

**JOHN RIPLEY FREEMAN AND THE HONEST DOUBTERS OF
BOSTON: HOW THE CHARLES RIVER DAM WAS WON**

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There are many examples of committees and commissions who have failed to convince the public of the merits of great engineering projects. The success of the Committee on Charles River Dam is rare and, in great measure, due to the efforts of John Ripley Freeman.² His classic *Report of the Chief Engineer to the Committee on Charles River Dam* is reprinted here as a tribute to his work. It also celebrates the designation of the Charles River Basin as a National Historic Civil Engineering Landmark.

This special issue of the *Journal of the Boston Society of Civil Engineers Section, ASCE* also contains Freeman's address on the project, delivered before the Society on June 24, 1903. A draft manuscript of the speech was discovered among Freeman's personal papers at the M.I.T. Institute Archives.³ The manuscript is incomplete. Freeman's notes for the address indicate that it included a discussion of the chemist's report, temperature studies, and the examination of harbor currents. The address is so engaging and informative that the decision was made to edit it and include it in the *Journal*.

The papers printed here deceptively suggest that Freeman's meticulous analysis of the Charles River, the Basin and Boston Harbor was conducted in a calm, apolitical atmosphere. An examination of Freeman's correspondence indicates, on the contrary, that he and his survey teams faced problems familiar to contemporary civil engineers. Initially, the scope of the survey was underestimated, the Committee appropriation was inadequate, public sentiment on the dam was polarized, the Chief Engineer was overcommitted, a powerful lobby was actively working against a dam, and the deadline for the final report was unrealistic. When the survey was completed, the Chief Engineer even had

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²Walter E. Spear, Freeman's principal assistant on the Charles River Dam survey and other projects, wrote an excellent biographical memoir on Freeman for the American Society of Civil Engineers, *Trans.*, Vol. 98 (1933), p. 1471. It was reprinted in the *Journal of the BSCE Section*, Vol. 63, ASCE, No. 1 (April, 1976), p. 13.

³The Papers of John Ripley Freeman, 1827-1952 (MC 51), 120 record center cartons. In M.I.T. Libraries, Institute Archives and Special Collections. An inventory of the papers has been written with funding from the National Endowment for the Humanities. Copies can be ordered from the Institute Archives. The manuscript of the 1903 address can be found in Box 91, "Charles River Dam: Paper of BSCE."

difficulty collecting his fee.

John Ripley Freeman was forty-seven when asked to advise the Committee on Charles River Dam. He was already intimately familiar with the controversy and he knew many of the men who played principal parts in it. He had twenty-five years of civil engineering experience, ten of them working on hydraulics projects in New England. He was President and Treasurer of the Manufacturers Mutual Fire Insurance Company. He had served as Engineer Member of the Boston Metropolitan Water Board in 1895 and 1896, and his reputation as a hydraulician had more recently been enhanced by his exhaustive report on new sources of water supply for the Comptroller of the City of New York.

Freeman knew many of the men involved in the Basin controversy. Henry Smith Pritchett, Chairman of the Committee on Charles River Dam, was President of M.I.T., Freeman's alma mater. In fact, Freeman was an active member of the M.I.T. Corporation. Through M.I.T., Freeman also knew William O. Crosby, George L. Hosmer and William T. Sedgwick who were to assist him on the survey. Charles T. Main, an advocate of the dam, had been Freeman's classmate at Tech. The eminent civil engineer, Hiram F. Mills, Chairman of the Water Supply Committee of the Massachusetts State Board of Health, was Freeman's mentor. Mills was able to give Freeman an intimate view of the controversy and strongly supported the efforts of the Committee. Rudolph Hering, an expert witness for the opponents of the dam, was a colleague and friend.

Freeman did not seek the position of Chief Engineer for the Commission. He was quietly asked through a friend whether he would be interested in the assignment.⁴ On February 9, 1902, he breakfasted with Henry S. Pritchett at the University Club in Boston and accepted the position. His compensation was established as sixty dollars for each day of seven hours,⁵ and the appointment was confirmed in writing on March 7, 1902.⁶

The Charles River Dam appointment was not foremost in Freeman's mind when he accepted it. Pritchett initially conceived the role of the Chief Engineer as an advisory one which would certainly be completed at the end of the summer.⁷ As Freeman later reminded Pritchett:

⁴Edward Atkinson to JRF, February 7, 1902. In Freeman Papers, Institute Archives, Box 1, folder. 15.

⁵JRF diary, February 28, 1902. In Freeman Papers, Institute Archives, Box 1, f. 29.

⁶Henry S. Pritchett to JRF, March 7, 1902. In Freeman Papers, Institute Archives, Box 92, "Final Account, Charles River Dam."

⁷William O. Crosby to JRF, June 18, 1902. In Freeman Papers, Institute Archives, Box 18, f. 2.

You had never intimated that extended field studies and surveys were to be part of the work. You had said that much of my work could be done by taking the papers and plans [home]. You had said that the Committee would want advice from other experts.⁸

Freeman had other, more pressing, matters on his mind in 1902. In addition to his full-time insurance work, Freeman served as Consulting Engineer to the New York Department of Water Supply, Gas and Electricity. He had received a lucrative offer to become Chief Engineer of the Department and spent time during the year consulting his colleagues to determine if he should accept the position. In July, the Secretary of War appointed him a civilian member of an army board on gun carriages. During trips to Washington, he met with friends in Congress to discuss an appointment to work on the planned canal in Panama. During the same year, Freeman wrote a report on the proposed Clarkesburg Reservoir near North Adams, Massachusetts. He supervised work on the dams of the Bee Tree Creek and North Fork branches of the Swananoa River in North Carolina, and wrote a report on water supply for the city of Asheville, North Carolina. Freeman also continued a long association with the St. Lawrence River Power Company and advised them on their hydraulics work. Freeman served on the boards of two banks and the Butler Hospital in Providence. He served on the boards of Brown University, the Massachusetts Institute of Technology, the Philadelphia Manufacturers Insurance Company, and Manufacturers Mutual Fire Insurance Company. Freeman also directed the construction of his new house in Providence, furnished it and plotted extensive gardens.

The most remarkable thing about Freeman's work in 1902 is that it was typical. He was a gloriously overworked engineer. He thrived for seventy-seven years on a diet of hasty conferences, insufficient data, exhausting travel, political obstruction and cost overruns. He often complained of ruinous hours, importunate committees, slow typists, and the effect of these upon his health, but his complaints were meaningless. When sorely pressed by a deadline, Freeman responded:

It is true that I have led an exceptionally busy life and had many irons in the fire, but in the 27 years since graduation, I have only once *asked* for a job — that was then I began with Mr. Mills . . .⁹

⁸JRF to Henry S. Pritchett, September 28, 1903. In Freeman Papers, Institute Archives, Box 92, "Final Account, Charles River Dam."

⁹JRF to Henry S. Pritchett, September 28, 1903. In Freeman Papers, Institute Archives, Box 92, "Final Account, Charles River Dam."

It seems quite clear that even Freeman did not expect the report of the Committee on Charles River Dam to demand so much time. From its inception, the project was subject to unexpected delays. Freeman was engaged in February and planned to begin the work in April, but the work was postponed when Freeman's assistant, Walter Spear, contracted mumps. Spear recovered in May, but the report of the experts for the opponents had not been completed as promised.¹⁰ Some work was underway in June, but the important survey of the basin was delayed far into July when the rebuilt survey boat was not completed on schedule.¹¹

Time and weather became major problems in August, for the temperature study had to be conducted during the summer months, and the sewer overflow study required rain. Freeman warned Pritchett that overtime would be necessary if the survey teams were to complete their work in the summer, but he still felt confident that:

... the work [will be] in an advanced state ready for some preliminary conclusions early in September, and [I] will do my best to have it rounded up by October 1st.¹²

Indeed, the work might have been finished by the fall of 1902 if Freeman had been content with the modest role of the Chief Engineer envisioned by the Committee. Freeman's motto, however, was "nothing is settled until settled right."¹³ Throughout the spring and summer, he began to realize that a simple review of previous surveys and testimony was not sufficient. It would be necessary to collect new data to decide properly issues such as the alleged pollution of the basin and the navigation arguments of the opponents.

On May 26, 1902, Freeman urged Pritchett to authorize William Otis Crosby to study the geology of Boston Harbor and to investigate subsidence of the coast.¹⁴ On August 9th, Freeman informed Pritchett that a

¹⁰Joseph Lund to J.R.F., May 24, 1902. In Freeman Papers, Institute Archives, Box 18, folder 3. Said Lund, "It has proved almost impossible to get Prof. Porter and Mr. Hering to hand in their reports." Freeman did not receive Hering's report until August 7th.

¹¹Walter Spear to J.R.F., July 16, 1902, in Freeman Papers, Institute Archives, Box 91, "Charles River Dam: Temperature, Sewer Overflow, Miscellaneous." The rebuilt boat was finally completed in mid-July but proved inadequate. Freeman bought a new boat in August. A rented steamer-yacht, the Eleanor, was used for some survey work in the Harbor, but she was run down by a schooner in November with the survey team aboard her. No one was hurt.

¹²J.R.F. to Henry S. Pritchett, August 9, 1902, in Freeman Papers, Institute Archives, Box 7, folder 8, p. 319.

¹³J.R.F. notes for an address before the Boston Society of Civil Engineers, 1903. In Freeman Papers, Institute Archives, Box 91, "Charles River Dam: Temperature, Sewer, Overflow, Miscellaneous."

¹⁴J.R.F. to Henry S. Pritchett, May 26, 1902. In Freeman Papers, Box 7, folder 8, p. 117.

survey of the Basin would be necessary:

From interviewing [the] Chief Engineer of the Harbor Commission, I found there was no reliable surveys or maps in existence showing present conditions in the Basin . . . We therefore arranged with Mr. George L. Hosmer . . . to take charge of a new survey of the Basin.¹⁵

On August 26th, he instructed Dr. Theobold Smith to expand the study of mosquitoes breeding along the River and to conduct a bacteriological analysis of the Basin.¹⁶ By the end of August, Freeman noted:

I have not got anywhere near to the bottom of the pollution question yet and am troubled at the time and labor required to uncover the facts.¹⁷

Members of the Committee on Charles River Dam also contributed to the expansion of Freeman's role. Richard Dana asked Freeman to investigate the "closed" gates of sewers during summer storms to determine sewage overflow. The Secretary of the Committee asked Freeman to consult with representatives of the railroad concerning the proposed Craigie Bridge site of the dam.¹⁸ The Committee required Freeman to spend considerable time revising his report and that of the other experts, and later the Legislature asked him to refine his estimates of the cost of a dam and consider sites other than Craigie Bridge. Gradually, the deadline for Freeman's report was pushed further and further into the future.

Certainly, Freeman's first goal as Chief Engineer was to compile data concerning the issues raised by the opponents of the dam. As time passed, however, he felt increasingly responsible for the work of the entire Committee. Freeman's sense of responsibility was intrinsically tied to his view of the role of an engineer. He once remarked to his colleague William Crosby:

My own rule has been not to allow myself to be used by a lawyer for the manufacture of testimony and not to go into a case unless I was well convinced of the merits and justice of the case and desirous of seeing the side that sought my services win.¹⁹

¹⁵J.R.F. to Henry Smith Pritchett, August 9, 1902. In Freeman Papers, Institute Archives, Box 7, folder 8, p. 322.

¹⁶J.R.F. to Theobold Smith, August 26, 1902. In Freeman Papers, Institute Archives, Box 91, "Charles River Dam Reports."

¹⁷J.R.F. to Hiram F. Mills, August 26, 1902. In Freeman Papers, Institute Archives, Box 7, folder 8, p. 366.

¹⁸Joseph W. Lund to J.R.F., June 2, 1902. In Freeman Papers, Institute Archives, Box 91, "Charles River Dam: Temperature, Sewer Overflow, Miscellaneous."

¹⁹J.R.F. to William O. Crosby, May 11, 1903. In Freeman Papers, Institute Archives, Box 7, folder 9, p. 459.

Eventually, Freeman undertook the supervision of the work of all of the Committee experts as well as that of the survey teams. He also identified and unified the tone of the experts' reports:

At the time these reports were drafted, it was, of course, not known just how the Legislature and the public were going to receive this proposition, and I felt it was very desirable to set everything forth with such fullness that if the work ever had to be done over again, the next investigator could pretty nearly start where you left off; moreover, I felt that it was good business policy to set forth our investigations at such length that any legislator or good citizen, who was particularly interested, could see for himself that we had tried to study these questions thoroughly.²⁰

It is a tribute to Freeman's quality of leadership that his scrutiny of the work of other Committee experts did not cause resentment. He noted in a letter to Hiram Mills that "Crosby submitted very nicely to this effort, although Clark . . . rebelled vigorously."²¹ In the end, Freeman had the final editorial word on the reports of the experts. Since the report of the Committee on Charles River Dam was only thirty-seven pages, and the report of the Chief Engineer with appendices was five hundred and thirty-five pages, Freeman's control over the work of the experts gave him virtual control of the published report of the Committee.

Despite the expansion of the work and the delays, Pritchett was determined to have the report completed by January 14, 1903, as mandated by the Legislature, but on January 15th, Freeman wrote Hiram Mills:

The Committee submitted its Report yesterday noon together with a statement that the Engineer's Report and the Appendices were *in the hands of the printer*. Literally, this may be understood that the printer has hold of one end while I have hold of the other end . . .²²

Freeman did not turn his last proof sheet in until April.

Freeman was a painstaking engineer, but his thorough work on the survey was not entirely inspired by this trait. The Committee on

²⁰J.R.F. to Louis F. Cutter, March 31, 1903. In Freeman Papers, Institute Archives, Box 7, folder 9, p. 348.

²¹J.R.F. to Hiram F. Mills, January 28, 1903. In Freeman Papers, Institute Archives, Box 7, folder 9, p. 145. Harry W. Clark, author of *The Chemist's Report*, Appendix No. 4, told Freeman, "Popularizing cheapens . . . and sometimes leads one to make statements more broadly than true science will allow . . ." See Harry W. Clark to J.R.F., December 9, 1902, in Freeman Papers, Box 91, "Charles River Dam Reports."

²²J.R.F. to Hiram F. Mills, January 15, 1903. In Freeman Papers, Institute Archives, Box 7, folder 9, p. 88.

Charles River Dam faced a serious and well funded opposition which had already defeated one board favoring a dam. Although Freeman jests about the status of the Beacon Street opponents in his address before the Society, they were prominent men who understood politics.

The roots of the opposition in 1902 go back to 1894. Opposition to a dam in 1894 consisted of a powerful coalition of Beacon Street property owners and the Boston commercial community. This coalition was created by a committee of Beacon Street residents described by one of its members, the distinguished lawyer Louis S. Dabney:

We got together and consulted, and appointed a committee. That committee was composed of the late Mr. George O. Shattuck, who died on the 4th of February, 1897, Mr. Charles Head and myself. When Mr. Shattuck died in 1897, he was succeeded by Mr. William Caleb Loring, who on September 7, 1899 was appointed a justice of the Supreme Court of Massachusetts; and he was then succeeded by Mr. Howard Stockton . . .²³

This Committee consulted two engineers, Col. George E. Waring and Dwight Porter. The Committee was advised of several issues that supported their initial negative view of the desirability of a dam. One of these issues was the alleged untoward effect a dam might have on Boston Harbor and navigation. This issue alarmed a number of powerful business concerns whose commerce depended directly or indirectly on the Harbor. The Citizen's Association of Boston and the Associated Board of Trade, influential business associations in the city, joined the opposition.

The Beacon Street Committee knew how to press an advantage. They engaged two former governors of Massachusetts, John Davis Long and William Eustace Russell, to represent them before the Joint Board. The Board was helpless before such opposition, particularly since it had materialized so rapidly.

The Beacon Street Committee did not oppose the appointment of the Committee on Charles River Dam in 1901. They did, however, continue to oppose a dam and revitalized their committee by receiving the renewed endorsement of seventy-six residents of the water side of Beacon Street.

Several changes had occurred since 1894 that affected their organiza-

²³*Evidence and Arguments before Committee on the Charles River Dam, Appointed under Resolves of 1901, Chapter 105. December 16, 1901 through January 1903.* Boston: Printed for the State by Wright and Porter, 1903, p. 309.

tion. George Waring, the sanitary engineer who had consulted with the Committee in 1894, had died of yellow fever in Havana in 1898. William Russell had died in 1896, and their other attorney, John D. Long, was serving in Theodore Roosevelt's Cabinet and was thus unavailable to represent them. The Committee had also suffered from bad press. The newspapers generally favored the dam and characterized the opposition as shortsighted wealthy men who had employed paid experts to defeat the dam.

These reverses were bad enough, but the Beacon Street Committee also faced a group of men favoring the dam whose wealth and social position perhaps exceeded their own. These were the petitioners to the Committee on Charles River Dam and included Charles W. Eliot, President of Harvard, Henry Lee Higginson, philanthropist and founder of the Boston Symphony Orchestra, James J. Storrow, and John F. (Honey Fitz) Fitzgerald. Not to be outdone by the opponents, the petitioners employed Boston hydraulicians Percy M. Blake and J. Herbert Shedd and retained the eminent counsel of Nathan Matthews, former Mayor of Boston.

The petitioners sallied forth to neutralize the Beacon Street Committee even before the Committee on Charles River Dam met to hear testimony. They explained their advocacy of the dam to the Boston press, they leafleted Beacon Street, they circulated petitions, and they collected seven thousand letters from citizens of Boston in favor of the dam. They were, in fact, determined that the issue of the dam would be settled. As James J. Storrow testified:

This is the third or fourth commission that has dealt with this subject, and we will have more commissions, unless this committee takes up the subject and gives not merely a yes or no, but makes the matter sufficiently plain so that the ordinary citizen can understand it and be satisfied with the justice of the result.²⁴

All of those in favor of a dam clearly understood that no dam would be built if the Beacon Street Committee could successfully mobilize the support it enjoyed in 1894. Its general strategy was to divide and conquer. The consulting engineers to the petitioners, Shedd and Blake, studied the Boston Harbor issue and discredited the statement that a dam would adversely affect harbor navigation. The Committee on Charles River Dam, through Freeman, successfully courted the Cambridge property owners who had opposed a dam in 1894. A.E. Pillsbury, counsel for the property owners and occupants of the Cambridge

²⁴*Evidence and Arguments . . .*, p. 153.

shore and the Broad and Lechmere canals, reached an agreement with counsel for the petitioners that his clients would no longer oppose a dam.²⁵ The Citizen's Association of Boston and the Associated Board of Trade also dropped their opposition to the dam.

When the smoke cleared, the Beacon Street Committee members found themselves alone in the field, and they were unhappy about it. They did, however, still have a number of influential members and a strong argument. They insisted that no one could prove, on the basis of evidence available in early 1902, that the dam would not have an adverse affect on the health, harbor and climate of the surrounding communities.

Thus, after the testimony before the Committee on Charles River Dam was completed, the fate of the dam was in the hands of Freeman. He had to prove that a dam would not have any ill effects. Always politic, Freeman referred to the members of the Beacon Street Committee as the "honest doubters." His personal opinion of them may not have been as sanguine. In his address before the Society, Freeman ridiculed the members of the Beacon Street Committee, but he saved his worse criticism for one of their consulting engineers, Dwight Porter:

For an expert to do what a certain engineer friend of ours . . . did in the Charles River Dam case, leaves a very unpleasant odor, and I believe that every time that you or anyone of us enters a lay case as a partisan for hire, he dulls his keenness of perception of the truth and impairs his moral strength and his highest usefulness.²⁶

The press joined Freeman in criticizing the motives of the Beacon Street Committee and, even thirty years later, these committeemen were lampooned by John Marquand in his novel, *The Late George Apley*.²⁷ The opponents were roundly defeated not only for the moment, but for all time. In parting, they criticized two portions of Freeman's work; his estimates of the cost of the dam and the appendix on the geology of the region.²⁸ Ultimately, they capitulated with some grace and withdrew their objections to the dam in exchange for some sanitary amendments to the enabling bill.²⁹

Freeman was justifiably proud of his work for the Committee on Charles River Dam. It is a pity that his pleasure and that of the Com-

²⁵*Evidence and Argument* . . . , p. 459.

²⁶J.R.F. to William Otis Crosby, May 11, 1903, in Freeman Papers, Institute Archives, Box 7, folder 9, p. 459.

²⁷John P. Marquand, *The Late George Apley*, New York: Grosset & Dunlap, 1936, pp. 122, 146.

mittee was spoiled by a dispute over the payment for his services. Henry Smith Pritchett, the Committee Chairman, felt that Freeman should not have billed the Committee for the work he had done after January 14, 1903, the expiration date of the Committee. Freeman disagreed — vehemently. “I propose to keep at that bill *until you and Mr. Dana comprehend the facts,*” said Freeman.

A fee 50% greater than that charged would not have tempted me to put in the “strenuousity” that I did put in as the result of finding myself “up against it,” and a desire to conscientiously find out whether the basin was likely to become foul and whether tidal sluices costing a quarter of a million, or conduits costing half a million, must be added. . .

You will note from the time given that I devoted most of my Sundays to the work, and there are very few who could have put in the time that I did for so long a period without breaking down . . .³⁰

Freeman finally settled for the payment of three-quarters of the fee he had submitted. His view of this compromise is not recorded. The disputed bill did, however, serve one good purpose. Freeman carefully culled his papers to document the bill for Pritchett and in so doing, he created a fascinating record of his work on the Charles River Dam project.

It is that record, housed now at M.I.T.’s Institute Archives, that enables us to present Freeman’s view of the Charles River Dam project.

²⁸The contention that the New England coast was subsiding sparked debates in several newspapers including the New York Times (June 23, 1903). One of Freeman’s associates, however, suggested that the dispute was psychological rather than geological. “I have your report on the Sinking Condition of Boston,” said Stephen Edwards:

It contradicts all notions that Bostonians have of their own city and I fear that even your scientific report will not convince them that their tendency is downward rather than upward.

S.O. Edwards to J.R.F., June 29, 1903, in Freeman Papers, Institute Archives, Box 91.

²⁹See *Boston Herald*, February 15, 1903, “The Proposed Water Park.”

³⁰J.R.F. to Henry S. Pritchett, September 28, 1903, in Freeman Papers, Institute Archives, Box 92, “Final Account, Charles River Dam.”