

HISTORY
OF
DELAWARE.

1609—1888.

BY
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ASSISTED BY A STAFF OF ABLE ASSISTANTS.

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costly Federal building, Congress having appropriated \$150,000 for that purpose.

BOARD OF HEALTH.—A Board of Health for the borough of Wilmington was organized in 1793. Some of its original members were Drs. James Tilton, John Vaughan and Geo. Monro, all of whom were eminent practitioners of medicine in their day. Some of the other early members were Joseph Shallcross, John Ferris, Gen. John Stockton, Jacob Broom, John Warner and Joseph Tatnall. As a body it did effective work during the prevalence of yellow fever here in 1798 when Dr. James Tilton was president. In 1802 during the prevalence of the yellow fever its members were James Brobson, president; Samuel Spackman, secretary; Allen McLane, Edward Worrell, Joshua Seal, John Warner, James Hemphill, Joseph Bailey and Dr. E. A. Smith, port physician.

In 1832 when the cholera prevailed, Willard Hall was president, William Magens secretary and the other members were Dr. W. W. Baker, William G. Jones, Joseph Bailey, Samuel McClary, Samuel Hilles, Washington Rice, John Wright, John Wales, Samuel Wollaston and Stephen Bonsall.

In 1853 the members were Dr. J. G. Barstow, president; Hanson Harman, secretary; Ziba Ferris, treasurer; Samuel Hilles, William Rice, Thomas Mahaffey, Dr. J. F. Heyward, John H. Barr, Henry Eckel, James Murdock, Abner Cloud, John Rudolph, Dr. Henry F. Askew and John W. Smith.

Under an ordinance of City Council passed April 15, 1865, the Board of Health was composed of two members from each ward in the city and the port physician. This rule was in force until 1881 when an act of Assembly was passed under which the Board is now composed of the port physician, two other physicians, one practical plumber and one general business man. All except the port physician are appointed annually by the mayor. The chief engineer of the Surveying Department is *ex officio* a member, without salary as such. The other members of the Board receive \$100 each. The Board annually appoint two executive officers, one for the eastern and one for the western district, vested with police powers and receive \$500. It is their duty to attend all meetings of the Board and to examine into the sanitary condition of all houses in that city.

The impurity of the water supplied to the city from the Brandywine was a subject of frequent discussion. In 1863 Dr. L. P. Bush, Obed Bailey, Edward Darlington, Henry Eckel, Joseph Richardson and William Canby, members of the Board, were appointed a committee to examine into it and reported the water to contain an undue amount of mineral and organic matter.

In 1881 Dr. L. Bush was president; Dr. James A. Draper, Edward F. Kane, plumber; John Otto, Jr., general business; Dr. Willard Springer, port physician; M. C. Conwell, chief engineer; E. B. Frazer, Secretary; G. B. Underwood, executive officer eastern district; A. V. Gaynor, executive officer western dis-

trict. The work of this Board for the year 1881, according to the present report was arduous on account of the prevalence of small-pox. Prof. Leeds, of Brooklyn, analyzed the water of the Brandywine in 1882, when it showed a greater degree of impurity than ever before. This report was confirmed by an analysis made by Dr. J. H. J. Bush, the same year. The Board inspected the banks of the stream to the State line and had certain nuisances removed.

Drs. Draper and L. P. Bush and Mr. Otto were appointed to revise and condense the health laws.

Dr. E. G. Shortlidge and Dr. I. W. Hazlett were elected assistant vaccine physicians. In relation to small-pox the Board this year required the isolation of all cases, private funerals, all houses where deaths occurred disinfected, and would not allow convalescent persons to leave their homes without permission from a physician.

In 1884, Dr. A. H. Grimshaw, Seth H. Feaster and Alfred Gawthrop, were the new members appointed. In 1885, James C. Van Trump as plumber was the new member. In 1886 Dr. James A. Draper was president, James H. Griffin treasurer, Edward F. Kane, Dr. Howard Ogle, Dr. Willard Springer and Fred H. Robinson the other members. William H. Lee was chosen secretary.

The act of Assembly, providing for the registration of births, deaths and marriages was passed March 15, 1881. Under it the City Council on July 18, of that year appointed E. B. Frazer, the first registrar for a term of five years, with a salary of eight hundred dollars per annum. This officer is also secretary of the board of health with an additional salary of three hundred per annum. William H. Lee succeeded as registrar in 1886.

THE WILMINGTON WATER DEPARTMENT.—On 31st day of December, 1796, Isaac Hendrickson and William Poole were appointed a committee by the Borough Council "to inquire of the inhabitants of Wilmington who own pumps, whether they would be willing to give them up to the Corporation, who will take care of them and keep them in order." A few property-holders consented and this is the first reference in the borough records relating to water.

In 1800, an attempt was made by the Borough Council, to introduce water and John Way, John Jones and S. Nichols were appointed a committee "to examine into the propriety and expense of bringing water from the spring on the hill in Third Street near Tatnall, and conveying the water from Third down Market Street, to supply the town." This committee estimated the cost for eight hundred and thirty-five feet of pump logs, and for digging and laying them in the ground, and a cistern containing thirty hogsheads, would be £112 9s. and 11d. This effort to supply the town with water was, however, unsuccessful.

THE SPRING WATER COMPANY, was organized in 1803. The first directors were James Lea, William Robison, Peter Bauduy, Thomas Crow, John Sellars,

Joseph Bailey, James Brobson, Jacob Alrichs, Samuel Nichols, Eli Mendenhall, Edward Roche and Jeremiah Wollaston.

They were incorporated in 1804, as the "Wilmington Spring Water Company," with power to levy a sum of money on such persons as should use the water from its works. A fountain was opened on High (4th) Street, between West and Tatnall, which supplied all that part of the Borough lying south of High Street. In 1805, the works were extended to accommodate the inhabitants living north of Fourth Street, and arrangements were also made for fountains, persons owning property near Kennett Heights then outside the Borough limits.

In 1810, the Borough Council purchased of the Spring Water Company for ten thousand dollars all their right and interest in the water-works, and established the Wilmington water department. The water from the different fountains was conveyed in wooden pipes from the reservoirs at the Springs along the principal streets, where a number of cisterns were placed. In 1815, at the "upper work," a reservoir sixty feet long, ten feet wide and ten feet deep, was built of brick and arched. Into this reservoir the water was led and from thence conveyed in underground wooden pipes down the Kennett Road to Market Street to supply the inhabitants north of Fourth Street. On September 6, 1819, Joseph Bringhurst petitioned Council for the right to introduce "the Spring water into his kitchen," which was the first request of the kind made and was granted. This was the first hydrant used in the town.

The supply of water did not prove equal to the demand, because several citizens sunk pumps near the springs which diminished the supply of water. The large Lombardy poplars and willow trees in the vicinity of the Water Works were believed to absorb much of the moisture in the soil, and also aided in diminishing the supply of water at the Springs. To remedy this, the Borough Council unwisely ordered "all Lombardy poplar and willow trees growing in any of the streets, lanes or alleys of this Borough within fifty feet of any fountain, reservoir, cistern, conduit or well shall be removed." The action of the Borough authorities caused a great deal of dissatisfaction. The owners of those beautiful trees were unwilling to have them cut down, as they were an adornment to the town, and also furnished delightful shade. Many of them were relics of a former day under whose balmy shade the "forefathers of the village rested" their weary limbs protected from the scorching rays of the summers' sun. Some were planted by the ancestors of those who then owned them, and who were justified in saying "spare that tree, in youth it sheltered me and I'll protect it now." An old gentleman, on Market Street above Fourth, as the ruthless woodman was passing around fulfilling the edict of the irreverent Council, clasped affectionately the "dear old tree" in the front of his home saying, that if the axe touched "a single bough"

it must first strike him. The certiorari of a justice of the Supreme Court supported the ordinance of the Council, that "trees on the streets of Wilmington are public nuisances." The opinion of two attorneys declared that the certiorari was not a "superseedeas" of the warrant; but the edict of the benighted town authorities took its course, the sturdy monarchs of the highways were felled and soon their sacred ashes were offered in honor of Siva.

The trees were all removed and a few months later when the water supply from the springs was still inadequate to the demands the council awoke from its accustomed lethargy and stupidity, and in 1820 appointed Chief Burgess, Eli Hilles, and John Rumsey a committee to "view the field and report the probable expense of having the water brought from the Brandywine." They said at the next meeting that the revenue from the Water Works by taxation was fifteen hundred dollars annually, and the expenses the same amount. They said the scarcity of water in the upper district was so great and the works in such a ruinous condition, that the tax in justice could not be levied on the citizens of that portion of the town, which would decrease the revenue five hundred dollars. This committee also reported that for the sum of fourteen thousand six hundred dollars the town could be supplied with water from the Brandywine through iron pipes, by means of forcing pumps, to a tank or reservoir near the junction of Shipley and Chestnut (Tenth) Streets from whence it could be furnished in iron pipes to all parts of the borough. The report of this committee was not immediately acted upon. Three hundred dollars was, however, spent in 1823 in repairing the "upper water works." The combined works then furnished but fourteen gallons of water per minute against thirty-five gallons per minute in 1810. Then the noble old trees in the town were standing, and in 1823 they were gone and the difficulty remained. On August 2, 1824, a committee composed of Eli Mendenhall, Henry Hoopes and John F. Gilpin claimed that the deficiency "has arisen from defective log pipes and cisterns," and requested the use of iron pipes, and on May 2d of the same year Jacob Alrichs, John F. Gilpin and Eli Mendenhall reported the work so "far progressed as to be conducted in a three-inch iron pipe from the borough line to the lot intended for a reservoir" between Tenth and Eleventh Streets and Market and King. The reservoir at this place was built under the superintendence of William H. Naff. The site was purchased of Isaac Kendall.

In 1825, permission was granted to all citizens to introduce spring water in yards and houses, in metallic pipes.

Joseph Grubb, Aaron Hewes, Frederick Leonard, Israel D. Jones and James Gardner were appointed a committee to consult with Eli Mendenhall, Henry Heald, Isaac H. Starr and Jacob Alrichs and propose the adoption of some measures "to insure an ample supply of water for domestic and other purposes."

Their report presented August 26, 1826, was brief. They unanimously decided the only hope was for the people of Wilmington in the future to quench their thirst with "Brandy Wine." On the 17th of June, 1827, the borough authorities purchased of John Cummins for the sum of twenty-eight thousand dollars his large mill on the south side of the Brandywine as the site for the location of the Double Acting Pump to be used as a motive power to force the water to the basin. On July 9th. following, a lot fronting on Market, Tenth and King Streets (now the site of the court-house) was purchased of Sallie N. Dickinson for twenty-seven hundred dollars where the reservoirs were erected. Fire plugs were also erected at the same time.

In 1832, the remainder of what is now Court House Square, was bought for twelve hundred dollars.

The forcing pump, which cost eight hundred dollars, was made by Prosper Martin, of Philadelphia. A stone building covered the over-shot water-wheel at the mill enclosing also the pump which was worked by the water-wheel of the mill. The pump was put into operation November 15, 1827, with a six feet stroke and in eighteen minutes the water reached the west basin. Israel D. Jones ran up from the pump and took the first draught of water at the basin.

The length of the pipe from pump to basin was two thousand one hundred and twenty feet, and the ascent ninety-nine feet. The iron pipe was eight inches in diameter and from mill to basin contained five thousand five hundred and thirty-five gallons of water. The two basins adjoined each other and when filled had a combined capacity of one million gallons, or ten thousand hogsheads. There could be thrown four hundred and eighty-seven thousand six hundred gallons per day into the basins.

The civil engineer who superintended the erection of the works was Jonas P. Fairlamb, a well-known citizen of Wilmington. Chief Burgess at the time was James Brobson; second burgess, Frederick Leonard; council, Joseph Grubb, Henry Rice, Israel D. Jones, James Gardner, Thomas Moore, John M. Smith, Mahlon Betts, Eli Sharp, William Larkin, William Townsend, Aaron Hewes, Jacob File, Elisha Huxley. The mason work was done by John Webster, excavation made by Joseph Pierson and pipes laid by James Logan.

A two-story building was erected at the northeast corner Market and Tenth Streets, and long used as the office of the water Department. In 1837 a new forcing pump, made by Betts, Pusey and Harlan, was purchased for one thousand two hundred dollars. In 1839 a new basin one hundred and fifty-eight feet by eighty feet and fourteen feet deep was built at a cost of four thousand nine hundred and seven dollars, but there were no improvements made until 1847.

The cost of what was known as the Spring Water Works from 1820 to 1827, was twenty-two thousand three hundred and eighty-eight dollars; cost of Brandywine Water Works, erected in 1827, was forty-

two thousand and twenty-six dollars; cost of management and improvements from 1827 to 1847 inclusive sixty-eight thousand four hundred and fifty-one dollars.

Owing to the insufficient supply of water on September 7, 1848, on motion of James Canby, the mayor appointed David C. Wilson, Isaac R. Trimble, Elisha Huxley, Dr. Henry F. Askew, Mahlon Betts and Nelson Cleland from the citizens of Wilmington, and William R. Sellers and Dr. Robert R. Porter from the Council and the Water Committee to examine into the condition of the Water Works. The size of the reservoir was then increased one half. In 1855 a direct acting Cornish pump was added to the power of the works, and used until 1872.

The first annual report of the superintendent of the works was made by Aquilla Pritchard, in 1857, in which it was stated that an average of fourteen million gallons of water monthly supplied the city, and distributed to two thousand six hundred and five places. The total number feet of pipes laid was sixty-three thousand eight hundred and eighty-eight; entire cost of Brandywine Water Works, one hundred and thirty-four thousand seven hundred and twenty-eight dollars; amount of water rents received annually, sixteen thousand dollars. An act of the Legislature was passed empowering the Council to borrow ten thousand dollars for extension of the water works. At this time the machinery of the works consisted of a water-wheel, two double acting forcing pumps, of eight inch diameter, and a Cornish pumping engine with one eighteen-inch, all forcing water through one sixteen inch main into the basins. In March, 1861, the mill property and water power of James E. Price, west of the city mill, was bought for twenty-five thousand dollars. Mr. Bayard, in January, 1862, sold the City Council, a part of his land known as the "Gilpin tract," near Ninth and Broome Streets for fifteen thousand dollars. Part of this land was exchanged for lands of Dr. George P. Norris and Charles W. Howland, the present site of the Rodney Street reservoir.

The superintendent in his report for 1864, stated that the new reservoir in the square bounded by Rodney and Clayton Streets, and Eighth and Ninth Streets, was partially erected. An eight-inch pipe was laid from a new pipe and a boiler-house was erected on the old basin square at Tenth and Market. The pump was also connected with the old basins. The whole cost of the improvements made was \$19,205; the amount appropriated by Council under new legislative enactment \$25,000; the amount of water rent for 1863 was \$19,772; cost of laying pipe from pump-house to new basin and connecting with old basin, \$14,020. The Council sold bonds of the city to the amount of \$15,000 to complete the works. In 1866 the water committee reported the works to consist of two double-acting pumps, capable of forcing into the reservoir at Tenth and Market Street, nine hundred thousand gallons of water in twenty-four hours, and

a Cornish steam pump forcing through a twenty-four inch main-pipe one million gallons daily. This aggregate was not considered sufficient to supply the future demands of the town. A citizen committee composed of Edward Betts, Wm. T. Porter, William Canby, Jesse Sharpe and John Jones after conferring with Gregg Chandler, Jos. C. Rowland, John A. Duncan, Philip Plunkett and C. H. Gallagher the water committee, reported at a public meeting of the citizens, held February 13, 1867, "the absolute necessity of increasing the supply of water." On motion of Dr. L. P. Bush, the City Council was recommended to make application to the Legislature to borrow money for completing the Cool Spring reservoir. A bill authorizing a loan of two hundred thousand dollars "for the sole purpose of increasing the supply of water in Wilmington," was passed. Isaac S. Cassin received seven thousand dollars in 1869, for repairs made on the Rodney Street basin. The daily consumption of water in 1869, was 1,118,237 gallons. A committee of the City Council composed of C. H. Gallagher, George H. Walter, H. F. Pickels, H. F. Finegan, Jr., and E. J. McManus April 7, 1870, urged the erection of new water works. William E. Morris, civil engineer of Philadelphia, was employed to "go over the whole ground" and make a report to the Council, which he did August 31, 1870. The large increase in the consumption of water on the river front, together with the increase of population in the lower part of the city, made such a draft upon the pipes as to almost deprive citizens who resided on the elevated parts from obtaining any water except at night and on Sunday. Improvements were needed, but at this time none were made, save a new pump-cylinder and a new boiler were placed at the pump-house on the Brandywine. In October, 1871, the office of the water department was removed from north-west corner of Tenth and King Streets, to the north-west corner of Tenth and Market Streets, and the old office was used by the surveyor and engineer. On February 1, 1872, Col. Febiger, in behalf of the water committee, reported that a contract had been entered into with Henry R. Worthington of New York, for the construction of a compound Duplex pump to cost \$37,000, with a capacity of forcing 5,000,000 gallons per day. The total amount of water supplied to the city in 1871 was 551,232,000 gallons, forty-seven gallons to each citizen, ; number of places supplied, 5,358 ; entire revenue \$44,000.

J. D. Winslow constructed a new pump-house sixty feet square, for \$9,486, on the site of the old mill in 1872. The total cost of the Water Works to the city, including expense of running from the time of their establishment in 1872, was \$354,589.

There was general discontent among the tax-payers of the city, and March 30, 1877, an act of assembly was passed by which the completion of the Cool Spring reservoir was taken out of the hands of the City Council, and John P. Allmond, Cæsar A. Rodney and James Bradford created a commission to

carry the work into execution. They secured the services of Col. Julius W. Adams, engineer of the Brooklyn Water Department, Charles P. Manning, consulting engineer of the Baltimore Water Department, and William J. McAlpine, hydraulic engineer of New York who examined the incompleting reservoirs, and made a report giving their views as to the best method of procedure to finish it. The commission acting upon this report and upon their own judgment, entered into a contract with Peter F. Collins and James Kennedy, of Philadelphia, to complete the North Basin for \$33,000, with a capacity, filled to the coping, of 17,964,000 gallons, and \$36,600 for the South Basin, with a capacity of 20,809,000 gallons. Samuel Canby was the resident engineer, and gave the lines for the work. Cool Spring Reservoir was entirely finished and opened Tuesday, December 18, 1877, and the water was turned into the supply pipes on January 1, 1878.

The board of Water Commissioners was created by act of Legislature passed April 18, 1883, which named William T. Porter, Cæsar A. Rodney, and Lewis Paynter as the first members, who by drawing lots were made members for six, four and two years respectively. Upon the death of his two associates, William T. Porter, by virtue of his office appointed William G. Gibbons and Christian Febiger to fill out their unexpired terms, at the expiration of which the mayor under the act appointed James Carmichael to succeed William G. Gibbons, and reappointed Christian Febiger.

During the early history of the Water Department some of the superintendents were James Logan, appointed in 1826 at three hundred dollars per annum, Joseph Seeds, in 1830 ; Joseph R. Townsend, in 1839 ; Thomas Mahaffey, in 1845 ; James G. File, in 1851, and Aquilla Pritchard, in 1856. The last named served several years. Upon the reorganization of the Water Department, the office of chief engineer was created and Charles H. Gallagher was first appointed by Council to that office. Joseph Hyde succeeded in 1874 ; Allen Ruth, in 1875 ; Charles H. Gallagher, in 1876 ; Henry B. McIntire, in 1878 ; David H. Coyle, from January, 1883, to July, 1884, when the Board of Water Commissioners organized. The appointing power being now vested in the hands of that body choose Henry B. McIntire, who retired in May 1886, and the present chief engineer, Joseph A. Bond, was appointed.

The office of registrar was created in 1871, when Frank A. Taylor was the first appointee. His successors have been, William S. Hayes, William J. Morrow, Thomas M. Ogle, Joseph A. Bond and John S. Grohe. George H. Simmons is inspector and collector.

Chief Engineer Bond in his report for the year ending January 1, 1887, gives the receipts for the preceding twelve months, \$178,849 ; disbursements \$130,430, with a balance on hand of \$43,418. The revenue of the Water Department increased from \$19,696 in

1862 to \$98,046 in 1886. During the year 1886, there were supplied to the city 1,738,412,408 gallons of water. Estimating the population then at 52,000, the daily average *per capita* was ninety-one and three fifth gallons.

THE WILMINGTON GAS COMPANY was organized in 1833, with a capital of six thousand dollars, in two hundred and forty shares of twenty-five dollars each. Five dollars on each share was paid at the time of subscription. The commissioners named in the charter of incorporation granted by the Legislature were, James Canby, William Seal, Thomas Garrett, Elisha Huxley and Lewis Rumford. James Canby was the first president of the company and the first secretary, William H. Naff. The office was at No. 1 West Fourth Street.

The works were erected on Orange below Water Street, and rosin was used in the production of gas. The price at first charged was eighty cents per hundred cubic feet of gas, which in 1835 was reduced to seventy cents. In April, 1835, Dr. James W. Thompson, Edward Grubb, John McClung and Peter B. Porter, "a committee of consumers," reported through the newspapers that the gas supplies by rosin works afforded "cheaper light than sperm oil and for beauty, brilliancy and freedom from smoke far exceeds it." The works were enlarged in 1847, "for the purpose of supplying the increased demand for gas." The first superintendent was Peter Bourk; he was succeeded by Samuel McClary who managed the works for several years. The meters used by this company were made in London.

On Thursday evening January 20, 1848, as a small boy was amusing himself by lighting a small jet of gas issuing from the gasometer, the flames were communicated to a large body of gas, and a terrific explosion took place. The works were blown up and the loss was two thousand dollars. The boy was injured; there was an insurance of three hundred dollars in the Delaware Fire Insurance Company. The company before this accident was just out of debt, new works were built and the company continued to operate until 1851, when the Coal Gas Company purchased its effects.

WILMINGTON COAL GAS COMPANY.—By an act of the Legislature, passed March 4, 1851, Jesse Sharpe, J. T. Seal, Joseph Seal, John A. Duncan, Stephen Bonsall, Samuel McCaulley, William Chandler, Washington Jones, Jacob Rice and their associates, or persons who shall become stockholders, were constituted a body politic and corporate by the name and style of the "Wilmington Coal Gas Company." Under this act the capital stock of the company was fixed at \$60,000, in twelve hundred shares of \$50 each, with the privilege of increasing it to \$130,000. At a meeting held March 11, 1851, Stephen Bonsall was chosen president of the company, John A. Duncan, Secretary and Washington Jones, treasurer. The next meeting held on March 13th, nearly the entire amount of the capital stock was subscribed. A portion of the site

now occupied at the corner of Madison and Read Streets, was purchased, on which works with a limited capacity were erected and the gas was first turned on for use, November 22, 1851, and during the first night seven thousand two hundred and ten cubic feet of manufactured gas were consumed. Originally there were but fifty consumers. The average daily consumption for the month of December in the years named was about as follows: in 1851, 8000 cubic feet; in 1852, 15,000 cubic feet; in 1860, 60,000 cubic feet; in 1870, 120,000 cubic feet; in 1880, 250,000 cubic feet; in 1887, with four thousand four hundred consumers about 500,000 cubic feet, daily. The works as first built, had a holding capacity of 30,000 cubic feet of gas, and a manufacturing capacity of 50,000 cubic feet, and had a retort house, a purifying house and a condenser.

Soon after the first works were constructed, additions and improvements were made. The most important improvement made in 1887, was the water gas plant, originated by Joseph Flannery, of New York, as an auxiliary to the coal gas works, thus increasing the producing capacity of the entire works to one million cubic feet in twenty-four hours. The consumption of coal in producing gas is ten thousand tons annually; the entire consumption of gas for the year 1886 was 108,000,000 cubic feet. Two engines of fifteen-horse power each are used, and the exhausters, scrubbers and condensers are all in duplicate. The plant covers an area of about three hundred feet square. The company owns three acres of land near by and south of P. W. & B. R. R. A holder with 88,000 cubic feet is situated at Fourteenth and Wilson Streets; one holder at the works has a capacity of 450,000 cubic feet, and the other 100,000, both telescopic.

While the English and American law requires the gas companies to furnish gas of sixteen candle power, this company furnish gas equal to twenty candle, which is twenty-five per cent. more light than is required by law.

Stephen Bonsal, the first president of the company, served from 1851 to 1864, when he resigned, and George Richardson was elected president, and has since occupied the position for a term of twenty-three years.

John A. Duncan was secretary from 1851 until his death in 1868, when Thomas Lawson succeeded him from 1868 to 1877, at which time William P. Taylor, the present secretary, was elected. In 1856, John A. Duncan was chosen treasurer, in connection with the office of secretary, and since that time the secretary has also been treasurer of the company. Washington Jones was treasurer until 1856, when John A. Duncan, the secretary, was also chosen treasurer, and since that time the two positions have been filled by the secretary. The business office is at 300 Shipley Street.

Thomas J. Mahaffey was superintendent of the works from the time of their erection until 1867,