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CITY AND DISTRICT SALARIES.

SUMS PAID UNDER THE OLD CORPORATIONS.

In our last we gave a list of the salaries of the present city corporation, which amount, according to the regular schedule, to \$703,080. The sum of \$25,439.67 has also been appropriated for extra salaries, making our expenditures for the services of public officers, thus far, \$728,519.67. By way of contrast, we give the following table of the city, district and county expenses, under the old regime:

CITY.	
Mayor's salary.....	\$3,000 00
Fees of office, about.....	2,000 00
City Treasurer and Assistant.....	3,600 00
" " Solicitor.....	1,800 00
" " extra services.....	200 00
Principal City Surveyor and Regulator.....	1,800 00
Assistant.....	1,000 00
Clerks of Councils, each \$1,200.....	2,400 00
President of City Commissioners.....	1,500 00
Two City Commissioners, each \$1,200.....	2,400 00
Commissioner of City Property.....	1,200 00
City Clerk.....	1,200 00
Superintendent of City Railroad.....	1,000 00
Messenger of Councils.....	600 00
" " of City Treasurer.....	650 00
" " Commissioner.....	450 00
Twelve Vaccine Physicians, each \$50.....	600 00
Four Collectors of Vaccine Cases.....	616 00
Assistant to Treasurer.....	300 00
Rodman to City Surveyor, \$1.50 per day.....	469 50
Assistant " \$1.25 per day.....	391 25
Attendant in Surveyor's Office.....	600 00
City Carpenter.....	1,000 00
Superintendent of Water Works.....	2,500 00
Register of Watering Committee.....	2,000 00
Messenger of ".....	775 00
Treasurer of Girard Fund.....	2,000 00
Agent of Girard Estate.....	1,750 00
Agent of Girard Farm.....	500 00
Four Watchmen at Permanent Bridge, each \$500.....	2,000 00
Superintendent of Tobacco Warehouse.....	900 00
Clerk of ".....	900 00
Watchman of ".....	300 00
Superintendents of Washington and Franklin Squares, each \$1,000.....	2,000 00
Superintendent of Independence Square.....	850 00
Superintendents of Rittenhouse, Penn and Logan Squares, each \$625.....	1,875 00
Superintendent of City Burial Ground.....	600 00
Three Watchmen of State House, each \$450.....	1,350 00
Clerk of Police.....	1,000 00
Assistant Clerk of Police.....	800 00
Lieutenant of Police.....	1,000 00
Four Special Constables, each \$700.....	2,800 00
Messenger of Mayor.....	300 00
Turnkey of ".....	450 00
Watchmen of City Hall.....	430 00
Four High Constables, each \$700.....	2,800 00
Thirty-four Day Policemen, each \$500.....	17,000 00
Four Captains of Night Police, each \$720.....	2,880 00
Four Lieutenants " each \$600.....	2,400 00
Two hundred Night Police, each \$500.....	100,000 00
Four Turnkeys, each \$450.....	1,800 00
Four Superintendents of Lamplighters, each \$300.....	1,200 00
Fifty-seven Lamplighters, each \$180.....	10,260 00
Four Clerks of Markets, each \$700.....	2,800 00
Two Watchmen of High street Market, each \$150.....	900 00
Two " Second street and Western Market, each \$425.....	850 00
Four Lieutenants of Marshal's Police, each \$850.....	3,400 00
Donation to each Lieutenant per resolution, \$50.....	200 00
Fifty-five Marshal's Police, each \$500.....	27,500 00
Donation to each Marshal's Police, \$50.....	2,750 00
Total.....	\$231,950 75
SOUTHWARK.	
Clerk of District.....	\$1,000 00
Treasurer.....	250 00
Clerk of Grover Trust.....	75 00
Treasurer of Grover Trust.....	20 00
Lieutenant of Police.....	850 00
Superintendent of Police.....	540 00
Captain of Watch.....	550 00
Lieutenant of Watch.....	625 00
Superintendent of Highways.....	550 00
" of Cleaning.....	550 00
Clerk of Markets.....	540 00
Superintendent of Hall.....	420 00
Collector of outstanding debts.....	750 00
" of Water Rents.....	1,450 00
Driller of Water Attachment.....	430 00
2 Vaccine Physicians, each \$50.....	100 00
Solicitor.....	300 00
18 Policemen, each \$500.....	9,000 00
18 Watchmen, each \$450.....	8,100 00
Total.....	\$26,540 00
MOYAMENSING.	
Clerk.....	\$750 00
Solicitor.....	100 00
Captain of the Watch.....	200 00
Lieutenant of the Watch.....	500 00
Lieutenant of Police.....	850 00
17 Watchmen and 3 Substitutes, at \$1.25.....	456.25
12 Police Officers, each \$500.....	6,000 00
Superintendent of Gas, paid by the day, about of Schuylkill Water.....	120 00
Clerk of Market.....	400 00
Superintendent of Road.....	350 00
4 Vaccine Physicians, each \$50.....	200 00
Treasurer, probably 1 per cent.....	1,000 00
Collector of Water Rents, probably 5 per cent.....	500 00
Outstanding debts, probably 3 p. c.....	300 00
Solicitor and Surveyor Coms. 5 p. c. probably.....	1,000 00
Total.....	\$14,226 25
SPRING GARDEN.	
Clerk.....	\$1,000 00
Treasurer.....	200 00
Police Magistrate.....	200 00
Solicitor.....	200 00
Recording Surveyor.....	100 00
2 Vaccine Physicians.....	200 00
Clerk of Markets.....	340 00
Superintendent of Gas.....	1,250 00
" Water.....	600 00
Register of Gas.....	800 00
Police Officer E. D.....	550 00
" W. D.....	550 00
Superintendent of Streets.....	600 00
Cleaning.....	600 00
Captain Night Police.....	600 00
Lieut.....	550 00
Messenger.....	500 00
31 Watchmen, each \$500.....	15,500 00
26 Marshal's Police, each \$500.....	13,000 00
3 Market Watchmen, \$15 per month.....	545 00
Total.....	\$37,380 00

NORTHERN LIBERTIES.	
Clerk.....	\$300 00
Treasurer.....	700 00
Solicitor.....	300 00
Recording Surveyor.....	200 00
Mayor.....	600 00
Superintendent.....	700 00
Clerk of Markets.....	500 00
Register of Schuylkill Water.....	600 00
Collector of Water Rents.....	800 00
Vaccine Physicians, each \$100.....	200 00
Messenger.....	200 00
High Constables.....	800 00
Lieutenant.....	730 00
Captain of Watch.....	650 00
2d ".....	440 00
1 Marshal's Police.....	10,500 00
21 Watchmen.....	10,529 37
3 Market Watchmen.....	930 88
Total.....	\$30,140 26
KENSINGTON.	
Treasurer.....	\$800 00
Clerk.....	750 00
Register.....	800 00
Solicitor.....	200 00
Engineer.....	750 00
Assistant.....	650 00
Fireman.....	480 00
Two Laborers.....	780 00
Watchman.....	390 00
Watchman.....	310 00
Superintendent of Paving.....	600 00
Assistant.....	550 00
Superintendent of Highways.....	600 00
Assistant " Police.....	475 00
Collector of Outstanding Debts, 5 per cent.....	2,500 00
Messenger.....	300 00
Clerk and Watchman of Markets, east, 5 per ct.....	240 00
" " west.....	490 00
Watchman of Markets.....	300 00
2 Vaccine Physicians.....	100 00
Superintendent of Lamps.....	450 00
Lieutenant of Police.....	850 00
24 Policemen, each \$50.....	12,000 00
Total.....	\$25,870 00
RICHMOND.	
Clerk and Register of Water Rents.....	\$800 00
Treasurer.....	500 00
Solicitor.....	300 00
Surveyor.....	1,000 00
Superintendent of Water.....	150 00
Superintendent of Highways, \$2 per day.....	624 00
" of Urbing.....	624 00
Clerk of Market.....	250 00
Lieutenant of Police.....	850 00
4 Policemen.....	2,000 00
Lamplighters.....	396 00
Total.....	\$7,494 00
PENN.	
Treasurer.....	\$600 00
Clerk.....	800 00
Solicitor.....	400 00
Surveyor.....	100 00
Janitor.....	400 00
Vaccine Physician.....	50 00
Surgeon.....	70 00
Superintendent of Paving.....	600 00
Superintendent of Highways.....	500 00
Clerk of Markets.....	500 00
Assistant Clerk.....	300 00
Lieutenant of Police.....	800 00
Five Policemen, each \$500.....	2,500 00
Captain of Watch.....	450 00
Eight Watchmen, each \$400.....	3,200 00
Lamplighters.....	240 00
Total.....	\$11,490 00
WEST PHILADELPHIA.	
Treasurer.....	\$200 00
2 1/2 per cent. commission on coll'g bills.....	500 00
Clerk.....	500 00
Superintendent of Highways.....	500 00
Messenger.....	150 00
and perquisites.....	314 00
Solicitor.....	50 00
Vaccine Physician.....	150 00
Surveyor (by contract probably).....	500 00
Surveyors and Regulators.....	1,000 00
Lieutenant of Police.....	850 00
Four Policemen, each \$500.....	2,000 00
Total.....	6,694 00
COUNTY.	
County Commissioners.....	\$3,204 00
Clerks of Commissioners.....	2,000 00
extra Clerk hire.....	2,000 21
County Auditors.....	5,494 00
County Treasurer, paid R. G. Simpson \$3,000.....	5,000 00
paid J. M. Coleman 2,000.....	4,000 00
Clerks of County Treasurer.....	2,500 00
Marshal of Police.....	1,000 00
Clerk.....	500 00
Messenger.....	550 08
County Board, printing, &c. included—(Note: These statements are taken from the Commissioners' last report, which does not specify the items).....	6,377 10
Clerk of County Board.....	200 00
Superintendent in County Commissioners' office.....	516 72
Watchmen of County Buildings.....	720 00
Watchmen of Wire Bridge.....	900 00
Solicitor, amount paid W. D. Baker.....	150 00
paid Wm. Badger.....	800 00
Wire Bridge, amount paid Watchmen, Oil, &c.....	5,840 57
For County Buildings.....	1,842 50
Total.....	\$41,595 22
RECAPITULATION.	
City.....	\$231,950 75
Southwark.....	26,540 00
Moyamensing.....	14,226 25
Spring Garden.....	37,380 00
Northern Liberties.....	30,140 26
Kensington.....	25,870 00
Total.....	\$433,866 47

due the Institution.
The Committee on Fire and Water, to which was referred the differences for increasing the supply of water for the Almshouse, having consulted Frederick Grant, Chief Engineer of the Watering Department, and Mr. Barnhoffer, the Engineer of the Water Works Blockley, recommended that the Board determine upon the erection of a vertical pump, similar to the pump now being constructed for Mr. F. Lennig at Messrs J. P. Morris & Co.'s machine shop. The size of the pump is 8 inch bore and 2 1/2 feet stroke, and is warranted to supply twice the quantity of water furnished by the pump now in use. The Board ordered that proposals be obtained from Messrs. Neill, Matthews & Moore; Spring, Hess & Co., and J. P. Morris & Co., for the construction of a pump.
A Committee of three, Messrs. Cronberger, Townsend Smith and the President,

Scientific Selections.

NOTES ON THE COMBINATION OF STEAM AND AIR. By WM. H. SNOOK, Chf. Eng. U. S. Navy.

By invitation, I lately visited an establishment in New York, where they have a small engine for driving three of "Hoe's Patent Printing Presses," and in which they use the Cloud Combination of Steam and Air. I here submit the facts, collected during my visit, (with two reports made by Horatio Allen, Esq., of New York, annexed,) hoping they will prove an incentive to a further examination of the principles of this phenomena in steam engineering. The engine used for driving the above presses is of that class known as the square engine, 10 inches stroke and about 5 inches diameter. (I had no correct method of arriving at the exact diameter.) The piston rod is continued above the cross-head with reduced diameter, and up through the engine frame, upon which sets the air pump, 10 inches stroke and 2 inches in diameter, forming an arrangement of piston not unlike that of the Worthington pump. A separate eccentric is used for working the steam expansion valve, also, one for working the air valve. The steam chest is the same in all respects as those usually found on engines with the short slide valve, with the addition, however, of a face on one side of the chest, to admit the air, or, in other words, an air chest on the side, and opening into the steam chest. The air is compressed, as shown by gauge, to exert a pressure varying from 15 to 20 lbs. per square inch, and is admitted into the cylinder for 1 1/2 inches of the stroke of the piston, and then steam of a pressure of 50 lbs. per square inch for the following two inches, when all communication to the cylinder is closed, the engine making from 65 to 70 r. evolutions per minute, driving all the presses, but as soon as the air communication to the cylinder was closed, and the operation of the engine depended upon steam alone, its speed was immediately reduced, and finally stopped, and it was found that with all the steam they could get, it was impossible to drive one press.

I am further informed, that the cooler the compressed air enters the chest, the more satisfactory are the results to be obtained, and to that end it is proposed to immerse the air-pump and pipes as far as practicable in a cold bath. The coal consumed during the working hours (10) varies from 170 to 200 pounds, anthracite. As before stated, Mr. H. Allen conducted a series of experiments, and made reports, of which I have been kindly supplied with copies. The following appears in the report, dated July, 1854:

A steam engine, 8-inch diameter of cylinder, and 42-inch stroke, with suitable boiler, was fitted up, and also provided with the means of working an air-pump, and the valves required for introducing air into the cylinder. The revolutions of the engine were controlled by the friction of a pulley. As the same pulley, weight, and appurtenances were used in all cases, and great care was taken to keep a full and uniform supply of water to the surface of the pulley, a great uniformity of resistance was obtained. After working the engine as a steam engine at various degrees of expansion, it has been found that, with a pressure of 70 lbs. in the boiler, the best results have been obtained by letting on the steam for 2 inches of the stroke. With the valves so adjusted, the result of the trials with steam alone gave 170 revolutions for one pound of coal. Having made the trials with steam alone, the same engine was prepared for cloud combination, by adding the air-pump and valves. In this arrangement the air was let on for 1 1/2-inch stroke at its commencement, and then steam (boiler pressure 70 pounds) for the following 2 inches. The performance of the cloud combination, as shown by the several trials, exceeded 250 revolutions for one pound of coal.

In making these trials of the cloud combination, it has been found that when steam of about 60 lbs. pressure is combined with air of from 15 to 20 lbs. pressure only, there results a pressure from the combination exceeding that of the steam at least 10 to 15 pounds. This important fact was clearly brought out by the pressure gauges attached to the steam chest, which indicates the pressure of steam, both before the combination and after the combination. An increase of pressure of 15 to 16 pounds is invariably indicated.

Another manifestation of this increase of pressure is found in the operation of the check-valve in the steam pipe, through which the steam is introduced. This valve opens with the current of steam. When the engine is used as a steam engine, this valve closes gently by its own weight as soon as the cut-off stops the current of steam; but when the cloud combination is being used, this valve closes very soon after the steam is let on, and before the cut-off closes, with a degree of violence that shows there has resulted from the combination of steam and air an expansive effect much exceeding that of the steam used.

As the result of the trials referred to, I have to state that the increase of pressure arising from combination of steam and air is proved beyond a doubt, and that the increased useful effect resulting from this increased pressure, as shown by these trials, is over 50 per cent.

In August, 1854, a large boiler was substituted for the one used in the above experiments, and the following tabulated report made:

"I have repeated the trials of cloud combination with the same engine, but a larger boiler. The following is a statement of results:

First—Steam Alone.

Steam boiler.	Steam chest.	Coal to raise steam.	Coal while running.	Revolutions.
110 lbs.	100 lbs.	156 lbs.	156 lbs.	16,759

"Stopped three times for ten minutes. Time of trial, four and a half hours. Running time four hours, 16,759—156—107 revolutions for 1 lb. coal.

Second—Cloud.

Boiler.	Chest.	Air.	Coal to raise steam.	Coal while running.	Revolutions.
110 lbs.	100 to 110 lbs.	14 lbs.	166 lbs.	104 lbs.	19,740

"Running time, four hours.
"19,740—104—190 revolutions for 1 lb. coal.
"Cut off for steam, at 1 1/2 inch of stroke, expanding 7 1/2 times.

NOTICE—CAMDEN WATER WORKS.
The attention of the citizens of Camden is called to the following extract from the estimate submitted to the Camden Water Works by FREDERICK ERMANN, Civil Engineer:
"The discharge due by a 10 inch main, by the railroad line, at the fire plug, (Eight and Market streets,) under (the elevation of the new works), is equal to 88,520 ale gallons, sufficient for a population of 33,120, giving each inhabitant 30 gallons per day.
"A 12 inch main, from and to the same points, under the same head, is equal to 1,367,841 ale gallons, a supply at 30 gallons each for a population of 52,254.
"The reservoir will contain between 4 and 5,000,000 ale gallons, which is two weeks' supply to the present population."
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