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REPORT

OF THE

JOINT WATERING COMMITTEE

OF

NORTHERN LIBERTIES & SPRING GARDEN

WATER WORKS:

TOGETHER WITH THE WHOLE COST OF THE EXPENSE OF KEEPING
THEM IN OPERATION TO DECEMBER 31, 1845.

PHILADELPHIA :
BARRETT & JONES, PRINTERS, 34 CARTER'S ALLEY.
1846.

REPORT

Of the whole cost of the Northern Liberties and Spring Garden Water Works, and the Expense of keeping them in operation to December 31st, 1845.

The Joint Watering Committee submit to the Boards of Commissioners of the Districts of Northern Liberties and Spring Garden, the following report of the whole cost of their Water Works, and the expense of keeping them in operation to December 31st, 1845.

Previous to the 15th day of July last, the construction and operation of the works were under the control of the Board of *Water Commissioners*; from that period, they have been under the management of the "Joint Watering Committee."

This report would have been made at an earlier day, but that it might be entirely correct, the Committee deemed it necessary to have the whole accounts of the Commissioners and Committee re-examined, and regularly journalized and posted for all future reference. From these accounts they present Statements A, B, C, and D.

Statement A contains the "whole cost of the works."

Statement B contains expenditures for the districts respectively.

All the matters embraced in these statements were began, completed and settled by the Water Commissioners, and are submitted at this time by the Committee only, because no full statements have heretofore been laid before the Boards of Commissioners on these subjects.

It may be proper to remark that the stated costs of the joint works and districts' mains, are entitled to a credit of \$1,937 57 the estimated value of pipes, castings, tools, &c. yet on hand.

Statement C contains the expense of keeping the works in operation during the year 1845—six and a half months under the direction of the Water Commissioners, and five and a half under that of the Committee.

In this statement there are some items that require explanation. That for "Repairs and Improvements" is very large. Nearly nine hundred dollars is for repairs and alterations of engines, caused by their original imperfect construction, and the subsequent non-compliance of the makers with the terms of their contract. The Committee believe that the districts have an equitable and legal claim upon those gentlemen, for the whole or a part of this sum.

The Committee would also state here, that for some time past both the pump boxes have leaked considerably from fractures in their bottoms, and the valves have worked badly; evidently also from imperfect material or construction. Arrangements have been made with Messrs. Morris & Taws for others, which will be put in as soon as possible.

Most of the remainder of the item for "Repairs and Improvements," was for fixtures and apparatus, or improvements of the real estate, and, therefore, not such as may justly be considered necessary to keep the works in operation, but as tending to increase the value of the property.

The items of "Stationery and Printing," as also that of "Incidental Expenses," are mostly made up of payments for fitting up and supplying the Register's office, and not likely in any future year to reach the tenth of these sums.

The item of "Insurance" is another that will not enter into the expenses of another year, it being for perpetual insurance.

That for "Tools and Ironmongery" will hereafter be comparatively small.

Notwithstanding these heavy expenditures incurred this year, and that will not be required hereafter, the whole cost of keeping the works in operation, it will be seen, is but \$1,767 16 more than was estimated by the Water Commissioners, in their report of December, 1843, as necessary to raise one and a half millions of gallons in each twenty-four hours, and is \$2,332 84 less than was estimated by them it would cost to raise two and a half millions. The actual quantity raised during the year has been an average of 2,035,508 gallons for twenty-four hours, showing the annual

estimate of the Water Commissioners was more than the actual costs has been.

Statement D shows the whole amount of money received by the Water Commissioners, and the Register the purposes for which it has been expended, and the balance left in the hands of the latter.

Statement E exhibits the Profit and Loss of the year's transactions, and is made up in part from the Books of the Joint Committee, and in part from those of the Treasurers of the respective districts.

This statement exhibits a truly gratifying result ; for, notwithstanding the extraordinary difficulties and expenses that always attend the commencement of any great work, and which have been shown to have swelled the expenditures of the past year to a large amount, and notwithstanding the whole cost of the works, for reasons stated by the Commissioners, in their report of January 15th, 1845, exceeds by nearly \$40,000 (\$39,589,69) the amount estimated by the Water Commissioners, in their report of December, 1843, thus increasing the interest on cost of works, yet are the *profits* of the year but \$2,375,79 less than was anticipated by the Water Commissioners, in their report above alluded to,—a sum about equal to the interest on the additional cost of works.

Satisfactory as must be the result of the operation of the works for 1845 to the Boards of Commissioners, and to every citizen of the districts, that which may fairly be estimated for 1846, and which is exhibited in statement F, opens up a still brighter future.

The extraordinary increase of water rents over 1845, is a result not anticipated, but known ; they cannot be diminished, but may be increased during the year. The expenditures for the year are put down the same as for 1845, (though shown to be large) it is not therefore to be conceived that the nett profit of the year will be less than estimated.

If, therefore, this estimate prove correct, and there is no reason to doubt it, there will be an increase of Profits of 50 *per cent.* over that of 1845. Judging from an experience of the cost of keeping the works in operation, and taking into consideration the

probable further outlay that will be necessary to enable the works to supply the increased demand for water that will evidently be made upon them, it is not unreasonable to expect that in six years, or seven at the most, the whole sums paid by the districts for the erections of the works will be repaid to them; and that, thereafter, the revenues derived from their works, if it be thought proper so to apply them, will pay all the municipal expenses of the districts, and the water at the same time be supplied to citizens at a cost less than what they now pay for it; or if it shall be supplied, as it most likely will be, at a sum only sufficient to pay its own proper expenses, it will be at a much lower price than was ever expected by the most sanguine advocates of the constructions of the works.

Appended will also be found *Tables*, prepared by the Register, showing in detail the amount of water rents for the several districts for 1845, and the additions made during the year, also the various purposes for which it is used, and rates at which it is furnished. Similar statements for 1846 are also annexed.

Tables showing the length of pipe laid, and number of Fire-Plugs erected in each district, previous to 1845, and during the year, are also annexed,—also showing the quantity of water raised during each month of the year, and its daily average,—also the time of the workings of the Engines, and other matters believed to be interesting to the Boards.

All of which is respectfully submitted.

NATHAN SMEDLEY,
 JOHN E. YOUNG,
 SAMUEL SIMPSON,
 HENRY WARNER,
 JAMES H. DEAS,
 HIRAM AYRES,
 ABRAHAM W. HAINES.
 JOHN A. BENDER,
 CHARLES BROWN,
 CHARLES MUSCHERT,
 MICHAEL LEVERING,
 THOMAS WILMER,
 DAVIS LOUDERBACK,
 WILLIAM BERGER.

Watering Com.
 of
 Spring Garden.

Watering Com.
 of
 N. Liberties.

The following description of the Works was furnished by Wm. E. Morris, C. E., under whose superintendence they were constructed:—

ENGINES AND PUMPS.—There are two expansive condensing engines, and two double acting forcing-pumps.

Steam Cylinders are 36 inches diameter, and 6 feet stroke.

Pump Cylinders are 18 inches diameter, and 6 feet stroke.

These cylinders are placed in the same verticle line, and the pistons move together. At the opposite end of the beam is attached a fly-wheel, 18 feet in diameter, and the rim weighing 8840 lbs. Working velocity is 13 revolutions per minute.

For each engine there is one boiler, so arranged that either engine may receive steam from either or both boilers.

Extreme length 13 feet 8 inches—outer diameter 7 feet 9 inches.

In the lower part are three 18 inch flues, and above these, 94 three inch tubes, [$2\frac{3}{4}$ inches inside,] 9 feet 6 inches long.

The fire is made under the bottom of the boiler, and passes thence, first through the flues entering them at the rear end of the boiler, and then through the tubes to the chimney.

Total fire surface, about 1000 cubic feet. Grate surface for each boiler, 30 square feet—for both, 60 square feet.

The steam pipes and cylinders are clothed with woollen and cased with wood, and the boilers inclosed with brick.

Average working pressure of steam, 16 lbs. per square inch, and the cut-off valves are worked at half stroke.

These valves were not completed at the time the works went into operation, but were started, one on Sept. 15, and the other on Oct 15, 1845.

There is an *air vessel* attached to each pump, having a capacity of about 172 cubic feet each. The operation of these is such, that no variation can be observed in the flow of water from the ascending main into the reservoir.

CHIMNEY.—This is 83 feet in height, 5 feet 8 inches diameter at bottom, and 6 feet 4 inches diameter at top, constructed with double walls throughout; draught powerful, and the combustion of coal rapid.

The bed-plate of pump stands 2 feet above low water of the Schuylkill.

ASCENDING MAINS.—There are two in number, one for each pump, and the same diameter as the pump cylinder, viz: 18 inches.

Total distance from pump to inside of reservoir, 3250 feet.
Total elevation from low water in Schuylkill to average height of surface in reservoir, 115 feet.

RESERVOIRS.—There is but one reservoir, properly speaking, having a division bank 4 feet below top water line, which divides the reservoir into two parts. By reducing the water below this division bank, either part of the reservoir may be emptied, and the use of the other part continued, as an independent reservoir. Usually, the water is pumped into one division, flows over this central bank, and is distributed from the other division.

Contents of reservoir, 9,800,000 gallons—depth of water, 15 feet. The banks of the reservoir are composed of good earth, carted on—the whole lined upon the inside with a course of clay and gravel puddle-stuff, and faced with a brick pavement, laid in the bottom flat, and edgewise upon the slope. The inner and outer slopes vary little from 45 degrees.

DISTRIBUTING MAINS are two in number, 16 inches in diameter. Distance to line of Spring Garden, about $1\frac{1}{4}$ miles.

Do. “ “ “ Northern Liberties, “ $1\frac{3}{4}$ “

DUTY OF THE ENGINES.—By reference to books of the register, it appears that from 1st of April to 31st December, 1845, 3,582,456 lbs. of large lump anthracite coal, equal to 38,111 bushels, of 94 lbs. each, were consumed, and that the engines run during the same time, in the aggregate, 7,244 hours, equal to 434,640 minutes; and the number of strokes made at 26 per minute, equal 11,300,640.

The height to which the water is elevated, as before stated, is - - - - - 115 feet.

To this add the additional height equivalent to the friction in the main, 3250 feet long, which, according to formula—Tredgold on Steam Engines, p. 274—is 8.72

Height equivalent to a vertical height of - 123.72ft. ~~X~~

The load upon the piston of pump, under these circumstances, allowing for piston rod $2\frac{3}{4}$ inches diameter, will be 13,501 lbs.; the coal consumed, as above, 38,111 bushels, of 94 lbs. each. The duty performed will then be as follows:—

13,501 lbs. \times 6ft. stroke \times 11,300,640 strokes

= 24,019,818lbs.

38,111 bushels

A little more than 24 millions of lbs. raised one foot high by the consumption of 94 lbs. of coal.

As the cut-off valves were in use but a small portion of this year, a material increase of duty should be realized hereafter.

WHOLE COST OF JOINT WORKS.

DR.				
To REAL ESTATE.				
For property at Schuylkill,	- -	\$7,000	00	
“ “ for Reservoir,	- -	8,021	25	
“ commissions, surveys, taxes, &c.		461	44	
				15,482 69
To RESERVOIR.				
For labor and materials,	- - -	- - -	- - -	28,678 59
To WORKS AT SCHUYLKILL.				
For labor and materials,	- - -	- - -	- - -	38,567 10
To ENGINES AND PUMPS.				
For paid Merrick & Towne,	- -	28,108	19	
“ “ Sundries,	- - -	304	08	
				28,422 27
To PIPES AND CASTINGS.				
For pipes and castings and laying same,		- - -	- - -	32,699 57
To THOMPSON STREET.				
For damages opening Street,	- -	1,857	00	
“ laying main in do.	}	6,075	27	
“ labor and materials,				
				7,932 29
To TOOLS AND IRONMONGERY.				
For Sundries,	- - -	- - -	- - -	713 09
To FUEL.				
For engines, &c.	- - -	- - -	- - -	523 25
To SALARIES.				
For engineer, superintendent, &c.	- - -	- - -	- - -	3,995 59
To LEGAL SERVICES.				
For suits with city,	- - -	- - -	- - -	1,295 00
To INCIDENTAL EXPENSES.				
For carriage hire and sundries,	- - -	- - -	- - -	506 95
To STATIONERY AND PRINTING.				
For sundries,	- - -	- - -	- - -	258 16
				<u>\$159,074 65</u>
CR.				
By SURPLUS MATERIALS.				
For sundries sold,	- - -	232	05	
By NORTHERN LIBERTIES.				
For cash for construction,	- -	79,421	30	
By SPRING GARDEN.				
For cash for construction,	- -	79,421	30	
				<u>\$159,074 65</u>

BSEPARATE ACCOUNTS OF DISTRICTS.
NORTHERN LIBERTIES.

DR.				
For pipes and castings from Sixth Street				
to basin, - - - - -		\$23,202	58	
" laying same, - - - - -		6,176	12	
" carting same, - - - - -		273	00	
" proving same, - - - - -		154	87	
" stop-cocks, branches, &c. - - - - -		153	55	
" fitting up do. for plugs, &c. - - - - -		297	94	
" wharfage, &c. for do. - - - - -		80	93	
				\$30,338 99
" half damages to Ridge R. Turnpike Co.		-	-	400 00
				\$30,738 99
				\$30,738 99
CR.				
By cash, - - - - -		\$30,738	99	
				\$30,738 99

SPRING GARDEN.

DR.				
For pipes and castings from Broad Street				
to basin—16 inch pipes, - - - - -		\$14,691	17	
" laying do. - - - - -		4,032	43	
" carting do. - - - - -		172	50	
				\$18,896 10
" 10 and 12 inch pipes, &c. - - - - -		16,382	86	
" laying do. - - - - -		4,623	26	
				21,006 12
" stop-cocks, - - - - -		-	-	917 50
" carting 10 and 12 inch pipes, - - - - -		201	00	
" castings, - - - - -		178	32	
" wharfage, - - - - -		93	40	
" proving pipes, - - - - -		204	41	
" measuring do. - - - - -		10	00	
				687 13
" half damage to R. Road Turnpike Co.		-	-	400 00
				\$41,906 85
				\$41,906 85
CR.				
By cash, - - - - -		\$41,906	85	
				\$41,906 85

30,738 99
45,184

EXPENSE OF KEEPING WORKS IN OPERATION.

DR.				
To FUEL.				
For paid to February 28th, -	- -	\$ 760	32	
“ “ December 31st, -	- -	6,443	90	
				\$7,204 22
To OIL AND TALLOW.				
For paid to December 31st, -	- -	- -	-	391 23
To SALARIES.				
For paid to February 28th, -	- -	126	05	
“ “ December 31st, -	- -	2,326	35	
				2,452 40
To REPAIRS AND IMPROVEMENTS.				
For paid to December 31st, -	- -	- -	-	2,205 95
To RENT.				
For Register's office and Engineer's dwelling, - - - -	- - - -	- -	-	196 97
To TOOLS AND IRONMONGERY.				
For Sundries, - - - -	- - - -	- -	-	190 72
To STATIONERY AND PRINTING.				
For paid to February 28th, -	- -	20	52	
“ “ December 31st, -	- -	423	62	
				444 14
To INCIDENTAL EXPENSES.				
For fitting up Register's office, -	- -	326	65	
“ sundries, - - - -	- - - -	109	12	
				435 77
To INSURANCE. - - - -	- - - -	- -	-	
For paid insurance of works, -	- -	- -	-	483 00
To TAXES.				
For p'd taxes for 1844, - - -	- - -	- -	-	67 17
				\$14,067 16
CR.				
By NORTHERN LIBERTIES,				
For her half of expense of operation,		\$7,033	58	
By SPRING GARDEN,				
For her half of expense of operation,		7,033	58	
				\$14,067 16

D

CASH IN ACCOUNT WITH THE WATER COMMISSIONERS
AND REGISTER.

NORTHERN LIBERTIES.

DR.			
For received at sundry times, - - - - -		\$117,521	50
			<u>\$117,521 50</u>
CR.			
By paid for separate account of pipes, castings, &c. - - -		\$30,738	99
“ half of whole cost of works— <i>Construction</i> , - - -		79,421	30
“ half of expense of conducting works— <i>Operation</i> , - - -		7,033	58
“ balance her part on hand for operation, - - - - -		327	63
			<u>\$117,521 50</u>

SPRING GARDEN.

DR.			
For received at sundry times, - - - - -		\$128,641	59
			<u>\$128,641 59</u>
CR.			
By paid for separate account of pipes, castings, &c. - - -		\$41,906	85
“ half of whole cost of works— <i>Construction</i> , - - -		79,421	30
“ half of expense of conducting works— <i>Operation</i> , - - -		7,033	58
“ balance her part on hand for operation, - - - - -		279	86
			<u>\$128,641 59</u>

KENSINGTON.

DR.			
To received at sundry times 1845, - - - - -		\$4,261	41
			<u>\$4,261 41</u>
CR.			
By paid Northern Liberties her part, - - - - -		\$2,318	63
“ paid Spring Garden her part, - - - - -		1,943	78
			<u>\$4,261 41</u>

RECAPITULATION.

DR.			
To received from Northern Liberties, - - - - -		\$117,521	50
“ “ “ Spring Garden, - - - - -		128,641	59
“ “ “ Kensington, - - - - -		4,262	41
“ “ “ surplus materials, - - - - -		232	05
			<u>\$250,657 55</u>
CR.			
By paid for Northern Liberties, - - - - -		\$117,193	87
“ “ “ Spring Garden, - - - - -		128,361	73
“ “ to Northern Liberties on account of Kensington,		2,318	63
“ “ to Spring Garden “ “ “ “		1,943	78
“ “ on whole cost of works amount rec'd for surplus materials, - - - - -		232	05
Balance on hand for operation—			
Northern Liberties' part, - - - - -	327	63	
Spring Garden's part, - - - - -	279	86	
		607	49
			<u>\$250,657 55</u>

E—PROFIT AND LOSS (FOR 1845).

* DR.				
To INTEREST AT 6 PER CENT.				
On cost of works, - - -	158,842 60	Interest		
“ Northern Liberties main, -	30,738 99			
“ Spring Garden do.				
whole cost, - - - -	41,906 85			
“ On less charged by district				
to individuals, - - -	18,514 72			
	<u>23,392 13</u>	1,403 53	\$12,471 04	
“ Expense of conducting works, - - -	- - -	- - -	14,067 16	
Profit, - - - - -	- - -	- - -	16,700 38	
				<u>\$43,238 58</u>
CR.				
By WATER RENTS.				
Northern Liberties, - - - -	- - -	20,085 00		
Less collections, - - - -	- - -	502 12		
			19,572 88	
Spring Garden, - - - -	- - -	20,344 63		
Less collections and loss, - - -	- - -	1,266 35		
			19,078 28	
Kensington, for received to June 1st, -	- - -	4,262 41		
do. for rec'd subsequently, and in bank				
of Northern Liberties, - - - -	- - -	325 01		
			4,587 42	
				<u>\$43,238 58</u>

F—PROFIT AND LOSS ESTIMATED FOR 1846.

DR.				
Interest on whole cost of work as per statement,	\$12,471 04			
Less interest on profit for 1845, - - -	- - -	977 95		
Interest for 1845, - - - -	- - -	- - -	\$11,493 09	
Expense of conducting works as in 1846—certainly not more,			14,067 16	
Profit, - - - - -	- - -	- - -	25,613 00	
				<u>\$51,173 25</u>
CR.				
By WATER RENTS.				
Northern Liberties duplicate, - - -	- - -	\$21,222 50		
Additions estimated, - - - -	- - -	600 00		
			21,822 50	
Less collections, - - - -	- - -	545 50		
Nett receipts, - - - -	- - -	- - -	21,277 00	
Spring Garden, - - - -	- - -	22,264 29		
Additions estimated, - - - -	- - -	2,600 00		
			24,864 29	
Less collections, - - - -	- - -	864 29		
Nett receipts, - - - -	- - -	- - -	24,000 00	
Kensington, - - - -	- - -	6,008 50		
Additions, - - - -	- - -	800 00		
			6,808 50	
Less allowance, - - - -	- - -	912 25		
Nett receipts, - - - -	- - -	- - -	5,896 25	
				<u>\$51,173 25</u>

TABLE NO. 1.

Water Rents of the District of Northern Liberties for 1845, and for Permits issued during the year, showing the purposes for which it is used, and the rates charged.

	at \$5 00	\$13730 00	Hatters factory	\$12 00	\$72 00				
2746 Dwellings			6 Hatters factory			1 School house			\$10 00
13 do cisterns	4 00	52 00	1 do do		5 00	1 do do			6 75
684 Small houses	2 50	1710 00	9 Churches and meeting	5 00	45 00	1 do do			5 50
22 do with cisterns	2 00	44 00	3 Washpaves	5 00	15 00	1 Barber shop			2 00
339 Baths	3 00	1017 00	1 do		2 00	1 Stable			20 00
43 Dwellings and bars	10 00	430 00	1 Currier shop		6 00	1 do			15 00
1 do	7 50	7 50	3 do	10 00	30 00	1 do			12 00
2 do	5 00	10 00	1 Brewery		100 00	3 do	10 00		30 00
1 Tavern and stable		34 25	1 do		52 25	1 do			8 00
1 do		30 00	1 do		37 00	1 do			7 00
1 do		23 00	1 do		12 00	7 do	5 00		35 00
1 do		22 50	3 do	10 00	30 00	1 do			4 00
10 do	20 00	200 00	2 do	5 00	10 00	5 Stores	5 00		25 00
1 do		19 25	1 Distillery		22 50	6 Shops	2 50		15 00
2 do	16 75	33 50	1 do		12 00	1 Tanyard			8 00
2 do	15 00	30 00	1 do		5 00	3 Vinegar do	10 00		30 00
1 do		14 00	1 Rectifying liquor		7 00	1 Attachment do			5 00
1 do		12 00	1 Sugar house		25 00	1 Brass Foundry			5 00
32 Bakeries	2 50	80 00	1 do do		22 50	1 Coach factory			8 00
1 do		5 00	1 do do		20 00	1 Oil Cloth do			5 00
1 Morocco dresser		33 25	1 do do		9 00	1 Turpentine do			23 50
3 do	25 00	75 00	1 Steam engine		15 00	1 Wall Paper do			28 25
1 do		22 50	2 do do	12 00	24 00	1 Mineral Water do			23 50
1 do		22 00	1 do do		11 00	1 Paint do			7 50
1 do		20 00	2 do do	10 00	20 00	1 do Factory			7 50
4 do	15 00	60 00	1 do do		8 00	1 Gas works			100 00
1 do		12 50	1 do do	6 00	12 00	1 Engine house			5 00
1 do		12 00	3 do do	5 00	15 00	1 Coal office			5 00

2	Morocco dresser	10 00	\$20 00	1	Steam engine	10 00	\$3 00	1	Small shops	\$1 75
1	Dye house	30 00	30 00	2	Skin dressers	10 00	20 00	5	Horses and 1 carriage	6 00
1	Soap factory	15 00	15 00	2	Wool washers	10 00	20 00			
1	do	25 00	25 00	1	do		7 50			461 25
1	do	20 00	20 00	1	do		6 75			730 00
2	do	18 25	36 50	1	do		5 00			1796 175
2	do	15 00	30 00	1	Commissioners Hall		8 50			
2	do	12 00	24 00	1	School house		15 00			
			\$1796 175				\$730 00			\$19153 00

NORTHERN LIBERTIES.

Number of Permits Issued and Registered during 1845.

212	Dwellings	at \$5 00	\$1060 00	1	Steam engine	\$90 00	1	Carrier shop	\$7 50
1	do cistern	4 00	4 00	1	do do	18 00	1	Machine do	5 00
200	Small houses	2 50	500 00	1	do do	15 00	1	Fount do	35 00
6	do cisterns	2 00	12 00	2	do do	24 00	1	do do	3 00
37	Baths	3 00	111 00	1	do do	10 50	1	Flower garden	10 00
4	Bars	5 00	20 00	1	do do	9 00	1	Stone yard	2 50
1	Wool washing		7 50	2	do do	10 00	3	Stables	9 00
2	do do	5 00	10 00	1	do do	3 00			
1	Morocco dresser		20 00	1	Pottery	5 00			72 00
1	Paint factory		10 00	3	Shops	7 50			213 50
1	do do		7 50	2	Bakeries	5 00			1784 00
1	Hat do		12 00	3	Barber shops	7 50			
1	Distillery		5 00	1	Bonnet factory	3 00			
1	Rectifying		5 00	2	Washpaves	3 00			
			\$1784 00			\$213 50			\$2069 50

TABLE NO. 2.

Water Rents of the District of Spring Garden, for 1845, and Permits issued during the year. Showing the purposes for which it was used, and the rates charged.

2834.	Dwellings	at \$5 00	\$14170 00	1	Factory	\$125 00	1	Tan yard	\$44 00
6	do and cisterns	4 00	24 00	1	do	75 00	1	do	36 00
398	Small houses	2 50	995 00	1	do	57 50	1	do	33 34
565	Baths	3 00	1695 00	1	do	20 00	4	Lumber yard	20 00
11	Dwellings and bars	10 00	110 00	1	do	17 00	1	Marble do	8 00
1	Tavern and stable		36 67	1	do	16 67	1	do do	5 00
1	do		26 67	2	do	30 00	1	Filling locomotive	100 00
1	do		20 00	1	do	5 00	1	do do	95 00
1	do		18 34	1	Dyery	20 00	1	Toll house	5 00
1	do		17 50	1	do	5 00	1	House of Refuge	25 00
2	do	13 34	26 68	4	Churches	20 00	1	Wheelwright	8 00
1	Stable		10 00	1	Meeting house	5 00	1	Foundry	8 00
1	do		8 00	1	Bank	5 00	1	Soup house	5 00
8	do	5 00	40 00	1	School house	20 00	1	Smith shop	6 67
1	do		3 00	1	do do	12 50	1	Small court	10 51
1	Steam engine		41 00	1	do do	10 00	1	Hose	5 00
1	do		29 17	1	Washpave	5 00	1	Water closet	1 00
1	do		20 50	4	do do	12 00	1	Slaughter house	7 90
1	do		18 00	1	do do	2 00	2	do do	12 00
1	do		12 00	3	Bakeries	7 50	1	do do	2 50
1	do		10 00	1	Store	5 00			
1	do		9 00	5	do do	15 00			437 92
1	do		16 00	2	Offices	10 00			513 67
2	do	8 00	36 00	1	do do	2 50			17418 20
1	Distillery		20 00	1	Barber shop	3 00			
1	Brewery		6 67	1	Green house	5 00			
1	do								
			\$17418 20			\$513 67			\$18968 89

TABLE NO. 4.

Pipes laid and Fire Plugs erected in the District of Northern Liberties previous to 1845, and also during the year.

Laid previous to the year 1845, - - - -	87,556	1
Do. during the year,		
A 6 in. pipe in Fourth betw. Coates & Brown,	360	
" 4 " " " Charlotta " George & Canal,	450	
" 4 " " " Mechanic " do. do.	450	
" 4 " " " Elizabeth " Poplar & Franklin,	1208	8½
" 4 " " " Smith's al. " Green & Coates,	312	
" 4 " " " Culvert " Fourth & Charlotta	210	2,990 8½
		<hr/>
Feet, - - - - -	90,546	9½
		<hr/>
Fire Plugs erected previous to 1845, - - -	155	
" " " during 1845, - - -	6	161
		<hr/>

TABLE NO. 5.

Pipe laid and Fire Plugs erected in the District of Spring Garden previous to 1845, and also during the year.

			Feet.
Laid previous to the year 1845, - - -	115,560	11	¾
Do. during the year 1845, a 6 inch pipe in the following Streets:			
Brown from Eleventh to Broad Street,	2300	1	⅝
Schl. 7th " Call'hill " Pearl, - -	508	11	
" 5th " do. " Rail Road,	883	1	
" 6th " Hamilton " Morris	703	3	
Callowhill " do. " Fairmount,	211	2	
Poplar " Schl. 8th " Ridge Road,	1636	8	¾
Ninth " Poplar " Parish,	770	1	½
A 4 inch pipe in the following Streets:			
Clinton from Poplar to Parish,	744	10	¾
Centre " Brown " do.	651	1	⅝
Palm " do. " do.	630	7	⅝
Division " Eleventh " Twelfth,	685	7	
Orange " Washington Northward	364	4	½
Pearl " Schl. 3d to Schl. 5th,	1,438	4	
Carlton " Schl. 7th " Schl. 8th,	744	6	12,272 10¾
			<hr/>
Feet, - - - - -	127,833	9	¾

Near 24¼ miles.

Number of Fire Plugs erected in the District, - - - 180

TABLE NO. 6.

Pipe laid and Fire Plugs erected in the District of Kensington previous to 1845, and also during the year.

	Feet.
Previous to the year 1845, - - - - -	30,222
During the year:	
A 10 in. pipe on Frankford R. S. side of Franklin to West St.	1,387 6
A 10 in. pipe on Master from Second to Germantown Road,	693 0
A 10 " " Second " Jefferson to Oxford Street,	399 5
A 6 " " Phoenix " Shackamaxon to Front,	420 0
A 6 " " Vienna " Queen to Franklin Avenue,	715 3
A 6 " " Master " Fourth to Fifth	501 9 $\frac{3}{4}$
A 6 " " Phoenix " Second to Hancock,	328 3
A 6 " " Hancock " Phoenix to Franklin Avenue,	493 2 $\frac{3}{4}$
A 4 " " Franklin Av. from Third to Fourth, N. side,	420 11 —5,359 4 $\frac{1}{2}$
	<hr/>
Feet, - - - - -	35,581 4 $\frac{1}{2}$
Near 6 $\frac{3}{4}$ miles.	<hr/> <hr/>
Fire Plugs erected previous to 1845, - - - - -	56
" " " during the year, - - - - -	7
	<hr/>
Total - - - - -	63
	<hr/> <hr/>

TABLE NO. 7.

Consumption of Water in the Three Districts during the year 1845.

Average per day during	January,	-	-	-	1,427,769	gallons.
"	"	"	"	February,	1,422,217	"
"	"	"	"	March,	1,836,106	"
"	"	"	"	April,	2,183,322	"
"	"	"	"	May,	2,216,634	"
"	"	"	"	June,	2,629,135	"
"	"	"	"	July,	2,988,839	"
"	"	"	"	August,	2,472,186	"
"	"	"	"	September,	2,072,176	"
"	"	"	"	October,	1,937,483	"
"	"	"	"	November,	1,711,080	"
"	"	"	"	December,	1,529,148	"
					24,426,095	

Being a daily average for the year of 2,035,508 gallons. Equal to 210 gallons to each water tenant.

The supply of water was distributed as follows :

To the District of Spring Garden,	-	-	4663	tenants.
" " " " Northern Liberties,	-	-	3942	"
" " " " Kensington,	-	-	1008	"
				9603

Showing the service of each Engine during the month.

		hours.						Minutes.	Hours.
Jan'y,	Engine No. 1,	281	hours.	July,	Engine 1,	612			
"	"	No. 2,	250	"	"	2,500	1112	17	56
Feb'y.	"	No. 1,	256	531 or 8 hours 34 min. each engine.		Aug.	"	1,504	
"	"	No. 2,	222	478	"	8	"	32	"
March	"	No. 1,	465	687	"	11	"	1	"
"	"	No. 2,	221	786	"	13	"	6	"
April,	"	No. 1,	321	825	"	13	"	18	"
"	"	No. 2,	465	946	"	15	"	46	"
May	"	No. 1,	370	July,	"	2,500	1112	17	56
"	"	No. 2,	455	Aug.	"	1,504	920	14	50
June	"	No. 1,	438	Sept.	"	2,416	746	12	26
"	"	No. 2,	507	Oct.	"	1,429	721	11	21
				Nov.	"	2,316	616	10	16
				Dec.	"	1,319	569	9	10
				"	"	2,402			
				"	"	1,387			
				"	"	2,229			
				"	"	1,484			
				"	"	2, 85			

Note.—It has been ascertained by actual measurement in the reservoirs, that each engine, working 13 revolutions per minute, elevates one million gallons in 12 hours; and the quantity of water consumed is based upon this measurement. The gallon used is the "imperial," of 282 cubic inches.

TABLES NO. 9.

Water Rents of the District of Spring Garden, per Duplicate of January 1st, 1846.

Quantity	Description	at	\$	\$16615 00	Dyeing and bleaching	\$	\$300 00	Property	\$	Total
3323	Dwellings		\$5 00	\$16615 00	1		\$300 00	1	\$10 00	\$10 00
6	do with cisterns		4 00	24 00	1		72 50	1	5 00	5 00
509	Small houses		2 50	1272 50	1		20 00	1	3 00	3 00
673	Baths		3 00	2019 00	1		5 00	1	2 50	2 50
15	Dwellings and bars		10 00	150 00	1		125 00	1	6 67	6 67
1	Tavern and stable			36 67	1		78 00	1	6 00	6 00
1	do do			26 67	1		57 50	1	5 00	5 00
1	do do			20 00	1		20 00	1	25 00	25 00
1	do do			18 34	1		17 00	1	00 00	00 00
1	do do			17 50	1		16 67	1	00 00	00 00
2	do do		13 34	26 68	2	\$15 00	30 00	1	00 00	00 00
2	do do		5 00	45 00	1		5 00	2	\$6 00	1 00
9	Stables			10 00	1		36 00	1	00 00	00 00
1	do do			6 00	1		5 00	1	2 50	2 50
2	do do		3 00	2 50	1		5 00	1	10 51	10 51
1	Horse and carriage			130 00	1		20 00	1	5 00	5 00
1	Steam engine			65 00	1		6 67	1	3 00	3 00
1	do do			60 00	1		20 00	3	44 00	44 00
1	do do			41 00	4	5 00	5 00	1	36 00	36 00
1	do do			29 17	1		20 00	1	33 34	33 34
1	do do			20 50	1		12 50	1	20 00	20 00
1	do do			18 00	1		10 00	1	15 00	15 00
1	do do			17 00	1		5 00	1	20 00	20 00
1	do do			24 00	1		5 00	4	8 00	8 00
2	do do		12 00	10 00	5	2 50	12 50	1	10 00	10 00
1	do do			9 00	1		5 00	2	7 00	7 00
1	do do			16 00	6	3 00	18 00	1		
2	do do		8 00	6 00	2	5 00	10 00	1		
1	do do			100 00	2	2 50	5 00	1		
1	Filling locomotives			95 00	1		54 00	1		
1	do do			5 00	18	3 00	2 00	1		
1	Toll house			5 00	1			1		
2	Fountains		2 50	5 00						
				\$20,940 53				\$1008 34		\$22,264 39

NO. 10.

Water Rents of the District of Kensington, per Duplicate for January 1st, 1846.

744 Dwellings	\$5 00	\$3720 00	2	For drinking in factories	\$5 00	\$10 00
123 Small houses	2 50	307 50	3	Ship yards	5 00	15 00
24 Baths	3 00	72 00	1	For soaking paper		5 00
26 Dwellings and Bars	10 00	260 00	1	Washing, &c.		5 00
1 Bank		5 00	1	Hose		3 00
1 Commissioners hall		5 00	1	Stable		7 50
1 Meeting house		5 00	3	do	5 00	15 00
8 Bakeries	2 50	20 00	1	do		3 00
7 Dye houses	20	140 00	1	Steam engine		120 00
4 do do	15	60 00	1	do		90 00
11 do do	10	110 00	2	do	85 00	170 00
1 do do		5 00	1	do		75 00
1 Dyeing and bleaching		50 00	1	do		60 00
1 Starch factory		66 50	1	do		65 00
1 do do		45 00	1	do		52 50
2 Oil do	7	14 00	1	do		50 00
1 Brewery		20 00	2	do	45 00	90 00
1 Soap house		10 00	1	do		24 00
2 Barber shops	3	6 00	1	do		21 00
1 Foundry		10 00	1	do		18 00
2 Smith shops	5	10 00	2	do	17 50	35 00
1 Morocco dresser		10 00	3	do	15 00	45 00
1 do do		7 50	1	do		12 00
1 Drug store		5 00	2	do	11 00	22 00
1 Wash pavement		3 00	3	do	6 00	18 00
1 Water closet		1 00	1	do		5 00
1 For drinking and in case of fire		15 00				
						1075 00
						4003 50

Attest,

J. H. FISLER, Register.