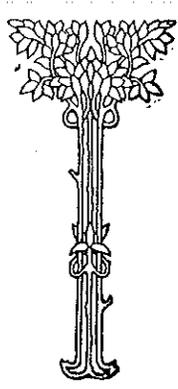


C13

# The Introduction of Pure Water into the City of Cambridge

By George Grier Wright



Reprinted from the Seventy-fifth Anniversary Issue of the  
Cambridge Chronicle, October 8, 1921

## THE INTRODUCTION OF PURE WATER INTO THE CITY OF CAMBRIDGE

Few people can appreciate the difference in opinion which prevailed eighty years ago about the proper method of supplying a city with water—whether by private enterprise or by public control. What seems so simple a question upon which there is little difference of opinion today was then discussed with marked disagreement and with no little animosity at times. In 1845 Lemuel Shattuck presented the following reasons why the supply of water should be furnished by a private company rather than by the city of Boston: First, this work can be done and the water supplied cheaper by a private company. Second, the control exercised by the city would prevent an unjust monopoly or extravagant charges. Third, a private company could as well afford to supply water for fires free as the city. Fourth, the increased amount of labor for salaried men which would be required on the part of the city. Fifth, control by a corporation would prevent matters connected with the water question becoming an element in the politics of the city. Sixth, if the water is to be paid for, the only way to secure payment is by a private corporation—public control would result in furnishing the water free. Seventh, a private corporation would avoid the constitutional question of taxing people for this object without their consent. These were, he says, also the views of the committee on water of the city council in 1843, of which the mayor (Martin Brimmer) was chairman.

The leading opponent of the city of Cambridge assuming any such responsibility was James D. Green, who was supported by John C. Dodge, president of the common council. Mr. Green's opposition continued long after the city had become the owner of the water works. At an inspection of the works about 1870, as I recall the date, the mayor introduced Mr. Green as the former mayor under whose administration the first steps had been taken to supply the city with pure water. Mr. Green, despite the passage of nearly twenty years, responded with a vigorous denunciation of the whole project and disclaimed any responsibility for it. About

the same time Dr. Estes Howe, who had been treasurer of the water works, gave me his version of the controversy with as much vigor, I am sure, as he had shown during the actual controversy. It was clear that the purchase by the city had not quenched the fires of the old contest. Both in Cambridge and in Boston the general introduction of water aroused much discussion and some animosity upon the part of many prudent citizens. Predictions of calamity and bankruptcy were freely made and all kinds of estimates of the cost were made on every side. In the Cambridge Chronicle, September 2, 1854, appeared the following communication:

### "The Water Humbug

It is now seriously proposed to lead the citizens of Cambridge by degrees to involve themselves and the next generation in almost hopeless bankruptcy by the gradual adoption of the water project. If we could have a full and fair statement of the cost and not the garbled piecemeal and interested proclamations continually made we might go into the sacrifice with our eyes open. Just let us all understand, that it will cost \$3,000,000 to bring water into Cambridge and distribute it so as to be of equal benefit to all and that the simple interest to be raised by taxation and paid annually is \$180,000, and then who stands ready to 'walk up to the captain's office and settle.' Nobody is fool enough to think it would pay for any private company to do it; nor are but few so green as not to see that the city is to be used only as a cat's paw for a sick monkey to pull badly roasted chestnut out of the fire. It cost \$7,000,000 to introduce it into Boston and it is distributed 75 miles. Cambridge has about 114 miles of streets and to distribute it 14 miles only the company asks \$300,000 and probably when they get that at the present rate of demand they will want \$500,000 more. I venture to say that good responsible persons can be found who will for \$180,000 annually pay all the fire losses above usual insurance and the city taxes, too, and then make a good snug sum by the operation. A resident of this city for 15 years says in his opinion it would not

have cost \$15,000 annually to do it. Now if gold cannot be bought too dear, I think water can; and the adoption of the speculating humbug will prove it to the entire satisfaction of all tax payers in general and your humble servant in particular. Jemima Job."

The first water introduced into Boston was from Jamaica pond by the Jamaica pond aqueduct which was chartered in February, 1795. This was a limited supply confined to the south end and the greatest number of water takers at any time was only about 1500. The water was conveyed through pitch pine logs (two of 4 inch bore, two of 3 inch bore) and I have been told that the logs were in good condition when they were uncovered in building the Tremont street subway. The movement for the introduction of a general supply began in 1816 but the first action taken by the city government was in May, 1825. Until 1844 discussion, investigations, petitions to the legislature followed but no action. Finally in 1844 the citizens of Boston voted 6240 in favor, 2204 against the selection of Long pond as it was then called but upon the question of accepting the act authorizing its use the citizens refused to accept by a majority of 328. Against the opposition of the representatives from Lowell and Framingham the legislature passed another act which was accepted April 13, 1846, by a vote of 4637 yes, 348 nay. Ground was broken August 20, 1846, at which time the name was changed to Lake Cochituate and the water was turned into the conduit October 12, 1848. The water was 10 hours 28 minutes passing from Lake Cochituate to the Chestnut Hill reservoir, a distance of 14 5/8 miles, and the use by the citizens commenced October 25, 1848. The construction of these works and the discussions leading to that result undoubtedly had a strong influence in awakening the citizens of Cambridge to the advantage of an abundant supply of pure water.

The Chronicle printed the following editorial August 2, 1849: "Cambridge needs a good supply of soft, pure water. At the present time this may be particularly true of some portions of the city alone, perhaps the lower part of the second ward and some parts of the third. But the need is by no means exclusively confined to low or marshy sections. Some of the most eligible locations in our city are deficient in a regular supply of good and soft water. As population increases and the natural resources are drawn upon they become exhausted or the quality of the water deteriorates as the history of the past few years proves. The advantages accruing from this introduction of pure and soft water cannot be estimated. The advantages in a pecuniary point of view alone in the increased value of our lands and real estate generally cause the probable expense to dwindle into insignificance. The possession of a supply of good water which may be used for

washing as well as for culinary purposes forms no slight inducement for the purchase and improvement of an estate. Our position with regard to fire is at present peculiarly exposed. Our buildings are mostly of wood and in some sections of the city so compactly situated that there is great reason to apprehend at some day a sweeping conflagration."

At that period the city was dependent upon wells for its domestic supply of water and upon underground reservoirs for water in case of fire. This water was mostly too hard for washing clothes and it was one of my customary errands to bring a bottle of washing fluid from the apothecary on Monday to soften the water. Occasionally the water was not satisfactory for drinking and in such a case it was the practice to drop a little lime into the well. On one occasion a neighbor having been told that lime would improve his well water, put a half barrel of lime into the well with the result that he pumped whitewash for a week or more.

The first attempt to supply any part of the city of Cambridge with water from the outside was in 1837. Chapter 160, Acts of 1837, incorporated William Fisk, Aaron Rice and John Skinner under the name of the Cambridgeport Aqueduct company for the purpose of laying and maintaining pipes or aqueducts from the spring or springs of water in land formerly of Jonathan Ireland at or near Prospect Hill in Charlestown into the town of Cambridge. The capital stock was three hundred shares liable to assessment not exceeding one hundred dollars on each share—a maximum capital of \$30,000. The corporation was empowered to sell the privilege of using the water conveyed by its pipes to any person but was not allowed to contract for longer terms than three years at one time with any one person but was required to furnish water for the extinguishing of fire free to the towns of Charlestown and Cambridge. The benefit of this was confined to a very few individuals and the supply was too small to permit any extension of the area supplied. This water was conveyed by pitch pine logs probably such as were used at that time in Boston and other places, 2 1/2 feet in diameter, with a bore of 4 or 5 inches, and the water was delivered to the cellars of the houses supplied. As the pressure was not sufficient no attempt was made to carry the water above the cellar. When water was needed it was drawn through a wooden tap and carried up stairs. The situation of those dependent upon that supply is described by the Chronicle of April 19, 1851: "We understand that the aqueduct by which the inhabitants of the Lower Port are supplied with soft water has been damaged by the recent storm causing a leak which has not as yet been discovered. By this catastrophe the inhabitants of the section of the city have been deprived of their supply of soft water and are

about as pleasantly situated as Boston would be should her Cochituate be suddenly cut off."

A small brick reservoir was erected on Broadway which was later turned into a liquor saloon during the later years of license in our city, and is now located below the railroad. The property of the corporation was purchased by the Cambridge water works in 1861 and was transferred to the city of Cambridge upon the purchase of the water works by the city.

The first step toward providing a general supply of water for the whole city of Cambridge was a petition in June, 1849, signed by Robert Douglass and 29 others that a committee be appointed to confer with the city government of Boston on the subject of conveying the Cochituate water through Cambridge to Charlestown. This committee was informed that the city of Boston did not propose to supply Charlestown from the source mentioned. This brought a communication in August, 1849, from Joseph Tinker Buckingham, editor of the Boston Courier, a resident of Cambridge living on Quincy street. Mr. Buckingham was the "Mister Buckinnum" of Lowell's Biglow Papers of whom Parson Wilbur says: "I don't oillers agree with him but by Time I du like a feller that ain't a Feard." This letter is the first time it was publicly proposed to draw water from Fresh pond—previously Spot pond in Stoneham being the source considered—largely I suppose because Boston had made considerable investigation of that pond for the supply of that city. He urged that two sources of supply should be carefully examined before attempting to bargain with Boston—Fresh pond at a cost of \$232,332. Spot pond in Stoneham at a cost of \$214,137. He was the first to assert in print that Fresh pond was fed entirely by springs and suggested locating the reservoir where it now is on Highland street. This would furnish an adequate supply to the whole city except "Gallows Hill" just north of Linnaean street. Of this hill he writes: "As it is composed of good brick making clay it is not probable it will be built upon until its summit shall have been sufficiently lowered to bring it beneath the level mentioned." He further writes: "It may be a question whether water—from whatever source obtained—shall be introduced at the expense of the city or by a private corporation. I am not aware that there is any want of water in the first ward, or Old Cambridge, unless it be to supply reservoirs to be used in case of fire. I have heard no complaints from ward three, or East Cambridge. If a large portion of the citizens are already well supplied it might be deemed by them rather an unjust exaction to be taxed with a debt contracted for the accommodation of others. A private corporation could undoubtedly be formed that would supply customers at a lower rate than could be done by the city. But of this, and all other matters herein

suggested, those will judge who are better qualified than I am to make estimates and who have more interest in the result." This letter occupied 1 1-2 columns of the Chronicle and is an exceedingly interesting article—it was considered worth being reprinted in December, 1850.

In 1852, Mayor Stevens says in his inaugural address: "The attention of the last city council was early called to the subject of introducing a plentiful supply of pure water into the city. It is well known that in large sections of our territory, otherwise available for residences, or for mechanical purposes, it is impossible to obtain good water in the ordinary manner. To such sections especially, and, in the opinion of many scientific gentlemen, to the city generally, the introduction of water by an aqueduct from some pure source would be very beneficial. A great advantage to the city would also result from such a supply of water for extinguishing fires—the want of which has frequently rendered the exertions of the fire department ineffectual. I do not suppose the city is yet prepared to undertake such a large and expensive work; yet it can do no harm to consult on the most practicable method of securing so great a benefit at the smallest expense, so that whenever the time for action shall come, the way of procedure may be plain."

At this period Gardiner G. Hubbard, Charles C. Little, Estes Howe, Isaac Livermore, and their associates secured the incorporation of the gas light company (1852) the water works (1852) and the street railway (1853). From that date until some twenty-five years ago there was continual controversy and dispute between the citizens of Cambridge and some one of these corporations. They were all commenced with insufficient capital, few people having much confidence in any of them as an investment and this lack of capital finally compelled the city to purchase the water works. The provision of the charter of the water works giving the city the right to purchase the works at any time made it difficult to sell the stock. People who wished a supply of water were in many cases compelled to take enough stock to pay for the necessary expense of laying pipes to their premises.

April 26, 1852, a petition was presented to the legislature stating "that the city of Cambridge is poorly supplied with pure fresh water as some parts of the city are but little above tide water, which affects the wells and in some places it is so thickly settled as to afford a limited supply. That the city and your petitioner believe it can only be done by private enterprise," and asking to be incorporated for the purpose of supplying the city with water. The city council waived the necessary notice and the act was passed without delay. Little appears to have been done for the following year and in April, 1853, a pe-

tion was presented to the legislature by the incorporators that the city of Cambridge be authorized to subscribe for part of the stock or to loan money to the company on the pledge of stock. The meeting for organization of the corporation was not held until May 31, 1853, only 12 or 13 persons being present, although every person interested in the work was invited by public advertisements to attend. The same day the aldermen were notified that the company proposed to commence laying pipes and were asked to adopt the necessary regulations to control the work. June 7, 1853, the company petitioned the city council to subscribe for \$50,000 stock or to loan the company \$50,000 on a pledge of stock to that amount. In its petition the company say they have received proposals from responsible parties to construct the necessary works for raising 300,000 gallons of water per day to a height of 80 feet including a reservoir to hold two million gallons and the pipes required to supply 1000 consumers at a total cost of \$209,000. They also say: "Their purpose is to extend the pipes from time to time, as the demands of the citizens shall require. They do not intend, or regard it as desirable, to extend them to those parts of the city where the owners of real estate do not feel interest enough to lend their aid by taking stock. They will hold themselves ready to supply the wants of the inhabitants, as those wants shall be indicated by a willingness to subscribe." The petition also states that \$150,000 worth of stock has been subscribed. After much discussion the loan was granted upon the condition that no money should be paid to the company until it shall have actually collected from its stockholders at least \$150,000 and with the further provision that the question be submitted to the people and approved by a majority of those voting upon it. The loan was approved by the voters, 621 in favor, 80 against, out of a total number of voters on the lists of 2611. Nothing more was done until July, 1854, when the company petitioned the city for an additional loan of \$75,000 making a total of \$125,000. A resolve granting this additional loan was finally defeated by the failure of the aldermen and common council to agree upon its adoption.

The following statements will give an idea of the attitude of those in favor and those opposed to the loan. The president of the common council (John C. Dodge) offered the following objections:

- 1st. It does not appear that the source from which the water was to be drawn would furnish an adequate supply.
- 2nd. The water was not so pure as was desirable.
- 3rd. The present prices for material and labor are 30 percent above two years ago—wait until next year.
- 4th. Annexation seems probable and then use the Boston supply.
- 5th. No authority on the part of the

company to take private property—injunction liable to prevent drawing water.

Finally, security offered not sufficient (amount asked for 1-2 the estimated cost).

To these objections the editor of the Chronicle replies as follows:—

The need of the water is conceded—the advantage not denied.

The supply from Fresh pond almost exhaustless.

The supply is adequate for present wants.

Introduction of water from Fresh pond will not interfere with any future arrangement the city may wish to make.

Spot pond has advantages but the supply is limited.

Annexation too far distant to do any present good.

City is not to be taxed but will receive taxes from the company.

The value of all taxable property will be increased.

It will furnish protection in case of fire.

Finally in June, 1855, the company made a contract for the construction of the works and upon July 21 the work was commenced—the distribution of water commencing December, 1856. The contract provided that the contractor should take the subscriptions for stock estimated, at \$34,900, the city loan of \$50,000 and to assume the balance of stock necessary to make a total sum of \$215,000 — any additional allowances made to him to be payable in stock. In order to obtain this loan of \$50,000 granted in 1853 by the city, Estes Howe, the treasurer, certified that the whole amount received on the capital stock was \$150,000 and upwards and the whole amount expended is more than said sum appears by the books of the company. This certificate was attacked by Mayor Green as an evasion of the condition of the resolve passed by the city council. The resolve required that the sum of \$150,000 shall have been actually collected while the certificate of Dr. Howe was that it had been received. While it would be unjust to accuse the treasurer of a misstatement, with a full knowledge of the discussion which had preceded the adoption of the resolve and the statement of the company as well as the opinions of counsel in the matter I am sure disinterested citizens will agree with Mayor Green that the certificate did not comply either with the letter or with the spirit of the resolve. This is especially so as the annual report of the company showed only \$130,800 derived from capital stock. The controversy was a spirited one and its memory lingered long in the minds of both parties as I have previously mentioned. The company besides the report of the directors printed a pamphlet of 28 pages entitled "The Connection of the City of Cambridge with the Cambridge Water Works as shown by the City Records" and Mayor Green replied in a pamphlet of 32 pages printed at

his own expense entitled "Remarks on the Connection of the City of Cambridge with the Cambridge Water Works and on the Proposed Purchase of Those Works by the City."

James D. Green was a remarkable figure in the political life of Cambridge. From 1830 to 1840 he was pastor of the Third Congregational (Unitarian) church of East Cambridge. After his retirement from the ministry he served for six years in the legislature, was one of the selectmen in 1845--was elected mayor upon the adoption of the city charter for 1846 and 1847, again in 1853 for one year and later for two years in 1860 and 1861. He was also a candidate for mayor in 1850 and 1852 and declined to be a candidate in 1848. He was a man of most decided opinions and not at all unwilling to defend them. He was not willing to allow the authority of the mayor to be underrated and he held a high conception of the duty of the mayor. In his first inaugural address he said: "An important trust has been reposed in us. Let us not be unmindful of the obligation to execute that trust with strict fidelity, with a single eye to the public welfare and unswayed from duty by regard to popular opinion." With him these were no meaningless phrases but standards to be strictly adhered to.

Gardiner Greene Hubbard, president of the water works, was the leading spirit in starting the water works, the gas light company and the street railway. He was one of those forceful men who possessed a vision beyond the present, a member of the Boston bar and largely interested in the development of real estate in various parts of Cambridge and Malden. Like many of such men he made ventures without sufficient capital and met the difficulties such action is likely to cause. It was the insufficient capital which more than any other influence finally compelled the transfer of the water works after a stormy existence to the city upon terms which did not entirely reimburse the stockholders and the same reason caused much of the disputes between the citizens and the gas light company and the street railway.

In 1856 when the company petitioned for the right to use the water of Spy pond and Little pond a protest was made by more than 60 of the principal mercantile and shipping houses of Boston, stating that "the ice trade is an important part of the commerce of this city; that it is intimately connected with the shipping interests and with the trade to all the principal southern ports and to tropical countries. They are informed that the greater part of the ice used for shipping is cut at Fresh and Spy ponds which ponds are peculiarly available on account of their proximity to the city." Remonstrances were also presented from the selectmen of West Cambridge and Medford.

The annual water rates in 1857 and

today for dwelling houses were as follows:

	1857	1921		
For 1st faucet	\$6	\$4		
Each add. faucet	2	1		
For 1st water closet or bath tub	5	3	Bath	1 Closet
Each add. water closet or bath tub	3	2.50	Bath	1 Closet
Maximum for private dwelling house	30	13		
For hose	15	5		

There were also the other rates for various purposes as at present except meter rates. At that date (1857) there were 324 water takers supplying 1140 tenements.

The difficulties of the company led it in 1857 to consider two propositions to increase its income--one to supply the Somerville bleachery, the other to supply the city of Charlestown. Both propositions were opposed by the city council, which passed an order forbidding the laying of any pipes within 50 feet of the line of the city and ordering any pipe then laid within that distance to be taken up within 20 days. This resulted in a request from the company that the city would purchase the works, the value to be settled by three disinterested parties. In November, 1857, two petitions signed by 70 citizens assessed for nearly \$1,000,000 was presented to the city council asking for a general meeting of the citizens to vote upon the following question: "Is it expedient for the city to purchase the corporate property of the Cambridge water works and all the rights and privileges of said corporation at such a price as may be agreed upon with said corporation or in case of disagreement by three commissioners appointed by the supreme judicial court according to the provisions of the second section of an act to incorporate the Cambridge water works?" A remonstrance signed by 47 citizens against such action was also presented to the city council and finally a general meeting was held January 1, 1858. Among the reasons for the purchase it was urged there is a severe need of water which is daily increasing, that the company controls a supply of pure soft water sufficient to provide for a population of 75,000 people; that the works can be enlarged without reconstruction; that protection from fire will more than save the entire interest on the cost; that the company have not the means to make the necessary extensions; that it is the duty of the citizens to supply the need for water; that the water rents will pay all expenses besides the saving from loss by fire and the increased valuation of real estate and that by arbitration the company cannot possibly receive more than the works are worth. Causes were held in the several wards prior to the meeting at which the voters in wards 1, 3 and 5 voted against the

proposition, and the voters in wards 2 and 4 in favor. At the general meeting a motion to adjourn without any action was carried by a vote of 173 yes, 95 no.

April 7, 1858, the matter was again brought forward by a petition signed by Isaac Livermore and 364 others for the purchase of the water works by the city and three remonstrances signed by H. N. Hovey and 585 others were presented later. May 5 the matter was laid upon the table after several disagreements between the aldermen and council "to put a quietus on the whole subject." This was followed by a petition from the company in June that the city would remit the interest on their bonds or a portion thereof which was answered by an order to pay the company \$2000 as a gratuity in consideration of the use of water from the hydrants, this amount to be spent upon the reservoir. This proceeding in later years became familiar to observers of city finances as in the early years of municipal ownership the city paid for the water supplied to the hydrants and for other city uses and the amount varied with the necessities of the water board. Affairs continued in an unsatisfactory way, the company struggling along as well as it could with its lack of capital. Consumers who wished to be supplied were required to buy sufficient stock to pay the cost of connections with the nearest main, otherwise the company could not furnish water. It was only upon such terms that the company would consider supplying my father's bakery. January 5, 1861, the company published a "notice to Fresh pond water takers", that "bills not paid before January 15 would have an additional charge of 5 percent, those not paid before February 1 would be increased 10 percent. If water was turned off an additional charge of 10 percent and \$2 for turning on would be made."

In his inaugural address in January, 1865, Mayor J. Warren Merrill called attention to the necessity of securing a copious supply of pure water for culinary, sanitary and mechanical purposes and referred to the recent introduction of steam fire engines which pumped such a large quantity of water in a continuous stream. (The first steam fire engine in Cambridge was put into service September 18, 1862.) The mayor referred to the fact that Cambridge was one of the few, if not the only city in Massachusetts, which did not have a complete system of water works under the immediate control of the municipal authorities. He pointed to the fact that the entire water supply came through a main pipe 12 inches in diameter at a low head, obviously a supply not equal to half the necessary requirements of a city of 30,000 inhabitants. He urged a careful consideration of the several proposals made to take water from Fresh pond or from Mystic pond or the purchase of the water works. During that year an agreement was finally arrived at by the city council and the water works by which the city was to purchase

the works and the agreement was referred to the voters for their approval. The estimate of the engineer employed by the city was that in 1895 the population would be 100,000 and the consumption of water 5,000,000 gallons per day. He reported the supply ample to furnish that amount of water. The defects in the existing works were stated to be the low head under which the water is supplied, the small size of the distributing pipes (from 4 to 12 in. pipe) the imperfect circulation and the small number of gates for controlling the supply. In concluding their statement "to the legal voters of the city of Cambridge" the joint special committee on so much of the mayor's address as relates to the Cambridge water works and a supply of pure water say:

"We take it for granted that the true policy of the city is to own and control its supply of water and that supply should be regulated by the wants and necessities of its inhabitants and not by the question of dividends paid mostly to out-of-town stockholders."

Against the proposal to purchase the works it was urged that

1. A better supply might be obtained at a mere nominal cost by a connection with the Mystic water works.
2. If the company cannot make it pay it will be a loss to the city.
3. The present time is a time of inflation and an unwise time to buy.
4. If the company will sell at 20 percent discount it shows that the works will not pay.
5. Later money may be borrowed at 5 percent instead of at 6 percent as proposed.

Accordingly on the 19th of April, 1865, the citizens were asked to vote "for or against the purchase upon terms proposed by the city and accepted by the company. The city shall give to the Cambridge water works for the entire property of said company, real and personal, and all rights and the franchise of the company (not including its sinking fund) \$291,480 as follows: \$50,000 bonds of said company now held by the city, assume the outstanding bonds of the water works \$55,000 and bonds of the city of Cambridge \$186,480." This was at the rate of \$80 per share for the stock of the water works. The vote was as follows:

	Yes	No
Ward 1	20	256
Ward 2	102	24
Ward 3	270	33
Ward 4	127	20
Ward 5	33	23

Total 552 356  
Accordingly the water works came into the possession of the city April 28, 1865, and were placed in the care of the mayor until the organization of the water board June 9, 1865. To meet the objections as to the water works increasing the taxes it was provided that the accounts should be kept separate from the general city accounts. While

there has been some diversion of water receipts to general city uses, the city has on other occasions like the increased payment for water used for hydrants contributed money which it would not have paid to a private company. The result it may be fairly said is that the water works has been a self supporting enterprise—the water takers having paid the entire expense of extensions and maintenance. At the time of the pur-

chase the surroundings of the pond were open to much criticism, especially in the light of the knowledge of today. There were two hotels upon the banks with boat houses and other buildings, several ice houses, stables, etc. All these have been gradually removed until the pond presents its present attractive appearance, the grounds having been laid out by Olmstead in 1896 as a park.