

REPORT

OF

Superintendent & Engineer of Water Works,

FOR 1868.

To the Water Committee:

GENTLEMEN:—The following exhibit of operations of the Water Works covers the leading items of interest in the two years ending January 31st, 1870.

A full report of 1868 was presented to the Water Committee last year, with accompanying papers. It was submitted to Councils, and after some delay, was ordered to be printed. By some accident, the City Job Printers lost the copy, which they have been unable to trace, and in order that some record of the important proceedings of that year should be preserved, they are included in this statement:

An act of Assembly approved February 28th, 1868, authorized Councils to issue bonds to the amount of ten hundred thousand dollars, to be used for the purpose of improving and extending the Water Works. Councils directed the issue of \$250,000 in 1868, and by joint resolution, empowered the Water Committee to make extensions of water pipe throughout the city, as constituted under the act of consolidation, and to make such repairs and improvements to the existing works as they might deem needful.

The committee adopted a programme, embracing needed repairs and additions to machinery, and water mains of a permanent character, on the leading thoroughfares in the newly added wards nearest the old city. Much of the work was done in 1868, and the remainder in the year just ended.

In the early part of the summer of 1868 it was brought to notice of Councils that the existing works had become so heavily taxed by the demands of a rapidly increasing population, that new works

must be at once located, and their construction prosecuted without delay, Councils created a special committee on the subject, and their report, transmitting an able preliminary report of W. Milnor Roberts, Esq., their consulting engineer, was published by order of Councils, near the end of the year. From time to time, the question of new works was brought up in Councils in 1869. The Water Committee of that year made most careful inquiry into the subject, and no doubt used every argument to bring about a final decision upon the subject, now become one of very grave importance to every tax-payer of the city.

During the past two years, a set of new boilers have been erected both at the lower and upper works; a new pump has been procured at the lower works; thorough repairs and some additions have been made to the machinery; a new and substantial boiler house has been built at the upper works; a very heavy and well-constructed retaining wall has been built at the lower basin, and a long list of extensions of water mains of a permanent and important character have been added, largely increasing the daily duty of the machinery. It is my duty to warn you, and through you the Councils of the city, that, in order to secure without interruption a supply of water, hitherto so lavishly and unrestrictedly furnished, some new and larger mode of supply is absolutely and imperatively necessary. I fear that this year the supply will be sadly deficient if an engine and pump be not placed at the upper end of the Seventeenth ward, to pump direct from the river into the twenty inch supply main. This would, for a brief time, materially aid the supply, but the reports of running time show that nearly all the hours in the year are needed, even now, to furnish a sufficient quantity of water; and if the enormous quantity of coal daily consumed is considered, will it not be much the wisest policy to endeavor to secure a cheap and permanent supply without further delay.

The revenue has not been materially increased, nor can it be until the sections of the city most rapidly improving are reached, and therefore the interest on issues of water extension bonds already made, amounting to \$418,000, will have to be met from revenue realized nearly altogether from the old city; while, if new works are erected, it will be practicable to supply an immense number of dwellings, always the most profitable source of revenue to the

works, and convert into a good paying investment all the extensions so far made, which otherwise will diminish, instead of adding to the surplus hitherto realized from the works.

The demands upon the lower works are so great, that repairs to machinery cannot now be made, so, that with wear and tear, it will, before long, require most thorough overhauling. The Water Committee have contracted for a new engine and pump for the upper works. A new house for the same will have to be erected this spring, and some important changes in pipes and attachments made. When the new engine is successfully in operation, the upper works will be relieved, and the old machinery in that house can be repaired.

In 1868, at the lower works, the Hercules engine ran 21 hours per day, and the Sampson engine ran 12½ hours per day. Average consumption of coal, 837 bushels per day. Average daily supply of water, 1,107,222 cubic feet. These calculations are made for 313 running days.

In 1869, at the lower works, the Hercules engine ran 20½ hours per day, and the Sampson engine 14 hours per day. Average consumption of coal, 860 bushels per day. Average daily supply of water, 1,165,021 cubic feet. These calculations are made for 365 running days, or in other words, it has become necessary to keep up steam nearly night and day.

In 1868, at the upper works, the running time was 16½ hours per day. Coal consumed, 183 bushels per day. Average daily supply of water, 202,969 cubic feet. Total running time, 313 days.

In 1869, at the upper works, the running time was 22½ hours per day. Coal consumed, 253½ bushels per day. Average daily supply of water, 278,140 cubic feet. Total running time, 313 days.

THE FOLLOWING EXTENSIONS WERE MADE IN 1868.

	Feet.
Three inch pipe on Reed street,	458
Four inch pipe on Mulberry alley,	217
" " Almond alley,	664
" " St. Patrick's alley,	433
" " Peach alley,	133
" " Beach alley,	603
" " Exchange alley,	1,075
" " Wide alley,	523
" " Diamond alley,	390
Carried forward,	4,496

	Brought forward.....	Feet. 4,496
Four inch pipe on	Cherry alley.....	207
"	Railroad street.....	36
"	Maria ".....	26
"	Miller ".....	400
"	Colwell ".....	220
"	Stevenson ".....	272
"	Congress ".....	199
"	Chestnut ".....	233
"	Crawford ".....	659
"	Pike ".....	373
"	Centre avenue.....	200
"	Bedford ".....	270
"	Craft ".....	1,080
"	Braddock street.....	1,017
"	Brady ".....	653
"	Reed ".....	336
"	Turnbull ".....	668
Six inch pipe on	Lafayette alley.....	1,790
"	Almond ".....	39
"	Boundary street.....	487
"	Wilson ".....	82
"	Smallman ".....	1,610
"	Railroad ".....	43
"	Butler ".....	24
"	Carroll ".....	65
"	Allen ".....	1,081
"	Prospect ".....	112
"	Sycamore ".....	49
"	Wainwright ".....	150
"	Dravo ".....	217
"	South ".....	56
"	Main ".....	12
"	Borough ".....	1,150
"	Washington ".....	800
"	North ".....	583
"	Seneca ".....	176
"	Canal ".....	267
"	Smallman ".....	490
"	Wood ".....	718
"	Vickroy ".....	460
"	Brady ".....	48
"	Pike ".....	239
"	Park ".....	500
"	Robinson ".....	93
"	Craft avenue.....	44
"	Sixth ".....	275
"	Fifth ".....	800
"	Jumonville avenue.....	24
"	Washington avenue, 17th ward.....	286
Eight inch pipe on	Railroad street.....	3,195
"	Boundary ".....	655
"	Penn ".....	96
"	Locust ".....	635
"	Greensburg pike.....	42
"	Pike street.....	188
"	Centre avenue.....	6,150
Carried forward.....		35,026

	Brought forward.....	Feet. 35,026
Six inch pipe on	Bedford ".....	580
"	Fifth ".....	2,223
Twelve inch pipe on	Liberty street.....	505
"	Smith street.....	280
Fifteen inch pipe on	Fifth avenue.....	2,938
Twenty inch pipe on	Penn street.....	1,526
"	Butler street.....	3,942
Amount laid in 1868.....		47,018
Add former amount, less 2,983 feet removed.....		180,055
Total, 43 miles, or feet.....		227,073

PIPE REMOVED, AS FOLLOWS:

Four inch pipe on	Centre avenue.....	800
Six inch pipe on	Wood street.....	718
Five inch pipe on	Exchange alley.....	1,075
Four inch pipe on	Diamond alley.....	390
Total amount removed, feet.....		2,983

PIPE LOWERED, AS FOLLOWS:

Four inch pipe on	Smallman street.....	421
Six inch pipe on	Green street.....	288
Total amount lowered, feet.....		709

PIPE RAISED, AS FOLLOWS:

Four inch pipe on	Mulberry alley.....	479
Eight inch pipe on	Erin street.....	156
Total amount raised, feet.....		635

Number of fire plugs made and put in.....	60
" " repaired and reset.....	56
" " removed.....	2
Number of fire plug boxes put in.....	30
" " renewed.....	16
Whole number of fire plugs in the city.....	368
Number of flood-gates made and put in.....	62
" " repaired.....	11
Number of flood-gate boxes put in.....	62
Number of flood-gates renewed.....	52
Whole number of flood-gates in the city.....	590
Number of leaks in mains repaired.....	79
Number of ferrules inserted, 1/2 inch.....	6
" " " 1 inch.....	279
" " " 3/4 inch.....	221
" " " 1 inch.....	66
" " " 1 inch.....	33

605 at \$2 each, \$1,210 00

Extra drilling..... 25 00

Amount received and paid to City Treasurer.....\$1,235 00

APPROPRIATIONS AND EXPENDITURES FOR 1868

Appropriations by Councils.....	64,000 00
Cash for material sold.....	562 99
Water Extension Bonds.....	250,000 00
Balance on hand January 31st, 1868.....	215 64

\$314,778 53

EXPENDITURES OF LOWER WORKS.

Coal.....	\$20,336 62
Labor, Engineers and Firemen.....	9,035 65
Labor at Pipes and Plugs.....	2,157 24
" Cleaning basin.....	320 60
" at Vaults and Pits.....	895 40
Smith Work and Castings.....	530 98
Brass Work and Castings.....	140 51
Yarn and Rope.....	162 18
Brick and Brick Work.....	189 20
Lumber.....	197 62
Plumbing.....	71 93
Oil.....	873 44
Hauling.....	112 25
Hardware.....	23 03
Gas fitting.....	15 55
Bolts.....	21 63
Tools and Blacksmithing.....	85 60
Iron and Nails.....	16 75
Tin and Copper Works.....	51 27
Soap and Candles.....	28 30
Hickory Brooms.....	23 00
Wheel barrows.....	23 00
Gum Packing.....	7 20
Freight, Printing, Ice, Ashes, Stamps, Glass, Chimneys, &c.....	176 72

\$35,495 61

EXPENDITURES OF UPPER WORKS.

Coal.....	\$4,687 03
Labor Engineers and Firemen.....	3,603 52
" at Pipes and Plugs.....	1,197 25
" Cleaning Basin.....	108 75
" at Vaults and Pits.....	122 66
Air Vessel.....	78 67
Smith Work and Castings.....	109 40
Brass Work and Castings.....	73 90
Yarn and Rope.....	95 50
Lumber.....	75 00
Plumbing.....	43 87
Oil.....	283 97
Hauling.....	92 23
Hardware.....	15 45
Tools and Blacksmithing.....	52 40
Soap and Candles.....	19 02
Hickory Brooms.....	18 00
Wheelbarrows.....	10 00
Metallic Packing.....	114 00
Iron and Nails.....	10 50
Hay, Carpenter work, Wire sieve, Clock, &c.....	48 11

\$10,859 23

EXPENDITURES FOR PERMANENT EXTENSION.

Pipe.....	\$121,654 80
Laying Pipe.....	31,235 49
Lead.....	12,686 03
Laying Pipe in former years.....	23,162 92
New Pump &c., Lower Works, on ac't.....	5,627 00
New Boiler House, Upper Works.....	4,667 06
New retaining Wall, Upper Works.....	3,659 01
New Boilers, Upper Works, on ac't.....	9,750 00
Smith Work and Castings.....	2,213 69
Brass Work and Ferrules.....	1,062 43
Plugs and Gates.....	13,879 55
Hemp and Tow.....	372 05
Brick and Brick work.....	200 00
Platform and scale.....	242 25
Lumber.....	893 68
Plumbing.....	347 50
Hauling.....	829 00
Hardware.....	66 90
Bolts.....	45 71
Leather.....	8 96
Tools and Blacksmithing.....	404 64
Iron and Nails.....	103 31
Gravel.....	55 00
Lithographing, Stamps, &c.....	1,098 40
Shovels and Picks.....	55 50
Surveys and Plans.....	2,630 37
Pine Plugs.....	69 82
Locust Posts.....	50 50
Advertising.....	99 50
Curb-Stone, Cement, Gum Packing, Pipe, Gauge, &c.....	133 80

\$234,304 27

WATER WORKS ACCOUNT.

To Appropriations by Councils, No. 6.....	64,000 00
To Water Extension 7 per cent. Loan per ac't. 28th Feb., 1868.....	250,000 00
To Material sold by Superintendent.....	562 99
To balance Jan. 31st, 1868.....	215 54
To Cash per Superintendent paid Treasurer.....	1,235 00
To Cash per Assessor paid Treasurer.....	1,170 43

Total.....\$317,183 96

By Warrants for Current Expenses.....	46,354 84
do do do Permanent Expenses.....	234,304 27
Cash paid Treasurer by Superintendent.....	1,235 00
do do do Assessor.....	1,170 43
Balance in hands of Superintendent.....	257 00
Balance Extension Loan on hand.....	29,862 42
By transfer to App. No. 6, Dec. 23, 1868.....	4,000 00

Total.....\$317,183 96

REVENUE.

Water Rents Assessed on various establishments.....	\$139,774 48
Five per cent. arrears, October 1, 1868,.....	2,163 94
Water Rents for Building purposes,.....	890 33
Water Rents for sprinkling streets,.....	76 25
House and Ground Rents at Basin lot,.....	203 85
Ferrules and Drilling,.....	1,235 00
Old metal sold,.....	562 99
Balance on hand Feb. 1st, 1868,.....	215 54
Total Revenue,.....	\$145,122 38

REPORT OF ASSESSOR OF WATER RENTS FOR 1868.

To the Water Committee.

GENTLEMEN:—The water rents assessed on the various establishments in the city, using hydrant water, for the year ending March 31, 1869, amounts to one hundred and thirty-nine thousand, seven hundred and seventy-four dollars and forty-eight cents, from the following sources, viz:

1 Court House and Jail,.....	\$1,000 00
1 Gas Works,.....	950 00
1 Custom House and Post Office,.....	290 00
3 Hospitals,.....	144 50
59 Churches,.....	556 32
25 Schools and Colleges,.....	868 91
27 Theatres and Lecture Halls,.....	395 75
8 Public Bathing Establishments,.....	455 68
1 Steam Laundry,.....	75 00
2 Flour Mills,.....	220 40
64 Confectionary and Bake Houses,.....	1,252 13
4 Chandlers,.....	180 00
10 Cabinet and Chair factories,.....	367 50
3 Coke Works,.....	128 00
11 Glass Works,.....	429 00
2 Distilleries,.....	450 00
25 Rectifying Distilleries,.....	564 25
4 Steel Spring and Shovel factories,.....	1,522 50
12 Brick Yards,.....	394 56
33 Printing Offices and Binderies,.....	685 00
11 Planing and Saw Mills,.....	740 62
5 Oil Refineries,.....	1,350 00
3 Tanneries,.....	177 50
24 Tobacco factories,.....	461 00
121 Livery and other Stables,.....	2,100 66
72 Engine Shops, Foundries and Boiler Yards,.....	4,249 50
13 Rolling Mills, Forges and Steel Works,.....	6,767 12
16 Breweries and Malt Houses,.....	2,766 50
17 Rail Roads and Rail-Way Depots,.....	12,625 00
48 Miscellaneous Manufactories,.....	1,892 00
514 Hotels, Taverns and Boarding Houses,.....	12,075 50
1630 Warehouses, Stores, Offices and Work Shops,.....	11,560 80
806 Stores with dwellings attached,.....	9,062 55
9458 Dwellings,.....	63,106 63
13034 Assessments,.....	\$139,774 48

Brought forward,.....	\$139,774 48
Five per cent. Arrears, Oct. 1868,.....	2,163 94
Water Rents for building purposes,.....	890 33
do. Sprinkling streets,.....	76 25
House and ground rents at basin lot,.....	203 85
Ferrules and Drilling,.....	1,235 00
Old Metal sold and exchanged,.....	562 99
Balance on hand February 1, 1868,.....	215 54
Total Revenue,.....	\$145,122 38

Respectfully submitted,

EDWARD S. WRIGHT,

Assessor of Water Rents.

Sept. 13, 1869.