

Department for Supplying the City with Water.

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ANNUAL REPORT

OF THE

Chief Engineer of the Water Works

OF THE

CITY OF PHILADELPHIA.

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Presented to Councils January 21, 1858.  
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PHILADELPHIA.

.....  
1858.

# COMMITTEE ON WATER WORKS.

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## SELECT COUNCIL.

OLIVER P. CORNMAN,  
WILLIAM HORROCKS,  
EDWARD T. MOTT,

JOSEPH TAYLOR,  
JOHN P. VERREE,  
WILLIAM NEAL.

## COMMON COUNCIL.

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C. I. LEWIS.

# R E P O R T .

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DEPARTMENT FOR SUPPLYING THE CITY WITH WATER.

*Philadelphia, Jan. 21, 1858.*

To the Select and Common Councils  
of the City of Philadelphia,

GENTLEMEN:—In compliance with the ordinance regulating this department, I respectfully submit the following report for the year 1857. In addition to the general operations for that period, I take occasion to call your attention to the amount of storage for water, and the capacity of the machinery at the several works. In the annual report of 1856 some improvements were suggested and others have since been brought to my notice, which are in my judgment necessary to render the works equal to the wants and security of the city at no distant day.

The different works belonging to the city will be considered under the several different heads, as they supply several different localities, and, therefore, should be adequate to the wants of the different sections.

*First*—Fairmount Works, which supply the first ten Wards of the city, comprising the old city, and the districts of Southwark and Moyamensing.

*Second*—Schuylkill Works, which supply the 11th, 12th, 13th, 14th, 15th, 20th and part of the 16th Wards, comprising the late district of Northern Liberties, Spring Garden, and Penn.

*Third*—Delaware Works, which supply the 17th, 18th, 19th Wards and part of the 16th Ward, comprising the late districts of Kensington and Richmond.

*Fourth*—Twenty-fourth Ward Works, which supply that Ward, comprising the late district of West Philadelphia.

The general arrangement of the different works and main pipes have been adopted with a view to supply the different sections as they existed before consolidation.

At the Fairmount Works there are eight breast wheels and one Joinvil Turbine wheel.

The breast wheels have been examined, and wheels Nos. 4 and 5 have been rebuilt, with the addition of new breasts.

Nos. 7 and 8 should be rebuilt, as they are in a decayed state, and cannot be relied on for the coming season.

The pumps have been thoroughly overhauled and are in good order, except pump No. 4, which cannot be used to pump in the new basin, as it is entirely too light, and has been fractured for some time. This cannot be remedied properly without the introduction of a new pump.

The dam and forebay from which the works derive their power suffered considerable damage by the heavy freshet and large amount of ice accumulating last spring, which seriously injured that structure.

This has been repaired, one half by the Schuylkill Navigation Company and the other by the city; and it has been done in so substantial a manner that I cannot think it possible any damage can occur again. The whole structure is in excellent order.

The reservoirs at these works have required considerable

expense for repairs, owing to the severity of the winter affecting the banks and otherwise injuring them ; the large amount of ice which collected in them breaking the flag stones with which a considerable portion of the basin banks were lined, making it necessary to reset all that were found suitable ; the balance was made up by using bricks, which are not subject to the same injury as stone flagging. The reservoirs are now in good order, and will require but slight repairs the coming season, unless some unforeseen accident should occur.

The usual yearly repairs to the grounds attached to the works will leave them in good order.

The amount of appropriation asked for repairs at these works was in anticipation of rebuilding wheels Nos. 7 and 8, and the breasts thereto attached, and to put pump No. 4 in such a condition as to be relied on.

The amount of appropriation for the repairs at these works has been reduced to so small an amount as not to justify the department in doing any thing but slight repairs.

	Gallons.
The daily capacity of the present wheels and pumps, working eighteen hours, is	-
	-
	12,727,708
The average consumption per day, in July, 1857,	
was	-
	-
	-
	-
	-
	11,077,032
<hr style="border: 1px solid black;"/>	
Leaving an excess of capacity beyond the demand, of	-
	-
	-
	-
	-
	1,650,676
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	Gallons.
The average daily consumption, in July, 1856,	
was	-
	-
	-
	-
	-
	11,445,801
The average daily consumption, in July, 1857,	
was	-
	-
	-
	-
	11,077,032

By these figures it will be seen that the consumption in July, 1857, was 549,157 gallons per day less than in 1856.

This may be chiefly attributed to the difference in the temperature of the month.

	Gallons.
The average daily consumption for the year 1857,	
was - - - - -	8,883,007
The average daily consumption for the year 1856,	
was - - - - -	7,833,849
<hr/>	
Total increase of consumption in 1857 over 1856,	
was - - - - -	540,156

The reservoirs of the Fairmount works, including the new one on Corinthian avenue, furnish storage to the amount of 57,641,787 gallons.

This is about equal to five days' supply in the months of July and August.

The annexed statement exhibits, in tabular form, the amount of duty performed by these works during the year 1857.

Account of the consumption of water, and operations of the Fairmount Water Works, during the year 1857, being for the supply of the 1st, 2d, 3d, 4th, 5th, 6th, 7th, 8th, 9th and 10th Wards of the city.

NINE WHEELS.

MONTHS.	Total quantity of water pumped during the year, wine gallons.	Average amount of water pumped per day, wine gallons.	No. of hours the breast wheels worked.	No. of hours each wheel worked.	No. of hours the turbine worked.	Average No. of hours turbine worked.	Amount of rain fell each month.
January, -	175,849,245	5,672,556	2,145½	8.39	177½	5.45	<i>Inches.</i> 8.53
February, -	185,450,288	6,623,224	2,093½	9.20	335	11.57	.79
March, - -	208,363,536	6,721,404	2,546	10.53	207	6.40	1.83
April, - - -	226,290,327	7,543,010	2,637	10.50	360	12.00	6.78
May, - - -	263,981,060	8,512,292	3,110	12.32	375	12.50	5.55
June, - - -	292,057,121	9,735,237	3,336½	13.54	493	16.26	7.50
July, - - -	343,388,013	11,077,032	4,093½	16.30	431	13.54	3.91
August, - -	332,875,890	10,737,931	3,975	16.01	411½	13.16	7.59
September, -	314,135,732	10,471,191	3,692½	15.04	440	14.40	1.11
October, - -	269,605,703	8,696,958	3,268	13.10	302½	9.45	2.69
November, - -	233,622,844	7,787,428	2,789½	11.37	289	9.38	1.45
December, -	214,177,971	6,908,966	2,571 -	10.22	253	8.09	5.55
Totals,	3,059,797,730	8,383,007	36,258	12.25	4,074½	11.09	48.28

CHIEF ENGINEER OF THE WATER WORKS.

## SCHUYLKILL WORKS.

The power at these works is supplied by four steam engines, three of which are known as Numbers 1, 2, and 3, the fourth as the Cornish engine. Nos. 1 and 2 are expansive condensing engines, with thirty-six inch cylinders, and six feet stroke, cutting off steam at three feet; and each one drives a double acting pump eighteen inches in diameter, and six feet stroke, placed in the same vertical line with the steam cylinders; the pistons of the pumps and cylinder moving together. Engine No. 1 has been thoroughly overhauled, and is in good order, except a crack in one of the pump chambers, which has been secured as well as possible.

Engine No. 2 is being thoroughly overhauled, and in examining the work it was found that one of the pump valve boxes was so much broken as to require a new one; this engine and pump will be in good order in the course of a few days.

Engine No. 3, is an expansive condensing engine, with vertical cylinder thirty-six inches in diameter, and six feet stroke, cutting off steam at three feet, and connected by a bell crank beam, with a horizontal pump twenty-two and one-half inches in diameter, and four feet stroke. This engine is now being overhauled, and in a short time will be in such a condition as to be depended on for the coming season, unless an accident should occur.

These engines having been a long time in use, and having a large amount of work to do, it must be expected that they will require considerable repairing.

Two of the boilers for these engines have been in use fourteen years, and the other two about ten years, and as there is evident weakness and some leaking from long usage, they should have a thorough overhauling to place them in such a condition as to make them safe from accident, and to be relied on when wanted.

The amount appropriated for repairs to these works will not justify the department in doing more than putting the engines and pumps in good order, leaving the boilers liable to any accident which might occur from their defective condition.

Annexed is a table, marked engines 1, 2, and 3, showing the duty performed by these engines, with the amount of coal consumed by them.



Account of the Consumption of Water, and operation of the Schuylkill Steam Works, being for the supply of the 11th, 12th, 13th, 14th, 15th, and 20th Wards of the City, during the year 1857.

ENGINES NOS. 1, 2, AND 3.

MONTHS.	Total quantity of Water pumped during the year, wine gallons.	Average Amount of Water pumped per day, wine gallons.	Total Amount of Coal consumed during the year.				Average Amount of Coal consumed per day.				Average No. of hours the engine run.
			Tons.	cwt.	qrs.	lbs.	Tons.	cwt.	qrs.	lbs.	
January, -	82,451,260	2,659,711	145	14	0	2	4	14	0	0	20.38
February, -	95,171,840	3,398,994	165	9	3	5	5	18	0	23	25.13
March, -	97,352,160	3,108,134	170	5	1	0	5	9	3	1	21.42
April, -	125,121,440	4,170,714	239	17	0	18	7	19	3	17	42.08
May, -	166,041,120	5,356,165	217	11	0	18	7	0	1	12	41.05
June, -	160,418,240	5,347,274	212	2	1	14	7	1	1	18	43.50
July, -	137,743,200	4,443,329	188	9	1	15	6	1	2	10	38.09
August, -	123,273,920	3,976,578	163	16	0	27	5	5	2	20	32.30
September, -	127,859,040	4,261,968	179	3	3	11	5	19	1	23	35.16
October, -	68,533,600	2,210,761	92	4	3	16	2	19	2	1	21.29
November, -	87,919,680	2,930,656	125	17	0	18	4	3	3	17	24.54
December, -	101,773,280	3,283,009	142	0	0	27	4	11	2	13	23.52
Totals, -	1,374,658,780	3,766,188	2042	11	3	9	5	11	3	9	32.57

Engine No. 4, is a regular beam Cornish engine, with steam cylinder sixty inches in diameter and ten feet stroke, cutting off steam at seventeen inches, and driving a pump thirty inches in diameter with ten feet stroke.

This is the first full year's work performed by this engine, it being something new in this section of the country, and requiring some time to arrange and adjust the machinery and erect a stand-pipe, which was done in the year 1856.

During the year 1857 this engine has been in successful operation, giving entire satisfaction; it has been disabled nine days during the year, owing to the breaking of a pump cap. This is all the time lost by inability to run.

This engine is in excellent order, and if no accident occurs, will require but small expense during the coming year; the boilers of this engine will require some repairs, owing to a faulty sheet in them, which has become blistered, and causing leaks.

Annexed is a table, marked Cornish engine, showing the duty performed, and the amount of coal consumed by this engine.

Account of the consumption and operation of the Schuylkill Steam Works during the year 1857, being for the supply of the 11th, 12th, 13th, 14th, 15th and 20th wards of the city.

CORNISH ENGINE.

MONTHS.	Total quantity of water pumped during the year, wine gallons.	Average amount of water pumped per day, wine gallons.	Total amount of coal consumed during the year.				Average amount of coal used per day.				No. of hours the engine worked.	Average No. of h'rs the engine work'd per day.	
			Tons.	cwts.	grs.	lbs.	Tons.	cwt.	grs.	lbs.		hours.	mi'.
January, -	43,751,180	1,411,328	48	9	3	0	1	11	1	0	273	8	48
February,	47,596,816	1,762,845	46	4	1	21	1	14	0	26	283 $\frac{1}{4}$	9	53
March, -	60,370,927	2,081,757	60	1	2	21	2	1	1	21	325	11	12
April, -	56,770,566	2,102,613	48	14	0	0	1	16	0	8	312	11	35
May, -	65,223,304	2,717,637	58	11	3	0	2	8	3	8	343	14	17
June, -	70,082,080	2,920,086	62	11	1	21	2	12	0	16	337	14	2
July, -	104,871,088	3,282,938	98	2	2	0	3	3	1	16	553	17	50
August, -	115,749,360	3,733,850	97	3	2	0	3	2	2	21	540	17	25
September,	80,478,000	2,775,103	90	19	0	0	3	2	2	25	438	15	6
October, -	116,343,000	3,753,000	101	15	2	0	3	5	2	18	523	16	52
November,	104,547,240	3,484,908	86	6	3	0	2	17	2	6	483	16	6
December,	85,290,120	2,751,294	69	17	3	0	2	5	0	9	416	13	25
Totals, -	941,173,681	2,578,558	768	18	0	7	2	2	0	13	4,827 $\frac{3}{4}$	13	13

CHIEF ENGINEER OF THE WATER WORKS.

All the pumps at these works force the water through three mains, joined together at the engine house.

The distance from the engine house to the reservoir is 3,250 feet, and the elevation of the reservoir is 115 feet above the point the pumps receive the water.

The storage at these works is 1,196,336 gallons, which, during some parts of the year is not more than equal to thirty-six hours supply.

There has been a movement made by Councils to increase the amount of storage at these works, which should be done as speedily as possible, as during the month of July last the *Cornish engine* was disabled seven days, and at the time of the accident there was seventeen feet four inches of water in the reservoir, which, with all that could be pumped by the other engines, was reduced to four feet, leaving the grounds supplied from these works entirely without water.

Should an accident occur to the main or machinery, requiring forty-eight hours to repair, a valuable portion of the city would be in great peril, for want of water, in case of fire.

#### DELAWARE WORKS.

At these works the power is supplied by two steam engines. One is a high-pressure engine, driving a double-acting pump, eighteen inches in diameter, six feet stroke; the other is a low-pressure engine, driving a double-acting pump, nineteen inches in diameter, six feet stroke.

These engines are in good order; the pumps require essential repairs, each one having a defective valve-box. They have been so for a long time, and have become so bad as not to be relied upon. Otherwise, the boilers, engines and pumps are in good condition.

It will be remembered by Councils, that in July, 1856, it became necessary, from the many complaints of the water supplied from these works, to make a thorough examination of the basins and water in the vicinity of the pumps.

The same thing occurred in July, 1857, which, I am satisfied, was produced by the same cause as that recited in my annual report of 1856. In that report I stated what I then considered the cause.

The works are located in a bend of the river, where an eddy is formed, and the filthy water from Gunner's Run and

from the city drainage into the docks, instead of being carried away by the current of the tide, remains in the eddy, and is drawn into the pumps, as I then stated. This must, in course of time, again occur, and place the basins in the same condition in which they were found in July, 1856.

This has been fully verified. The opinion of Frederic Graff, Esq., as given in his report to Councils, April 19, 1855, is as follows:

“The situation of the engine-house of these works is very unfortunate, it being but a few hundred feet below the mouth of Gunner’s Run, a small stream, very much contaminated by its passage through the district, and by the factories now situated on it.

As the district becomes more thickly built up, the wharves extended, and the factories increased in number, the bad selection of the site becomes more apparent and the more to be regretted, and must eventually cause the works to be abandoned or removed.”

In July, 1856, I deemed it proper to have a quantity of the water taken from the basins submitted to Professor Booth for analysis. His opinion is contained in the following note:

*Philadelphia, July 29, 1856.*

DEAR SIR:—The water from the Kensington Water Works, abounding with scum and sediment, is so foul from putrifying organic matter, apparently of animal origin, that a chemical examination of it would be useless. I would not be willing personally to use the water from which the sample was drawn, nor even water which had the remotest connection with it, believing it to be injurious to health.

Yours respectfully,

JAS. C. BOOTH.

To SAMUEL OGDIN, Esq.,

Superintendent of Water Works.

Should the Delaware works be continued as a source of supply for the northeastern wards of the city, the increased consumption will make it necessary for another ascending main. There is now but one, and that is only eighteen inches in diameter, and obstructed by three angles. It has also the drawback of being 12,000 feet in length. This creates a heavy and unprofitable load for the engines.

This amount of pressure endangers both the main and the machinery, and consumes, besides, a larger amount of fuel than would be required to raise the same quantity of water if the main was of sufficient capacity, and makes it at present inexpedient and hazardous to run the two engines at one time.

The reservoirs connected with these works furnish a storage equal to 11,333,747 gallons, which is about four days supply, in July or August.

These reservoirs were affected by the severity of the winter, similar to those of Fairmount and Schuylkill; the frost raising the bricks which formed the lining of the basins entirely out of place.

The outer bank having slid so much that nothing short of an entire resodding would do, this has been done in such a manner as to prevent its recurrence, together with a new fence around the grounds. The banks on Sixth street should be resodded in the same manner, which will leave the basins in good order.

A table, exhibiting the amount of water furnished by the Delaware works, during the year 1857, together with the amount of coal used during the same period, is appended.

Account of the consumption and the operation of the Delaware Works during the year 1857, being  
for the supply of the 16th, 17th, 18th, 19th, and part of the 23d Wards of the city.

ENGINES NOS. 1 AND 2.

MONTHS.	Total quantity of Water pumped during the year. Wine gallons.	Average amount of Water pumped per day, Wine gallons.	Total amount of Coal consumed during the year.				Average amount of coal consumed per day.				Total number of hours engines run.	Average No. of hours engines run per day.	
			Tons.	Cwt.	qrs.	lbs.	Tons.	Cwt.	qrs.	lbs.		hours.	min.
January, - -	48,475,925	1,562,739	107	1	0	0	3	9	2	0	455	14	4
February, -	52,299,724	1,874,890	104	9	0	0	3	14	2	12	511	18	15
March, - -	59,822,406	1,929,755	112	16	0	0	3	15	0	22	578	18	38
April, - - -	63,194,637	2,106,288	124	11	0	0	4	3	0	3	584	19	28
May, - - -	77,290,940	2,493,255	122	4	0	0	3	18	3	9	711	22	56
June, - - -	73,030,102	2,434,336	131	18	0	0	4	7	3	20	604	20	8
July, - - -	87,273,365	2,815,269	161	10	0	0	5	4	0	21	686	22	7
August, - -	83,517,201	2,694,103	179	10	0	0	5	15	1	17	742	23	56
September, -	77,177,213	2,572,573	160	1	0	0	5	8	0	3	711	23	42
October, - -	74,392,722	2,399,765	167	19	0	0	5	8	1	11	680	21	52
November, -	57,104,481	1,903,482	117	14	0	0	3	18	1	14	513	17	6
December, -	57,883,369	2,143,828	125	1	0	0	4	12	2	4	543½	20	7
Totals, - -	811,462,085	2,223,183	1614	15	0	0	4	8	1	25	7,318½	20	3

CHIEF ENGINEER OF THE WATER WORKS.

## TWENTY-FOURTH WARD WORKS.

Those works are situated on the west bank of the Schuylkill, above Fairmount dam, and are designed to supply that part of the city lying west of the river.

The power is supplied by two direct acting Cornish Bull engines, both made from the same patterns. The steam cylinders are fifty inches in diameter, with eight feet stroke, the steam pistons and plungers being in the same vertical line, and moving together.

Each engine has a gang of two cornish boilers. For storage and head for the works in the Twenty-fourth Ward, there is a stand pipe one hundred and thirty feet high, and five in diameter, situated on an elevated piece of ground, at a distance of eighteen hundred and twenty feet from the engines.

The distributing main is extended up in the stand-pipe one hundred feet, leaving but thirty feet for storage. This I consider altogether wrong; the pumping main should have been carried up in the stand-pipe, and not the distributing main.

By this plan there would have been a much greater amount of storage, and the same even load would still have been placed upon the engines.

As at present constructed, the whole amount of storage subject to be drawn off the distributing main, is less than five thousand gallons.

Had the mains been constructed as before mentioned, the grounds on which the stand-pipe is erected being high, the consumers might have had the benefit of a good head with but sixty feet of water in the stand-pipe.

These works should have a reservoir, which could be supplied from the stand-pipe, and I recommend to Councils to take some action towards securing a proper site, as one can be had on better terms at present, than when the few places suitable for such a purpose become improved.

With a reservoir, the ordinary expenses of the works could be very much reduced, as a steady supply could then be kept up without running the engines at night. This would enable us to dispense with one set of hands, and reduce the amount of coal consumed. There would, in my judgment, be another good result following such an improvement. The citizens in



the vicinity supplied by these works, have not sufficient confidence in the storage as furnished by the stand-pipe, to induce them to abandon their pumps; such confidence would be inspired by the construction of a reservoir, and the water duplicate of the ward would soon show a gratifying increase.

The foundation of the stand-pipe is exposed, and is not only subject to injury thereby, but the unsightly walls detract very much from the general beauty of the structure.

To carry out the original design, the earth around the base of the pipe should be raised about five feet, with a gradual fall to the level of the surrounding grounds. It should also be sodded; some mason work will also be required, as there should be steps to the door of entrance to the stairway.

These improvements can all be made at a small cost, and will greatly enhance the beauty of the grounds.

These works have required considerable repairs and attention during the last season, owing to faults in the workmanship and construction, and they will probably require considerable more the coming season, as many parts of them have been put up so slightly as not to be relied upon.

The following table will show the amount of duty performed, and the amount of coal consumed by the Twenty-fourth Ward works during the year 1857 :

Account of the Consumption of Water, and the Operation of the Twenty-fourth Ward Steam Works,  
during the year 1857, being for the supply of the Twenty-fourth Ward of the city.

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ENGINES NOS. 1 AND 2.

MONTHS.	Total quantity of Water pumped during the year, wine gallons.	Average Amount of Water pumped per day, wine gallons.	Total Amount of Coal consumed during the year.				Average Amount of Coal consumed per day.				Average No of strokes engine made.
			Tons.	cwt.	qrs.	lbs.	Tons.	cwt.	qrs.	lbs.	
January, -	6,525,630	210,504	25	0	0	0	18	0	6	2338	
February, -	5,558,670	198,524	21	0	0	0	16	2	24	2206	
March, -	7,009,470	226,112	25	0	0	0	16	0	14	2512	
April, -	8,918,100	297,279	31	0	0	0	1	0	2	18	3303
May, -	11,087,820	357,639	32	0	0	0	1	0	2	16	3974
June, -	12,159,090	405,303	34	11	2	4	1	3	0	5	4503
July, -	14,388,000	463,961	40	18	0	4	1	6	1	15	5155
August, -	14,065,740	453,733	40	0	0	0	1	5	3	6	5041
September, -	11,294,380	376,476	33	0	0	0	1	2	0	0	4183
October, -	11,682,540	376,856	32	0	0	0	1	0	2	16	4187
November, -	9,494,190	316,473	29	0	0	0	19	1	9	3516	
December, -	9,770,310	315,171	30	10	0	0	19	2	19	3501	
<b>Totals,</b>	<b>121,948,840</b>	<b>334,106</b>	<b>375</b>	<b>19</b>	<b>2</b>	<b>8</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>11</b>	<b>3712</b>

ANNUAL REPORT OF THE

*Total amount of Water pumped by all the Works.*

## RECAPITULATION.

Months.	Total amount of water pumped each month during the year.	Total amount of water pumped per day during the year.
January, - -	357,053,248	978,230
February, - -	386,077,338	1,057,746
March, - - -	432,018,499	1,158,680
April, - - -	480,295,070	1,315,876
May, - - -	583,624,244	1,599,244
June, - - -	607,746,633	1,665,059
July, - - -	687,658,676	1,883,996
August, - -	669,482,111	1,834,197
September, - -	610,904,265	1,673,710
October, - -	540,557,565	1,480,979
November, - -	492,690,435	1,349,836
December, - -	468,895,050	1,284,643
Total, - -	6,317,903,116	17,309,323

The following interesting statistics of the temperature of the year 1857, together with the amount of rain, were obtained through the courtesy of Dr. John Conrad, being compiled from the journal kept by him at the Pennsylvania Hospital.

*The mean highest and lowest temperature of each month of the year was as follows:*

MONTHS.	Mean degrees.	Highest degrees.	Lowest degrees.	MONTHS.	Mean degrees.	Highest degrees.	Lowest degrees.
January, ...	22 $\frac{1}{4}$	42	5 below zero,	July, .....	75	90	54
February,	41	70	9 above zero,	August, .....	73 $\frac{1}{4}$	91	56
March, *....	40	65	10 ditto,	September,	66 $\frac{3}{4}$	84	46
April, .....	45 $\frac{1}{4}$	70	22 ditto,	October, ....	55 $\frac{3}{4}$	76	34
May, .....	60 $\frac{3}{4}$	86	41 ditto,	November,	44 $\frac{3}{4}$	76 $\frac{1}{2}$	19
June, .....	69 $\frac{1}{4}$	89	53 ditto,	December,	40 $\frac{1}{4}$	63	19

\* The only instance of our journal of March being colder than February.

The mean temperature of the year was 52 $\frac{3}{4}$  degrees.

The mean temperature of December was 40 $\frac{1}{4}$  degrees, which is 5 $\frac{3}{4}$  degrees above the average of December for the preceding 32 years, and the warmest December since 1852, which was 1 $\frac{1}{2}$  degrees warmer. The highest mean for December, was in 1848, which was 43 $\frac{1}{4}$  degrees.

*The mean temperature of each month of the year, for 32 years, viz : from 1825 to 1856, inclusive.*

MONTHS.	Degrees.	MONTHS.	Degrees.	Mean Temperatures of the different seasons.	
January, .....	31½	July, .....	76	Winter, .....	Degrees 33
February, .....	32½	August, .....	73		
March, .....	41	September, .....	65½	Spring, .....	51½
April, .....	51½	October, .....	54½	Summer, .....	73½
May, .....	62½	November, .....	44	Autumn, .....	54½
June, .....	71½	December, .....	34½		

The mean annual temperature deduced from these 32 years is 53½.

*The following Table exhibits the monthly fall of rain during the year 1857, together with the yearly rain fall from 1838 to 1857 :*

MONTHS.	Inch.	MONTHS.	Inch.	Year.	Inch.	Year.	Inch.	Year.	Inch.
January, .....	3.53	July, .....	3.91	1838	45.29	1845	40.00	1852	45.74
February, .....	0.79	August, .....	7.59	1839	43.73	1846	44.38	1853	40.66
March, .....	1.83	September, .....	1.11	1840	47.40	1847	45.09	1854	40.18
April, .....	6.78	October, .....	2.69	1841	55.50	1848	35.00	1855	44.09
May, .....	5.55	November, .....	1.45	1842	48.53	1849	42.09	1856	33.93
June, .....	7.50	December, .....	5.55	1843	46.91	1850	54.54	1857	48.28
				1844	40.17	1851	35.50		

The average annual amount of rain for these 20 years, is 43.85 inches. The smallest amount fell in 1825—29½ inches; and the greatest amount in 1841—55½ inches. The greatest amount which fell in any month of these years was 11.80 inches, in July, 1842; the least was in September, 1845—0.25 inches. Amount of rain for the year 1857—48.28 inches.

The Total Appropriations for the year 1857, and the amounts drawn upon them, are as follows :

DATE OF APPROPRIATIONS.	Amount of Appropriations.	Expended.	Balance.
March 6, 1857, general appropriation for the year, - - - -	\$154,960 00	\$154,252 00	\$707 97
March 6, 1857, to pay damages to the Schuylkill Navigation Company,	14,000 00	14,000 00	
March 6, 1857, to pay bills contracted for the previous years, - -	9,217 12	9,207 93	9 19
March 23, 1857, for repairs to one-half the dam, - - - -	2,750 00	2,465 98	284 02
March 23, 1857, for repairs to forebay, and other repairs to dam, -	1,750 00	1,717 78	32 22
March 23, 1857, for repairs to Kensington Reservoir, - - - -	2,000 00	1,995 61	4 39
March 23, 1857, for repairs to Schuylkill Reservoir, - - - -	1,000 00	981 44	18 56
March 23, 1857, for repairs to Fairmount Reservoirs, - - - -	1,000 00	999 48	52
Nov. 16, 1857, for the purchase of pipes, plugs, &c., and to pay for labor in fitting up and laying the same, - - - - -	15,000 00	14,985 67	14 33
Totals, - - - - -	\$201,677 12	\$200,605 82	\$1,071 20

*The following Amounts have been received by the Chief Engineer :*

1857.		
January	15, from Wright & Bender, for rent of wharf at Fairmount, - - - -	\$100 00
"	16, from John Keihl, for rent of lot north of Reservoir, - - - -	15 00
March	16, from F. Traner, for copper bulls, -	42 20
April	7, from John Keihl, for rent of lot north of Reservoir, - - - -	15 00
July	6, from John Keihl, for rent of lot north of Reservoir, - - - -	15 00
"	10, from Wright & Bender, for rent of wharf at Fairmount, - - - -	100 00
October	3, from John Keihl, for rent of lot north of Reservoir, - - - -	15 00
		\$302 20
15 tons old scrap iron sold, at \$16 per ton, not yet received, - - - -		\$240 00

## Iron Pipes laid in the Eighth and Twenty-fourth Wards.

STREETS.	LOCATION.	SIZE.	FEET.	FEET.	FEET.
Dixey.....	From Locust northward.....	8 in.	97		
Cooper.....	From Dixey westward.....	"	156		
	Laid for fire plug in Blind Asylum.....	"	154		
	Connection to 5 fire plugs.....	"	46		
				452	
Granville.....	From Twenty-first to Twenty- second.....	4 in.	424		
Oak.....	From Crammond to Moore.....	"	558		
Thirty-second.	From Bridge to Garden.....	"	211		
	Attachments to 7 fire plugs.....	"	110		
				1803	
Bridge.....	From Thirty-second eastward...	6 in.	564		
Crammond.....	From Market to Oak.....	"	278		
Moore.....	From Oak to Market.....	"	259		
Moore.....	From Market northward.....	"	277		
Twenty-first ...	From Chestnut to George.....	"	255		
Chestnut.....	From Twenty-ninth to Thirty- first.....	"	1040		
Twenty-ninth..	From Oak to Chestnut.....	"	265		
Walnut.....	From Twenty-first eastward...	"	211		
Twenty-first ...	From George to south of Walnut	"	549		
Twentieth.....	From Arch to Cherry.....	"	298		
Park.....	From Locust to Woodland.....	"	469		
	Woodland, to supply Almshouse	"	846		
				4806	
Lancaster pike	From Thirty-fifth westward...	8 in.	1187		
"	Relaid from Thirty-second to Thirty-fifth.....	"	1052		
Chestnut.....	From Woodland to Moore.....	"	796		
				9086	
Market.....	Relaid west of Logan.....	10 in.	600		
				600	
Bridge.....	Relaid from Thirty-eighth to Lancaster pike.....	12 in.	850		
				850	
					11,046



Iron Pipes laid in the Thirteenth, Fourteenth, Fifteenth, and Twentieth Wards.

STREETS.	LOCATION.	SIZE.	FEET.	FEET.	FEET.
	Repairs and connections.....	3 in.	113		
Seventeenth ...	From Ridge av. to Poplar str't	4 in.	181	113	
Thompson.....	From Tenth to Twelfth, S. side.	"	928		
"	From Eleventh to Twelfth, north side.....	"	450		
Centre.....	From Twenty-second to Twenty-third .....	"	468		
Pratt .....	From Twenty-second to Twenty-third .....	"	374		
Thompson.....	From Thirteenth to Broad, both sides .....	"	1565		
Robertson .....	From Master to Jefferson st....	"	503		
	Connections and repairs.....	"	305		
Alder .....	From Poplar to Girard avenue.	"	728		
Lewis.....	From Master to Jefferson .....	"	538		
North.....	From Eighteenth to Nineteenth	"	486		
	Attachments to 14 fire plugs...	"	180		
Spring Garden.	From Twenty-third to Twenty-fourth, both sides.....	"	928		
Whitehall.....	From Twelfth to Thirteenth....	"	494		
Lex.....	From Sixteenth to Seventeenth	"	555		
Thompson.....	From Ninth to Tenth, both sides	"	893		
			315		
Franklin.....	From Oxford to Montgomery, both sides .....	6 in.	459	9892	
Hamilton.....	From Nineteenth to Twentieth.	"	555		
Francis .....	From Ridge av. to Seventeenth	"	390		
Jefferson.....	From Twenty-third to Twenty-fourth. ....	"	494		
Brown .....	From Ridge av. to Francis st...	"	1050		
Twenty-fourth.	From Master to Jefferson.....	"	530		
	Connections and Repairs.....	"	553		
Oxford .....	From Sixth to Seventh.....	"	512		
Franklin.....	From Poplar to Parrish.....	"	501		
Washington ...	From Nineteenth to Twentieth.	"	494		
Franklin .....	From Jefferson to Oxford.....	"	390		
Lewis.....	From Master to Jefferson. ....	"	35		
Washington...	From Twenty-second to Twenty-third.....	"	442		
Fifteenth .....	From Thompson to Master.....	"	486		
Sixteenth....	From Girard av. to Thompson .	"	642		
Wallace .....	From Broad to Sixteenth.....	"	936		
Hamilton....	From William to Twenty-third..	"	468		
Seventeenth ...	From Poplar to Girard avenue.	"	477		
Wood .....	From Sixth to Franklin .....	"	624		
	Connections at Fifteenth and Girard avenue.....	"	156		
	Connections on Ridge avenue..	"	130		
				7376	
Twenty-second	From Brown to Green street...	10 in.	1582		
				1582	
Twenty-second	From Poplar to Brown street..	12 in.	878		
				878	
Twenty-fourth	From Thompson to Master st...	8 in.	494		
				494	
	Total.....				23,283

**Iron Pipes laid in the Sixteenth, Seventeenth, Eighteenth, Nineteenth, and  
Twenty-third Wards.**

STREETS.	LOCATION.	SIZE.	FEET.	FEET.	FEET.
Monroe, .....	From Palmer to Cherry st.,....	4 in.	427		
Lehigh av.,.....	From Salmon to North of Al- mond street,.....	"	1,260		
	Attachment on Dauphin st.,....	"	212		
Price, ... ..	From Amber to Frankford rd.,	"	568		
	Connection to 22 fire plugs,....	"	324		
				2,791	
Seventh,.....	From Dauphin to York street,.	6 in.	575		
Dauphin,.....	From Cedar to West street,....	"	648		
Amber, .....	From York to Cumberland,....	"	918		
Dauphin,.....	From Front to Sixth street,....	"	3,251		
Aramingo,.....	From Frankford road to Sep- viva street,.....	"	634		
Susquehanna av	From second to Fifth street,...	"	2,100		
Fifth,.....	From Susquehanna avenue to York street,.....	"	1,135		
	Connection and repairs,.....	"	36		
Howard,.....	From York to Cumberland st..	"	526		
				9,823	
	Connection,.....	10 in.	9		
				9	
	Total, .....				12,623

Iron Pipes laid in the First, Second, Third, and Fourth Wards.

STREETS.	LOCATION.	SIZE.	FEET.	FEET.	FEET.
Jessup, .....	From Fitzwater to Catharine,.....	8 in.	375	1,579	
Marker, .....	From Second to Jefferson av.,.....	"	525		
Orange, .....	From Eleventh to Twelfth,.....	"	405		
Fisher, .....	From Carpenter to Marriott's la. Connection to 3 fire plugs,.....	," "	245 29		
Cuba, .....	From Morris to Moore street,....	4 in.	418	6,644	
Moore, .....	From Cuba to Fourth street,.....	"	147		
Watkins, .....	From Fifth to Fourth street,.....	"	450		
Camilla, .....	From Eleventh to Twelfth st.,.....	"	400		
Francise, .....	From Fifth to Sixth street,.....	"	450		
Close, .....	From Fifth, westward,.....	"	371		
Hoffman, .....	From Fifth to Sixth street,.....	"	445		
Hepburn, .....	From Shippen to Fitzwater,.....	"	356		
Doak, .....	From Shippen to Wyoming,.....	"	384		
	Connection,.....	"	30		
Franklin, .....	From Jefferson av. to Fourth st.,	6 in.	445	4,787	
Morris, .....	From Sixth to west of Ninth,.....	"	1,553		
Miffin, .....	From Fifth to Sixth street,.....	"	445		
Sixth, .....	From Morris to south of Miffin,	"	1,065		
Franklin, .....	From Ninth to Tenth street,.....	"	465		
Ninth, .....	From Franklin to King street,....	"	157		
Seventh, .....	From Franklin to Morris street, ..	"	450		
Eighth, .....	From Franklin to King street,....	"	157		
Carpenter, .....	From Bread to Eighteenth st.,....	6 in.	1,770	8,772	
Seventeenth, .....	From Carpenter to Christian st.,	"	341		
Shippen, .....	From Seventeenth to Eighteenth,	"	450		
Sixteenth, .....	From Shippen to Fitzwater,.....	"	365		
M'Kean, .....	From Fifth street, westward,.....	"	226		
Christian, .....	From Seventeenth to Eighteenth, Connection and repairs,.....	" "	450 170		
Total, .....					16,732

\* OMISSIONS IN THE ABOVE TABLE

Wyoming,	From Shippen to Fitzwater,	4 in.	533
King, .....	Eight to Tenth, .....	"	833
Eleventh	Fitzwater to Catharine, both sides,	"	750
Trellis, .....	Front to Denmark, - - -	"	490
Everett, .....	Twelfth to Thirteenth, - -	"	446
	Attachments to 30 Fireplugs, -	"	259

## RECAPITULATION.

WARDS.	3 inch diam.	4 inch diam.	6 inch diam.	8 inch diam.	10 inch diam.	12 inch diam.	TOTALS
First, Second, Third, and Fourth,.....	1,579	6,644	8,509	.....	.....	.....	16,732
Eighteenth and Twen- fourth, .....	452	1,808	4,806	3,085	600	850	11,646
Thirteenth, Fourteenth, Fifteenth, and Twen- tieth, .....	118	9,892	10,324	494	1,582	878	23,288
Sixteenth, Seventeenth, Eighteenth, Nine- teenth, and Twenty- third, .....	.....	2,791	9,823	.....	9	.....	12,623
Totals,.....	2,144	20,680	38,462	3,529	2,191	1,728	68,684

Being a total of 96 feet more than 12 1-16 miles.

## DISTRIBUTION.

It will be seen, by reference to the tables, that the aggregate of iron distributing-pipes, laid during the year 1857, is something over twelve and one-sixteenth miles. There is still a large amount asked for, and in many places where there is no improvement in the street. In these cases, I would recommend some measures to be taken to secure payment at an early day. In many cases, the applications are only made for the purpose of bringing the property into the market, and until that occurs, the claims remain unpaid, absorbing all the means for laying pipes, and depriving others who have improved property, from having the advantage of water. I respectfully present this view to Councils.

During the year 1857, there has been a careful examination of that part of distribution not reached previously, leading to the correction of many defects, and furnishing valuable information.

These defects were caused by the different districts, before consolidation, laying the pipes to suit their own convenience, without any regard to proper distribution. In many of the

districts, the pipes were laid by contract, without the proper attention to the grades, and the work done in a very inferior manner.

In the Twenty-fourth Ward, during the last season, there has been several hundred feet of pipe relaid. In many places, they were entirely out of the ground when the streets were graded. During the coming season, there will be a large amount to be relaid, as in several places they are not more than eighteen inches under ground, and in others they will be entirely bare, when the streets are graded.

The plan of distribution of the whole city, on which will be marked the stops, plugs, branches and other fixtures, the size of the pipe, and, wherever it can be ascertained, the date when they were laid, has been completed, for that part of the city lying south of Vine street.

The execution of this work has been very difficult, as the records were few and imperfect. The plan is upon a scale of one inch to one hundred feet—quite large enough to embrace all the necessary details, and yet not so large as to be inconvenient.

When completed, this plan will supply a record for reference, the want of which must have been a great disadvantage to the department.

In my annual report of last year to Councils, I called attention to some matters which I thought required the action of Councils. I beg leave to repeat them, with other suggestions connected therewith. The most cursory examination of the foregoing tables, will not fail to draw attention to the fact, that the Delaware works, as at present constructed, must soon fail to supply that part of the city to which they are now and were originally devoted.

If they are still to supply that section, and the consumption continues to increase in the ratio of the last year, both engines will have to be worked at the same time; and this cannot be done without an additional ascending main.

There will be required, also, a new distributing main, as at many points there is now a short supply.

As the ascending main of the Delaware works is 12,000 feet long, and the distributing main not much less, it will at once be seen that these additions will involve a heavy expense.

This, however, is but one of the means that may be adopted to insure a better supply to that part of the city. There is

another, in my judgment, that is much preferable, because it not only answers the immediate purpose as well, but has several collateral advantages for present and future use, and will not prove more expensive.

A connecting main, of large capacity, may be laid from the reservoirs of the Delaware works to the reservoirs of the Schuylkill works, on the high ground between the two points.

The advantages of this plan are numerous.

*First.* It gives to the citizens who obtain their water from the Kensington basins, a supply of pure Schuylkill water, instead of that which experience has shown to be subject to contaminations, and prejudicial to health.

*Second.* It will furnish with a good head of water, the high portions of the Nineteenth and Twentieth Wards, which are now virtually deprived of a supply. The distance from basin to basin is 16,000 feet. I have had the height taken between the two reservoirs, and find that this arrangement will give a head of fourteen feet above the highest curb in either of the Wards above mentioned.

*Third.* This plan looks to the entire abandonment of the Delaware works, because the operation of these, through a long main, is more expensive than the plan now presented; because they are unequal to the service they have to perform, and because the water is impure.

It should be remarked also, that in this view, the present ascending main of the Delaware works can be used to advantage as a distributing main, and thus avoid the expense of another.

By reference to the preceding tables, it will be seen also, that a short period of increased consumption in the ratio of the past year, will overreach the power of the different works.

The present embarrassed state of the finances of the city, caused me to question the propriety of recommending any matters involving heavy expense: but as the construction of additional water-works is a subject upon which the convenience, comfort and health of the people of the city depends, and is, moreover, one that cannot be considered too early, it rises superior to the causes that would otherwise impel me to omit them in this report.

There is no other available source for a supply of pure water to Philadelphia than the Schuylkill, or else to go a considerable distance up the Delaware.

The limit to a supply by water power is already reached, as will be seen upon reference to what has been previously said of the Fairmount works; thirty gallons being used to raise one gallon for consumption.

Steam power must therefore be applied in any addition that may be made to the present works. In this connection another consideration presents itself, and that is the selection of the most eligible site.

The new works, when erected, should be so situated as to be able to supply through the shortest possible main, either the Fairmount, Delaware, or Schuylkill basins. Such a location is presented on that part of Lemon Hill property, known as Loyd's canal. No greater length of main than three thousand feet would be required for either of the reservoirs, if the Schuylkill and Delaware works were united.

The erection of the water-works at this point would in no way interfere with the contemplated public park, embracing the same property, as all the necessary structures could be made in ornamental style. In concluding this subject, I respectfully suggest to Councils, that as this matter is one of grave importance, and from its character will move slowly towards its consummation, it cannot be too soon considered.

That the great increase in consumption during the last years may not mislead Councils, it should be stated that a part of the increase is due to the great amount of water used in cleansing the streets.

This should be remedied, as the sewers are not intended, nor are they for the purpose of carrying off the surface filth or deposit, or else there would be no necessity of a department for keeping the streets clean. The cleansing of the streets and washing the surface deposits into the sewers and docks of the city, should not be permitted, as after all it becomes necessary to remove it from the docks which it fills up, and must of necessity be removed, or otherwise they will become useless.

Another source of great waste of water, as well as of annoyance to people walking to and from their places of business, is the water fixtures known as wash-paves. These are frequently allowed to run for hours at a time, and some of them the greater portion of the day. As a remedy, I suggest a regulation, limiting their use to certain hours in the evening, or early in the morning.

The short supply and small head of water in several sections of the city, have engaged my attention in devising a remedy; and as sound policy dictates an increase of the present amount of storage, the subjects have been considered together.

The true remedy is to construct stand-pipes or reservoirs near certain centres of distribution. There are hours of the day when the water is drawn from the mains as fast as their capacity will supply it, and certain localities suffer a great deprivation.

There are other parts of the day when their capacity is greatly in excess of the draught; and at these times, for a want of storage at the proper points, the mains are idle. If they could be kept in operation at such hours, and had places of storage, in the immediate vicinity of a deficient distribution, the supply would be very nearly equalized. Reservoirs thus placed, furnish a steady head on the distributing mains, any unusual draught being quickly felt, and as quickly supplied, and thus prevent the constant fluctuations to which all pipes are subject, which draw their supply from a long distance. In this connection, and for the purposes mentioned, I recommend that a reservoir be located in the southwestern part of the city, and an additional reservoir at the Schuylkill works, ten feet higher than the present one, and that the old one be also raised to the same level.

The remedy thus described can be applied without any material additions to the present distributing mains.

The citizens of Frankford applied to Councils some time since for a supply of water from the Kensington basins.

Since then there has been another source recommended, which looks more favorable, and as there has been a resolution presented to Councils which will require an examination and report, it is not necessary for me to go into any details about it at this time.

It gives me pleasure to state that since the department has been in my charge, there has been no accident, nor any occurrence interrupting the successful operations of the works.

The attention of Councils is respectfully invited to the urgent necessity of providing additional office room for this department. The accommodations now furnished are altogether inadequate to its enlarged and constantly increasing busi-



ness, and it is out of the question to dispose of it as promptly as the officers and clerks desire, and as the citizens have a right to expect.

REVENUE OF THE DEPARTMENT.

For the particulars of the revenue of this department, and other matters touching the prompt discharge of the business duties of the Register's office, I refer you to the report of Wm. Bonsall, which I transmit to Councils. Much credit is due to this officer for his untiring exertions to promote the efficiency of his department.

Respectfully yours,

SAMUEL OGDIN,

*Chief Engineer of Water Works.*

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WATER DEPARTMENT, REGISTER'S OFFICE, }  
*January 12th, 1858.* }

SAMUEL OGDIN, Esq., Chief Engineer,

SIR:—The tabular statements which are herewith furnished give a full detail of the financial transactions of this office for the year 1857, including, of course, those of my predecessors in office. No. 1 is a statement of the total amount of receipts in each month, and of the payments made to the City Treasurer. No. 2 is a statement of the fractional rents, &c., received in each month, designating the different locations which are supplied by the several works. No. 3 is a statement of the amount of the duplicates for 1858.

The total amount of the duplicates of 1857, as stated in the report for that year, was \$376,545 92. Additions were made during the year, by bringing in the names of those who had been delinquent in 1856, of \$2,525 50. Reductions were made for ascertained errors, of \$1,455 50, leaving the actual charge on the books \$378,615 92. The total collections for

the year 1857, on this account, were \$363,262 72, leaving on the first of January, 1858, the sum of \$15,353 20 to be collected. Every effort is being made to collect this balance, and since the first instant upwards of \$1,200 have been paid into the office.

The total amount of water duplicates for 1858 is \$383,363 22. This amount will probably be increased to \$395,000, as all of those delinquent for 1857, amounting as above stated to \$15,353 20, have been struck from the books of 1858, and as they are paid will be added to them.

The total payments for the year into this office on account of laying water pipes, were \$30,676.27, but in addition to this there has been paid into the office of the City Solicitor, on account of this service, upwards of \$25,000, which should fairly be placed to the credit of this Department.

Since the report made to you in 1857, no progress has been made in the registration of the water rents by wards, as provided by the ordinance approved Oct. 3d, 1854. Although this work is of great importance, nothing can be done towards its completion unless Councils provide the means for carrying it into effect, as the time of the officers employed by the Department is now so fully occupied as to preclude the possibility of their performing so large an additional amount of labor as this duty would involve.

The attention of Councils, or at least that of the Committee on Water, has, I believe, been called on several occasions to the propriety of making a complete re-assessment of the whole of that portion of the city supplied with water from the several works under your charge. The necessity for this is constantly becoming more imperative.

The re-numbering of the houses occasions great difficulty in designating the particular premises which are delinquent in the payment of water rents; and in cases where a change has occurred in the ownership of property, or where the renting is confined entirely to agents, it is almost impossible to apply the remedy of shutting off the water, as provided by ordinance. Should the ordinance now before Councils, changing the names of the streets, be passed, the whole of the registers now in use will be almost worthless, and a new registration absolutely necessary. I have no doubt, however, that the whole cost of a re-assessment and re-registration would be repaid more than fourfold by the additional revenue which the city would derive from the work.

I am well aware of the embarrassed condition of the finances of the city, and of the necessity of the most rigid economy in every department of the city government, consistent with a proper and judicious administration of their affairs, and did I not believe the public convenience would be greatly promoted in the performance of the duties in this office, I would not venture to recommend an addition to the clerical force; but when it is remembered that the number of bills made out is almost, if not quite, equal to that in the office of the Receiver of Taxes, that a large number of permits are issued every year, and that a great variety of other business has to be transacted by only four clerks, it should be no matter of surprise that at certain periods of the year temporary clerks have to be provided to assist in getting through with the business of the office. If Councils would grant two additional permanent clerks, temporary clerks could be entirely dispensed with, the public convenience would be greatly promoted, the business of the office could be more accurately and rapidly transacted, and the additional cost, compared with the advantages which would accrue, would be scarcely worth consideration. The clerks at present employed are worthy of all commendation for their untiring efforts to accomplish the vast amount of business which devolves upon them.

In common with all my predecessors, I have felt the great inconvenience arising from the limited space which is provided for the transaction of the business belonging to this branch of your Department. When it is remembered that the water tenants of the city are not far short of thirty thousand, and that all payments must be made at the office, it should require no argument to convince Councils that one-half of a room not more than twenty feet square is scarcely sufficient for their accommodation. As a movement is being made for a re-arrangement of most of the public offices, it is to be hoped that this office may not be omitted in this laudable effort to promote the public convenience.

Very respectfully, yours,

WM. BONSALL, *Register.*

No. 1.—*Total amount of receipts and payments made to the City Treasurer from January 1st to December 31st, 1857.*

	Rents of 1855.	Rents of 1856.	Penalties of 1856.	Rents of 1857.	Penalties of 1857.	Iron Pipe.	Fractional Rents.	Total.	Paid City Treasurer.
January, - - -		\$975 00	\$140 04	\$18,382 25		\$4,387 67	\$504 25	\$24,359 21	\$24,739 48
February, - - -		629 00	89 58	66,836 50		1,416 32	1,338 00	67,009 40	66,997 40
March, - - -		438 25	59 14	202,857 42		8,299 13	2,344 90	208,998 84	208,816 40
April, - - -		446 75	72 99	9,231 75	\$431 96	2,824 15	2,179 84	15,187 46	15,187 86
May, - - -		267 50	46 62	8,705 50	389 97	190 49	2,332 19	11,932 27	11,932 23
June, - - -	\$18 75	134 00	24 60	26,110 06	1,297 45	337 69	1,869 11	29,781 50	29,671 76
July, - - -		68 00	16 20	2,780 09	373 08	1,698 77	2,500 35	7,436 35	7,546 32
August, - - -		104 00	21 60	8,954 50	1,298 85	4,790 22	1,773 00	16,942 17	16,942 03
September, - - -		460 50	40 64	9,062 25	1,291 18	2,162 71	1,705 04	14,712 32	14,664 87
October, - - -		109 00	19 35	9,497 80	1,322 32	2,072 80	1,035 00	14,055 77	14,298 28
November, - - -		70 00	18 00	2,327 60	311 78	3,670 68	1,196 94	7,889 30	7,893 80
December, - - -		65 00	10 85	1,818 25	250 32	3,865 84	1,461 26	7,471 52	7,471 52
	18 75	3,767 00	554 61	363,282 72	6,966 88	30,676 27	20,229 88	425,476 11	425,661 94

The difference in the amount paid is owing to the fact that a part of the receipts of December 31st, 1856, is included in the payments of 1857.

No. 2.—Receipts of Fractional Rents, &c., from January 1st to December 31st, 1857, inclusive.

	Fractional Rents.	Ferules and repairing.	Repairs.	Declines.	Vessels, &c.	Total.
<b>FAIRMOUNT WORKS.</b>						
1st to 4th Wards, inclusive.....	1,956 60	} .....	} .....	} 9 75	} .....	1,966 85
5th to 10th Wards, inclusive.....	4,395 54					
<b>TWENTY-FOURTH WARD WORKS.</b>						
24th Ward.....	1,014 75	} .....	} .....	} .....	} .....	1,014 75
<b>SCHUYLKILL WORKS.</b>						
11th to 15th Wards, inclusive.....	} 4,189 98	} 1,604 50	} 337 71	} 56 75	} .....	} 6,188 89
20th, and part of 16th Ward, inclusive.....						
<b>DELAWARE WORKS.</b>						
17th to 19th Wards, inclusive, and balance of 16th.....	1,798 95	708 00	148 25	83 25	1 75	2,675 20
	18,850 77	4,854 00	887 71	188 75	950 10	20,226 88

No. 3.—*Water Duplicates of 1858.*

Wards.	Duplicates.	Details and amount of Revenue.	
First and Second, - - -	} Southwark, Moyamensing, -	\$36,458 22	\$59,476 47
Third and Fourth, - - -		23,018 25	
Fifth, - - - - -	} City, - - - - -	21,656 75	145,645 25
Sixth, - - - - -		26,110 50	
Seventh, - - - - -		25,623 50	
Eighth, - - - - -		23,864 00	
Ninth, - - - - -		21,109 00	
Tenth, - - - - -		27,281 50	
	Revenue of Fairmount Works, -		\$205,121 72
Eleventh and Twelfth,			
Sixteenth, in part, -	Northern Liberties - - -	37,792 00	
Thirteenth, Fourteenth,	} Spring Garden East, - - -	29,504 00	39,818 50
and Fifteenth, - - -		Spring Garden West, - - -	
Twentieth, - - - - -	Penn, - - - - -	17,899 75	
	Revenue of Schuylkill Works, -		125,014 25
In part, Sixteenth, - -	} Kensington, - - - - -	45,610 50	
Seventeenth, -			
Eighteenth, -			
Nineteenth, and part of			
Twenty-Third, - - -	Richmond, - - - - -	4,881 50	
	Revenue of Delaware Works, -		50,492 00
Twenty Fourth, - - -	West Philadelphia, - - -	2,735 25	
	Revenue of Twenty-fourth Ward Works, - - - - -		2,735 25
	Total Revenue for 1858, -		\$888,363 22

WM. BONSALL, *Register.*