

THE
MEMORIAL HISTORY
OF
HARTFORD COUNTY
CONNECTICUT
1633-1884

James EDITED
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IN TWO VOLUMES

VOL. I.

HARTFORD
COUNTY TOWN AND CITY

PROJECTED BY CLARENCE F. JEWETT


BOSTON
EDWARD L. OSGOOD PUBLISHER
1886.

brick and holding about fifteen thousand gallons each. In the main they were supplied by rain-water led from the roofs of neighboring buildings. They were located as follows: Main Street, near Nos. 32, 91, 93, 126, 217, 300, 413, 480, 645; State Street, east end of State House Yard (City Hall Square); Temple and Kinsley streets, in yard west of the old city hall; Front Street, near Nos. 104, 217; Trumbull Street, near Nos. 70, 105, 139; Mill (now Wells) Street, Park River, west end, No. 47; Elm Street, Park River, west end, No. 40; Washington Street, near No. 155; Wadsworth Street, near No. 36. Most of these are still in existence and available. Those on Kinsley Street and Washington Street have been discontinued.

The paid fire department in substantially its present form was ordered by the Council in October, 1864, and the board took possession the 1st of December of the same year. Before that time the chief engineer and his assistants, with the foremen and assistants of the companies, had formed the "Board of the Fire Department." Under the new system a city board of six members was created. There was a chief engineer and three assistant engineers. There were four steam fire-engines and two hose companies. The first board was composed of R. S. Lawrence, W. S. Bronson, Joseph S. Woodruff, Samuel H. Havens, Albert W. Roberts, and A. M. Gordon. The cost during the last full year of the old system, which ended April 1, 1864, was \$22,450.27. Three years later the expense was only \$18,000. The yearly payments for working expenses have increased more rapidly than the population, and in 1884 were \$62,762.30. In this year there were seven steamers, including two propellers, and a corresponding supply of hose-carriages, hose, and other apparatus. In 1868 the fire-alarm telegraph system was put in operation, and now has fifty-five signal-boxes and about thirty-five miles of wire.

On the introduction of the paid system there was a great falling-off in the yearly number of fires. The figures for the decades preceding and following the change, which was made late in 1864, were as follows: 1855, 46; 1856, 28; 1857, 62; 1858, 70; 1859, 110; 1860, 80; 1861, 47; 1862, 40; 1863, 34; 1864, 53; 1865, 39; 1866, 35; 1867, 14; 1868, 23; 1869, 28; 1870, 30; 1871, 37; 1872, 43; 1873, 32; 1874, 22. The total for the former decade was 570, and for the latter 281. This was in the face of a considerable increase of population and of buildings.

The engineers of the department since its organization in 1789 have been: Miles Beach, 1789-1805; James Ward, 1805-1820; Jeremy Hoadly, 1820-1825; J. M. Goodwin, 1825-1833; William Hayden, 1833-1843; A. S. Stillman, 1843-1846; R. G. Drake, 1846-1848; Charles Benton, 1848-1850; Erastus Hubbard, 1850-1852; John Carter, 1852-1854; J. G. Parsons, 1854-1856; Joseph Pratt, 1856-1858; S. H. Havens, 1858-1860; Edward Norton, 1860-1862; Horace Billings, 1862-1864; Jared B. Butler, July 1864 to Dec. 1864; Henry P. Seymour, 1864-1868; Henry J. Eaton, 1868-

The Hartford Aqueduct Company was chartered in 1797, but did nothing. In 1801 the Gleason and Cowles Aqueduct Company was chartered, and there was another Hartford company of a similar nature in 1803. It is commonly said that the Hartford Aqueduct Company laid the wooden pipes from near Cedar Hill, but it does not seem to be

certain that the work was done for this company. These pipes, early in the present century, brought water from the famous well on the Dolly Babcock farm, on Park Street, and probably from a spring near the David Clark place, on Cedar Hill. Some such supply had been long demanded because of complaints as to the character of the well-water in certain regions. In the north part of the city the well-water was hard and somewhat impregnated with sulphur; and toward the river, where many of the best families then lived, wells were liable to be affected by the water of freshets. The aqueduct was made of bored logs, reamed and tapered at the ends, so that they could be driven together, making a tight joint. The work was done by a Vermonter named Cutler, who while engaged in it was engaging himself to the daughter of Captain Robbins. He married her, and Mr. Robbins put money into the aqueduct scheme and lost it. The work was completed, and it is supposed that about two hundred persons used the water for a number of years. It gradually fell into disuse. The supply was not what had been anticipated, probably because the pipes were too small, having only a two-inch bore. The system, however, remained in pretty good order. In 1850, many years after it had been abandoned, the cellar of Bartlett's tavern on Ferry Street was found one morning full of water, and it appeared that an old plug connecting with this aqueduct had blown out, and the water had poured in as promptly as it would have done forty years before. These pipes ran from the sources above mentioned down Lafayette Street, across Bushnell Park, crossing Park River near where the Plimpton Company's stamped-envelope works now stand; thence down Pearl Street to Main, where branches led north and south; and thence to the lower part of the city near the river. There was much opposition to the project at its inception.

The same feeling, on a large scale, was manifest when, between forty and fifty years later, the agitation for an adequate system of public water-works began. There had been some recent discussion of the subject when, in January, 1847, Dr. Bushnell preached his famous sermon which, under the title "Prosperity our Duty," was eminently suggestive, and suitable to the time. Its text was the passage: "This same Hezekiah also stopped the upper water-course of Gihon, and brought it straight down to the west side of the city of David. And Hezekiah prospered in all his works." In it he especially disclaimed having preached a discourse on the water project, and it is true that it does not directly and explicitly deal with the question; but its application was too clear to escape the notice even of the heedless, and it was admirably suggestive in the time in which it was delivered. It was at that time proposed to bring water in a canal from Windsor Locks, and use the power furnished from the canal to pump part of the water to a suitable reservoir. Soon after the council appointed a committee to report on this plan. The report was adverse. Several years passed, during which all sorts of plans and sources of supply were suggested. The plan adopted, after much discussion, provided for a supply from the Connecticut River at Hartford, the water to be pumped by a Cornish engine and delivered in a reservoir to be built on Lord's Hill. Another locality for the reservoir favored by many was on Clark Street. The work was beset with difficulties from the outset. The engineer had made estimates that it was found must be

far below the actual cost; the Hartford firm of Woodruff & Beach, which built pumping-engines and had been neglected in awarding the contract, used what influence it had to call attention to defects in estimates and plans of construction; contracts were made requiring payments at fixed dates, and the bonds authorized by the city were not yet on the market. This was in 1854, the surveys having been begun in October, 1853, and ground broken in June, 1854. The first board of water commissioners succeeding the incorporators, who had partly bought the land and made certain contracts, came into office in 1854.¹ It was composed of Ezra Clark, Jr., E. K. Root, E. M. Reed, Daniel Phillips, and Hiram Bissell. Mr. Clark was the president of the board. Their first annual report, dated April 23, 1855, was such a document as is not often seen. In reciting the condition of things when the board took office, it gave particulars that were unpleasant to many persons. It announced the discharge of the engineer for incompetence, suggested that the common council had not used reasonably good judgment, showed how a technically irregular sale of bonds had been necessary, how one member of the board had put in his own money to help the credit of the city, how an injunction on the delivery of bonds sold had been obtained on a technicality, and how this had reduced the market value of the bonds, cost the city several thousand dollars in premiums, and hurt the city credit. The council declined to receive the report, and no copy was printed that year. The year following five hundred were printed with other public documents, apparently without any order to that effect, although they were paid for by the council. One act of this board was to annul the contract for a Cornish engine and order a Woodruff & Beach engine, at a cost of \$17,500 in place of \$21,000, which was to have been paid for the Cornish engine.

Nathan Starkweather was made chief engineer in March, 1855, and under his direction the original water-supply system was built. The pumps were started Oct. 23, 1855. The water was taken from the Connecticut through a 24-inch pipe which extended out into the channel of the river, having its orifice about six feet below the surface. This pipe led to a well, from which the water was drawn by the pumps.

Within a year it was found that the reservoir was too small, and this was mentioned in the 1857 report. This also contains a complaint of the enormous waste of water. During the year covered by this report the largest amount pumped in any month was 16,836,280 gallons in January, 1857, and the least, 2,625,800, in March, 1856. Water was supplied to 725 families, 112 stores, 75 offices, 12 restaurants, 8 hotels, 33 private stables, 12 livery stables, 44 manufactories, and 18 markets, — the income from these being \$9,517. Other charges for water supplied to the Hartford and New Haven, and the Providence and Fishkill railroads, the fire-hydrants, street watering and building purposes, brought the receipts up to \$14,792. The commissioners announced their expectation that within two years the income from water-rents would meet all expenses. This hope was not realized. In the 1858 report the number of families supplied had increased to 1,457, and the rents were \$18,964.98. In the 1859 report it was noted that up to date about 23 miles of pipe had been laid, and that of 2,911 buildings on the

¹ The incorporators were Thomas Belknap, Calvin Day, John Carter, E. K. Root, and E. K. Hunt. They were chosen in May, 1853.

line of pipe, 1,976 used the city water. A revision of the rates charged was advised. The average daily consumption was 661,245 gallons, which was said to be at least twice that probably used for legitimate purposes, the rest being wasted. Tests showed that in November the use of water between 10 P.M. and 7 A.M. was about two thirds the average use, indicating a great waste. The 1860 report alluded to a plan for an additional water-supply which would be submitted to the council, and not far from the time the report was printed this plan was communicated to the council in a special report. In brief, it suggested a reservoir at West Hartford and a supply by gravity, substantially as afterward carried out. The 1861 report, in alluding to this subject, said: "There is no time for delay; the exigency of the city demands action, final and definite." It had become evident to those at all familiar with the subject that a supply depending on a single pumping-engine, and a reservoir holding little more than a week's supply, was inadequate to the needs of the city, whether the actual consumption was legitimate or wasteful. The 1862 report announced a surplus revenue for the first time, the amount being \$1,031.65. On May 27, 1861, the common council referred to the water-board the inquiry as to an additional water-supply. The board employed Professor Benjamin Silliman, of Yale, to look into the quality of the Trout Brook water and the probable adequacy of a supply from that source. Mr. McRae Swift, a well-known civil engineer, was also employed to report on the matter from an engineering standpoint. Professor Silliman's report was in every way favorable. Mr. Swift advised either increasing the pumping facilities or adopting the West Hartford plan, and favored the latter. At this time it was proposed, in case the pumping system were developed, to build a reservoir on Zion Hill. The estimates were made on a daily consumption of 2,000,000 gallons, nearly twice that then recorded. Nothing came of all this at the time. In 1863 the pumps were repaired and the engine regulated to a higher speed, so as to give an increase of about 25 per cent in the pumping capacity. On Nov. 9, 1863, the council directed the water-board to obtain plans and estimates for an increased supply from the Connecticut River. Mr. William E. Worthen, of New York, was employed, and reported a plan for the addition of a pumping-engine with twice the capacity of that then in use, the two to be capable of delivering 6,000,000 gallons a day, and a reservoir of 35,000,000 gallons capacity to be placed on Zion Hill. The total cost was estimated at \$230,000. This plan was then laid aside, and in October, 1864, the city voted in favor of a supply by gravity from West Hartford. The land (eighty acres) was secured at once and the work begun.

It may be noted that the progress of the movement to secure a supply from West Hartford, as above outlined, omits a host of details. As early as May 21, 1860, the common council had voted that the water commissioners be authorized to bring water from West Hartford according to a plan already proposed by them. This, however, needed to be ratified by a vote in a city meeting. After various conferences and amendments, the matter was voted on at a city meeting, April 13, 1863, and the Trout Brook scheme was carried, 2,501 to 831. Then it appeared that the charter authorized votes at a city meeting for the choice of city officers only. At the May session of the legislature that year a

resolution was passed which practically supplied this deficiency in the charter, and a new election was ordered for July 7, 1863. At this the Trout Brook scheme was defeated, 843 to 1,091, and it was after this vote that Mr. Worthen was employed and made his report for a new pumping-engine. A vote to carry this plan into effect was indefinitely postponed in both branches of the council, March 28, 1864, and the water-board was directed to apply to the legislature for leave to bring water from West Hartford. Six weeks later, a new council having come in, this vote was rescinded, and on May 27 the council again directed the board to press the petition. This last resolution, however, was vetoed by the mayor, and lost on reconsideration, June 27. In August a preamble and resolutions providing for an additional supply from the Connecticut River were tabled, and September 24 were rejected, and the final resolution in favor of the West Hartford scheme passed, the necessary city meeting being ordered for October 3. At this the Trout Brook plan was adopted, 1,510 to 508. The difficulties of the board were not ended. There was an injunction from Childs Goodwin, of West Hartford, which made no great difficulty; and then in March, 1865, another, granted on the application of Messrs. Lawson C. Ives, J. F. Judd, and ten others, of Hartford, restraining the city and the board from "purchasing any pipe or land or other materials, or making any contract, or doing any other act for the purpose of bringing the water from Trout Brook to the city, or for taking the same from any other place but the Connecticut River." All obstacles were not removed until late in July of 1865, from which time the work continued without further interruption. On Jan. 2, 1867, at 2 P.M., the water was let on from West Hartford, and the pumps, which had long been running far beyond their proper capacity, were stopped. For the last part of the time they had been furnishing over 2,000,000 gallons a day.

This first reservoir, now the distributing reservoir for the whole system, was built under the direction of Mr. George Marsh and Mr. Samuel M. Gray, the latter succeeding as engineer on the death of the former. It is on the Farmington road, five miles from Hartford, has an elevation of 260 feet above low water at Hartford, covers 32 acres, and has a capacity of 145,000,000 gallons. The main pipe laid at this time was the wrought-iron and cement, which proved unsatisfactory, and after causing trouble for a number of years was in great part replaced by cast-iron pipe.

The reservoir stood, as built, less than a year. Gravelly soil had been used in its construction, and when, on the night of Sept. 5, 1867, there came a rain-storm said to be the most violent remembered in that region, the torrent of water running off the road at the side of the dam, together with the water from the overflow sluice, cut the outer bank and caused an extensive landslide. The dam was thus weakened. A new reservoir was at that time partly completed some distance up the stream. This held considerable water, and its dam then gave way, letting this body of water down into Reservoir No. 1, raising the water at once about four feet above the line of its established level. The waste-way relieved it so slowly that for several hours the water stood against the upper part of the already weakened dam, and subjected the whole structure to an additional pressure corresponding to the increased depth. The water began to work through the upper part

of the dam, and presently formed a channel connecting with the landslide above mentioned. The report of the board says, as to what happened afterward: "So rapid was the action thereafter, that in twenty-two minutes from the first starting of the small current the whole dam was cut asunder down to its base, and all the water—about 200,000,000 gallons—discharged from the reservoir." The escape of this great quantity of water caused no loss of life, and perhaps less damage to property than might have been anticipated. The claims on account of private property were only about \$7,000, and the town of West Hartford estimated its loss in bridges, etc., at about \$11,000. All claims were settled for less than \$11,000. The dam was so far repaired that water could be supplied to the city by the 5th of December in the same year.

The reservoir mentioned as partly finished, and contributing by its breakage to the destruction of Reservoir No. 1, was that known on the maps then made as No. 3. No. 2 was to be on Mine Brook, an affluent of Trout Brook; No. 3, on the same brook higher up, and No. 4 on Trout Brook, nearly a mile above Reservoir No. 1. This reservoir was finished in 1869, and as built held, when full, 185,000,000 gallons. It was first filled in May, and the first flow over the waste-way was early in June. In the autumn of 1870 the dam was raised five feet, adding about 100,000,000 gallons to the capacity of the reservoir. In the 1871 report, as in all before it, attention was called to the great waste of water and the rapidly increasing consumption, and it was suggested that a new reservoir be built. The disappointment which had been experienced as to obtaining a sufficient supply was partly due to the fact of the greatly increased consumption, and partly to an apparent failure to understand that, though the available watershed might yield more than could be used, most of it would run to waste through coming at times when the reservoirs were already full.

In November, 1871, a contract for new pumps at the pumping-station was made. They were to be ready in four months, but, in fact, were not ready to run until Sept. 27, 1873. There had been a very dry season, and the supply of water from West Hartford gave out just four hours before the pumps were started. During this interval the only source of supply available was the Garden Street reservoir, which had been filled, and was kept as a reserve in case of fire. In consequence of this the proposition for an additional reservoir was pushed with more vigor, and the work of building No. 4 was begun in 1875. By November water began to be stored, and the work was finished November 22, in the same year. It contains 154,000,000 gallons. It was built by Seth E. Marsh, then president and engineer of the board, with Henry W. Ayres as assistant engineer in charge of the work.

The report for 1877 announced that for the first time in its history the department was fully self-sustaining, the cash receipts paying all expenses, including \$24,124.14 for construction, the interest on the bonds, and over \$9,000 extra repairs, and leaving a surplus of nearly \$4,000 in the treasury.

Beginning in August, 1874, there was a prolonged drought, which continued into the summer of 1876. The pumps were run from August, 1874, almost every day until December, and then from Jan. 7, 1876, until March of the same year. This, with the constantly increasing

consumption of water, led to the construction of another reservoir. This was placed on an independent watershed, lying in the towns of West Hartford, New Britain, and Farmington, and has a capacity about equal to that of all those previously built. It was finished Nov. 1, 1879. In 1884 a supplementary reservoir holding 100,000,000 gallons was built on Mine Brook, to save the overflow from the upper reservoirs. In the same year the pumping-engine was repaired, and put in so good condition as to pump as much water in fourteen hours as it had previously furnished in twenty-four hours. The Brandy Brook canal, connecting with the Farmington reservoir, was completed, and adds the water from a drainage area of about two miles.

The system thus elaborated during twenty years is in brief as follows: There is a pumping-engine which takes water from the Connecticut River and can furnish 3,000,000 gallons a day. This is now merely a reserve. The main supply comes by gravity from a system of five reservoirs on two different watersheds, having an aggregate storage capacity of about 1,300,000,000 gallons. Four of these—Nos. 1, 2, 3, and 5—are on the watershed first utilized, and one—the Farmington reservoir—on the second. The numbering has been changed from that first adopted, the present Nos. 2 and 3 having been originally 3 and 4 respectively. The capacity, depth, elevation above the Connecticut River, and date of completion of these reservoirs are:—

	Capacity.	Depth.	Elevation.	Date.
No. 1 (Distributing)	145,000,000	34	260	1867
No. 2	285,000,000	41	395	1869
No. 3	145,000,000	36	400	1875
No. 5	100,000,000	23	315	1884
Farmington	600,000,000	20	287	1879
“ with flash-boards	675,000,000			

The water from the Farmington reservoir is carried through an open canal three and a half miles to the distributing reservoir, and is thoroughly aerated on the way. Along this canal are numerous catch-basins, which add materially to the supply. The works take the watershed of some eleven square miles.

With all the complaints as to the waste of water, the introduction of meters has been slow. In the 1868 report their use was first suggested. Nothing more was heard of their introduction for some time, and early in 1879 there were only nineteen in use. About two hundred were in use in 1884.

The presidents of the water board have been: Ezra Clark, 1854; Hiram Bissell, 1855–1871; Ezra Clark, 1872 (*pro tem.*), 1873; Seth E. Marsh, 1874–1878; E. J. Murphy, 1878–1880; Ezra Clark, 1882—Mr. Marsh died in September, 1878, and was succeeded by Mr. Murphy, who in the autumn of 1880 left this to go into other business. The office of president was then vacant until April, 1882, there being a deadlock in the board; and during this time Mr. Rodney Dennis served as president *pro tem.* The engineers, in addition to those mentioned in connection with the earlier work, have been Mr. Seth E. Marsh, who was engineer as well as superintendent; Mr. Murphy, who acted in the same capacity during his term as president; Mr. Samuel Nott, who served in 1880–1882, when there was no president; and

Mr. Henry W. Ayres, who was assistant engineer under Mr. Marsh, and has been engineer in charge since early in 1882. The total cost of the works to March, 1885, was \$1,603,428.57. At this date the bonded debt was \$937,000, and the department had for years been self-supporting, and had for several years paid off \$20,000 or more of bonds annually.

• The first very imperfect lighting of the city was by oil-lamps, which were few and feeble. This was first done at the public expense in 1821. After a time burning-fluid was substituted to some extent. In 1848 the Hartford City Gaslight Company was chartered, and the first public gas-lamps were lighted Nov. 14, 1849. There had been no active opposition to the project, but there was comparatively little interest in it, and very few lamps were at first used. Under the agreement the Gas Company began work with what was known as a 6-inch apparatus, the inlet and outlet pipes being of this diameter, the holder having a capacity of 60,000 cubic feet, and four miles of pipe being laid. In 1855 the year's supply of coal for carbonization was 600 tons. It is now over 10,000 tons, the holders store 800,000 feet, there are 78 miles of street mains, and 4,400 meters are supplied. There are 802 street gas-lamps and 180 naphtha-lamps. About 500 gas-lamps have within two years been displaced by electric lights. The original price of gas was \$4 a thousand feet. It was gradually reduced to \$2.40, this being the rate just before the war. With the rise of prices in war-time the old rate of \$4 was restored. This was maintained for several years, when reductions began, and eight have been made, bringing the price in 1885 to \$1.60.

Electric arc lights were first used experimentally in 1881. In 1883 the Thompson-Houston system was introduced, and a local company formed. After much opposition the council ordered thirty of these lamps put up, and since that time the number has been increased to ninety, these being put in under a rule that each must displace six gas-lamps and cost no more than the sum previously paid for the gas. A considerable number besides these are maintained by private individuals either in or in front of their places of business. The total cost of public lighting in 1884 was \$43,039.12, of which \$33,555.89 was for gas, \$6,213.58 for electrics, and \$3,269.65 for naphtha-lamps.

In 1879 the Hartford Steam Company was chartered to make at a central station, and furnish through pipes, steam for heating and for power. In the winter of 1881 the system was put in operation. After a time it was found to be a losing business on account of waste and leakage; and the furnishing of power, which had involved carrying steam at a high pressure, was discontinued. It is still retained for heating, and about a hundred and twenty-five customers are supplied, many of whom represent blocks or large public buildings. Some few attempts were made to use this steam in cooking. The Gas Company has done a considerable business of this kind, and has placed about eight hundred stoves for cooking or heating.

W. A. Ayres