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Technology and the Creation of Wilderness: The Making of Quabbin Reservoir

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Abstract

Large dams in the United States have frequently been the targets of attacks by environmentalists who believe that the dams and the reservoirs they create are violations of wilderness. There are currently numerous proposals to dismantle some dams in order to restore river ecosystems to their pre-dam conditions, including Hetch Hetchy Reservoir's O' Shaunnessy Dam. Less attention has been paid to those dams and reservoirs that have arguably created protected areas that otherwise may have been subject to degradation from development. The Quabbin Reservoir, the primary water source for metropolitan Boston, serves as a prime example. Viewed as an engineering success in the 1930s, the Quabbin project consisted of two large earthen dams and a 25 mile-long tunnel to supply Boston with high-quality, unfiltered water from a submerged valley in central Massachusetts. Although building the reservoir required the taking of four towns by eminent domain, the reservoir and surrounding lands are now viewed favorably by the public as a "watershed wilderness." This paper explores the ramifications of how technology—in this case, the construction of a large water supply system—serves as a creator of wilderness, as opposed to destroyer.

1. Introduction

Environmentalists arguably have been battling dams since before the inception of the environmental movement in the 1960s. Perhaps best characterized by the character of Hayduke in Edward Abbey's *The Monkey Wrench Gang*, dam opponents have drawn attention to the many ecological and moral issues surrounding the construction of dams, particularly those on the large rivers of the western United States, like the Glen Canyon Dam, or those located in environmentally valuable areas, like the O' Shaunnessy Dam in Yosemite. Certainly, dams provide sources of water for human populations, non-polluting energy, and expansive lakes for recreation. But dams also radically change the ecosystems of free-flowing rivers, prevent fish species from completing migratory routes, and as some would argue, are distasteful

symbols of human domination that offend aesthetic and ethical sensibilities.

Yet environmentalists often ignore the ecological benefits of lands that are afforded protection around reservoirs created by dams. Their focus has been chiefly on the large western water projects, and as such, all dams by association have destructive or oppressive reputations. However, there are examples, particularly in the densely populated eastern United States, of dams and reservoirs that preserve many acres of watershed lands in an undeveloped "natural" state. The Quabbin Reservoir, the primary water source for metropolitan Boston, serves as a prime example.

2. Quabbin Reservoir

On maps of Massachusetts, it is easy to locate Quabbin Reservoir. It is the long blue strip of blue in the middle of the state, the largest human-made reservoir in the world (at the time of its construction) used solely for drinking water. Starting in the mid-1800s, the state built a series of reservoirs and aqueducts that have extended Boston's reach into parts successively further west of the city. Quabbin is connected to the system by a 25 mile tunnel aqueduct which empties into the Wachusett Reservoir. When full, Quabbin holds 412 billion gallons of water and is able to sustainably deliver 155 million gallons per day to the Boston metropolitan area. It is fed by the three branches of the Swift River, the East, Middle, and West Branches. The reservoir is 18 miles long with 118 miles of shoreline. The water surface is about 25,000 acres and the entire watershed is 120,000 acres. The state owns an additional 56,000 acres of land immediately surrounding the reservoir, with a small amount to privately-owned land present in the watershed. [1]

The water of the Swift River was impounded with two huge earthen dams at the southern end of the reservoir, the Winsor Dam and the Goodnough Dike, both named after prominent engineers who worked on building Quabbin. The topography is characterized by many hills throughout the area, some of which became islands in the reservoir, while others served to create a "bowl," framing the valley and allowing the water to be impounded in the

first place. The water itself is considered of very high quality and clarity, and the state has managed the watershed carefully to make sure that this quality is maintained. It is, in fact, of such high quality that there is no extensive filtration required before the water is distributed. Quabbin is one of very few large surface water supplies that meet the standards which exempt it from the federal Environmental Protection Agency's requirements for filtration.

The watershed lands have significant forest cover: about two-thirds are hardwood species like oak, maple, and hickory and one-third are softwood, like pine, spruce, and hemlock. Many of the trees are older than 60 years, so it is a fairly mature forest. However, they have had trouble with natural regeneration of trees because of the unusually large deer population, who enjoy eating tender saplings. Since they have allowed hunting, beginning in 1991, there has been a noticeable increase in the sapling age class. There is also forest harvesting that goes on in the watershed, but that is largely for the purpose of managing water yield, although it does bring in a certain amount of money. [2]

There is a wide diversity of wildlife in Quabbin. Over 250 species of birds (including bald eagles) numerous amphibian and reptile species, and mammals, including beaver, mink, otter, fox, bobcat, and coyote. Moose and black bear have been sighted, and some people believe the eastern mountain lion has again taken up residence, although this is not confirmed. Quabbin has 27 different fish species and is stocked with lake trout and land-locked salmon. Fishers judge Quabbin to be an excellent cold water fishery. Small motor boats have been allowed on Quabbin since 1952, likely evidence of a strong lobbying force when the reservoir first opened. [3]

Finally, hiking is one of the most popular activities in Quabbin. Whether walking through the woods along a stone wall, or coming across an old cellar hole, or following an old road to the reservoir's edge where it disappears under the waters—these romantic visions represent Quabbin for many people. Here Quabbin is defined by the peacefulness and the sense of history that such walks can provide.

3. Boston's Water History

Boston, of course is one of the country's oldest cities and consequently has one of the oldest public water supply systems. In the first 200 years of Boston's existence, there were several companies that were incorporated and charged with securing and distributing water for a growing city. For example in 1652, a "water works Company" brought water from springs and wells to a central cistern located nearby to the current Haymarket District. Another example is in 1795, when the Jamaica

Pond Aqueduct Company transported water from Jamaica Pond in Roxbury to Boston. This is one of the earliest examples in our country of a town acquiring water from a source within another already established community. [4]

The first half of the nineteenth century saw a tremendous increase in Boston's population—from 19,000 to 180,000—and so in 1846, Boston looked out to the west and acquired Lake Cochituate in Natick. In the second half of the century, the population continued to grow an average 70,000 people per decade. The city responded by annexing Charlestown in 1870 and adding the already developed Mystic Lakes system to the Boston supply. In 1872, the legislature passed the Sudbury River Act, which authorized the city of Boston to take water from the north and south branches of the Sudbury River. From 1872 to 1898, seven reservoirs were built, nearly doubling the amount of water available to the city. [4]

By the 1890s, even before the last reservoir on the Sudbury River was finished, it was apparent because of increasing population and increasing per capita use that new sources would be necessary. So, in 1893, the legislature directed the State Board of Public Health to study the options available to the metropolitan area and to make recommendations. Sebago Lake and Lake Winnepesaukee were too far away and located in different states. The Merrimac and Charles Rivers were regarded as inferior in quality and also subject to future degradation as the metropolitan population continued to grow. The Deerfield River and other sources west were considered too far away and too expensive to develop. This left the Nashua River as the new source which ultimately was the recommendation of the Board. [5]

Thus, the legislature approved the taking of the south branch of the Nashua River to build what would become the Wachusett Reservoir, and in the same bill, the state established the Metropolitan Water District which was to be made up of towns and cities within a 10-mile radius of the state house in Boston. This was a consolidation that would save the participating communities money and trouble. Rather than seeking water sources independently and possibly competing with one another, they could combine resources and work together. Obviously, this move benefited the city of Boston as much as anybody, and consolidated political power as well. The building of the Wachusett Reservoir required the taking of parts of four towns—Clinton, Sterling, Boylston, and West Boylston—and generally this set the stage for what would happen 30 years later in the Swift River Valley. [4]

The approval of the Wachusett Reservoir is really where Quabbin's story begins, because although the Swift River was not considered a realistic alternative in 1895, it was no secret that some members of the Board of Public Health had their eyes on the sources that were even further west of the Nashua River as the logical extension of the Wachusett Reservoir. As they wrote in their 1895

report: “The very great merit of the plan now submitted is to be found in the fact that this extension of the chain of the metropolitan water supplies to the valley of the Nashua will settle forever the future water policy of the district, for a comparatively inexpensive conduit can be constructed through the Valley of the Ware River, and beyond the Ware River lies the Valley of the Swift.” [6] The board seemed to understand well where they would go next for their water.

4. Taking the Swift River Valley

With Boston’s population and per capita use continuing to increase, the state commissioned a study in 1919 to be jointly undertaken by the newly created Metropolitan District Commission and the Department of Public Health. In 1922, this Joint Board filed its report recommending diverting the waters of the Ware River and damming the waters of the Swift River, where a large reservoir was to be built. In 1926 and 1927, the legislature passed the bills that authorized Boston to take the waters of the Ware River and build the reservoir in the Swift River Valley. The only other possible obstacle was a law suit by the state of Connecticut, claiming that Massachusetts was taking too much water from the tributaries of the Connecticut River. This went all the way to the Supreme Court, which decided in favor of Massachusetts in 1931. The way was clear for the construction of Quabbin. [5]

Of course, there were still the details involved in the taking of the four towns. The histories of these towns and how they are remembered play prominent roles in the vision of what Quabbin is today. In all, 2,500 people were displaced; 1,100 structures were razed; 242 miles of highways abandoned; 7,613 graves relocated, and over 80,000 acres taken by the state, at an average price of \$108 per acre. [1]

The four towns (now non-existent) were Greenwich, Dana, Prescott, and Enfield. Greenwich (originally named Quabbin Parish) was the first to be incorporated. It was primarily agricultural with some sawmills. One characteristic of the town was its numerous lakes and ponds, so in the winter, the ice cutting industry would ship up to 100,000 tons of ice to nearby cities, and in the summer, there were cottages and camps for people who wanted to get away to the country. Dana was next in 1801—made up of multiple villages, Dana Center is now a favorite hiking destination—you can walk down an old paved road and you come to the site of the common where there are still fences and cellar holes from the buildings you see in this photo. Dana was primarily a manufacturing town—home to the Swift River Box Company, one of the few businesses that survived relocation, at least for a few years. Enfield was incorporated in 1816; famous now because one of the

significant stops in Quabbin is an impressive vista that looks out over the flooded site of the former town. Again, agriculture and mills supported the local economy, and also the Swift River Hotel was a common stop on the trip from Boston to the Berkshires. Finally Prescott, smallest by population of the four towns—largely agricultural again and the first town to sell to Boston—most of the population left in the same year the Swift River Act was passed (1927). [7]

Between 1927 and 1938, the property necessary to construct the reservoir was bought and cleared to prepare for the flooding. No structure was left standing, and no vegetation remained where the waters would be. Most of the vegetation was burned, and people from neighboring towns talk about the smoke that filled the air in 1936 and 1937. In August 1939, the diversion tunnel at the Winsor Dam closed and Quabbin began to fill. It would take seven years, and in 1946, the reservoir reached full capacity. [5]

5. Three Visions of Quabbin

Feat of Engineering. The first vision of Quabbin I want to discuss is as an engineering marvel and monument to the foresighted engineers who designed not only the reservoir, but the entire Boston water supply system. There is no doubt that people, particularly in engineering and water management circles view the making of Quabbin as an immense success story. There are reams of historical documents in the Department of Conservation and Recreation archives on the two dams and the tunnel, which at the time it was built was one of the longest tunnels in the world. Articles in engineering journals that came out during the construction period celebrated the project and the long-term benefits the reservoir would have for the people of metropolitan Boston. The few local histories of Quabbin that have been written have all included at least one chapter on the engineering and planning aspects of the dams and the tunnel. The engineering is obviously an important part of what Quabbin is today, and there is certainly little doubt that Quabbin was a well-executed project. Nor is there any doubt that Quabbin is a clean and abundant water source and as just mentioned, the state agencies responsible for managing Quabbin have gone to great lengths to maintain that level of quality. In addition, the fact that metropolitan Boston has not required additional sources in the past 60 years is a testament to the engineers for the project.

Destroyer of Pastoral Towns. On the other hand, there was also the forced relocation of the residents of the Swift River Valley, the taking of their property, and the complete erasure of four towns. For many people, this part of the history overshadows any celebration of Quabbin as an example of fine engineering. Instead,

Quabbin represents how urban needs can dictate just about anything. Related to this is the perception that Quabbin's creation represents the erosion of sustainable rural living by resource-hungry urbanites: pastoral New England becomes submerged by the waters to quench Boston's thirst. For people today looking back, it is easy to idealize the life that people led in these towns, and that impulse adds to the nostalgia and arguably gives additional meaning to the history of Quabbin. It is also very revealing in terms of how some people view what the human relationship to the natural world ought to be: small towns; agriculture; local power for mills and manufacturing; living sustainably upon an aesthetically pleasing, rolling wooded landscape.

If we look more closely at the actual history, this pastoral vision might become somewhat modified. Many of the popular works on Quabbin assert that rumors in the early 1900s of the impending taking of land for the reservoir sent the Valley's economy into a tailspin. Property values plummeted, and people, as the story goes, were financially ruined. There is little doubt that news of the reservoir's construction was damaging for the residents. But in fact, the Valley had been in economic trouble long before Boston had set its sights on it. From 1850 to 1890, the collective population of the four towns dropped by 30%. The agriculture and industry were having trouble finding markets for their goods because, with the valley's topography, the first rail lines bypassed the towns to the south and north.[5] Then, as a national network of railroad evolved, there was greater competition with farmers and factories from far away, as the transport of goods over long distances became commonplace. Valley businesses had limited access to this new economy. Many moved to other towns, some simply closed. Life perhaps was not as ideal as we would like to imagine.

One industry, however, seemed to do very well and that was directly related to the pastoral quality of the towns. The valley became a recreational destination for people from more urban areas. The fishing was very good, the lakes in Greenwich were perfect sites for a country getaway, and the undeveloped quality of the valley was attractive to those wanting to escape the city, at least for a short time. In many ways, here we see the roots of the idealization of country living mentioned earlier. For those fed up with the cramped, dirty, stressful conditions of the city, the country was a healthful retreat—a vacation.

Did metropolitan Boston destroy a pastoral valley? Did they use the political power of the city to push the project through? The answer to these questions is yes, but the conditions under which it happened are important to recognize. Certainly, the faltering economy played a significant role in the ease with which the city acted upon its plans. By the mid 1920s, newspaper articles indicate

that many people in the valley simply wanted the legislature to act so they could sell their homes to the state. On the issue of political power, it does seem that in many hearings and committee meetings, the residents of the Valley were not well-represented. [5] The important hearings often took place in eastern Massachusetts, and it was apparent that any opposition to the building of the reservoir could not overcome the majority voting block that the proponents held. So, in counterpoint to the vision of Quabbin as engineered water source is the vision of Quabbin as destroyer of the Swift River Valley.

Creator of Wilderness. A third vision of Quabbin is as a modern-day wilderness now home to a wide diversity of wildlife, or stated differently, a refuge that should be protected and managed with wilderness values in mind. The idea of wilderness has been the center of a hot debate in environmental circles over the last 10 years or so. William Cronon, one of the pre-eminent environmental historians in the country, caused a bit of an uproar when he suggested in an essay that the concept of wilderness was problematic; for by holding wilderness—that is, undisturbed Nature—as our ideal for the natural world, we find that there is no room for human beings.[8] How can we discover our proper relationship with the natural world if, by definition, our presence diminishes its quality? Of course, many critics of Cronon's essay pointed out that wilderness is only one kind of nature, and is very important because so much of the natural world has been modified by humans. To keep some parts of Nature free of human impact has many benefits, including protecting biodiversity, providing scientific baselines for study, and offering unique recreational opportunities. But Cronon's critique struck a chord with many readers, and his ideas about wilderness can help us here.

People who call Quabbin a wilderness see what they believe to be what Nature would look like if humans were not around. They see animals that they do not see in their backyards; they see numerous big trees; they see wide expanses of open water with no development along the shores. Of course, to call Quabbin a true wilderness is a bit of a misnomer. Technically, wilderness under the Wilderness Act of 1964, can have no roads, no structures, no human modifications. The reservoir itself is a rather dramatic modification of the landscape and the dams are impressive structures. But many people do not see this when they look at Quabbin. They see Nature, allowed to go about its business, undisturbed.

Thomas Conuel, a Western Massachusetts journalist, wrote a book in 1981 entitled *Quabbin: The Accidental Wilderness* and this summarizes some people's perspective fairly well. [9] Likely, Conuel understood the irony of his title. There was nothing really accidental about Quabbin's creation, nor is it really a wilderness. But if people would like to envision it as wilderness, then a kind of wilderness it becomes. In 1994, Jan Dizard, a

sociologist at Amherst College wrote *Going Wild*, a book about the wide range of reactions to the opening of Quabbin to deer hunting in 1991. [2] The deer population had become a problem for tree regeneration, and state officials, after considering many options, decided that a tightly regulated hunt would be the most efficient and most financially realistic way to reduce the herd size. The people who thought of Quabbin as a wilderness were appalled at the idea of allowing hunters in to kill the wildlife that had found refuge there. But the Metropolitan District Commission was responsible for management of the watershed, the quality of the water, and thus the quality of the ecosystems surrounding the reservoir. They argued that reducing the deer herd was essential for the health of the reservoir. After much emotional debate, the hunt of course, went through, and the results are largely what the MDC had predicted: healthier forests, lower deer numbers, and preserved water quality—but for some, it was wilderness violated.

But here is the intriguing irony. We can see that the tight management of the watershed has created wilderness characteristics in the eyes of the people who visit Quabbin. And here we return to Cronon's critique that the idea of wilderness is a cultural construction—an idealization of Nature—that arose as our population became more urbanized. Quabbin is itself a constructed wilderness both in the literal sense, built for Boston, and in the figurative sense, in the perception of some of its visitors. Does the fact of these constructions diminish Quabbin's value? Not in the least; in fact, I believe it enriches it. In the same way that people find value in the pastoral memories of the valley, seeing Quabbin as wilderness helps to frame the values that the protected watershed provides for people. It may not be a true wilderness, but this is a minor detail. It still gives people a similar experience, one that they value immensely.

6. Conclusion

These three different perspectives of what Quabbin is—a feat of engineering, the submergence of the pastoral, the creation of wilderness—represent different values that help to define the human relationship to the natural world. One important question to ask is whether these visions of Quabbin Reservoir really conflict. At first glance, any observer would seemingly have to say yes. It is difficult to celebrate Quabbin as a fine example of engineering if you believe that injustice was done to the people of the valley. In the same way, you likely have to downplay the aggressive manipulation of the landscape during the construction of the reservoir if you currently view Quabbin as a wilderness. Even the pastoral and the wilderness ideals do not really fit together, as one is a

vision that includes human beings, while the other keeps Nature in an undisturbed state.

However, perhaps the most enduring value of Quabbin is that it is large enough, complex enough, rich enough, to accommodate the variety of perspectives and values that people might have. This is true of Nature in general. At Quabbin, different visions can coexist, even if they do sometimes conflict with one another. Conflicts often arise when the pursuit one vision prevents or pre-empts being able to enjoy another. But by encompassing these different perspectives of Nature, Quabbin provides us with an opportunity to examine them side-by-side.

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