

THE
PICTURE

OF

PHILADELPHIA,

*GIVING AN ACCOUNT OF ITS ORIGIN, INCREASE
AND IMPROVEMENTS*

IN ARTS, SCIENCES, MANUFACTURES,
COMMERCE AND REVENUE.

WITH A COMPENDIOUS

VIEW OF ITS SOCIETIES,

LITERARY, BENEVOLENT, PATRIOTIC, & RELIGIOUS.

ITS POLICE—THE PUBLIC BUILDINGS—THE PRISON AND
PENITENTIARY SYSTEM—INSTITUTIONS,
MONIED AND CIVIL—MUSEUM.

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PHILADELPHIA:

PUBLISHED BY B. & T. KITE, No. 20, N. THIRD-STREET.

For Sale by them and Joseph Delaplaine.

1811.

points of greatest elevation in each street ; and to insert in a book, the quantity of descent, expressed in inches to the hundred feet, and the depth and quantity of descent of the sewers ; which book is to be deposited in the city commissioners office, for public inspection. The task has been executed by Mr. Reading Howell. Future surveyors, and the city commissioners, are required to regulate the lines and limits of the streets, agreeably to the aforesaid draft.

There are now four city regulators : James Pearson, Reading Howell, William Stevenson, William Garrigues.

Water Works.

The attention of the public, to the future necessity of a supply to Philadelphia, of other water than that afforded by pumps and wells, was first excited by the venerable Franklin ; and in his will, he directed that when the interest arising from a legacy which he left for a purpose hereafter to be mentioned, amounted to a certain sum, it should be applied to the important object. Repeated attacks of an awful epidemic, a growing conviction in the public mind, of the connection between the cleanliness of a city, and its health ; of the utility of a copious supply of water in case of fire, and for culinary purposes ; and the deterioration of our pump water becoming every year more perceptible, a general sentiment appeared to prevail on the subject. In 1797, petitions were accordingly addressed to the city councils, signed by an unprecedented number of respectable citizens ; and their attention was, in consequence, powerfully directed thereto. Various schemes were proposed : the chief of which were, 1, The completion of the canal intended to unite the Delaware and Schuylkill. 2, Conducting the water of Spring-mill, fifteen miles, N. N.

W. of Philadelphia.* 3, To make a reservoir upon the banks of the Schuylkill, to throw up a sufficient quantity of water into a tunnel, and to carry it thence to a reservoir in Center Square: and after being raised there, to distribute it throughout the city by pipes. This was proposed by Mr. Latrobe. Other plans were suggested, which it is unnecessary to mention.

After much deliberation, councils determined upon the last plan, and Mr. Latrobe was accordingly employed by the committee, as engineer, and to make the necessary inquiry, as to the possibility of procuring the erection of steam engines of sufficient power. A contract was entered into with N. J. Roosevelt, of Soho, on the river Passaick, in New Jersey, for two steam engines, of a power to raise and deliver, at the height of fifty feet each, three million gallons of water in every twenty-four hours, throughout the year: and in order to provide for the great expenses which would be incurred by the work, councils proposed to borrow \$150,000, and pledged the income of the corporate estates of Philadelphia, and other adequate provision within the means and power of the city corporation, together with any aid the legislature might grant, for payment of the interest and redemption of the principal. Subscribers to this loan, were also to be entitled, in the first instance, to a preference of a supply of water, to one dwelling house of each share so subscribed, for three years, free of charge: but notwithstanding the ample security offered to monied men, and the respectability of the citizens in the councils, who took an active part in the business, the loan progressed with a slow pace. Two causes contributed to this circumstance. A loan had been proposed by the United States, at eight per cent, while only six

* An account of this spring shall be given hereafter.

per cent, the legal interest of Pennsylvania, was offered by the corporation. 2d, The stockholders of the Schuylkill and Delaware canal, whose charter granted to them the liberty of watering the city, opposed the project at every step, by petition to the legislature; and by their influence in the city and councils, as an infringement of their rights. This opposition contributed to a denial of that aid which had been requested, by petitions of the citizens and of the councils. 3d, From the novelty of the undertaking, the general failure of all previous attempts at the application of steam to mechanical purposes, in the United States, especially to boats: and our inexperience in the conducting the operations of a steam engine on land, also contributed, in the minds of many of the citizens, to raise doubts of the successful issue of the proposed scheme. Under these discouraging prospects, and in the hope that by a more clear developement of the plan, as expanded to view by its execution, confidence would be excited, and adequate subscriptions be made, councils, with a spirit of perseverance that cannot be too much praised, resolved to advance the work, with the funds in hand: but these were soon found to be inadequate; the individual members of the committee then generously advanced the necessary sums wanted, and the Bank of the United States also, afterwards loaned the sum of \$20,000, in anticipation of a tax of \$50,000, which councils determined to raise. By these aids, the works proceeded, and the credit of the city was preserved. On the 2d of May, 1799, the first sod was dug, and although a dreadful epidemic fever prevailed in the succeeding autumn, the work went on without interruption, and on the 21st of January, 1801, the first water was thrown into the city, about one mile of pipes being then laid. The rapidity with which the works were pushed forward, notwithstanding the solidity and

mass of the buildings, tunnells and piers, and in spite of the fever that afflicted the city, reflects infinite credit upon the engineer, and the committee of councils, with whom the superintendence of the work was specifically charged.

The foregoing account has been designedly minute, in order to shew the numerous difficulties that opposed the water works in their commencement; the great benefit from them, we hourly experience, and to which some of the then most violent opposers, have since owed the preservation of their property, and in all probability, the city much of its present health: for without pretending to ascribe to them all the latter effect, it may be mentioned as a striking fact, that the malignant fever in 1801, and since that year, has been chiefly, if not entirely, confined to those parts of the city and liberties, into which the water had not yet been introduced.

The mode in which the watering of the city is effected, is first by forming a basin on the Schuylkill shore, 84 feet wide, and 200 long, the bed of which is three feet below low water mark; from which is an open canal, of 160 feet long, extending to near the rise of the hill on which the lower engine stands. From thence the water passes through a subterraneous tunnel, six feet in diameter, and three hundred feet long, cut nearly the whole distance through granite rock, to the shaft in the engine house, where the pumps are fixed: this shaft or well is fifty-four feet deep, and ten feet in diameter; and is for twenty two feet, also cut out of the rock. After the water is raised through the shaft, by the engine, it falls into a brick tunnel of 6 feet diameter, and 1408 yards in length, which passes under ground, and leads the water up Chestnut street to Broad street, and from thence, into the center engine house, where it is again raised 36 feet from the surface of the street, and runs into a reser-

voir containing 16,000 gallons: from this it descends to an iron chest, outside of the building, to which the different mains that supply the general distribution are connected; the mains are, two of 6 inches diameter, and two of $4\frac{1}{2}$ inches.

The lower engine near Schuylkill, is a double steam engine of forty inches cylinder, and six feet stroke. The boiler is seventeen feet long, eight feet wide at the bottom, nineteen feet long, and ten feet wide at the height of five feet seven inches. It consumed fifty bushels of coals, and half a cord of wood, while rolling iron twelve hours, at twenty strokes per minute; and pumping water, six hours, at twelve strokes per minute. The air pump is an improvement upon that used by Bolton and Watt; consisting in its evacuating the condenser twice at every stroke, thereby creating a much better vacuum, and of course adding considerably to the power of the engine, in proportion to the diameter of its cylinder without increasing friction.

The engine at the center square is also a double steam engine, the diameter of whose cylinder is thirty two inches. It is worked irregularly, filling alternately the elevated reservoir, and stopping during the time occupied by the discharge of the water into the city. Mr. Latrobe rated it at twelve strokes of six feet, per minute, for sixteen hours in twenty-four, during which time it consumed from twenty-five to thirty-three bushels of best Virginia coals.*

The pipes through the city are chiefly of four and a half, and three inches bore.

The length of pipes laid, is about 35 miles. They extend through all the improved parts of the city.

* A more particular account of the construction of these engines, boilers, &c. may be found in the Trans. Amer. Phil. Soc. Vol 6. p. 89, by Mr. Latrobe.

The whole expense of the works from the commencement, to November 1, 1810, has been about \$500,000.

The pipes are bored by placing the log in two cast iron rings, and centered by regulating screws; as the log turns, the augers enter at each end, and meet in the middle; a pipe of fifteen feet long can be bored, and the joints made for the connecting cylinders, in fifteen minutes.

The connecting cylinders are of cast iron, widening at both ends, that as the log is driven up, the joints become tight.

Private families are supplied with water by small wooden and leaden pipes: the ferules that connect with the conduit, are half an inch diameter for private families, and larger, for breweries, manufactories, &c.

The number of manufactories, &c. supplied November the first, 1809, was 1590.

The rents of which amounted to \$9,105

The number of manufactories to November the first, 1810, 1,922

The rents \$10,931

Five engine men are employed in the work through the year, and eight others, including a blacksmith, a carpenter, a brass founder, and assistants. When pipes are laying and boring, more men are required.

The duty of attending to the various concerns of the water works devolves on the WATERING COMMITTEE, which is again formed into subcommittees of distribution, of accounts, and for purchase of fuel, timber, &c.

The committee of distribution regulate where pipes shall be placed, situations for pumps, fire plugs, and all other public fixtures; fix the price of water rents for manufactories, and all other works that require more water than a private dwelling.

Committee of accounts, examine the accounts and form an annual report to councils of the statement of the work, accounts, &c.

Committee for purchase of fuel, attend to the purchase of wood and coal.

Committee for timber, purchase all the pipe timber, and what other may be required.

The committee at large, direct the repairs and alterations.

The funds for the support of the works are raised by amount of water rents; the balance by a tax.

The water rents of this year amount to	\$10,931
The balance by tax.	18,500

\$29,431

which together are the estimate for carrying on the work for the year 1811.

The quantity of water pumped, will average 700,000 gallons per twenty-four hours.

The hydrant pumps are similar in construction to the common well pumps: the mode of supplying them is by a small cistern, to which the water is conducted, and fed by means of a ball cock, the ball having a lever which connects with the plug of the cock, that when the water in the cistern falls, the ball follows, and of course opens the cock.

The watering committee, from a desire to prevent the very great waste of the Schuylkill water, which prevails throughout the city, have published the following statement, to show how necessary it is for every person to avoid (and prevent as far as is in their power) all waste of the water, with which the city is so abundantly supplied, at a very great expense, which is considerably increased by continual abuses in the use thereof.

The quantity of water raised at the center square engine, for the supply of the city, is about 250 mil-

lions of gallons in a year, which cost about 20,000 dollars, or eight cents for a thousand gallons.

From various experiments made to ascertain the quantity of water discharged through a ferule of half an inch diameter in one minute, the result was, seven to ten and a half gallons, according to the situation and head of water at the center engine, the average of which is eight, five eighths gallons per minute, which in one hour will amount to $517\frac{1}{2}$ galls.

In one day 12,420 do.

In one year 4,533,300 do.

If the water from one house runs only half an hour in every day, the quantity in a year will amount to 94,500 gallons, at eight cents per thousand gallons, is \$7 56

The rent for the house per year is 5 00

The loss to the city is 2 56

The fire plugs are three inches diameter and will each discharge in one minute, from 200 to 250 gallons of water, according to the dimensions of the pipe of conduit it is attached to, and the head at the center square, so that in one hour from 12,000 to 15,000 gallons of water may be discharged from one fire plug.

Mint.

Previously to the passage of the law, by the federal government, for regulating the coins of the United States, much perplexity arose from the use of no less than four different currencies or rates, at which one species of coin was reckoned in the different parts of the union. Thus, in New Hampshire, Massachusetts, Main, Rhode-Island, Connecticut, Vermont, Virginia, and Kentucky, the dollar was reckoned at six shillings; in New York and North Carolina, at eight shillings; in New Jersey, Pennsylvania