of Norris St.

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"Rainfall and Discharge Observations"

"Branch Sewers and Inlets"

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Table of total cost for the construction of 35.271 miles of branch sewers.

"Summary of Work Upon Sewers"

List of the total length of sewers built and inspected during the year

"Miscellaneous Public Improvements"

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"Mingo Creek Pumping Station"

"Testing Laboratory"

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"Bridges"

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Photo, caption "Gray's Ferry Bridge. View of South side of bridge, looking East"

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(Incomplete; see also pp. 91-93, 134, 135-137, 137-139 154, 157, 160, 171)

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- I. Main Sewers
- II. Branch Sewers
- III. Rainfall, Discharge and Tidal Observations

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- IV. Main Sewers
 - A. \$358,000 is appropriated for construction of Main Sewer
 - B. \$300,000 is appropriated for the following sewers:
 - 1. Extension of Montgomery relief sewer in Columbia Ave. from terminus of present contract to 20th
 - 2. Rosehill from Allegheny to the Connecticut Railway
 - 3. Extension of Shunk on Weccacoe from Oregon to Shunk and on Shunk from Weccacoe westward
 - 4. York from Aramingo to Emerald (appropriation insufficient to complete)
 - 5. Thomas Run extension on Frazier from terminus at Whitby to Willows and on Willows to 57th on 57th and on Florence to Cobbs Creek (insufficient to complete)

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- 6. Extension of Branch of Merion creek sewer through private property from terminus near Overbrook to City
- 7. Orthodox from Delaware River to Richmond (insufficient to complete)
- 8. Extension of East Branch of Wingohocking Creek on Stenton from terminus near Cora to Anderson and on Anderson northwest to Creek
- 9. Extension of Pratt from present terminus at Willow to Charles (insufficient to complete)
- 10. Extension of Cohocksink relief system on Mascher from Girard to Thompson
- 11. Extension of Thomas Run sewer in Conestoga from South to Pine
- C. \$50,000 was appropriated for the extension of the McKean relief sewer, from Swanson west to, to which \$8,000 was later added by Ordinance
- D. All of the above work is under contract; some has been completed, the rest are progressing, with the exception of a branch of the Merion sewer, which has been delayed and will commence as soon as weather permits
- E. A detailed statement of the above work is as follows:

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- 1. Charles Creek drainage system extension in 65th from Buist to Woodland. A total of \$19,730.61 was paid to the contractor from 1891-1901

2. Chestnut Street from 56th to 59th and on 59th from Chestnut to Arch. A total of \$21,761.26 was paid to the contractor before and during 1901.
3. Magee from Delaware River to Milnor. Total cost was \$19,980.45, paid from 1900-1901
4. Mantua Creek sewer reconstruction on 37th from Mantua to Brown and on Brown from 37th to 38th. A total of \$ 21,418.13 was paid to contractor.

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5. Montgomery relief sewer extension in Sydenham from end of present contract to Columbia and on Columbia from Sydenham to 20th. The contractor received a total of \$40,927.54
6. Oxford relief, from 30th to 26th. A total of \$ 32,464.10 was paid.
7. Orthodox, from the Delaware River to Carbon. Total cost: \$19,999.98
8. Pratt, from present terminus at Willow to Charles. Contractor received a total of \$13,760

Pg. 75

9. Rosehill from Allegheny to the Connecticut Railway. Work is still in progress. Contractor has received \$7,840
10. Extension of sewer on Robinson, Race, 62nd and Market from terminus south of Vine to 63rd. A total of \$20,916.44 has been paid
11. 62nd sewer extension from north of Arch to Market and on Market westward to terminus of present contract. Total cost: \$17,124.65
12. Thomas Run sewer extension on 55th from south of Baltimore to a point near Thomas. Total cost: \$13,561.48

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13. Thomas Run sewer extension in Conestoga from South to Pine. Work is still in progress. A total of \$5,712 has been paid
14. Thomas Run extension in Frazier from present terminus at Whitby to Willows and on Willows to 57th and on 57th to Florence. Work is still in progress. \$9,020 has been paid

V. Intercepting System

- A. During the year the work was completed upon the contract made in 1900 for the connection with the Intercepting sewer in Ridge Avenue from the Philadelphia and Reading Railway to Scott's Lane, on Scott's Lane to Indian Queen Lane
- B. In order to not interfere with traffic on the double line of street cars on Ridge, 496 feet of this sewer was constructed in tunnel.
- C. The work upon the extension of the Lincoln Avenue intercepting sewer, contracted for during 1900, was continued and is nearing completion
- D. The construction work performed upon the intercepting system follows:
 1. Lincoln extension, from Sedgewick to Cresheim, and on Cresheim to Mt. Pleasant. Total cost: \$12,936. Work is still in progress
 2. Ridge and Scotts, connections with the intercepting sewer from the Richmond Branch of Philadelphia and Reading Railway to Scotts from Ridge to Indian Queen. Total cost: \$25, 340.

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VI. Wingohocking Creek System

- A. Work was carried on in this system as follows:
 - 1. 1st, East Branch (two contracts)
 - 2. 2nd, West Branch, northwest of Sharpnack
 - 3. 3rd, extension of outlet on Courtland east from Ninth
- B. A statement of the years work is as follows:
 - 1. Courtland main sewer extension from terminus near Ninth eastwardly.
Total cost: \$21,879.76
 - 3. East branch of Wingohocking on proposed street, Twenty-first, Godfrey and Stenton, from stream south of Church to Cora. Total cost: \$61,250.88
 - 4. Wingohocking Sewer, extension of west branch through private property on line of proposed Bellfield Avenue, from present terminus near Sharpnack to Sprague and on Sprague to Mt. Pleasant. Work is still in progress.
 - 5. Wingohocking sewer, extension of east branch in Stenton from present terminus at Cora to Anderson and on Anderson northwestwardly to the creek.

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VII. Frankford Intercepting System

- A. The condition of the Little Tacony Creek is growing yearly more unbearable, making it imperative to carry out plans for improvement.
- B. A relief from these conditions is urgent

VIII. Drainage in the First and Twenty-sixth Ward

- A. The City during the year entered into a contract for the extension of the Shunk Street system.
- B. This system when completed will permit the development of valuable real estate in the vicinity of Broad and the Baltimore and Ohio Railroad.
- C. Work on the McKean relief sewer has been completed

Pg. 82

- D. It is recommended that funds be appropriated to complete the relief sewer, which will remedy the overflow of Thirteenth and Morris
- E. A detailed statement of the work upon sewers in this territory is as follows:
 - 1. McKean relief sewer in Swanson, from Snyder to McKean, and on McKean, from Swanson westwardly
 - 2. McKean relief sewer in McKean, from Swanson westwardly
 - 3. Extension of Shunk sewer system on Weccacoe, from Oregon to Shunk, and on Shunk, from Weccacoe westwardly

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IX. Aramingo System

- A. In 1839 a contract was entered into for the construction of a sewer in the bed of Aramingo Canal from Norris to the Delaware River, including the construction of the bulkhead wall of concrete at the bulkhead line or outlet of the canal.
- B. Owing to numerous obstacles and damage due to floods, progress made in the portion of the sewer east from Richmond was very slow. A concrete section has been completed between Richmond and Beach. The invert and side walls between Beach and the Delaware River are practically completed.

- C. The tributary branch sewers included under the contract were completed.
- D. Work was also begun upon a main relief sewer in York from Aramingo Canal to Emerald.
- E. The following is a statement of the year's progress: York from Aramingo to Tulip. Total cost: \$ 14, 560

Pg. 85

X. Cohocksink System

- A. The work of continuing the old Cohocksink Sewer under the contract made in 1900 was continued to a point near Diamond, though it was realized that work would need to be continued as far as Twelfth
- B. One serious break occurred at Fifth and Thompson, which was repaired by the Bureau of Highways
- C. The work upon the relief to the Cohocksink Sewer in Shackamaxon, from Delaware River to Thompson, and on Thompson westward was continued
- D. Construction of the concrete outlet at the river is progressing favorably. A contract was also made for a sewer comprised under this system in Mascher, from Girard to Thompson
- E. The following is a detailed statement of the completed work in the Cohocksink system:
 1. Cohocksink sewer construction on Norris, from Ninth to a point east of Eleventh. Work consisted of repaving the street over the sewer and repairing manholes, laterals, etc. Total cost: \$47,639.80
 2. Reconstruction in Norris, from a point on Eleventh, from Norris to Diamond, and on Diamond, from Eleventh to Twelfth. Work is still in progress.
 3. Relief to the Cohocksink sewer on Shackamaxon, from the Delaware to Thompson, and on Thompson to Mascher. Work is still in progress
 4. Cohocksink sewer relief extension in Mascher, from Girard to Thompson. Work is still in progress.
 5. Reconstruction of sewer on Thompson, across Fifth. During a heavy storm on August 19, 1901, the Cohocksink broke on Thompson, immediately east of Fifth. Immediate steps were taken to repair this break but due to another storm on August 31st, September 3rd and September 11th 1901, the break was greatly enlarged and work was delayed. Repairs were completed November 20th, 1901

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XI. Urgent Main Sewers

- A. The following is a list of main sewers for which there is a special urgency:
 1. Extension of sewer from Sixty-third and Market to Cobb's Creek
 2. Extension of Thomas Run sewer to Cobb's Creek
 3. Extension of Pratt street sewer
 4. Branch of Thomas Run on Florence
 5. Sixtieth and Trinity to Fifty-ninth and Chester
 6. Extension of Thomas Run to Fifty-sixth and Fifty-third and Locust
 7. Extension of Orthodox street sewer to Richmond
 8. Extension of George's Run sewer to City Line

9. Dobson's Run sewer extension

10. Rock Run sewer on Ashdale, west of Philadelphia and Newton Railroad

- B. There are a number of sewers whose necessity for repair grows more urgent each year, which are the following: Indiana, between Ormes and Fifteenth, and Jackson, between the Schuylkill and Thirtieth

XII. Deeper Main Sewers

- A. Due to the construction of many tall buildings and the amount of people that congregate in basements and cellars during business hours, a new system of drainage is needed
- B. Deeper sewers will be required for Market, Arch, Chestnut and Walnut, between the Delaware River and 15th

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XIII. Branch Sewers and Inlets

- A. \$215,000 was appropriated by Ordinance of December 31, 1900 for branch sewers and inlets
- B. 192 contracts were drawn for Branch Sewers, of which 187 were completed

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Pg.7

I. Main Sewers

A. Work accomplished in perfecting the main sewer systems and improving the sanitary conditions has been pronounced

Pg.8

B. Total number of main sewers under construction, some of which were carried over from last year, was 37; 19 were completed

C. Reconstruction of Cohocksink sewer on Norris, 11th, Diamond, and 12th was completed

Pg.9

D. Policy pursued by Department in reconstructing the portions of old Cohocksink sewer, resulted in giving the City a new sewer for the greater part of its length

Pg.10

E. No direct appropriation in 1902 for purpose of constructing connections to the intercepting sewer, but a number of extensions have been made under specific ordinances (8 contracts and extensions built cover 2 miles)

Pg.11

F. Extension of the main intercepting sewer from the American Pulp Works to Shawmount Avenue, on Shawmount Avenue to the new filter plants at Roxborough, is now under construction

G. Section was completed and the drainage of a considerable territory will be provided for by emptying branch sewers into this main at Mt. Pleasant avenue

H. A beginning was made in the construction of the Frankford intercepting system by placing under contract, the outlet section of the sewer on Wakeling street, between Frankford creek and the Philadelphia and Trenton Railroad, it is urgent that this work be continued

Pg. 12

I. The sewer in McKean Street and that on Porter Street should be extended as rapidly as possible to Broad Street, to furnish much needed relief in the lower section of the city

J. Work upon the outlet for the Aramingo Canal main sewer was finally completed

K. For the year 1903, an additional sum of \$100,000 has been provided for the continuation of this relief sewer and will complete it to 9th and Berks streets

Pg.13

L. Attention is called to the increasing pollution of the Schuylkill river below Fairmount dam

M. Increase in the number of real estate developments brings immediate return to the City in the shape of taxes; in view of these facts, the Department recommends the construction of main sewers

Pg.14

N. The relief sewer which is designed to carry the drainage of Germantown and Chestnut Hill on a high level, from the water shed of the Wissahickon to the water shed of the Delaware river, still awaits an appropriation before anything can be done

Pg.15

II. Branch Sewers

- A. The term "branch sewers" includes all sewers of less than 4 feet in diameter
- B. For the reconstruction of inlets, \$5,000 appropriated
- C. 288 drain connections were made with the Manayunk Intercepting Sewer and its branches

Pg.18

III. Harbor Work and Dredging Delaware and Schuylkill Rivers

- A. Ordinance of July 27, 1901 carried an appropriation of \$250,000 for purpose of deepening the channels of Delaware and Schuylkill rivers

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- B. The work accomplished under this contract and which was completed during the past year consisted of removing the shoals along the Tinicum Island Range, above Chester, in the Delaware river, and dredging in the Schuylkill river from the lower back channel, at League Island, north

Pg.22

IV. Rainfall, Discharge and Tidal Observations

Pg.95

V. Main Sewers (map)

Pg.96

- A. Sum of \$200,000 appropriated by ordinance of March 31, 1902 as follows
 - 1.) 21st, from Indiana to Allegheny
 - 2.) Extension of York street relief sewer from terminus of present contract, near Tulip to Emerald
 - 3.) Extension of sewer in Pratt, from terminus of present contract, near Mulberry, to Valley and southwest on Valley to creek near Walker
 - 4.) Extension of Georges Run Sewer from present terminus at Bryn Mawr north of Wynfield, on Bryn Mawr to Woodbine, on Woodbine to 51st to City Ave.
 - 5.) Extension of Thomas Run Sewer on Pine from Conestoga to 53rd, thence on 53rd north to terminus of present sewer at Locust
 - 6.) Orthodox street, from present terminus east of Delaware avenue to Richmond
 - 7.) East Branch of Wingohocking Creek, on Anderson from terminus of present contract northwest of Cheltenham to Price, thence on Price from Anderson to Crittenden, and on Crittenden to Creek northwest of Haines
 - 8.) Extension of Lincoln avenue Intercepting Sewer in Cresheim road, from Mt. Pleasant to Allen's lane

B. Appropriation of June 27, 1902, set aside from the loan of June 11, 1902, was apportioned by ordinance approved July 19, 1902, as follows:

- 1.) Completion of York Street Relief Sewer
- 2.) Completion of Georges Run Sewer
- 3.) Completion of the above contract of East Branch of Wingohocking Creek Sewer to Haines street

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- 4.) Extension of McKean Street Relief Sewer to 9th
- 5.) Extension of Main Intercepting Sewer from present terminus at Nixon's Mills, northeast of Fountain street on private property to Shawmont, thence north on Shawmont to Eva
- 6.) Princeton street, from Delaware river to Hegerman
- 7.) Frankford Intercepting System, on Wakeling, from Frankford creek northwest
- 8.) Extension of Thomas Run Sewer on 57th, from present terminus at Florence to Beumont, thence south on Beaumont to a point near 59th, thence across private property to Cobb's creek
- 9.) Extension of Shunk Street System, from present terminus west of Shelby to Front, and on Front to Porter, and west on Porter
- 10.) Extension of Cohocksink Relief Sewer on Thompson from terminus of present contract to Germantown, on Germantown to Berks, on Berks to 9th, thence north on 9th to Norris
- 11.) Extension of Dobson's Run System, from terminus in Roberts to Ontario, thence on Ontario to 33rd, on 33rd to Allegheny, and on Allegheny to 29th
- 12.) Extension of West Branch of Thomas Run Sewer, in Pine from Conestoga to Allison, on Allison to Locust, thence west on Locust to present sewer near 56th
- 13.) Extension of Wingohocking Creek Sewer, in Courtland from present sewer west of 7th to 7th and Annsbury, thence on Annsbury to North Penn Branch of Philadelphia and Reading Railway

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- 14.) Disston, from Mason to Keystone
- 15.) Jackson, from Schuylkill river east
- 16.) Indian Run Sewer, in 66th, from City south to Sherwood and 68th, thence on 68th to Malvern, on Malvern on 68th, thence south on 69th to Lansdowne
- 17.) East Branch of Wingohocking Creek, on Ogontz from 18th and Bellfield to Olney
- 18.) Extension of Cresheim Creek Intercepting sewer in Germantown from Cresheim creek to Moreland, on Moreland to proposed drainage, thence to Willow Grove, on Willow Grove to 25th, along 25th to Hartwell, along Hartwell to stream east of 25th

C. Detailed statement of the above work completed or as far advanced, also of work commenced in previous years and completed during 1902 where not included under other headings, is as follows:

- 1.) Disston, from Mason to Keystone

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- 2.) Georges Run Sewer Extension on Bryn Mawr from present terminus north of Wynnewood to Woodbine, on Woodbine to 51st, and on 51st to City
- 3.) Indian Run Sewer in 66th from City to Sherwood and 68th, thence on 68th to Malvern, and on Malvern to creek at 69th
- 4.) Montgomery Relief Sewer extension in Sydenham, from end of present contract to Columbia, and on Columbia from Sydenham to 20th
- 5.) Merion Creek Sewer Extension through private property from present terminus near Overbrook to 59th, and on 59th to City Line

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- 6.) Mantua Creek Sewer reconstruction on 37th, between Mantua and Brown, and on Brown, from 37th to 38th
- 7.) Pratt Sewer Extension from present terminus at Willow to Charles
- 8.) Orthodox Street Sewer Extension from present terminus east of Delaware to Richmond
- 9.) Pratt Sewer Extension from present terminus near Mulberry to Valley, and on Valley southeast to creek near Haworth

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- 10.) Princeton, from Delaware to Hegerman
- 11.) Rosehill Sewer from Allegheny to the Connecting Railway
- 12.) Thomas Run Sewer Extension in Frazier (56 ½) street from present terminus at Whitby to Willows, on willows to 57th, and in 57th to Florence
- 13.) Thomas Run Sewer Extension in Conestoga from South to Pine

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- 14.) 21st, from Indiana to Allegheny
- 15.) Thomas Run Sewer Extension in Pine from Conestoga to 53rd, and on 53rd to Locust
- 16.) Thomas Run Sewer Extension (west branch) in Pine, from Conestoga to Allison, on Allison to Locust, and on Locust west to terminal of present sewer, near 59th
- 17.) Thomas Run Sewer Extension in 57th from present terminus at Florence to Beaumont, thence south on Beaumont to a point near 59th, thence across private property to Cobb's creek

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VI. Intercepting System

- A. Lincoln Avenue Intercepting Sewer was designed and extended to the head of the drainage area
- B. Also a tributary to the Cresheim Intercepting Sewer on Germantown, from Cresheim creek to Moreland, on Moreland from Germantown to a proposed drainage street
- C. An extension of the Manayunk Intercepting Sewer has been designed and placed under contract from this present terminus at Nixon's Mills northeast of Fountain street, between the Schuylkill Canal and the river, under the canal by inverted siphon [sic: siphon], and along the towing path of the river to Shawmont, and on Shawmont from the Schuylkill river to Eva

Pg.104

- D. An extension of the Dobson's Run Intercepting Sewer was placed under contract from the present terminus in Roberts to Ontario, thence to 33rd to Allegheny, to 29th, needed to drain a developing portion of the 38th Ward
- E. For the improvement of the service performed by this sewer, the following recommendations are made for necessary extensions:
 - 1.) First: The building of the Cresheim branch connection on Germantown, from a point where it may be completed with the present appropriation to Moreland, to proposed drainage, to Willow Grove, to 25th, to Hartwell, to stream east of 25th
 - 2.) Second: The extension of the Wissahickon High Level Sewer to Rex to intercept the drainage from the western side of Chestnut Hill is important
 - 3.) Third: Funds should be provided to begin the construction of a sewer through the divide between the Delaware and Schuylkill rivers in the vicinity of Queen Lane Reservoir

Pg.105

- F. A statement of construction work performed in connection with the intercepting system follows:
 - 1.) Intercepting sewer (main stem) extension from present terminus at Nixon's Mills, northeast of Fountain on private property to Shawmont, and on Shawmont to Eva
 - 2.) Lincoln extension of the intercepting sewer from Sedgwick to Cresheim, and on Cresheim to Mt. Pleasant
 - 3.) Lincoln Intercepting Sewer Extension on Cresheim from Mt. Pleasant to Allen's

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VII. Wingohocking Creek System

- A. Work has been carried on upon three sections of Wingohocking system, the east branch, both ends of the west branch and the outlet section
- B. Work accomplished during the year as follows:
 - 1.) Wingohocking Creek Sewer Extension (west branch) through private property on line of proposed Bellfield, from terminus near Sharpnack to Sprague, on Sprague to Mt. Pleasant

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- 2.) Wingohocking Creek Sewer Extension (east branch) in Stenton from present terminus at Cora to Anderson, and on Anderson northwest to the creek
- 3.) Wingohocking Creek Sewer Extension (east branch) on Anderson from terminus of present contract north of Cheltenham to Price, and on Price to Crittenden, and on Crittenden to creek northwest of Haines

VIII. Drainage in the 1st, 36th, and 39th Wards

- A. Rapid increase in building operations...has emphasized the need for rapid construction of main sewer beginning at Oregon and Delaware river and extending on Swanson, Shunk, Front, and Porter

Pg.108

- B. Another project, that of providing main drainage for a section on the west side near the Schuylkill river, north of Point Breeze, has been started, by

constructing a sewer on Jackson, from the Schuylkill east to 29th and north on 29th to Tasker

Pg.109

C. Work accomplished upon main drainage in this section in detail follows:

- 1.) Jackson, from Schuylkill River east
- 2.) McKean Relief Sewer Extension on McKean from Swanson west

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- 3.) McKean Relief Sewer Extension from terminus of present contract at 3rd west
- 4.) Shunk Sewer System, extension on Weccacoe from Oregon to Shunk, and on Shunk from Weccacoe west
- 5.) Shunk Sewer System, extension on Shunk from present terminus west of Shelby to Front, on Front to Porter, and on Porter west

IX. Frankford Intercepting System

A. Frankford Intercepting System may be comprehensively described as follows:

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- 1.) Pollution of Little Tacony creek from lateral sewers emptying into it between Pratt at Frankford and Frankford creek, is to have made it highly objectionable
- 2.) System planned to divert flow of stream along Wakeling into Frankford creek and intercept drainage emptying at present into the Little Tacony creek south of Wakeling by building a sewer along Valley, Margaret, and Torresdale, emptying below Lewis

X. Aramingo Canal System

A. Main sewer in the bed of Aramingo Canal from Norris to Delaware River, was completed this past year

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- B. The extension of the sewer from Norris to the Delaware river has done away with the unsightly condition which existed when it was a canal
- C. Another improvement to the Aramingo System has been the design and construction of a relief sewer on York, between Aramingo and Emerald, intended to remedy the conditions which have existed at the latter point and vicinity, causing overflows and damage to the property
- D. The work of construction is reported upon in detail as follows:
 - 1.) York Sewer from Aramingo to Tulip
 - 2.) York Sewer Extension from Tulip to Emerald

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XI. Old Cohocksink Sewer

A. Contracts for reconstruction were in force as follows:

- 1.) Cohocksink Sewer, reconstruction in Norris, from a point 97 feet east of 11th, on 11th from Norris to Diamond, on Diamond, from 11th to 12th, and on 12th north

Pg.115

- 2.) Cohocksink Sewer reconstruction on Montgomery from a point east of 9th, and on 9th north

XII. Cohocksink Relief Sewer

- A. The Cohocksink Sewer has been overcharged, and measures have been under consideration for relieving this condition
- B. Project adopted may be described as follows:
 - 1.) From present sewer on 9th, at Berks, the capacity of an 8 feet diameter is to be diverted from it, carried east on Berks to Germantown, thence on Thompson, where an overflow from the present 10 feet diameter is provided

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- 2.) New sewer continues on Thompson, east to Frankford, thence on Shackamaxon to the Delaware River
- C. A detailed report of work follows:
 - 1.) Cohocksink Relief Sewer extension in Mascher, from Girard to Thompson
 - 2.) Cohocksink Relief Sewer extension in Germantown, from Thompson to Montgomery

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- 3.) Cohocksink Relief Sewer in Shackamaxon, between the Delaware River and Thompson
- 4.) Cohocksink Relief Sewer in Thompson, from Shackamaxon to Germantown

XIII. Urgent Main Sewers

- A. Extension from 63rd and Market to Cobbs creek
- B. Extension of Orthodox to Richmond

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- C. Extension of Porter street sewer
- D. Extension of Pratt Street
- E. Extension of Ogontz, from Olney north
- F. Extension of Wakeling sewer (Frankford intercepting system)
- G. Extension of Courtland to North Penn R.R
- H. Reconstruction of 42nd sewer
- I. 12th relief sewer
- J. Extension of McKean street relief sewer
- K. Indiana, between Ormes and 15th
- L. Jackson street extension to 30th
- M. Rock Run on Ashdale west of Philadelphia and Newtown R.R.
- N. Reconstruction on York and 5th
- O. Opposite is a map showing the main sewerage system, with a special mark it distinguish those built or under contract during the last 4 years

XIV. Sanitary Recommendations

- A. Owing to the increasing pollution of the Schuylkill river below Fairmount dam, it is advisable to take measures to remedy its condition

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- B. A project for intercepting the sewers on each side of the river and carrying the sewage to the low land near the mouth of the river has been studied in a preliminary way

XV. Branch Sewers and Inlets

- A. The contracts drawn for branch sewers numbered 226, of which 180 were completed
- B. 20.95 miles of branch sewers at public expense

- C. 9 contracts, the work under which included construction and reconstruction of 544 inlets

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XVI. Summary of Work Upon Sewers

- A. Number of main sewers under construction was 37
- B. Total length of sewers built and inspected during 1902 was 29.918 miles

XVII. Sewer Connections and Records

- A. Sewer connections of 5,561 buildings were authorized during the year, which involved issuing of 2,986 permits

Pg.122

- B. 280 drains were connected with Manayunk Intercepting Sewer and its branches
- C. Bureaus of Water, Highways, and Health have as usual been furnished with a daily list of all permits issued
- D.55 sewers have been built at private cost
- E. 288 plans of main and branch sewers were received from District of Surveyors

Pg.123

XVII. Miscellaneous Projects for Improvement

- A. Foremost under this head are those upon proper plans for City development in suburban sections
- B. The establishment of lines and grades for the low lying territory in the 40th Ward, comprising 5,000 acres between Schuylkill River and Darby creek
- C. It is proposed to raise the whole grade to provide for a development which will make this an urban section in a few years

Pg.129-133

XX. Rainfall, Discharge and Tide Observations

- A. Table displaying principal rainfalls during the year, including amounts of precipitation, duration and the mean and maximum rate per hour
- B. Diagram of Tides for 1902 at Arch Street Pier

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XXI. Map of the Delaware River Showing Sites of Dredging Operations by the City of Philadelphia

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XXII. Harbor Work and River Dredging

- A. Work in Delaware River results in opening of a channel 26 feet deep for the first 20 miles of river below the Philadelphia Harbor
 - 1.) Removal of the middle ground opposite Greenwich Point and extension of deep water of the harbor from Morris to Avenue 38, South
 - 2.) Formation of a channel through the Fort Mifflin bar
 - 3.) Removal of shoals along the Tinicum Island Range
 - 4.) Removal of dangerous ledge rock shoals at Schooner Ledge
 - 5.) Formation of a channel 200 feet wide and 6.48 miles long from Marcus Hook to Schooner Ledge
- B. Work in the Schuylkill River
 - 1.) formation of a continuous channel 250 feet wide dredged to a clear depth of 22 feet below mean low water, from Penrose Ferry bridge to 58th, a distance of 3 miles, the depth of a portion of which was

increased to 26 feet

- 2.) formation of a continuous channel 150 to 250 feet wide, with a clear depth of 20 feet below mean low water, from 58th to a point about 500 feet above Harrison's wharf, a distance of 1.7 miles

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- C. Under the authority of the projects of the War Department, removal of 3,297,752 cubic yards of material other than rock and 29,257 cubic yards of rock from the Delaware and the Schuylkill
- D. In response to the agitations of the trades organizations of the City, appropriations of \$250,000 were made on July 27, 1901 to deepen the channels of the Delaware through the shoals along the Tinicum Island Range, above Chester and in the Schuylkill from its mouth northward
 - 1.) Plan specifications required that all materials dredged from the rivers behind impounding banks be deposited within the limits of League Island Park. This did the following:
 - a. Prevented already dredged material from once again washing out into the river and creating shoals
 - b. Improved river channels
 - c. Hastened the completion of the improvement of the park
 - 2.) Work contract was awarded to the lowest bidder, the American Dredging Company, on September 27, 1901 and notice to begin work was given October 15th
- E. Placing materials ashore League Island involved the excavation of a receiving basin about 200 feet wide by 700 feet long and 15 feet deep at a mean low water in the upper back channel at about the lines of 11th street, and an entrance canal from the Delaware of about 4,400 feet

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- F. Work on the banks for the impounding basins began October 2, 1901 and on the dredging of the canal and receiving basin on October 9th

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- G. Work in the Schuylkill consisted of dredging a channel at the lower back channel at League Island northward and was begun April 14, 1902
- H. All dredging of the channels was completed on September 7, 1902
- I. A total of 296, 670 cubic yards of material was dredged from the channel of the Schuylkill below the Penrose Ferry Bridge, and 68, 654 cubic yards of material other than rock and 17 cubic yards of boulders from the channel above the bridge
- J. Work in the Schuylkill resulted in the formation of a channel 250 feet wide, 26 feet deep and 1.01 miles long, from its entrance at League Island to a point 837 feet above the Penrose Ferry Bridge
- K. The following plant was used by contractors on the channel work:
 - 1.) The combination dredges "Admiral" and "Republic"
 - 2.) The grapple dredges "Philadelphia", "Arizona" and "Columbia"
 - 3.) A fleet of 8 tugs and 48 dump scows, of ranging capacities of 250 to 525 cubic yards
- L. The final estimate was drawn on September 15, 1902 and the contract's total amount was \$234,430.77

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M. Because the Federal Government now has under contract the dredging of a 30 feet deep channel in the Delaware, it is the aim of the City's trade and commercial organizations to secure aid for the further improvement of the Schuylkill and the dredging of its channel to a depth of 26 feet below mean low water

N. \$400,000 was set aside from a loan for the improvement of the Delaware and the Schuylkill

XXIII. Tables and Charts

A. Summary of Dredging Operations for the Improvement of the Channels of the Delaware and Schuylkill Rivers (Pg. 167)

B. Length and Cost of Main Sewers Built during the Year 1902 (Pg. 170)

C. Aramingo Canal System (Pg. 170- facing)

D. Branch Sewers (Pg. 178)

E. Summarized Statement of Branch Sewers Built During the Year 1902 (Pg. 181)

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(Incomplete: see also pp. 73-93, 94-95, 134, 135-137, 137-139)

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I. Main Sewers

Pg. 30

II. Branch Sewers

III. Rainfall, Discharge and Tidal Observations

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IV. Main Sewers

A. Councils appropriate \$358,000 for the construction of Main Sewer

B. By Ordinance, \$300,000 was apportioned to the following sewers:

- 1.) Extension of Montgomery relief sewer in Columbia from terminus of present contract to 20th
- 2.) Rosehill from Allegheny to the Connecticut Railway
- 3.) Extension of Shunk street system on Weccacoe from Oregon to Shunk, and on Shunk from Weccacoe westwardly
- 4.) York from Aramingo to Emerald (appropriation insufficient to complete)
- 5.) Thomas Run extension on Frazier from terminus at Whitby to Willows and on Willows to 57th on 57th to Florence, and on Florence to Cobbs Creek (appropriation insufficient to complete)

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- 6.) Extension of Branch of Merion creek sewer through private property from terminus near Overbrook to City
- 7.) Orthodox from Delaware River to Richmond (appropriation insufficient to complete)
- 8.) Extension of East Branch of Wingohocken (Wingohocking) Creek on Stenton from terminus near Cora to Anderson to Charles and on Anderson northwest to Creek
- 9.) Extension of Pratt from present terminus at Willow to Charles (appropriation insufficient to complete)
- 10.) Extension of Cohocksink relief system on Mascher from Girard to Thompson
- 11.) Extension of Thomas Run sewer in Conestoga from South to Pine

C. In addition to the above, the sum of \$50,000 was apportioned by Ordinance of December 31, 1900 for the extension of McKean relief sewer, from Swanson westwardly, to which was added the sum \$8,000 by Ordinance

D.

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- I. Bureau of Surveys
 - A. Drainage in 1st, 26th, 36th, and 39th Wards
 - B. Rapidity with which new buildings have been constructed has made it necessary to build large sewers on various parallel streets
 - C. Work on McKean street sewer, designed to accomplish this purpose, has been prosecuted for several years, until construction has been completed between Delaware River and 12th
 - D. Frankford Intercepting System--large and costly, but beneficial results
 - E. Abolish Little Tacony creek by intercepting flow to the North and carrying it into Frankford creek, near its mouth
 - F. Diversion of flow will permit construction of an intercepting sewer and ultimate opening of Torresdale Ave.

Pg.24

- G. Branch Sewers and Inlets- 21.499 miles of branch sewers at public expense, \$423,549.84
- H. Total length of all sewers built and inspected during 1904- 29.75
- I. Parks and Parkways- movement to increase park areas of the City and to establish system of connecting boulevards
- J. Philadelphia has natural advantages for work of this character

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- II. Improvement of Channel of Schuylkill River
 - A. During past year, 380,400 cubic yards other than rock or wreckage and 25.51 cubic yards of large boulders removed from channel of Schuylkill
- III. Removing the wreck of S.S. "Bermuda"
 - A. August 15, 1900, S.S. "Bermuda" sunk in the dock adjacent to Pier No.19, North Wharves
 - B. She was abandoned in October, 1901
 - C. December 31, 1903, Councils made an appropriation to remove this obstruction to commerce, work is progressing

Pg.69-93

Pg.69

- IV. Main Sewers
 - A. Amounts appropriated for construction of main sewers during 1904
 - 1.) Ordinance approved June 27, 1904 for main sewers- \$700,000
 - 2.) Ordinance approved December 31, 1903 for reconstruction and relief of the Cohocksink main sewer, \$50,000
 - 3.) Reappropriated for sewer in Market street, \$100,000
 - 4.) \$700,000 appropriated by ordinance of June 27, 1904

- a.) Extension of McKean street relief sewer from terminus at 12th to Broad
- b.) Extension of Shunk street system on Porter street, from terminus at Stone House lane to Moyamensing Ave.
- c.) Extension of Frankford intercepting sewer on Wakeling street, from terminus north of Tacony street to stream north of Cottage street
- d.) Reconstruction of sewer in Girard Ave., from Mascher street to Front street, thence south on Front to Wildley
- e.) Extension of Ogontz Ave., from terminus at Olney Ave. to drainage street north of Chew street
- f.) Extension of Pratt street sewer, from terminus near Leiper street to Saul street, thence on Saul to Foust, north on Foust to Oakland, and east on Oakland to stream
- g.) Extension of Magee street sewer, from terminus west of Delaware Ave. to a point near the bulkhead line, and from terminus at Milnor street west to Jackson
- h.) Wissahickon high level intercepting sewer cut-off, beginning at 24th and Indiana, on 24th, to Allegheny, thence through private property along line of 24th extended to Westmoreland street
- i.) 60th, from Cobbs creek to Trinity, thence on Trinity to 59th, south on 59th to Chester
- j.) 12th street relief sewer, from Lombard to Locust
- k.) Extension of Jackson street, from terminus about 354 feet west of Schuylkill Ave. to 36th
- l.) Castor road, from terminus northeast of Harrison to Pratt, thence on Pratt to Summerdale, and on Summerdale to Sanger
- m.) Extension of Wingohocking creek on Ansbury, from terminus near 6th to North Penn Railroad
- n.) Rock Run sewer on Ashdale street, from Philadelphia, Newtown and New York Railroad to Fairhill street
- o.) Eastwick Ave., from 64th to 60th, and north on 60th to Gibson
- p.) Branch of Rock Run sewer on Duncannon, from stream at Kensington and Oxford turnpike to "A" street; thence on "A" street to Fisher, on Fisher Ave., to Ella street, on Ella to Tabor
- q.) Branch of Indian Run sewer on Lebanon Ave., from Indian Run, near 69th, to 66th
- r.) 9th, from Courtland to Wyoming, thence on Wyoming to 11th, north on 11th to Louden, thence on Louden to 12th, and north on 12th to Ruscomb
- s.) Extension of Luzerne, through grounds of Municipal Hospital, from present terminus to a point near Wingohocking creek

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B. Detailed statement of work on above main sewers

- 1.) Castor road, from northeast of Harrison to Pratt, thence on Pratt to Summerdale, thence on Summerdale to Sanger
- 2.) Eastwick Ave., from 64th to 60th, on 60th, from Eastwick to Gibson
- 3.) Indian Run sewer in 66th, from City Ave. to Sherwood, and 68th, thence to Malvern, and on Malvern to the creek at 69th

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- 4.) Indian Run sewer, branch on Lebanon Ave., from Indian Run near 69th to 66th
- 5.) Princeton street, from Hegerman street to the northwest side of Torresdale
- 6.) 60th, from Cobbs' creek to Trinity, on Trinity to 59th, on 59th to Chester
- 7.) 12th, from Lombard to Locust

V. Intercepting System

- A. Most important work accomplished on intercepting system was completion of the sewer

Pg.73

- B. Work continued upon the extension of Cresheim creek intercepting sewer and upon Dobson's run intercepting sewer in 30th, from Scott's run to Allegheny, and on Allegheny, from 33rd to 29th
- C. Rapid advance of building in the Manayunk territory and the Falls of Schuylkill makes it necessary to provide adequate means of drainage for improvements
- D. Effect of this building expansion has been to place a greater duty upon main intercepting sewer than it was designed to perform
- E. When being constructed, Department had in view an ultimate relief system to remove any pollution of the water supply

Pg.74

- F. Work upon this relief system was inaugurated by commencement of Wissahickon high level cut-off sewer
- G. Extension of this system is required to reach the West Side of Chestnut Hill from the present terminus along the Wissahickon creek to Rex Ave.
- H. Upon construction of intercepting sewer north of Nixon's Mills under the power canal there was constructed an inverted siphon, which is the first time a construction of this kind was introduced into a sewerage system of the City

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- I. Detailed report of work of construction upon sewers in the intercepting system
 - 1.) Cresheim creek intercepting sewer on Germantown Ave., from Cresheim creek to Moreland Ave., and on Moreland, from Germantown to a proposed drainage street
 - 2.) Dobson's run sewer, in 33rd, from Scott's to Allegheny, and on Allegheny, from 33rd to 29th
 - 3.) Intercepting sewer (main stem) extension, from terminus at Nixon's Mills, northeast of Fountain street, on private property to Shawmount [sic: Shawmont], and on Shawmount to Eva

Pg.76

VI. Wingohocking Creek System

- A. Practical completion of west branch which receives the drainage from the most closely built up portion of Germantown
- B. Section of this sewer was completed from the point of junction with main stem near Fisher's lane to Olney
- C. Appropriations also made to extend sewer north from Olney to 21st, the terminus of the sewer formerly constructed to the north

Pg.77

- D. Extension made to main stem of Wingohocking creek sewer, from a point west of 7th to a point west of 6th
- E. Section of Luzerne street sewer, from a point east of 2nd through property purchased by the City for the site of the Municipal Hospital was completed
- F. Near future, City will extend east branch of Wingohocking sewer from its present terminus north of Haines street
- G. Detailed statement of construction work accomplished on this system during the year
 - 1.) Luzerne street, from east of 2nd northeast to Wingohocking creek
 - 2.) Luzerne street sewer extension through Municipal Hospital grounds to Wingohocking creek
 - 3.) Wingohocking creek sewer extension (east branch) on Ogontz, from 18th and Bellfield to Olney

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- 4.) Wingohocking creek sewer on Annsbury, from 6th to North Penn Railroad

VII. Drainage in the 1st, 26th, 36th, and 39th Wards

- A. Sewer on McKean street was completed between Delaware river and 12th
- B. Construction now underway between 12th and Broad
- C. Work upon Shunk street system was continued to a point near Front and Porter

Pg.79

- D. Work is under construction for a portion of the sewer on Porter, between Front and Moyamensing, which will practically complete the main sewer
- E. Work which had been completed on Jackson, beginning at the Schuylkill river was continued, the existing contract extending from the terminus of the present sewer west of the Schuylkill river to 36th
- F. Additional appropriation will be required to extend this sewer east and north to the built-up sections in the vicinity of 29th and Morris
- G. Jackson, from 354 feet west of Schuylkill Ave. to 36th
- H. McKean, from 9th to 12th
- I. McKean, from 12th to Broad
- J. Shunk street sewer system extension on Shunk, from west of Shelby to Front, on Front to Porter, on Porter west

Pg.80

- K. Shunk street sewer system extension on Porter, from Stone House lane to Moyamensing Ave.

VIII. Frankford Intercepting System

- A. One of the most important of the larger sewerage systems which receives attention of the Department is that upon which depends the placing of Frankford and vicinity in the enjoyment of sanitary conveniences equal to that of other sections of the City
- B. The project is to abolish Little Tacony creek
- C. Completion of this system will necessitate the construction of a large intercepting sewer along Wheatsheaf lane and also an intercepting sewer along the line of Frankford creek emptying into the Wheatsheaf lane sewer

Pg.81

- D. Importance of this system is extending the main intercepting sewer and connections to preserve the purity of water supply
- E. Contracts entered into for extension of large sewer on Wakeling street, from Tacony to Ditman, and proposals for extending the sewer now terminating on Pratt street northwest of Frankford to Dark Run lane and Oakland
- F. Detailed statement of work completed
 - 1.) Frankford intercepting sewer system on Wakeling, from Frankford creek northwest
 - 2.) Frankford intercepting sewer system on Wakeling, from north of Tacony to Ditman
 - 3.) Pratt, from Frankford northwest

Pg.82

IX. Aramingo System

- A. Reconstructed sewer on York street, from American to 5th, and on 5th, from York to Cumberland
- B. Most important sewer built within this system is that of a relief sewer on Edgemont, from Lehigh to York, and on York west
- C. Formerly overflows of property occurred at every heavy rain storm, but since construction of York street relief system, the difficulty has been obviated
- D. Detailed statement of work
 - 1.) York, from American to 5th, on 5th, from York to Cumberland

X. Cohocksink System

- A. Improve old sewers, reconstruct large sewer in Montgomery, between 6th and Marshall

Pg.83

- B. Separate contract entered into for work of reconstruction
- C. November, serious break occurred in old sewer at intersection of Lawrence and Thompson
- D. Examinations made of the interior of this old sewer at various times, notably on Montgomery, 6th to Randolph, and on Randolph, from Montgomery to Columbia, and on Dauphin, between Broad and Park, at all which points the sewer is in a dangerous condition
- E. Portion of sewer on Girard, from Mascher to Front, and on Front south to near Wildey, is to be reconstructed

Pg.84

- F. Detailed report of work performed

- 1.) Cohocksink sewer relief and reconstruction on Montgomery, from east of Marshall to 24 feet east of East Side of 9th
- 2.) Cohocksink relief sewer on Germantown, from Montgomery to Berks, on Berks, from Germantown to 9th

Pg.85

XI. Rock Run System

- A. To the North of Wingohocking area, between it and the County Line, in the vicinity of Oak lane, there has been projected a system of drainage of considerable extent passing along the streets adjacent to a stream known as Rock run, emptying into the Frankford creek immediately east of the Kensington and Oxford turnpike, and extending through the upper portion of the 42nd Ward
- B. The City has authorized beginning of work to construct sewer in Ashdale, from Philadelphia, Newtown and New York Railroad to Fairhill
- C. Also construction of a branch in this Rock run sewer on line of Duncannon, from stream at Kensington and Oxford turnpike to "A" street, thence on "A" to Fisher, on Fisher to Ella, on Ella to Tabor

Pg.86

XII. Reconstruction of Sewers in Connection with the Subway on Market Street

- A. Market Street Subway of the Philadelphia Rapid Transit Company required the revision of the sewer system in the territory affected
- B. Work completed is as follows
 - 1.) South side of Market, from East Side of 21st to a point 270 feet East of 17th

XIII. Remarks upon Improved Sanitation

- A. Rapid increase in urban population in each decade serves to fix attention of municipal authorities upon possible needs of the community at the end of three decades, with a view to making all present projects conform to these requirements
- B. Present need of the City is for extension of systems of drainage

Pg.87

- C. At present the volume of flow in the Delaware River is so great as to give rise to no complaint concerning the discharge of City sewers into it
- D. Complaints of the Schuylkill have arisen, and a tentative plan for intercepting the sewers emptying into that river has been provided
- E. The occasional breaking of old sewers is due to sewers wearing out, but should not be used as an argument for decrying the whole sewer system

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XIV. Main Sewers Required

- A. List of main sewers needed for the proper development of the City, not in order of importance
 - 1.) McKean street extension on Broad
 - 2.) Pratt street extension
 - 3.) Magee street extension
 - 4.) Wakeling street extension
 - 5.) Devereaux street, from Hegerman street to Lardner and Tacony

- 6.) Thomas run, from 57th and Florence to 53rd and Hadfield
- 7.) Extension, from 63rd and Market to Cobbs creek
- 8.) McKean street relief on 13th, from McKean to Morris
- 9.) Extension of Jackson
- 10.) 52nd street extension to Chester branch P. &R. Railway
- 11.) East branch Wingohocking north of Haines
- 12.) Wissahickon high level cut-off
- 13.) Wissahickon extension to Rex
- 14.) Rock Run extension
- 15.) Tioga, from Delaware River west
- 16.) Indiana Avenue relief

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- 17.) Botanic creek extension
- 18.) Reconstruction, 42nd, from Haverford to Powelton
- 19.) Reconstruction, Christian, from Taney to 21st
- 20.) Snyder to low water
- 21.) Janney, from Allegheny to Westmoreland
- 22.) Porter to Delaware
- 23.) Wheatsheaf lane intercepting sewer
- 24.) Torresdale intercepting sewer
- 25.) 9th, Butler, and 10th, from Tioga to Luzerne
- 26.) Creshheim intercepting extension

XV. Branch Sewers and Inlets

- A. \$20,000 appropriated for branch sewers and inlets
- B. \$5,000 appropriated for reconstruction of inlets

Pg.90

XVI. Summary of Work upon Sewers

- A. Total number of main sewers under construction was 26, some were carried over from last year

XVII. Sewer Connections and Records

- A. Sewer connections of 6,078 buildings were authorized during the year, which involved issuing 3,155 permits

Pg.92

- B. 418 drains were connected with the Manayunk intercepting sewer and its branches
- C. 267 plans of main and branch sewers were received from District Surveyors

Pg.93

XVIII. General Plans for Improvement

- A. Planned improvements include both special and general engineering problems involving the revision and extension of the street system throughout the City

Tables

- A. Pg.80- Frankford Intercepting System Main Sewer in Wakeling Street from terminus north of Tacony street to Ditman
- B. Pg.82- Junction Chamber for main sewer in Pratt St. Saul St. and Foust St. from Present terminus near Leiper to Oakland
- C. Pg.86- Main Sewerage Systems of the City of Philadelphia

D. Pg.88- Diagram Showing Length of Completed Sewers

Pg.101

XIX. City Datum

A. An investigation has been made to determine the origin of "City Datum", the base to which all elevations used in City work are referred

Pg.102

B. An effort has been made to determine the elevation of City datum with reference to the base of the United States Coast and Geodetic Survey, which is mean tide at Sandy Hook

XX. Rainfall Discharge and Tide Observations

A. 6 automatic pluviometers have been observed and the records which have been obtained have been compiled

B. Average rainfall from 1890 to 1904 is 41.52 inches

Pg.103

C. Tidal observations were continued at Arch street wharf, Delaware River

D. Tables

1.) Pg.104- Rainfall (in Inches) in City of Philadelphia during 1904

2.) Pg.105- Details of Most Severe Storms

Tables

A. Pg.102- Diagram of Tides for 1904 at Arch Street Pier

Pg.119

XXI. Deepening the Delaware River

A. Department of Public Works has no connection at the present time with the actual work of deepening the Delaware River, but as extended money for the improvement

B. The lower reaches of the river, between Bombay Hook Point, which is the head of the Bay and Penn's Neck, which is about 38 miles from Philadelphia, a minimum width of the channel of 600 feet, and a depth of 30 feet below low water, has been obtained

Pg.120

C. The work at Schooner Ledge has been continued by the Government

XXII. Improvement of the Channel of the Schuylkill River

A. City of Philadelphia has appropriated funds for improvement of Delaware and Schuylkill rivers jointly, or for just the Schuylkill since 1904

B. Attention has been paid mostly to the Schuylkill, which comprised deepening that portion of the Schuylkill between its mouth and a point about 500 feet north of Penrose Ferry bridge

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XXIII. Removing the Wreck of the Steamship "Bermuda"

A. On August 15, 1900, the steamship "Bermuda," formerly engaged in the fruit service and later in filibustering expeditions to Cuba, sank at her moorings in the dock adjacent to Pier No.19 North Wharves

B. After several attempts to raise her, she was finally abandoned in October, 1901

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Tables

A. Pg.132- Main Sewers

- B. Pg.134- Length and Cost of Main Sewers Built during the Year 1904
 - C. Pg.140- General Statement of Work done by District Surveyors during the Year 1904
 - D. Pg.142- Branch Sewers
 - E. Pg.145- Summarized Statement of Branch Sewers Built during the Year 1904
 - F. Pg.146- Statement of Inlets Built with and Without Grate Tops, Inlets Rebuilt, Removed and Rebuilt at Other Places, Curved Granite Curb, Sewer Spurs, Masonry, etc., in Connection with Old Sewers, during the Year 1904
 - G. Pg.147- Length and Cost of Branch Sewers Built during the Year 1904
- LIST OF TABLES INCOMPLETE

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I. Main Sewers

- A. Two important works properly classes as maintenance
 - 1.) for reconstruction and relief of the Cohocksink sewer, \$50,000
 - 2.) for repairs and improvement of old sewers, \$15,000
- B. Appropriation of \$700,000 in July, 1904 for purpose of constructing main sewers
- C. All main sewers authorized had been placed under contract, with exception of Ogontz Avenue
- D. Construction of a deep sewer in Market street planned
- E. Detailed statement of work performed on main sewers authorized and placed under construction

Pg.55

- 1.) Castor road, from northeast of Harrison to Pratt, thence in Pratt to Summerdale, then in Summerdale to Sanger, \$22,944.00
- 2.) Eastwick, from 64th to 60th, from Eastwick to Gibson, \$23,029.74
- 3.) Indian Run sewer, branch in Lebanon from Indian Run near 69th to east of 67th, \$12,000
- 4.) Magee street extension from west of Delaware to a point near Bulkhead line and from Milnor street west to Torresdale, \$37,576

Pg.56

- 5.) Rock Run sewer in Ashdale, from the P.N.&N.Y.R.R. to 5th, \$31,000
- 6.) 60th, from Cobb's creek to Trinity in Trinity, from 60th to 59th, and in 59th, from Trinity to Chester Ave., \$17,709.54
- 7.) 12th from Lombard to Locust, \$18,009.01

II. Intercepting System

- A. Real estate improvements, in Manayunk and the Falls of Schuylkill make it incumbent upon the City to provide adequate means of drainage so as not to retard this development

Pg.57

- B. Main Intercepting sewer has been performing a greater duty than it was designed for
- C. Construction has begun
 - 1.) Wissahickon High Level sewer along the Wissahickon creek, from above Hartwell Ave. to Rex Ave., the Cresheim creek intercepting sewer, from Moreland, north along a drainage street to Willow Grove, to 25th, to Hartwell, to stream east of 25th
 - 2.) Pollution of inland streams and need for drainage into nearest outlet has present number of problems

- 3.) Solution is to provide intercepting sewers along the more important streams, to collect drainage and discharge it. Examples are Cobb's creek and Frankford creek

Pg.58

- 4.) Detailed report of construction carried on within intercepting system
- 5.) Wissahickon High Level cut off sewer in 24th and through private property along line of 24th from Indiana street to the P.G.&N.R.R., \$18,679.68

III. Wingohocking Creek System

- A. System is so large that scarcely a year passes without something done upon the extension of one of them
- B. Extensions are required to meet demands of building improvement
- C. During the present year, an extension was made to the main stem of the Wingohocking creek sewer in Annsbury street, from the terminus near 6th to the North Penn railroad

Pg.59

- D. Another branch to the Wingohocking creek sewer was constructed in 9th, from Courtland to Wyoming, to 11th, to Loudon, to 12th, to Ruscomb, \$17,068.80
- E. Wingohocking creek sewer in Annsbury, from near 6th to the North Penn railroad, \$15,040

IV. Drainage in the Southern Section of the City

- A. Necessity for providing houses to meet the growth of population has brought property in the south section of the City into great demand (accessible from business center of City)
- B. Availability of this land is dependent upon City providing means for drainage

Pg.60

- C. Several sewer systems are under construction or projected to meet these demands, among them being the McKean street relief sewer, between Swanson and Broad,
- D. The sewer should be extended from its present terminus, on Broad street, to Mifflin street, thence west and north to 16th and Tasker
- E. Work upon sewer in Porter, from Front to Moyamensing was carried to completion, and addition to this sewer will be the extension of the main outlet along the line of Porter street, from Front to Delaware river
- F. The work of constructing the main sewer in Jackson street, west of the Schuylkill river was continued, but additional appropriations must be made before this system can become effective, it must be extended from 36th to 29th and north on the latter street to Morris
- G. Construction work of the year
 - 1.) Jackson street, from 354 feet west of the Schuylkill Ave. to 36th, \$19,860.37
 - 2.) McKean street, from 12th to Broad, \$23,253.76

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- 3.) Shunk street sewer system, extension in Porter from Stone House lane to Moyamensing Ave., \$68,792.92

V. Frankford Intercepting System

- A. Frankford Intercepting System is one of most comprehensive in the City
- B. Object is the restoration of the Frankford creek to a sanitary condition
- C. Diverts the flow of the Little Tacony creek from the natural channel into the Frankford creek
- D. This work will be followed by the construction of a large sewer in Wheat Sheaf lane, from the Delaware river to Frankford Ave., and thence along Frankford creek to its junction with the Wingohocking creek
- E. An intercepting sewer to gather drainage from existing sewers is intended to be constructed along Frankford creek, allowing only storm water to find its way into Frankford creek

Pg.62

- F. Work has been continued on the large sewer in Wakeling from Tacony to Ditman, and on the upper end of the system on Pratt, Saul, and Foust to Oakland
- G. Detailed statement
 - 1.) Frankford Intercepting Sewer System in Wakeling, from north of Tacony to Ditman, \$27,304.80
 - 2.) Pratt street sewer extension, from near Leiper to Saul, in Saul to Foust, in Foust to Oakland and east in Oakland to stream, \$26,515.20

VI. Cohocksink System

- A. Appropriated work of reconstructing worn out portions of the Cohocksink sewer, \$50,000
- B. Funds have been expended in the total reconstruction of the sewer on Dauphin street, between 12th and Broad

Pg.63

- C. With funds provided from the sewer loan of 1904, the portion of the sewer in Front, from Wildey to Girard, and in Girard, from Front to Mascher was reconstructed
- D. Examinations along the line of this system show the necessity of reconstructing those portions in Montgomery Ave., from 6th to Randolph, and in Randolph, from Montgomery to Columbia
- E. Appropriated for the repairs, reconstruction, and improvement of old sewers, \$15,000, which was applied principally to reconstructing sewer in Mascher, north of Thompson
- F. Section of Cohocksink sewer in Thompson, between Lawrence and 5th, begun in 1904, was also completed
- G. Detailed statement

Pg.64

- 1.) Cohocksink sewer relief and reconstruction in Girard, from Mascher to Front, and in Front, from Girard to a point near Wildey, \$35,127.17
- 2.) Cohocksink sewer reconstruction and relief in Montgomery Ave., from east side of Marshall to 24 feet east of 9th, \$49,895.02
- 3.) Cohocksink sewer reconstruction and relief in Dauphin, from 12th to Broad, \$32,319.06
- 4.) Repairs, reconstruction and improvement of old sewers, under the general contract for 1904

5.) Work done under this contract during 1905 consisted in the reconstruction of Cohocksink sewer in Thompson at Lawrence where a break occurred on November 14, 1904, \$4,859.07

Pg.65

6.) Repairs, reconstruction, and improvement of old sewers under the general contract for 1905, work was prosecuted at the following locations

- a.) Reconstruction of the Cohocksink sewer in Thompson, from west of Lawrence to east of 5th, \$5,100.96
- b.) Construction of well-hole and connections thereto at the northeast corner of Tasker and 9th and miscellaneous work upon manholes along the line of Cohocksink sewer, \$340.74
- c.) Rectification of channel of the Frankford creek at Powder Mill lane, \$238.90
- d.) Reconstruction of Mascher street branch of Cohocksink sewer, from Thompson north, \$9,319.25
- e.) Total cost of all work done under this contract during the year was \$14, 999.85

VII. Market Street Subway Sewers

- A. Construction and reconstruction of sewers in connections with Market street subway was continued during the year, east of 17th
- B. Embraced the construction of the diversion sewer in Mole, Ranstead, and 15th streets, south of Market, between 15th and 16th

Pg.66

C. Work and inspection were without cost to the City

VIII. The State Department of Health

- A. An Act of Assembly of the State of Pennsylvania, created a Department of Health, and provided for the appointment by the Governor of a Commissioner of Health
- B. On of the duties of the Commissioner and of municipalities
 - 1.) Sect.6: report a sewer system, which comprises facts and information as the Commissioner requires, no sewer system is exempt

Pg.67

- C. Plans of sewerage systems of the City were filed in accordance with this act on October 2, 1905
- D. Act gives Commissioner power over all the waters of the State
- E. the effect of the act may entail great expense upon municipalities, but will improve sanitary conditions of streams

IX. Branch Sewers and Inlets

- A. There was appropriated for branch sewers and inlets, \$175,000
- B. Number of new contracts drawn for branch sewers was 127
- C. 155 contracts completed
- D. 19.577 miles of branch sewers constructed at public expense
- E. \$5,000 appropriated for reconstruction of inlets
- F. contracts were entered into for construction and reconstruction of inlets, curbing, laterals, manholes, etc., \$25,554.83

Pg.68

- G. work accomplished the construction and reconstruction of 211 inlets
- X. Summary of Work Upon Sewers
 - A. Total number of main sewers under construction, some of which were carried over from last year, was 21
 - B. Total length of all sewers built and inspected was 32.473 miles
- XI. Sewer Connections and Railroads
 - A. Sewer connections of 8,778 buildings were authorized during the year, 2,962 permits

Pg.70

- B. 511 drains were connected with Manayunk Intercepting sewer and its branches, inspected by the supervisors of the Intercepting Sewer
- C. 304 plans of main and branch sewers received from the District Surveyors
- D. 22 plans of lateral pipes put in old sewers were also returned
- E. Indexing of Inspectors' books have been continued, number received during the year was 256, total now in use is 6,767
- F. All moneys paid at office of Receiver of Taxes
- XII. Graphs
 - A. Pictures
 - 1.) Pg.62- Sewer Section at Pratt and Saul Streets, 12 Feet, 9 Inches Diameter
 - B. Diagrams
 - 1.) Pg.54- Main Sewerage Systems of the City of Philadelphia
 - 2.) Pg.56- Rock Run Sewer in Ashdale Street from Philadelphia, Newtown, and New York R.R. to 5th
 - 3.) Pg.64- Sheet No.1, Reconstruction of Cohocksink sewer in Girard Ave. from Mascher to Front thence south on Front to a point near Wildley
 - 4.) Diagram Showing Length of Completed Sewers- Main and Branch

Pg.77-80

Pg.77

- XIII. Rainfall, Discharge, and Tide Observations
 - A. Interesting too note the differences in the amounts of the monthly rainfall in different sections of the City
 - B. Average precipitation for the year in all parts of the city is 39.85 inches
 - C. U.S. Weather Bureau gives the average for the year 41.61 inches
 - D. Neighborhood of 9th and Berks, which was usually flooded, was free from flooding (Berks street sewer was finished, relieving the Norris and 9th sewers)

Pg.78

- E. High tide lower than usual mean- 2.54
- F. Mean low tide- 7.40
- G. Between Dec.5 to Dec.10 high tide was 5.71 and low tide was 7.26, a variation of only 1.55 feet, which is rare
- H. First 3 months of year were extremely cold, accumulated deficiency in temperature on March 1 was 25 degrees- no tides recorded during this period
- XIV. Graphs

- A. Pg.79- Diagram of Tides for 1905 at Arch Street Pier
- B. Pg.79- Rainfall (in Inches) in City of Philadelphia during 1905
- C. Pg.80- Details of Most Severe Storms

Pg.91-93

Pg.91

XV. Improvement of the Channel of the Delaware River

- A. Last work done under the City of Philadelphia toward improving the channel of the Delaware River, consisted in the formation of a channel 26 feet deep t a mean low water and 600 feet wide through shoals along Tinicum Island range, complete in 1902

Pg.92

- B. Necessity of having deep water channel brought up to the City and the lack of further appropriations by the U.S. to this end caused this to be brought to attention of State Legislature and resulted in Act of Assembly, May 8,1905, \$375,000
- C. Plans of work submitted by his Honor, the Mayor, to the Secretary of War, with request that City be allowed to proceed
- D. License was granted by Secretary of War, October 23, 1905
- E. Formation of a channel 30 feet deep and 600 feet wide
- F. Work divided into 5 sections

XVI. Map- Pg.92, Map of the Delaware River Showing Sites of the Dredging for the Proposed 30-foot Channel by the City of Philadelphia

Pg.93

XVII. Removal of the Wreck of the Steamship Bermuda

- A. Work on the removal of this wreck to resume in early Spring, but then abandoned by its contractor, Lewis H. Darling
- B. Work on the contract is still underway

Pg.107-160

XVIII. Tables

- A. Pg.107-109- Main Sewers
- B. Pg.110-114- Length and Cost of Main Sewers Built During the Year 1905
- C. Pg.115-116- General Statement of Work Done by District Surveyors During the Year 1905
- D. Pg.117-119- Branch Sewers
- E. Pg.120- Summarized Statement of Branch Sewers Built During the year 1905
- F. Pg.121- Statement of Inlets Built with and without Grate Tops, Inlets Rebuilt, Removed and Rebuilt at Other Places, Curved Granite Curb, Sewer Spurs, Masonry, etc., in Connection with Old Sewers, During the Year 1905
- G. Pg.122-160- Length and Cost of Branch Sewers Built during the Year 1905

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Pg.50-67, 83-87, 89-93
(Incomplete: see also p 94, 105-150)

Pg.50-67

Pg.50

I. Main Sewers

- A. Appropriations for main sewers, \$404,000
- B. \$30,000 for repair and improvement of old sewers
- C. sewers were urgently needed

Pg.51

- D. December 6th, "Resolution to publish 'An Ordinance to authorize the negotiation of the loan'", allows City to build many main sewers which have been considered important in developing the City
- E. Detailed sewer of work on main sewers

- 1.) Castor Road from northeast of Harrison street to Pratt street, thence in Pratt street to Summerdale street, thence in Summerdale street to Sanger street, \$7,479.71
- 2.) Magee street extension from west of Delaware Ave. to a point near the Bulkhead line; and from Milnor street west to Torresdale Ave., \$65,585.52

Pg.52

- 3.) Market street sewer reconstruction from 33rd to 36th, and in 33rd from Market street south about 40 feet, \$20,000
- 4.) Rising Sun from Hutchinson street to 9th, in 9th from Rising Sun to Erie, \$15,000
- 5.) Rock Run Sewer in Ashdale street from P.N.&N.Y.R.R. to 5th, \$47,834.58

Pg.53

- 6.) Thomas Run System in Florence from 57th to 54th, in 54th from Florence to Willows, in Willows from 54th to 53rd, in 53rd from Willows to the line of Hadfield street, and thence along line of Hadfield street across private property to present sewer at the W.C. and Phila.R.R., \$20,000

II. Intercepting System

- A. Bureau has given its attention largely to the planning of drainage systems to improve the sanitary condition of the larger streams within the City which have become polluted
- B. Act of Assembly has given the State large powers to preserve purity of waters of the State
- C. City has endeavored to keep pollution from Wissahickon creek, its tributaries, and the Schuylkill River

Pg.54

- D. Intercepting system along Cobb's creek is projected
- E. Work on all intercepting sewers is urgent
- F. Detailed report of construction
 - 1.) Wissahickon High Level cut-off sewer in 24th street, and through private property along the line of 24th street from Indiana street to the P.G. and N.R.P., \$25,074.60

Pg.55

- 2.) Wissahickon High Level Intercepting sewer cut off across private property in line of 24th and in Stokley from present terminus at Norristown Branch of the P. and R. Ry. To Richmond Branch of the P. and R. Ry., \$35,000
- 3.) Wissahickon Low Level Intercepting sewer along the Wissahickon creek through Park property, from a point south of Rittenhouse lane, \$50,000
- 4.) Cresheim Creek Intercepting Sewer System in proposed drainage street from Moreland to Willow Grove, \$15,000
- 5.) Cobb's Creek Intercepting Sewer, on the line 75th street, from Cobb's creek to Gray's Ave., in Gray's, from 75th to Island, in Island, from Gray's to Woodland, thence on the east side of Cobb's creek through opened and unopened streets, and through private property from Woodland north, \$75,000

Pg.56

- 6.) Frankford Intercepting Sewer System in Wakeling from north of Tacony to Ditman, \$66,960
- 7.) Frankford Intercepting Sewer System in Wakeling from Ditman to Cottage, \$40,000

Pg.57

- 8.) Pratt street sewer extension from near Leiper to Saul, in Saul to Foust to Oakland, and east in Oakland to stream, \$77,916.99

III. Wingohocking Creek System

- A. Wingohocking Creek System is intimately connected with the Frankford Creek System
- B. Flow of sewage from this territory enters Frankford creek, and must be diverted through other channels into the Delaware River before Frankford creek can be relieved from its present pollution
- C. Work placed under contract for new extensions
 - 1.) Extension of sewer in Ogontz Ave., from terminus at Olney Ave. to drainage street north of Chew street, \$20,203.30

Pg.58

- 2.) 9th, from Courtland to Wyoming, in Wyoming from 9th to 11th, in 11th, from Wyoming to Loudon, and in Loudon from 11th to 12th, \$22,418.23

IV. Drainage in the Southern Section of the City

- A. Work upon the McKean street relief sewer was carried almost to completion

- B. As opening of streets and number of buildings in this territory are multiplied, demands are made upon the bureau for drainage
- C. To provide drainage, main sewer must be built in Shunk, from Front to Broad
- D. Southwestern section of City, 4,000 acres of lowland presents a serious drainage problem

Pg.59

- E. Work accomplished
 - 1.) Jackson street sewer extension, from present terminus at 36th, eastward to 32nd, \$30,000
 - 2.) McKean street relief sewer, in Broad, from McKean to Mifflin , in Mifflin from Broad to Rosewood, in Rosewood from Mifflin to Moore, in Moore from Rosewood to Hicks, in Hicks from Moore to Tasker, and in Tasker from Hicks to 16th, \$25,000

V. Cohocksink System

- A. Appropriated for reconstruction of portions of Cohocksink sewer by Ordinance of December 26, 1905, \$25,000
- B. Utilize \$10,000 for completion of work under construction in Dauphin between 12th and Broad
- C. \$15,000 used for reconstructing sewer in Thompson, between 5th and Randolph

Pg.60

- D. Sewer unstable at Montgomery, from 6th to Randolph, and in Randolph, from Montgomery to Columbia
- E. Ordinance of December 26, 1905, \$15,000 for repair and improvement of old sewers, applied in the main to the reconstruction of sewer in Mascher street, from north of Thompson street to north of Master street
- F. Ordinance of May 22, 1906 carried appropriation for old sewers of \$15,000, utilized for reconstruction of sewers through Commercial Museum Grounds in West Philadelphia
- G. Pennsylvania Railroad Company arranged to build and pay for part of sewer under its tracks, City bearing expense of portion between railroad property and west bank of Schuylkill
 - 1.) Cohocksink sewer reconstruction and relief in Thompson, from 5th to Randolph, \$8,124.56

Pg.61

- 2.) Cohocksink sewer reconstruction and relief in Dauphin, from 12th to Broad, \$67,507.25

Pg.62

VI. Reconstruction of Old Sewer Through Commercial Museum Grounds and Other Property West of Schuylkill River

- A. Work in progress, portion of sewer will be built at cost of Pennsylvania Railroad Company

VII. Market Street Subway Sewers

- A. Sewers constructed by Philadelphia Rapid Transit Company
 - 1.) Market, between Delaware and Front
 - 2.) Market, between Front and 8th

- 3.) South side of Market, from east of 15th to Broad, and in Broad southward of Market

Pg.63

VIII. The State Department of Health

- A. In compliance with the Act of Assemble of April 22, 1905, The Bureau forwarded to Harrisburg a plan showing the existing sewer systems in the city
- B. Discussion as to the best means of securing a practical compliance therewith
- C. Willingness of the City to work in harmony with the Department to secure results aimed at by the Act
- D. Plans for disposition of sewage are so complex that they can be considered a separate proposition from maintenance of drainage facilities, and the extension of the existing systems

IX. Branch Sewers and Inlets

- A. Number of new contracts drawn for branch sewers was 137
- B. 11 contracts completed
- C. 15.664 miles of branch sewers completed at public expense
- D. total expense- \$355,677.62
- E. Appropriated for reconstruction of inlets, \$5,000
- F. Construction of inlets, curbing, laterals, manholes, etc., \$15,000

Pg.65

X. Summary of Work Upon Sewers

- A. Total number of main sewers under construction, 21- 2 were intercepting system
- B. Total length- 25.046 miles

XI. Sewer Connections and Records

- A. Sewer connections of 10,530 buildings were authorized during the year, 3,152 permits issued

Pg.66

- B. 483 drains were connected with Manayunk Intercepting Sewer and its branches

XII. Graphs

- A. Pg.50- Main Sewerage Systems of the City of Philadelphia
- B. Pg.64- Diagram Showing Length of Completed Sewers
 - 1.) Main sewers
 - 2.) Branch Sewers

Pg.83-87

Pg.83

I. Rainfall, Discharge and Tidal Observations

- A. Average precipitation in all parts of the city is 53.65 inches
- B. U.S. Weather Bureau gives to the average for the year 51.87 inches
- C. Rainfall this year was outcome of long continued storms, with few severe storms
- D. Most severe storms
 - 1.) June 16th
 - 2.) July 3rd
 - 3.) August 3rd

- E. Longest continuous rain happened on April 8th and 9th, 24 hours
- Pg.84
- F. Tidal observations were continued at Arch Street Pier
 - G. High tides registered lower than last year
 - H. Mean high tide- 2.60
 - I. Mean low tide- 7.66
 - J. Mean high tide for past 7 years- 2.39
 - K. Mean low tide for same period- 7.55
 - L. Variation of tides for last 7 years is 5.16 feet, established variation is 6.27 ft
 - M. During months of January, February, and part of March the recording float was frozen and no record could be obtained

II. Graphs

- A. Pg.85- Rainfall (in Inches) in City of Philadelphia during 1906
- B. Pg.86- Details of Most Severe Storms
- C. Pg.86- Relations between Intensity and Duration of Rainfall as shown by Pluviometer Records
- D. Pg.87- Intensities of Rainfall and Maximum Flow in Sewer, 13 ft., 0 in. Diam., 7th Survey District

Pg.89-94

Pg.89

- I. The Improvement of the Channel of the Delaware River
 - A. Act of Assembly of May 8, 1905, \$375,000 for Deepening and Improving the Channel of the Delaware river between the City of Philadelphia and Delaware bay
 - B. Act completed in order to satisfy public demand that channel completed ASAP
 - C. This sum limited the deposit of material dredged from the channel to the State of Pennsylvania
 - D. After rejection of proposals, changes were made in the specifications to admit all methods of dredging

Pg.90

- E. Single proposal received on June 14th covered but two of the five sections into which the work was divided, it was rejected
- F. Considerable agitation and discussion arose as to great advisability of depositing the dredgings in the State of Pennsylvania only

Pg.91

- G. Proposals received from four parties were for tracts in accessible to the Government plant, and were not accepted
- H. New set of Dredging Specifications was prepared and advertised for proposals to be received August 15th
- I. Lowest of the four bids was from the American Dredging Company, \$430,400
- J. Matter of award was held in abeyance and award made only after the passage of an ordinance on Oct.15th,1906

Pg.92

- K. Contractors have been forming a basin for the reception of the dredged material on the New Jersey shore behind the lower end of Chester Island

- L. The U.S. dredging plant was overhauled and put on the City's work, covering that portion of the river channel in front of Tinicum Island, also across Ft. Mifflin Bar and extending into the horse shoe to a point opposite Red Bank
- M. On August 16th the grapple dredge "Hell Gate" was placed in position on Tinicum Island range

Pg.93

- N. Paid by the City on account of Government work, for materials furnished and operating expenses, \$61,361.60
- II. Removal of the Wreck of the Steamship "Bermuda"
- A. The wreck was sunk at Pier 10 North Wharves, on August 15th, 1900
 - B. The rate at which records are accumulating and the necessity of keeping them available for instant reference, requires the use of a system which has outgrown the space at the Bureau's disposal

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Pg.45

Main Sewers

A. \$257,400 available for construction of main sewers

Pg.46

B. \$193,000 apportioned among 9 sewers

C. Detailed summary of work on main sewers

1.) Bingham sewer extension from Loudon to Wyoming, in Wyoming from Bingham to "B", \$14,500

2.) Market sewer reconstruction from 33rd to 36th, and in 33rd from Market south about 40 feet, \$20,000

Pg.47

3.) Market sewer reconstruction from present terminus east of 36th to 36th, \$4,500

4.) 9th sewer from Erie to Butler, in Butler to 10th, and in 10th from Butler to Luzerne, \$25,000

5.) Pine sewer (Schuylkill outlet) reconstruction, \$25,000

6.) Rising Sun from Hutchinson to 9th, in 9th from Rising Sun to Erie, \$15,000

Pg.48

7.) Thomas Run sewer system in Florence from 57th to 54th, in 54th from Florence to Willows, in Willows from 54th to 53rd, and in 53rd to line of Hadfield, \$20,000

8.) Thomas Run sewer system extension in Florence from present terminus near 55th to 54th, in 54th from Florence to Willows, in Willows from 54th to 53rd, in 53rd to line of Hadfield, and in line of Hadfield across private property to the West Chester and Philadelphia Railroad, \$24,000

Pg.49

9.) Whitaker from Rockland to Loudon, in Loudon from Whitaker to Bingham, and in Bingham from Loudon to Wyoming, \$20,000

10.) Reconstruction of old sewer through the Commercial Museum grounds and other private property west of the Schuylkill River, \$15,000

Pg.50

I. Intercepting Systems

A. Sufficient to construct a culvert over a stream or to enclose it in a conduit

B. Now, as city spread, conduits were extended until they terminated at banks of bordering rivers

C. Rendered unsanitary streams short distances away from built-up sections

D. In order to preserve purity of streams, method of using intercepting sewers was later adopted, known as the Intercepting System, distinction from water carriage or combined system

Pg.51

E. Detailed report of construction carried on within the territory embracing the intercepting systems

- 1.) Cresheim creek intercepting sewer in proposed drainage sewer from Moreland to Willow Grove, \$15,000
- 2.) Cobb's creek intercepting sewer on the line of 75th from Cobb's creek to Gray's, in Gray's from 75th to Island, in Island from Gray's to Woodland, thence on the east side of Cobb's creek through streets and through private property from Woodland North, \$75,000
- 3.) Frankford intercepting sewer in Wakeling from North of Tacony to Ditman, \$93,000

Pg.52

- 4.) Frankford intercepting sewer in Wakeling from Ditman to Cottage, \$40,000
- 5.) Wissahickon high level intercepting sewer cut-off across private property in line of 24th and in Stokley from present terminus at Norristown Branch of the P.&R.Ry. to the Richmond Branch of the P.&R.Ry., \$35,000

Pg.53

- 6.) Wissahickon high level intercepting sewer cut-off in Stokley from south of Hunting Park to Juniata, \$50,000
- 7.) Wissahickon low level intercepting sewer extension along Wissahickon creek and through Park property from the west bank of said creek at Rittenhouse north to Walnut lane, \$50,000
- 8.) Wissahickon low level intercepting sewer extension along the Wissahickon creek through Park property from a point south of Rittenhouse lane, \$36,500

Pg.54

II. Wingohocking Creek System

- A. Extension of sewers in Wingohocking creek area has constituted a large proportion of the main sewer work
- B. Main item of importance is beginning work upon the Wheatsheaf lane intercepting sewer, which has a marked bearing upon future sanitary improvement of the Wingohocking creek, Frankford creek and rock run
- C. One extension in progress
 - 1.) 12th, from Loudon to Ruscomb, \$8,500

III. Cohocksink Sewer

- A. \$25,000 for Cohocksink relief sewer
- B. \$15,000 appropriated for repairs, reconstruction, and improvement of old sewers

Pg.55

C. Description of work upon Cohocksink sewer

- 1.) Cohocksink sewer reconstruction and relief in Thompson from 5th to Randolph and at other points
- 2.) Repairs, reconstruction and improvement of old sewers
 - a.) Reconstruction of the branch of Cohocksink sewer in Mascher from a point 177 feet north of Master to a point 110 feet north of Jefferson

- b.) Reconstruction of Cohocksink sewer at the break, on Thompson at Leithgow

Pg.56

- c.) Construction of miscellaneous repair work along line of Cohocksink sewer at various locations

IV. Drainage in the Southern Section of the City

- A. Development of a large city follows the lines of least resistance
- B. Value of land for urban development is directly proportional to its nearness to the centre of business
- C. One of most urgent main sewers in this section is that proposed on Shunk street from Front to Broad

Pg.57

- D. Continue work on the Jackson main sewer, discharging into the Schuylkill
- E. Work upon McKean street relief sewer carried on for years, is now complete- resulting in giving satisfactory drainage in the territory affected
- F. Work accomplished on sewers in southern section
 - 1.) Jackson sewer extension from 36th to 32nd, \$30,000
 - 2.) Jackson sewer extension from 33rd to 29th, \$30,000
 - 3.) McKean street relief sewer in Broad from McKean to Mifflin, in Mifflin from Broad and Rosewood, in Rosewood from Mifflin to Moore, in Moore, from Rosewood to Hicks, in Hicks from Moore to Tasker, in Tasker from Hicks to 16th. \$25,000

Pg.58

V. Market Street Subway Sewers

- A. Sewer work in connection with construction of Market street passenger railway subway has been in active progress
- B. Sewer on south side of Market almost complete between Delaware river and 13th, and on north between Delaware river and 10th
- C. Total length built is 8,162 lineal feet

Pg.59

VI. The State Department of Health

- A. Harmony of action between the Bureau and the State Department of Health
- B. Most important disposal works in the easterly portion of the country were visited and examined, and data was collected on subject of disposal;
- C. Testing station near Spring Garden Pumping Station was transferred to Bureau of Surveys- it dismantled in part, and partially destroyed by fire
- D. City to restore it to pump sewage from the intercepting sewer along East Park Drive to the station

Pg.60

- E. Contracts made
 - 1.) Restoring burnt portion of the station, \$3,000
 - 2.) Furnishing and erecting cast iron force main, \$2,200

VII. Branch Sewers and Inlets

- A. Ordinance for branch sewers and inlets, \$5,000
- B. Number of new contracts for branch sewers was 169, 150 contracts completed
- C. 21.299 miles of branch sewers at public expense, \$580,878.77

- D. Ordinance for reconstruction of inlets, etc., 5,000
- Pg.61
- E. Contract for construction of inlets, curbing, laterals, manholes, etc., \$20,000
 - F. Contract for reconstruction of inlets, \$5,000
 - G. Work built 223 inlets, 2,390.72 feet of curbing, 5,598.00 linear feet of lateral sewer connections
- VIII. Private Sewers
- A. 75 contracts for construction of sewers at private cost under the City
 - B. 46,445 lineal feet, 8.797 miles of branch sewers
- IX. Summary of Work Upon Sewers
- A. Total number of main sewers under construction was 24
 - 1.) 8 intercepting sewers
 - 2.) 7 reconstruction
- Pg.62
- 3.) total length of all sewers built, 34.701 miles
 - B. All contracts executed have required use of Portland cement in all construction
 - C. Prior to 1907 Portland and natural cements were specified for various classes of work, particularly branch sewer construction
- X. Sewer Connections and Records
- A. Sewer connections of 11,001 buildings were authorized
 - B. 2,734 permits
- Pg.64
- C. 589 drains connected with Manayunk intercepting sewer and its branches
 - D. Bureau of Water, Highways and Health have been furnished with a daily list of all permits issued
 - E. 297 plans of main and branch sewers were received from District of Surveyors
 - F. 25 plans of lateral pipes put in old sewers were returned
 - G. Indexing of Inspectors' books has been continued
 - 1.) 249 received
 - 2.) 7,203 now in use
 - H. 3 inspectors of drain connections and two supervisors of Manayunk intercepting sewer have been on duty during the year
 - I. Receipts of the Bureau from all sources were \$38,839.99
- XI. Rainfall, Discharge and Tidal Observations
- A. City has placed four stream gauges in different sections, and their utility and importance have been demonstrated so that more will be installed
 - B. Velocity of water corresponded to results given by Kutter's formula for flow of water in open and closed channels
 - C. Limitations of the accepted formulae for run-off in sewers has long been recognized by municipal engineers, and the need for a more accurate formula for application has been felt
- Pg.66
- D. Tidal observations were continued at Arch St. Pier
 - E. High tides were low, on account of prevailing westerly winds
 - F. Mean high tide is 2.25

- G. Mean low tide is 8.52
 - H. New low water plane 7.50
 - I. Variation of tides for last 8 years is 5.10 feet, established variation is 6.27
 - J. Weather conditions have been variable
 - K. In March, temperatures in 90's, in April, snowstorm prevailed
 - L. Deficiency in temperature for the year was 276 degrees
- XII. Graphs
- A. Maps: Sewers/Systems
 - 1.) Pg.46- Main Sewerage Systems of the city of Philadelphia, total mileage of main sewers constructed and under contract: 177.69 miles
 - B. Tables/Diagrams
 - 1.) Pg.62- Diagram Showing Length of Completed Sewers
 - a.) Year
 - b.) Main Sewers
 - c.) Branch Sewers
 - 2.) Pg.66- Diagram of Tides for 1907 at Arch St. Pier
 - a.) 12 columns listing each month
 - b.) Upper Curve indicates weekly mean high water
 - c.) Lower curve indicates weekly low water
 - 3.) Pg.67- Table I- Rainfall (in Inches) in City of Philadelphia During 1907
 - a.) 1907
 - b.) South Philadelphia
 - c.) Central Philadelphia
 - d.) Manayunk
 - e.) Germantown
 - f.) Frankford
 - g.) West Philadelphia
 - h.) Average Rainfall
 - i.) U.S. Weather Bureau
 - 4.) Pg.68- Table II- Details of Most Severe Storms
 - a.) 1907
 - b.) record at Locality and District
 - c.) Precipitation, inches
 - d.) Duration, hours
 - e.) Mean Rate per hour, inches
 - f.) Maximum Rate per hour in Inches and Minutes
 - g.) Max fall in one hour, inches
 - 5.) Pg.69- Table III- Intensities of Rainfall and Maximum Flow in Sewer, 13 feet 0 Inches Diameter, 7th Survey District
 - a.) 1907
 - b.) 12th and Diamond Streets, Stream Gauge Records
 - c.) Pluviometer Records

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Pg.50-81

Pg.50

I. Main Sewers

A. Appropriations for construction of main sewers, \$805,500

- 1.) \$765,000 was apportioned among 22 sewers
- 2.) \$25,000 appropriated for the extension of the Dobson's Run sewage sewer
- 3.) \$14,000 is excess amount in appropriation for extension of Cobb's Creek Intercepting sewer and will be used for extension of this sewer

B. Detailed statement of work

- 1.) Bingham street sewer extension, from Loudon Street to Wyoming Ave., in Wyoming Ave., from Bingham Street to "B" street, \$14,500

Pg.51

- 2.) Gunners Run Relief Sewer in Indiana St., from Rosehill to Front, \$45,000
- 3.) Jasper St. sewer, from Frankford to Buckius St., \$14,850
- 4.) Market St. sewer reconstruction, from present terminus east of 36th to 36th, \$4,500

Pg.52

- 5.) 9th St. sewer, from Erie to Butler, in Butler to 10th, and in 10th, from Butler to Luzerne, \$25,000
- 6.) Extension of sewer in Oakland St., from present sewer northeast of Foust street to stream northeast of Vankirk St., \$29,000

Pg.53

- 7.) Pine St. sewer (Schuylkill outlet) reconstruction, \$25,000
- 8.) Extension of Rock Run System in Ashdale St., from present sewer at 5th to Fairhill St., and in Fairhill, from Ashdale to Fisher's, and in Fisher's, from Fairhill to 6th, \$55,000
- 9.) 64th Street sewer, from Vine to Millbourne Ave. and across private property to Cobb's creek, \$16,000

Pg.54

- 10.) 69th St. sewer, from Dick's Ave. to Elmwood Ave., \$16,000
- 11.) Thomas Run sewer system extension in Florence Ave., from present terminus near 55th St. to 54th St., in 54th, from Florence to Willows, in Willows, from 54th to 53rd, in 53rd to line of Hadfield Street, and in line of Hadfield St. across private property to the West Chester and Philadelphia Railroad, \$24,000
- 12.) Tulip St. sewer, from Westmoreland St. to Allegheny Ave., \$16,300

Pg.55

II. Intercepting Sewers

- A. First attempts were made by man to improve conditions about his dwelling by burying the offal and refuse which collected in the midden heap

- B. Nuisances created by dense populations in old world cities resulted in construction of drains to nearest water cities
- C. Demand for improved sanitation required that means be provided for carrying beyond the reach of habitations the foul discharges into nearby streams, to give at least temporary relief
- D. Sewers built and projected to intercept dry weather flow from existing water carriage sewers
- E. Built along east and west sides of Schuylkill river above the Fairmount Dam, and along the Wissahickon creek, and are under construction at Cob's creek, Frankford creek, and Pennypack creek

Pg.56

- F. Detailed work of construction
 - 1.) Cobb's Creek Intercepting sewer on the line of 75th St., from Cobb's creek to Gray's Ave., in Gray's, from 75th to Island Ave., in Island, from Gray's to Woodland, thence on the east side of Cobb's creek through streets and private property from Woodland Ave. North, \$75,000
 - 2.) Extension of Cobb's Creek Intercepting sewer in Cobb's Creek and Parkway, along east of Cobb's creek, from Woodland North, \$36,000

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- 3.) Extension of Cresheim Creek Intercepting System in Cresheim Valley, from the end of the present sewer south of Willow Grove to Stenton, \$31,000
- 4.) Frankford Intercepting sewer in Wakeling, from Ditman to Cottage, \$40,000

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- 5.) Extension of Frankford Intercepting System in Wakeling, from present sewer south of Cottage to Valley, and in Valley to present sewer North of Haworth, \$40,000
- 6.) Hartwell lane sewer, from the Wissahickon creek to Seminole, \$26,850
- 7.) Lincoln sewer, from Cresheim Valley to Navahoe, \$39,000

Pg.59

- 8.) Schuyler, from Roberts to Clapier, \$14,000
- 9.) Wissahickon High Level Intercepting sewer cut-off, across private property in line of 24th and in Stokley from present terminus at Norristown Branch to the Richmond Branch of the Philadelphia and Reading Railway, \$35,000
- 10.) Wissahickon High Level Intercepting sewer cut-off in Stokley, from south of Hunting Park to Juniata, \$50,000

Pg.60

- 11.) Extension of Wissahickon High Level Intercepting sewer cut-off and storm water sewer in Stokley, from Juniata to present storm water sewer northwest of Roberts, \$81,000
- 12.) Wissahickon Low Level Intercepting sewer extension along the Wissahickon creek through Park property, from a point south of Rittenhouse lane, \$50,000

Pg.61

13.) Wissahickon Low Level Intercepting sewer along Wissahickon creek and through Park property, from the West Bank of said creek at Rittenhouse street north to Walnut lane, \$36,500

III. Wingohocking Creek System

- A. Wingohocking Creek System carries a concentrated sewage into Frankford creek
- B. Purification of Frankford creek is important public project
- C. Planned extensions of main sewers in this system for ultimate purification

Pg.62

- D. One main sewer built in this system during the year
 - 1.) 12th, from Loudon to Ruscomb, \$8,500

IV. Cohocksink Sewer

- A. For repairs, reconstruction and improvement of old sewers ordinances applied \$5,000, \$15,000, and \$1,400 to the Cohocksink sewer
- B. Work prosecuted at two locations
 - 1.) Reconstruction of Cohocksink sewer in Thompson, from Leithgow to a point about 86 feet east of 4th

Pg.63

- a.) length and size rebuilt- 269 feet of 11 feet diameter sewer in place of the old 10 feet diameter sewer
- b.) \$20,917.58
- 2.) Reconstruction of laterals on Tasker, between 23rd and 24th, \$382.54

V. Drainage in the Southern Section of the City

- A. transition from truck farm to urban area

Pg.64

- B. No part of the City is destined to be more important in relation to its expansion than the low lying land south of Oregon Ave and between the Delaware and Schuylkill rivers
- C. Improvements will be seen in the South Broad Street Boulevard of League Island Park, the establishment of a Plaza at the beginning of the widened avenue, and the intention of the administration to improve river embankments
- D. Sewers must be started at the rivers
- E. One of the most urgent sewers under this heading is that proposed on Shunk street, from Front to Broad

Pg.65

- F. Sewer on Jackson and 29th was completed and put in service this year, \$30,000
- G. Extension of Jackson sewer, from present sewer east of 30th to 29th and in 29th, from Jackson to Morris, \$35,000

VI. The Boulevard Sewers

- A. To permit extension of Boulevard, need to construct number of sections

Pg.66

- 1.) Sewer in Oakland, from stream north of Benner to north line of The Boulevard, thence on private property to stream north of The Boulevard, \$20,000

- 2.) Sewer in Oxford Ave., from "R" to the south line of The Boulevard, \$13,000
- 3.) Sewer across The Boulevard, on line of Tyson and in The Boulevard, from Tyson to stream northeast, \$10,000

Pg.67

- 4.) Sewer in The Boulevard, from Faunce to Hartel, and appurtenant work, \$60,000

VII. Market Street Subway Sewers

- A. Work on sewers in connection with construction of Market subway active progress
- B. Principal work was upon sewer on the north side of Market, between Tenth and City Hall
- C. Work also done on intersections of Market, from Front to 13th

Pg.68

VIII. Investigations for more Sanitary Methods of Sewage Disposal

- A. For every sewer that is built by City of Philadelphia, an application must first be forwarded to that Department, and a permit obtained
- B. In Granting the permits for the sewer extensions, there are conditions
 - 1.) City of Philadelphia shall prepare and submit a plan for the collection, purification, and disposal of sewage
 - 2.) Existing systems shall not be at cross purposes with this plan
 - 3.) Progress shall be made during each year towards this end
- C. Director of Department of Public Works and Chief Engineer of City have visited all modern sewage disposal plants in eastern portion of country

Pg.69

- D. Conservation of public health by searching for the causes of disease and seeking to apply the remedy to the extermination of the cause
- E. Also investigating various methods for a more sanitary disposal of sewage

Pg.70

- F. Experimental Testing Station has been established, utilizing the Spring Garden Testing Station, \$7,500

Pg.71

IX. Branch Sewers and Inlets

- A. For branch sewers and inlets, \$1,000
- B. New contracts for branch sewers- 186
- C. 185 contracts completed (some carried over from previous year)
- D. 22.120 miles of branch sewers at public expense, \$608,017.35
- E. Contracted entered for construction, \$15,000

Pg.72

- F. Construction entered for construction and reconstruction of inlets, etc., \$13,000
- G. Construction and reconstruction of 167 inlets

X. Private Sectors

- A. 5.630 miles of branch sewers

XI. Summary of Work Upon Sewers

- A. 36 sewers under construction

- 1.) 11 intercepting
- 2.) 3 reconstruction
- 3.) total length= 35.432 miles

Pg.73

XII. Sewer Connections and Records

- A. Sewer connections of 7,897 buildings authorized, 2,919 permits

Pg.75

- B. 31 plans of lateral pipes put in old sewers
- C. 333 plans of main and branch sewers were received and registered

XIII. Rainfall, Discharge and Tidal Observations

- A. Sewers must meet requirements of rainfall, impermeable pavements, and tall buildings with high population
- B. Automatic stream gauges placed in sewers to record depth of flow and time of flood wave and fluctuations
- C. Tides
 - 1.) Mean tides for this year
 - a.) Low tide--7.87
 - b.) High tide--2.87
 - 2.) Mean tides for last 9 years
 - a.) Low tide--7.54
 - b.) High tide—2.45
 - 3.) Established planes for tides at Arch Street
 - a.) Low tide—7.50
 - b.) High tide—2.25
 - 4.) Variations of the tides for last 9 years is 5.09 feet
- D. Temperature had an excess of +565 degrees
- E. Last year was a deficiency of 276 degrees

XIV. Miscellaneous

A. Sewers/Systems

- 1.) Pg.50- Main sewerage systems of the City of Philadelphia, total mileage of main sewers constructed and under contract: 180.615 miles
- 2.) Pg.54- Sheet No.1-Main sewer in Devereaux, from Hegerman to Keystone in Keystone

B. Tables/Diagrams

- 1.) Pg.79- Table 1- Rainfall (in Inches) in City of Philadelphia During 1908
- 2.) Pg.80- Table 2- Details of Most Severe Storms
- 3.) Pg.81- Table 3- Intensities of Rainfall and Maximum Flow in Sewer 13 feet, 0 Inches in Diameter, 7th Survey District

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I. Main Sewers

A. \$627,500 has become available for the construction of main sewers

1.) \$527,000 apportioned among sixteen sewers

Pg.48

2.) \$30,000 apportioned for construction of Pennypack Creek Intercepting Sewer, adjacent to Pennypack creek, between Delaware River and Frankford Ave.

3.) Detailed statement of work on main sewers

a.) Botanic Creek System in 57th, from east of Gibson Ave. to Eastwick Ave., in Eastwick Ave. from 57th to 56th, and in 56th, from Eastwick Ave. to the Schuylkill river, \$38,000

b.) Clearfield St., from 12th to 16th, \$72,000

Pg.49

c.) Cottman street, from Delaware river to Tacony St., \$32,000

d.) Devereaux St. from Hegerman to Keystone, \$60,907.93

e.) Gunners' Run Relief sewer in Indiana St., from Rosehill to Front, \$45,000

Pg.50

f.) Gunners' Run Relief sewer in Indiana street, from west of "A" street to Hancock street, \$50,000

g.) Gunners' Run Relief sewer in 12th from Indiana to Clearfield streets, \$25,000

h.) Market street sewer extension, from east of 63rd to 63rd, thence south on 63rd street through private property to Cobb's creek, \$10,000

Pg.51

i.) Magee St., from Torresdale Ave. to Jackson St., in Jackson street, from Magee to Unruh and in Unruh from Jackson to Algard, \$45,000

j.) Rock Run System in Ashdale street from 5th to Fairhill St., in Fairhill St., from Ashdale St. to Fisher's Ave., in Fisher's Ave., from Fairhill to 6th, \$55,000

k.) Saul Street, from Pratt to Dyre, in Dyre from Saul to Akron, and in Akron, from Dyre to Oxford, \$10,000

Pg.52

l.) 3rd from Ashdale to Tabor, \$21,000

m.) Wyoming Ave., from Frankford creek to Adams Ave., \$30,000

II. Intercepting Systems

A. Sewer system of a large city is stamped with ideas of various decades which have passed into history

Pg.53

- B. Great percentage of increase in population has changed conditions to make it of prime importance in city development to conserve and protect the inter-city streams from pollution
- C. Work upon intercepting sewers for the accomplishment of results has been under way in various drainage basins: Cobb's creek, Wissahickon creek, Frankford creek, Cresheim creek, and Dobson's run

Pg.54

- D. Detailed report of construction
 - 1.) Bristol street, 29th and across private property, from south of Juniata street to Hunting Park Ave., and in Hunting Park Ave., from 29th to McMichael, \$30,000
 - 2.) Clapier from Schuyler northeast to offset in Schuyler, \$2,100
 - 3.) Cobb's creek intercepting sewer in Cobb's Creek Park and Parkway along east side of Cobb's creek, from Woodland Ave. North, \$36,000

Pg.55

- 4.) Cobb's creek intercepting sewer in Cobb's Creek Park and Parkway and adjacent to Cobb's creek through Mt. Moriah Cemetery, from near 68th North to Florence Ave., \$60,000
- 5.) Cresheim creek intercepting sewer in Cresheim Valley drive, from south of Willow Grove Ave. to Stenton Ave., \$31,350

Pg.56

- 6.) Dobson's Run intercepting sewer in Ontario, from Roberts' Ave. to Henry and across private property to south of Juniata, \$25,000
- 7.) Frankford intercepting system in Wakeling street, from Cottage street to Valley street, and in Valley, to Howarth, \$40,000
- 8.) Frankford intercepting system across private property, from Lewis street to Torresdale Ave. and in Torresdale Ave. to south of Orthodox, \$50,000

Pg.57

- 9.) Hartwell lane, from Wissahickon creek to Seminole Ave., \$26,850
- 10.) Lincoln Ave, from Cresheim Valley drive to Navahoe St., \$39,000

Pg.58

- 11.) Wissahickon high level intercepting sewer cut-off and storm water sewer in Stokley Street, from Juniata Street to Northeast of Roberts Ave., \$81,000
- 12.) Wissahickon high level intercepting sewer cut-off in Stokley Street, from northeast of Roberts to Ainslie, \$48,000

III. Wingohocking Creek System

- A. Except the Schuykill, largest stream included in City's borders is Frankford creek
 - 1.) two main tributaries
 - a.) Little Tacony
 - b.) Wingohocking creek

Pg.59

- B. Wingohocking creek system is 5,000 acres
- C. \idea that in an area which has a great population, the projects proposed for present construction are of some magnitude and require years for completion

- D. sewage which is discharged daily into Frankford creek create a condition which may become a menace to the City
- E. one of the first projects in purification of sewage be carried out in Wingohocking territory
- F. extensions of existing large sewers must be built
 - 1.) Wingohocking creek system in Annsbury street from the North Pennsylvania Railroad to Lawrence street, \$32,000

Pg.60

IV. Cohocksink Sewer

- A. reconstruction and relief of the Cohocksink sewer, \$1,500
- B. Repairs and improvement of old sewers, \$1,000

V. Drainage in South Philadelphia

- A. Portion of the City between the rivers south of Oregon Ave.
- B. This territory divided equally by Broad street, great plaza at the Oregon Ave. intersection, and a great park under construction at the League Island end

Pg.61

- C. Natural expansion in pier accommodations must be confined to the Delaware River and lower part of the Schuylkill River within or adjacent to this territory
- D. Construction of sewers should be provided for
 - 1.) Shunk street, from Front to 5th, \$50,000

VI. Investigations for More Sanitary Methods of Sewage Disposal

- A. Act of Assembly (1905), State Department of Health created, marks beginning of a new era in sanitary work

Pg.62

- B. The Department, in order to preserve the purity of the waters of the State, placed all towns and cities on probation in the use of streams for sewage disposal
- C. Obligatory to take up the problem
- D. Essential and economical procedure to establish a testing station
- E. Testing station established by using the old filtration experiment station at Spring Garden, after adapting it to the varying conditions of the sewage experiments

Pg.63

- F. certain general propositions in relation to the disposal of the sewage in this City present themselves
 - 1.) Disposal of crude or untreated sewage by dilution into the adjacent river and streams, cannot be entertained as affording any permanent solution of the problem
 - 2.) The sewage farm is eliminated

Pg.64

- 3.) Contact bed, same objection will apply to that process of bacterial treatment carried on in what is known as the contact bed
- 4.) Septic tank, failure of this process to accomplish more than a small percentage of the claims which had been made for it, will militate against its adoption
- 5.) Use of bacteria beds is foreshadowed

6.) Disinfection is a process whereby the liquids in transit may be freed from the injurious pathogenic bacteria (cause of many diseases)

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- G. A study is being made of the most satisfactory methods of disposing of sludge, the most difficult problem in connection with the subject
- H. The City is prepared to construct an intercepting sewer along Pennypack creek from Frankford Ave. to the Delaware River

Pg.66

V. Branch Sewers and Inlets

- A. No funds provided for construction of branch sewers and inlets in 1909
- B. Number of new contracts drawn was 157, and 192 contracts completed
- C. 24.628 miles of branch sewers at public expense, \$581,548.81

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- D. Contracts were entered into for the construction and reconstruction of inlets, curved curbing, laterals, manholes, etc.
- E. The work accomplished comprised the construction and reconstruction of 307 inlets not included in sewer contracts

Pg.68

VI. Private Sewers

- A. work was executed upon 49 contracts for the construction of sewers at private cost under the inspection of the City, 7.424 miles of branch sewers

VII. Summary of Work upon Sewers

- A. total number of main sewers under construction was 27
 - 1.) 12 were intercepting sewers
 - 2.) 1 reconstruction
 - 3.) total length- 38.049 miles

Pg.69

VIII. Sewer Connections and Records

- A. Sewer connections of 9449 buildings were authorized
- B. 2,780 permits

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IX. Rainfall, Discharge and Tidal Observations

- A. In order to obtain results, the instruments which automatically provide records must always be in working order, which requires systematic attention without regard to the season or the weather

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- B. Record has been made of various storms, showing relative rainfall and run-off
- C. Pluviometers are arranged at 6 points in offices of some of the District Surveyors
- D. Tide gauge arranged at Arch Street Pier
- E. 1909 can be noted for its drought and climatic changes
- F. Jan. 5th=60degrees, Jan. 8th=16 degrees, greatest variation in 24 hours being 36degrees
- G. Feb 10th, 8a.m.=32 degrees; 12:30p.m.=64degrees; 2:30p.m.=45 degrees
- H. Feb 24th at noon a heavy pall fell over City making the day as dark as at night with a temperature of 62degrees

- I. Dec 24th and 25th 22.8 inches of snow fell, heaviest snow in many years, eclipsing the storm of 1899
- X. Miscellaneous
- A. Pictures
 - 1.) Pg.50- View of Devereaux Street Sewer
 - 2.) Pg.52- Stepped Section on Wyoming Ave. Sewer East of Frankford Creek
 - 3.) Pg.54- Rock run Sewer on Fairhill Street South of Fisher Avenue
 - 4.) Pg.58- Wingohocking Sewer on Annsbury Street West of Fifth Street
 - 5.) Pg.65- Spring Garden Testing Station Showing Sprinkling Filter
 - B. Sewage/Systems
 - 1.) Pg.48- Botanic Creek System in 5th Street from present sewer East of Gibson Ave. to Eastwick Ave., in Eastwick Ave, from 57th to 56th, and in 56th from Eastwick Ave. to Schuylkll River
 - 2.) Pg.56- Extension of Wissahickon High Level Intercepting Sewer cut-off, and storm water Sewer in Stokley Street from Juniata St. to present storm water sewer Northwest of Rogers Avenue
 - 3.) Pg.60- Sheet No. 2, details. Dobson's Run storm water and sewage sewer extension in Ontario Street from Roberts Avenue to Henry Street and across private property to south of Juniata Street
 - 4.) Pg.64- Sewage Purification Works, Philadelphia, General Plan of Spring Garden Testing Station
 - C. Tables/Diagrams
 - 1.) Pg.70- Table 4- Diagram of Tides for 1909 at Arch Street
 - 2.) Pg.72- Diagram Showing Length of Completed Sewers
 - 3.) Pg.74- Table No.1- Rainfall (in Inches) in City of Philadelphia During 1909
 - 4.) Pg.75- Table No.2- Details of Most Severe Storms
 - 5.) Pg.76- Intensities of Rainfall and Maximum Flow in Sewer 13 Feet 0 Inches Diameter, Seventh Survey District

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I. Main Sewers

- A. Main sewers are to branch sewers as stem of a tree is to branches
- B. Main stem, branch tributaries, development of unproductive ground into houses

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- C. "City Betterment"-loan of \$32,500
- D. Detailed statement of the sewer- Pennypack creek intercepting sewer adjacent to Pennypack creek between Delaware River and Frankford Ave.
 - 1.) Botanic Creek System in 57th St., from Gibson Ave. to Eastwick Ave; in Eastwick Ave from 57th to 56th, and in 56th from Eastwick Ave. to Schuylkill River, \$38,000

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- 2.) Clearfield Street from 12th to 16th, \$72,000
- 3.) Cottman street from Delaware River to Tacony Street, \$32,000
- 4.) Gunners' Run relief sewer in Indiana sewer from west of "A" street to Hancock street, \$50,000

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- 5.) Gunners' Run relief sewer in 12th from Indiana to Clearfield, \$25,000
- 6.) Market street sewer extension, from east of 63rd to 63rd, then south on 63rd through private property at Cobb's creek, \$10,000
- 7.) Magee street, from Torresdale Ave. to Jackson St., in Jackson from Magee to Unruh, and in Unruh from Jackson to Algard, \$45,000

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- 8.) 3rd St. from Ashdale to Tabor, \$21,000

II. Intercepting Systems

- A. Present inhabitants are seen as reasons for allowing streams to become polluted until an action is needed to make them pure again.

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- B. Work has been carried on in the City in the building or extension of intercepting sewers
 - 1.) Dobson's run
 - 2.) Cobb's creek
 - 3.) Frankford creek
 - 4.) Wissahickon creek
 - 5.) Pennypack creek
 - 6.) Sandy run

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C. Construction

- 1.) Bristol street, 29th across private property from Juniata street to Hunting Park, and in Hunting Park from 29th to McMichael street, \$30,000
- 2.) Cobb's creek intercepting sewer in Cobb's Creek Park and Parkway and adjacent to creek through Mt. Moriah cemetery from 68th to Florence, \$60,000
- 3.) Dobson's run intercepting sewer in Ontario from Roberts' to Henry and across private property to south of Juniata, \$33,000

Pg.50

- 4.) Frankford Intercepting System across private property from Lewis to Torresdale and in Torresdale to south of Orthodox, \$50,000
- 5.) Pennypack creek intercepting sewer adjacent to Pennypack creek, between Delaware River and Frankford, \$30,000
- 6.) Wissahickon high level intercepting sewer in Stokley from Northeast of Roberts' to Ainslie, \$48,000

Pg.51

III. Wingohocking Creek System

- A. The City drains into Wingohocking creek

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- B. Progress in conservation of tributary streams is evident in preventing pollution, notably in a large territory known as Tacony Creek Park.
- C. Construction of intercepting sewers followed by improved sanitary appearance
- D. Work of construction is a small part of the work of the Bureau.
 - 1.) Wingohocking Creek System in Annsbury street from North Pennsylvania Railroad to Lawrence street, \$32,000

Pg.53

IV. Cohocksink Sewer

- A. Completed drainage system, worn out
- B. Reconstruction and relief of Cohocksink sewer, \$1,500

Pg.54

V. Drainage in South Philadelphia

- A. Definition of South Philadelphia- portion south of the confines of the old City
- B. Definition of drainage problems South Philadelphia- confined to section below Snyder Ave.
 - 1.) south of this point lay tracts of the meadow land subject to tidal influence, drained by intersecting ditches, discharging at low tide by means of sluices in rivers
 - 2.) problem of proper drainage system

Pg.55

C. Sewers

- 1.) Shunk street from Front to 5th, \$50,000

VI. Examination of Old Sewers

- A. \$1,000 for examining old sewers in the City

Pg.56

- B. \$5,000 for examining bridges and sewers
- C. field work of this corps was prosecuted when there was a lack of funds

- D. work had covered greater portion of main sewers constructed prior to 1890
- Pg.57
- VII. Sewers Constructed in Connection With Bridge Contracts
 - A. Levick Street Improvement, \$8,758.28
 - VIII. Storm Water Sewer in Connection With Bridge at Cheltenham Ave Under North Pennsylvania Railroad
 - A. \$43,341.10
 - IX. Sewers Built in Connection With the widening of Delaware Ave at Vine and South streets
 - A. \$16,631.69
 - X. Sewers Built in Connection with the Boulevard
 - A. Drain the Boulevard between Cottman and Rhawn , \$26,666.50
 - XI. Drainage Work in Connection With the Improvement of South Broad Street
 - XII. Sewers Built in Connection With the Abolishment of Grade Crossings
 - A. \$23,552.00

- Pg.59
- XIII. Investigation for More Sanitary Methods of Sewage Disposal
 - A. By 1912 the City should prepare a plan for collection and disposal of sewage of the entire city of Philadelphia
 - B. Old water filtration experiment station at Spring Garden was remodeled and fitted up as a sewage experiment station
 - C. Experiments began in 1909, and continued for one year under all seasons
 - D. Report of work performed at testing station
 - 1.) Studies were carried on which determined the practicability of rapid methods of sedimentation, so less land and construction required
 - 2.) Methods of constructing and operating percolating filters were determined whereby they could be operated at higher rates than usual

- Pg.61
- 3.) In order to secure data for properly designing sewage collectors, 24 hour gaugings of the dry weather flow in sewers draining characteristic areas were carried on

- Pg.62
- 4.) The magnitude of the problem requires officials to be in constant touch with the practice of other cities

- XIV. Pennypack Creek Sewage Disposal Works
 - A. \$150,000 for purpose of constructing a sewage disposal works for City institutions in Torresdale
 - B. Drainage of village of Holmesburg

- Pg.63
- C. Sewage disposal works consist of sedimentation tanks modeled after the so-called Emscher tanks of Germany
 - D. Work placed under contract and divided
 - 1.) Contract No. 1 for pumping station and operating house and for grading, macadamizing and appurtenant work

Pg.64

- 2.) Contract No. 2, for pumps, engines, gas producers and accessories at Pennypack Creek Pumping Station
- 3.) Contract No. 3 comprises a screen, sludge elevator and drying machinery
- 4.) Contract No.4, for constructing sewage disposal works, force main and accessories at State road and Ashburner street

XV. Branch Sewers and Inlets

- A. No funds provided for construction of branch sewers and inlets

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- B. 11.445 miles of branch sewers at public expense, \$317,884.83

XVI. Private Sewers

- A. 104 contracts for construction of sewers at private cost under City inspection

Pg.66

XVII. Summary of Work Upon Sewers

- A. Total number of main sewers under construction was 16
 - 1.) 6 were intercepting sewers
 - 2.) one reconstruction
 - 3.) total length of all sewers built during 1910, 28.765 miles

Pg.67

XVIII. Sewer Connections and Records

- A. Sewer connections of 10,451 buildings were authorized
- B. 2,658 permits

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- C. Receipts of the Bureau from all sources during the year were \$39,146.87

XIX. Rainfall, Discharge and Tidal Observations

- A. Importance of obtaining a record of rain storms is apparent in its relation to the design of sewers
- B. Important to know comparative relation of run-off to rainfall under present urban conditions, obtained from automatic registering instruments
- C. Tables show the observations taken from pluviometers and stream gauges

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- D. 24 hour gaugings were taken in sewers in different sections of the City; records were obtained in determining the actual discharge of the sewers compromising the dry weather flow only
- E. Tidal observations were continued at Arch Street Pier on the Delaware river

XX. Miscellaneous

- A. Pictures
 - 1.) Pg.44- Reinforced Concrete Sewer in Forms at Cottman Street, Delaware river
 - 2.) Pg.48- Dobson's Run Sewer, Tunnel Section, at P.G.&N.R.R., on Line of Ontario Street
- B. Sewers/Systems
 - 1.) Pg.48- Sheet No.8&9, Cobb's Creek Intercepting Sewer Extension in Cobb's Creek Park and Parkway and adjacent to Cobb's Creek through Mt. Moriah cemetery from present terminus at 68th St. North to Florence Ave

- 2.) Pg.52- Wingohocking System in Annsbury St. from North Pennsylvania Railroad to Lawrence St.
- 3.) Pg.60- Thomas Run System
- 4.) Pg.62- Sewage Purification Works, Pennypack Creek section

C. Tables/Diagrams

- 1.) Pg.60- Summary of Data Obtained from Gaugings of Dry Weather Flow, Made in 1910
- 2.) Pg.67- Diagram Showing Length of Completed Sewers
- 3.) Pg.68- Relation Between Intensity and Duration of Rainfall as shown by Pluviometer Records during the year 1910, Philadelphia Pa
- 4.) Pg.70- Diagram of Tides for 1910 at Arch Street Pier
- 5.) Pg.71- Table No.1- Rainfall (in Inches) in City of Philadelphia During 1910
- 6.) Pg.72/72- Table No.2- Details of Most Severe Storms
- 7.) Pg.74- Table No.3- Intensities of Rainfall and Maximum Flow in Sewer 12 Feet Diameter, Seventh Survey District

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I. Main Sewers

A. To develop a city it is essential to provide adequately for sewage construction.

- 1.) Street improvements necessary to develop real estate resulting in increase of taxable values.
- 2.) \$336,500 was made available to construct main sewers between May 25 and July 21, 1911.

a.) Statement of the work of the main sewers

- i.) 57th St. between Susquehanna and Jefferson, \$20,000
- ii.) 57th St. extension from north of Lebanon to Susquehanna, \$9,000
- iii.) Luzerne St. from 10th to Old York, \$7,000
- iv.) Rock Run sewer extension in Fisher Ave. from east of 6th to 10th, \$23,000
- v.) Rock Run sewer extension in 6th St. from Fisher Ave. to Brookedale from 6th to 7th, \$35,000
- vi.) 3rd from Ashdale to Tabor, \$21,000

II. Intercepting Systems

A. Sewers have a specific purpose- to remove pollution from the creeks or rivers within the City.

B. Two conduits

- 1.) sewage
- 2.) storm water

C. Sewers were formerly used to discharge into the nearest creek.

D. Intercepting sewers needed to avoid polluting creeks, as a result of better sanitary arrangements being needed.

E. Detailed account of work in valleys of Cobb's creek, Pennypack creek, Frankford Creek, and Dobson's run

- 1.) Bristol St., 29th from Juniata to Hunting Park, and in Hunting Park from 29th to McMichael, \$30,000
- 2.) Cobb's creek intercepting sewer in Cobb's Creek Park and Parkway and adjacent to creek through Mt. Moriah Cemetery from 68th north to Florence, \$60,000
- 3.) Cobb's creek intercepting sewer extension in Cobb's Creek Park and Parkway from south Florence Ave. to Thomas Ave., \$23,000
- 4.) Cobb's creek intercepting sewer extension in Cobb's Creek Park, from terminus at Thomas Ave. to Baltimore Ave., \$23,000
- 5.) Dobson's run intercepting sewer in Ontario St. from Roberts Ave. to Henry, \$25,000

- 6.) Dobson's run from terminus near Ontario and Henry to existing sewer near Juniata and Bristol, \$31,000
 - 7.) Frankford intercepting sewer extension in Torresdale Ave., from terminus southwest of Gillingham St. to Margaret St., \$37,500
 - 8.) Pennypack creek intercepting sewer adjacent to Pennypack creek between Delaware river and Frankford Ave., \$30,000
 - 9.) Pennypack creek intercepting sewer extension in Race road, from Mill St. to Frankford Ave., \$11,500
- III. Wingohocking Creek System
- A. Before Philadelphia existed, there were settlements by the Germans at Germantown and by the Society of Friends at Frankford.
 - B. Two populous communities connected from a sanitary standpoint in the Wingohocking creek
 - 1.) all sewage from Germantown discharged and flows into Frankford creek
 - 2.) Department of Public Works wants to better conditions in this area
 - a.) By extending the large main sewer
 - b.) By extending the smaller tributary main sewers in the area
 - c.) By formulating plans for an intercepting sewer to remove pollution from the Frankford creek
 - C. Work carried on during the years
 - 1.) Hunting Park from 6th to 9th, \$11,500
- IV. Cohocksink Sewer
- A. In early stages, sewer construction carried on, as emergency required.
 - B. Now those materials have worn out and weakened, resulting in sewers collapsing
 - 1.) Cohocksink sewer system, \$1,500: Thompson St. between 4th and Orianna.
 - 2.) For reconstruction of the Cohocksink sewer, \$50,000
 - a.) This sum is for rebuilding sewer in 12th from Diamond St. to Dauphin St.
- V. Sewers Constructed in Connection with Bridge Contracts.
- A. Sewers constructed in connection with bridge contracts
 - 1.) Connection with Roberts Ave. bridge, under Chestnut Hill Branch of the Connecting Railway
 - 2.) Connection with the bridge on the line of Springfield Ave., under West Chester and Philadelphia Railroad
- VI. Sewers Built in Connection with the Widening of Delaware Avenue at Vine and South Streets
- A. Connection with contract for widening Delaware Avenue, between Vine and Fairmount Ave
 - B. Connection with contract for widening Delaware Ave. at South St., \$3,084.87
- VII. Sewers Built in Connection with the Boulevard
- A. Work upon sewers for drainage along the Boulevard has been prosecuted during the year
- VIII. Sewers Built in Connection with the Abolishment of Grade Crossings

- A. Work upon sewers under four contracts for the abolishment of grade crossings was continued, \$33,334.46
- IX. Investigation for More Sanitary Methods of Sewage Disposal
 - A. Consultations held with expert sanitary engineers, and other cities were visited to examine special machines for sewage disposal
 - B. This is a problem of large magnitude
 - C. Surpasses the quantity of sewage to be treated in other cities
- X. Pennypack Creek Sewage Disposal Works
 - A. \$150,000 for constructing sewage disposal works for City institutions
 - B. Matters affecting design
 - 1.) Purchase of land adjacent to Pennypack by the City east of Frankford Ave. to State road for park purposes
 - 2.) Purchase of two tracts of ground for establishing homes for feeble minded
 - 3.) Desirability of removing pollution from waters which reached the intake to the Torresdale water filtration works
 - C. work upon the contracts of this project
 - 1.) Contract No. 1, for pumping station and operating house, for grading work, \$21,000
 - 2.) Contract No. 2, for pumps, engines, gas producers and accessories at Pennypack Creek Pumping Station, \$20,000
 - 3.) Contract No. 3 comprised a screen, sludge elevator and drying machinery
 - 4.) Contract No. 4, for constructing sewage disposal works, force main and accessories at State road and Ashburner street, \$67,000
 - 5.) Contract No. 5, for furnishing operating machinery and accessories, \$1,500
 - 6.) Contract No. 6, for the construction for frame buildings and painting valve box covers, \$900
 - 7.) Contract No. 7, for a hot water heating plant, \$1,500
 - D. Miscellaneous contracts entered into for materials to be delivered
- XI. Branch Sewers and Inlets
 - A. No funds provided for the construction of branch sewers and inlets in the annual appropriation for 1911
- XII. Private Sewers
 - A. Work was executed during the year upon 67 contracts for the construction of sewers at private costs, under City inspection
- XIII. Summary of Work Upon Sewers
 - A. Total number of main sewers under contract and construction was sixteen
 - 1.) five were carried over from 1910
 - 2.) nine were intercepting sewers
 - B. Total length of all sewers built during 1911 was 24.527 miles
 - C. Sewer connections of 10,528 buildings were authorized during the year- 2,937 permits
 - D. 433 drains were connected with the Manayunk intercepting sewer
 - E. 235 plans of main and branch sewers were received from the District Surveyors
 - F. 21 plans of lateral pipes put in old sewers were also returned

- XIV. Rainfall Discharge and Tidal Observations
 - A. Six pluviometers, five stream gauges to obtain meteorological data to affect workings of the sewer system
 - B. Tabulation of the results is an essential part of the work of intelligent sewer design- data is also useful in the Courts
 - C. Storms during the year
 - 1.) Wind storm, accompanied by rain- March 27th
 - 2.) Other severe storms
 - a.) July 17th
 - b.) August 3rd
 - c.) August 26th
 - d.) August 27th
 - e.) August 30th
 - f.) August 31st
- XV. Tidal Observations
 - A. Arch Street Pier on the Delaware river
 - B. Climatic conditions during the year were subject to great variation
 - 1.) Heavy thunderstorm, destructive storm with high winds, and heavy precipitation
 - 3.) Greatest daily variation in temperature was on November 12th, 43 degrees
 - 4.) Accumulated excess in temperature for the year was 690 degrees
- XVI. Miscellaneous
 - A. Pictures
 - 1.) Pennypack Creek Sewage Disposal Works- Sedimentation Tank- pg. 32
 - 2.) Pennypack Creek Sewage Disposal Works- Percolating Filter During Construction- pg.33
 - B. Diagrams
 - 1.) Diagram showing length of completed sewers- pg.36
 - 2.) Diagram of tides for 1911 at Arch St. Pier- pg.38
 - 3.) Relation Between Intensity and Duration of Rainfall- Pluviometer Records- pg.39
 - 4.) Autographic stream gauge record showing rise of water in sewer during storms of August 29, 30, & 31, 1911- pg.40
 - 5.) Diagram showing curves of rainfall and resultant storm-water discharge in sewer- pg.41
 - C. Tables
 - 1.) Table I- Rainfall (in Inches) in the City of Philadelphia During 1911- pg. 42
 - 2.) Table II- Details of Most Severe Storms- pg. 43
 - 3.) Table III- Intensities of Rainfall and Maximum Flow in Sewers- pg.45

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Photo, caption “Chestnut St. as Widened, from 24th St. to 22nd St.”

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Photo, caption “Springfield Ave. Bridge under Philadelphia and Baltimore Central R.R.”

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“Philadelphia, Germantown, and Norristown Railroad”

Page 86 opp.

Photo, caption “Looking South on 12th St. from Cumberland St., Showing Conditions before Commencement of Work”

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Photo, caption “Looking South on 12th St. from Cumberland St., Showing Finished Conditions”

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