

WATER-WORKS.

BY CHARLES W. S. SEYMOUR.

THE Hingham Water Company, although a private corporation, is so essentially a Hingham institution that the history of the town would be incomplete without an account of the formation of the company and the building of the works,—an undertaking which has resulted in the promotion of the health and consequent happiness of the citizens of the town, in the preservation of public and private grounds from the effects of drought, and in the protection of property from destruction by fire.



ACCORD POND.

The idea of introducing a supply of pure soft water for domestic and other purposes into the town, from Accord Pond, began to impress the minds of some of the progressive citizens of Hingham early in the year 1870. At this time Plymouth was the only town in the county that had introduced water, and the success of the works in that place greatly encouraged the first movers for a similar system in Hingham; and at a town meeting

held Nov. 7, 1871, a committee consisting of Quiney Bicknell, George P. Hayward, Alfred Loring, Alden Wilder, and Edmund Hersey, was chosen "to cause a survey of Accord Pond to ascertain its capacity for supplying the inhabitants of Hingham with water; also to cause estimates to be made of the probable cost of laying pipes, &c., and report thereon at some future meeting."

Mr. Bicknell, for the committee, presented an able report at the annual town-meeting, March 8, 1875, in which he says:—

A free and ready supply of pure water has of late years attracted more or less of public attention in our various municipalities, not only as a luxury and comfort, but as an essential element in the maintenance of the public health, and this supply has been sought for and found beyond their own limits.

It is matter of tradition that the fathers made their first settlement here with reference to a ready supply of pure water, which they found in the springs where the upland met the meadow. But as the town has extended itself by growth in various directions out of this valley, it has been found difficult in many localities to procure a sufficient supply of water, and in seasons of drought serious inconvenience, if not suffering, has attended the scarcity of water.

The means of supplying the house with water are either the open well or the well furnished with a pump, the tubular well—a late invention—being used to a limited extent. These wells are liable to be affected by the various causes in operation in growing and compact villages, and by the presence of barnyards and stables in close proximity to the wells, and by the quite too general neglect of suitable drainage around our houses. The very means we employ to make our homesteads attractive, by enriching the soil, tend to unfit that soil for properly filtrating the surface water which falls upon it, and which finally, permeating the earth, finds passage to the well.

That the scarcity of water, and at times its impurity, affect and often determine the condition of the health of a community, and affect the longevity of the people, have been made so apparent as to remain unquestioned; but whether our condition is very much as yet affected by these circumstances cannot so readily be determined. We cannot, however, take ourselves out of the operation of general laws, and so long as any of the causes exist which are detrimental to health and longevity, we must either endure the penalty or remove the cause. No one doubts that in cities and compact villages the introduction of pure and abundant water has tended to add to the length of human life, and to make that life more efficient during its existence; but what the exact money value of the added and more efficient years may be is not so readily determined.

We may, however, suppose for illustration that in an average life of forty years one year may be added to each life, and that added year would be the most efficient one of the whole life; and taking the average production of men and women at the most efficient year of a life of labor, we may assume that this year is worth in productive capacity at least five hundred dollars to each one. Apply the result to a community of four thousand and five hundred lives, and you have a gain in a period of forty years of \$2,225,000,—more than sufficient to pay the cost of our proposed water-works, with all the interest thereon compounded for the whole forty years.

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These water-works have other elements of value in the saving of labor which is now spent in the raising of the water from the well and, in many cases, in the transportation of it, which considered in the several individual instances are comparatively insignificant, but from their incessant repetition aggregate in time and in expenditure of force to no trifling amount. We will suppose that, for the one thousand families or thereabout in town, it requires for this service, daily, on an average, fifteen minutes to each family; this would give two hundred and fifty hours' work each day, or 91,250 hours for each year; and estimating the value of this service at ten cents per hour, it amounts to \$9,125, a sum sufficient to pay the annual interest on the whole outlay for the proposed works.

Other elements of value will be seen when we come to consider these proposed works in their use in the extinguishing of fires. In this respect their value is too obvious to need anything more than the statement. More than once the more thickly settled portions of our town have been in imminent peril from a spreading conflagration arising from a scarcity of water. With engines and other apparatus more numerous and costly than most towns of our population and wealth, and with a department and companies well organized and competent, yet we fail to derive the full value of this large expenditure and organization by our constant neglect to make proper provision for a sufficient supply of water.

These proposed works have a value in their relation to insurance, and would tend to reduce the present rates or to prevent an increase in those rates. Many other considerations could readily be presented to show how these works could be made to subserve the material interests of the town and its inhabitants in other directions; and outside of any direct pecuniary gain, they would also add to the comfort and enjoyment of all the people, beautifying and adorning our commons and squares with fountains, and making our old town more attractive to those seeking desirable homes.

The committee employed Messrs. Walter L. Bouvé, of Hingham, and Henry M. Wightman, of Boston, to make preliminary surveys and furnish approximate estimates of the cost of building works of sufficient capacity to supply the town. Mr. Bouvé reported that an analysis of the water of Accord Pond by Prof. William R. Nichols, of the Massachusetts Institute of Technology, showed it to be unusually free from animal contamination, and remarkably pure. Mr. Wightman also reported that in his opinion the pond "could be safely relied upon as a source of supply for Hingham." In concluding their report to the town the committee say:—

The capacity of the pond to afford an adequate supply both for the present and the future probable wants of the town, is shown, so far as the character of the examination would allow, to be ample. . . . The estimated cost for suitable works is about \$131,000.

With this statement of the facts in the case, the question presents itself to the consideration of the inhabitants of the town whether their necessities or the advantages to be gained, or both, are of sufficient magnitude to warrant so large an expenditure.

Are we ready to tax ourselves to the extent of some \$8,000 or \$9,000 per year, in addition to our already large annual taxation, and hand down to a succeeding generation so large a burden of debt? Already is the question agitating our legislators whether some limit shall not be assigned beyond which city and town may not go in assuming obligations in the future; and as wise and reasonable citizens we should carefully consider and be able to fix a limit for ourselves, independent of any legislative coercion.

As was to have been expected in a conservative community like Hingham, the report created considerable adverse feeling.

The statement and estimates submitted were severely criticised. It was doubted if the water could be made to flow over Liberty Pole Hill, or if there was water enough to fill the main pipes, if they should ever be laid: the water was full of snakes and all kinds of impurities, and the pond was so shallow that a two-inch pipe would drain it in a very short time if allowed to run continually.

These, and other doubts and objections to the scheme, were met by Mr. George P. Hayward in an able address, in which he reviewed the report of the committee, and read communications from gentlemen connected with the Plymouth Water Works giving the practical working of the scheme in that place since the building of the works in 1854.

The report was duly accepted, and the committee discharged. Hon. Solomon Lincoln then moved —

That a new committee be chosen, to cause an estimate to be made of the expense of procuring water from Accord Pond for the use of the inhabitants of the town, and to recommend in what streets the pipes should be laid; that the committee cause a thorough and accurate survey to be made, by a competent engineer, of the pond and of the limits to be supplied, and to report to the town at a future meeting; also, that the committee be instructed to petition the Legislature for authority to take water from Accord Pond for the use of the inhabitants of the town.

Mr. Luther Stephenson seconded the motion, and moved as an amendment that the committee be appointed by the moderator, Hon. John D. Long, E. Waters Burr, Andrew C. Cushing, Ebed L. Ripley, Geo. P. Hayward, Arthur Lincoln, Luther Stephenson, Jr., and Walter L. Bouvé were appointed the committee, to which Mr. Long was added.

This committee procured the passage of an act by the Legislature of 1876, authorizing the town of Hingham to take and hold the waters of Accord Pond and the waters that flow into and from the same, for the purpose of supplying itself and its inhabitants with pure water for domestic and other uses; and their report to the town, made September 12, 1876, concludes as follows: —

Therefore, believing no town ever had so favorable an opportunity as that now offered to us for a full and free supply of water, having the

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experience of many towns to guide us, and as material, labor, and money can now be obtained at unusually low rates, we earnestly recommend the adoption of such means as will with judicious economy carry on to completion the proposed water-works, thus furnishing three fourths of our citizens with a constant flow of pure water, and be a means of protecting our town from the devastating effects of fire and drought.

The report was accepted, and the thanks of the town were tendered to the committee for the able manner in which the duties assigned them had been performed.

Upon a vote being taken, the meeting refused to accept the provisions of the act entitled "An Act to supply the town of Hingham with pure water," — one hundred and thirty voting in the affirmative, and one hundred and forty-one in the negative.

A second meeting was called, October 3, 1876. At this meeting the question was again decided in the negative, written ballots and the check-list being used, with a result of one hundred and forty-three yeas and one hundred and sixty-six nays.

At the annual town meeting, March 5, 1877, action on the same question was "indefinitely postponed."

The question was twice submitted to the people in the year 1878, with the following results: on August 19, nays, two hundred and eighty-five; yeas, two hundred and forty-nine; and on September 2, nays, three hundred and twenty-three; yeas, one hundred and eighty-two.

This concluded the efforts of those interested to induce the voters of the town to avail themselves of the privileges of an act which would give them control of one of the finest sources of water supply in the State, and which would have secured to them, and their successors for all time, an ample supply of pure water. Subsequent events have proved the estimates of the engineers, and the conclusions of those who advocated the scheme, to be practically correct, and that the citizens of the town made a mistake when they so persistently refused what experience has shown to be a blessing.

The Hingham Water Company was incorporated by act of the Legislature, approved March 21, 1879, the corporate members being John D. Long, Samuel Downer, Charles B. Barnes, E. Waters Burr, David Cushing, Junior, William J. Nelson, George P. Hayward, Ebed L. Ripley, Starkes Whiton, Elijah Shute, Edmund Hersey, and George Cushing.

The act of incorporation gave the company the right to take and hold the waters of Accord Pond and the waters which flow into and from the same, with any water rights connected therewith, to convey said waters into and through the town of Hingham, or any part thereof, and to supply that part of Hull called Nantasket and Nantasket Beach, whenever the voters of Hull should accept the provisions of the act applicable to them.

Provision was also made for the taking and holding of necessary real estate, for the settlement of land and water damages and for the purchase by the town, at any time, of the corporate property, and all the rights and privileges of the company at the actual cost of the same, with interest not exceeding 10 % per annum, said cost to include all actual loss or damage paid or suffered by said company for injury to persons or property, deducting from said cost any and all dividends which may have been paid by the corporation.

Authority was given the corporation to make sale, and the town to purchase, on condition that the same is assented to by a two-thirds vote at any legal meeting of the town called for the purpose.

The first meeting of the persons named in the act was held at Loring Hall, on Saturday evening, August 9, 1879. Hon. John D. Long presided, and Mr. Starkes Whiton was chosen Secretary. The act of incorporation was read and accepted and a committee chosen to draft by-laws, nominate a board of directors and other officers, and solicit subscriptions to the capital stock, which was fixed at \$80,000.

A communication was read from Messrs. Goodhue and Birnie, of Springfield, in which they agreed to build the proposed works for the sum of \$70,000, and Mr. Goodhue being present explained the manner of making and laying the pipes, and other matters of interest.

The first share of stock paid for was disposed of at a church fair, in one dollar subscriptions, and was awarded by lot, to one of the summer residents of the town. Subscriptions came in quite rapidly, and at an adjourned meeting held August 16, at which Mr. Ebed L. Ripley presided, it was announced that about \$37,000 of the stock had been subscribed for, which, with what Messrs. Goodhue and Birnie had agreed to take, left only about \$8,000 to be placed.

The original subscribers for stock were as follows : —

	SHARES.		SHARES.
Goodhue & Birnie	250	Morris F. Whiton	10
Charles B. Barnes	50	John P. Spaulding, Boston	10
Ebed L. Ripley	50	Charles Siders	10
Samuel Downer	50	John De Wolf, Brookline	10
Hingham Mutual Fire Ins. Co.	50	Herbert C. Nash, Boston	10
Henry L. Dalton	30	Starkes Whiton	5
Charles Blake	25	Wm. Fearing, 2d	5
Burr, Brown, & Co.	25	Arthur Lincoln	5
Charles F. Shimmin	25	H. M. Clark	5
John R. Brewer	20	E. J. Andrews	5
William B. Merrill	20	J. A. Ordway	5
James S. Hayward, Boston	20	Henry C. Harding	5
Andrew S. Briggs "	20	E. W. Hayward	5
John S. Hooper	10	J. F. Clement	5
George P. Hayward	10	Martin Hayes	5
Francis W. Brewer	10	David Cushing, 2d	5

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John D. Long	3	George P. Cushing	1
Penelope R. Walbach, Boston	3	John C. Hollis	1
Sarah C. Williams	3	George Cushing	1
C. H. Alden	3	William C. Wilder	1
Fannie M. Pray, Boston	3	Alonzo Cushing	1
Charles Howard	3	Joseph Jacobs, Jr.	1
Benjamin Andrews	2	L. J. B. Lincoln	1
Fearing Burr & Co.	2	William J. Nelson	1
Francis Overton	2	Isaac Hersey	1
Edmund Hersey, 2d	2	Charles C. Melcher	1
Charles A. Lovett	2	Elihu Thayer	1

The Company was organized Saturday, August 23, 1879, by the choice of the following officers: *Clerk*, Starkes Whiton. *Directors*: Ebed L. Ripley, Starkes Whiton, George P. Hayward, Charles B. Barnes, E. Waters Burr, Samuel Downer, Charles L. Goodhue, Arthur Lincoln, and William J. Nelson. *Auditors*: Henry C. Harding, Charles Siders.

At a subsequent meeting of the Board of Directors Ebed L. Ripley was elected *President*, and Starkes Whiton, *Treasurer*.

A Building Committee, consisting of the President and Treasurer, with Messrs. George P. Hayward and William J. Nelson, was afterwards chosen.

On the following Monday Messrs. Ripley and Hayward met Messrs. Goodhue and Birnie, water-works contractors of Springfield, Mass., at the office of Charles B. Barnes, in Boston, to confer with them in regard to material and method of construction.

The result of this conference was the acceptance of an offer made by them to construct and complete the works on or before July 4, 1880. Telegraphic orders were at once forwarded for shipment of material, and thus the work was practically commenced within forty-eight hours after the organization of the company. This action was afterwards confirmed by the Building Committee, and a contract was made by them with Messrs. Goodhue and Birnie to build the works according to specifications drawn by Mr. M. M. Tidd of Boston, who was employed as engineer.

On the morning of Wednesday, Sept. 10, 1879, work was commenced on Otis Street, in front of the residence of Hon. John D. Long, then Lieut.-Governor of the State, who with others was present at the ceremony of breaking ground, which at the request of Mr. Goodhue was performed by Mr. George P. Hayward, whose enthusiasm on the water question, and whose untiring efforts to push the undertaking to a satisfactory conclusion made it particularly fitting that he should commence the actual work which was to crown those efforts with success.

On receiving the proper tools Mr. Hayward said:—

I congratulate you, kind friends, on the commencement of measures for furnishing you with an abundant supply of pure water. I congratulate the workmen of Hingham, who have been selected by special

agreement to assist in the construction of these works, that they are to have steady employment for many weeks. Mr. Goodhue is a workman, and he will expect you to do your part faithfully. God speed and bless this good work.

Mr. Hayward then removed his coat and closed the exercises with a short but vigorous use of the pick and shovel.

At night six hundred feet of trench had been dug. The work was rapidly forwarded, and the first pipe was laid on Otis Street on Saturday, Sept. 13, 1879.

Near the junction of Otis Street and Downer Avenue a ledge was encountered, and at this point occurred the only serious accident which happened during the building of the works, — Dennis Scully, a ledgeman engaged in blasting, being instantly killed by a flying stone.

Work was commenced at the Pond, Oct. 9, 1879. A temporary dam of earth and wood nearly one hundred feet long was thrown across the little bay at the north end, the water was drawn out through the old mill-flume, and a sixteen-inch conduit laid into the pond some seventy feet from the gate-chamber, which was built just within the old dam. The last pipe was laid, November 25, during a heavy southwest gale which threw the spray over the coffer dam, drenching the workmen and giving rise to serious apprehensions as to the safety of the temporary structure. No accident occurred, however, and the conduit was finished, the temporary dam removed, and the permanent one repaired and strengthened by a core wall of concrete, which was subsequently extended easterly along the base of the ridge five hundred feet to cut off leakage.

Work was suspended during the winter, and commenced again in April, 1880; and on June 23, at eight o'clock in the evening, the main gate in the screen well at Accord Pond was partly opened by the gentleman who had so enthusiastically broken ground for the commencement of the work some nine months before; and in about two hours the fourteen-inch main was filled as far as the gate opposite Liberty Hall. On the evening of June 25 the pipes were filled to the gate opposite the South Meeting-House. Mr. John Cushing was the first customer to receive water from his house faucet, and the first fire stream was thrown from the hydrant near his house about ten o'clock.

The remainder of the twelve-inch pipe was slowly filled. Several hydrants proved defective, and one leak was caused by the failure of a plug in the branch for Pleasant Street. These repairs delayed the work of letting on the water until June 30, when at two o'clock in the morning the first stream was thrown from the hydrant near the Railroad Station.

On the following Monday, July 5, the hydrant service was tested by the fire department, and seven effective streams were thrown at the same time in the vicinity of Broad Bridge.

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In 1881 the Company, under authority of an act of the Legislature, extended the pipes to Nantasket Beach and along the Jerusalem Road in Cohasset, and in 1882 to Hull village. An iron stand-pipe forty feet in diameter and forty-two feet in height was erected on Strawberry Hill on land given for the purpose by the owners of the premises.

The supply by gravity proving insufficient for the demand of the high service in Hull and on the Jerusalem Road, a pumping station was erected at Weir River, on land purchased of Celia B. Barnes, in 1884, and a Deane pumping-engine with a capacity of a million gallons in twenty-four hours was connected with the Rockland Street main to increase the pressure on the Hull and Cohasset systems. A conduit was also laid from the Foundry Pond, on land of Thomas Weston, to the pumping station as an auxiliary supply in case of emergency.

In 1886 the consumption at the seashore having increased to such an extent as to seriously affect the pressure on the Hingham system, and the supply from the Foundry Pond being at times objectionable, the Company purchased the Fulling Mill Pond on South Pleasant Street, under authority of an act of the Legislature passed March 22, 1866, and a twelve-inch conduit was laid by Messrs. Goodhue and Birnie from this pond through private lands to the pumping station, thus furnishing an independent supply for the pump, and greatly increasing the efficiency of the whole plant.

The cost of the works to July 1, 1891, including land and water damages, was \$276,930. The main pipes extend from Fulling Mill Pond to the pumping station, and from Accord Pond through

the principal streets to Downer Landing, to Windmill Point in Hull, and to Pleasant Beach in Cohasset, — a total length of 43 miles. Protection from fire is given by 187 hydrants, and water is supplied to 1,336 customers, including all the hotels, steamboats, railroads, street-watering carts, and public drinking-fountains, as well as private dwellings for domestic, lawn, and other uses.

It is fortunate for those who are thus benefited that prompt measures were taken to secure Accord Pond to Hingham, there being no other available source of supply within the limits of the town. The increase in the assessed valuation of property in Hingham for the 10 years preceding the introduction of water was \$193,342; the increase for the same number of years since the works were constructed has been, as shown by the Assessors' books, \$542,573.

The present government of the company is as follows: —

Ebed L. Ripley, *President*; Starkes Whiton, *Secretary and Treasurer*; Geo. P. Hayward, E. Waters Burr, Ebed L. Ripley, Starkes Whiton, Charles B. Barnes, William J. Nelson, Arthur Lincoln, Morris F. Whiton, and Charles L. Goodhue, *Directors*; Charles W. S. Seymour, *Superintendent*.

The Board of Directors are nearly all Hingham men. With the exception of a small part of the capital stock which was taken by the contractors to show their confidence in the enterprise, both capital stock and bonds were subscribed for and are now held by residents of Hingham and their immediate personal friends, and the citizens of the town may be congratulated on the success of an undertaking so closely identified with Hingham interests.