Sky Route to Barre Granite Quarries

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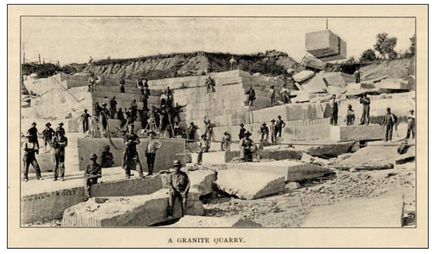

Figure 1. This photograph, taken in 1902, shows hard-working European immigrant workers at one of the Barre Granite Quarries on Millstone Hill. (Photograph from the *Inter-State Journal*)

Figure 2. This photograph is a panoramic view of the Barre railroad going through the granite plants on Burnham’s Meadow in Barre, Vermont in 1917. (Photographed by Louis L. McAllister)

“The advent of the railroad into Barre two decades ago, marks the beginning of a steady and rapid development, both in its quarrying branch on ‘the hill’ and in its finishing branch at Barre village, of what had before been a straggling industry employing only ten or twenty men. A dozen years later the ‘sky route’ was carried from the village to the very top of ‘the hill,’ nearly five miles distant, and local transportation thus became largely a matter of the loco[mo]tive instead of the ox teams, and trains of 20 to 30 horses of preceding days.”

“Labor and Life at the Barre Granite Quarries” (1895)
–George Ellsworth Hooker

Introduction

Compared to the rest of the northeastern states, railroads came late to Vermont. Although the state chartered railroad corporations in the early 1830s, the actual construction did not begin until over a decade later because a fierce competition between two major lines, the Vermont Central and the Rutland Railroad, delayed attempts to develop direct connections to the east coast and the west. Furthermore, many capitalists saw Vermont only as a pass through and invested in its railroads primarily to connect Boston and New York to the Great Lakes and beyond, but Vermont’s most prominent businessmen, politicians, and industrialists understood the importance of railroads and worked hard to get them.

The railroads fully integrated Vermont into the regional, national, and international economy and society (Klyza and Trombulak, 1999). By lowering transportation costs, the railroads stimulated the lumber industry and helped Vermont become a major dairy supplier—first for butter and cheese and later for fluid milk—for the urban markets to the south. They also cut marketing costs almost in half, making it easier to exploit such raw materials as copper, granite, marble, and slate (Wilgus, 1945).

Such advantages of railroads helped in the growth of granite industry in Barre, Vermont. Before the arrival of railroads, granites were transported by horse teams and wooden rollers, which were extremely costly and dangerous for the workers. However, with the construction of railroads, transporting granites was much easier and safer, allowing the industry to boom within couple of years. The population in Barre grew exponentially with the arrivals of European immigrants and soon became the “granite capital of the world.”

Origin of Barre Granite

When the two continental masses that were separated by “proto-Atlantic,” an ancient ocean, collided, portions of the old and dense oceanic plates were subducted. As the subducted material melted, the resulting magma worked its way back to the surface, forming the Bronson Hill Complex, a volcanic island chain. Over time, the Bronson Hill Complex was squeezed between the ancestral North America continental plate and the ancestral African-European continental plate (Paton, 2003). During this collision, also known as the Acadian orogeny, the process of subduction continued and the magma migrated up to be cooled and solidified into a granitic pluton. The pluton lay buried beneath a thick covering of rock, but erosion processes such as glaciations wore away the crust overlying the pluton, exposing sections of the pluton, also known as the Barre granite.

Barre Granite

Granite is an igneous rock composed of minerals that cooled and crystallized deeply within the Earth’s crust. The three main minerals that comprise granite are quartz, feldspars, and micas and among these minerals, quartz is the hardest. Twenty-three to thirty percent of Barre granite is comprised of quartz, which gives Barre granite its hardness, luster, and durability (Paton, 2003). There are two types of feldspars in granite, oligoclase and microcline, which both appear as creamy-white, semi-translucent grains. There are also two types of micas, muscovite and biotite, in which muscovite is light, transparent-to-translucent mica and biotite is dark, often opaque, mica.

Barre granite has been valued for its use in memorials, mausoleums, and architecture because of its beauty and durability, especially its resistance to weathering. Derived from its plagioclase feldspar, Barre granite has a beautiful gray color, enriched by the biotite, giving the warmth and richness that established its reputation as the premier gray granite in the country.

“The output of the forty quarries now operated in the district goes chiefly for monumental purposes, and has extended its market to the pacific slopes. Its distinctive feature is evenness of texture. Shafts forty or fifty feet long are absolutely free, over their entire length, from spot or cloud. In color it is light gray, and dark or blue gray, takes a high polish and is wrought into all monumental effects as well as into statues…”

“Labor and Life at the Barre Granite Quarries” (1895)
–George Ellsworth Hooker

Figure 3. This topographic map is the U.S. geological survey of Barre, Vermont, which shows all the railroads constructed by 1912. The topography of Millstone Hill suggests the engineering challenge the town faced when constructing the railroads to the quarries. (Courtesy of U.S. Geological Survey)

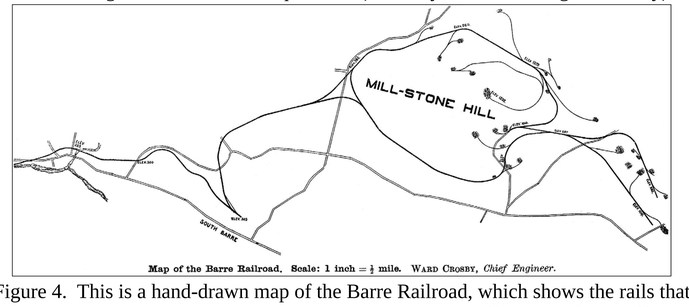

Figure 4. This is a hand-drawn map of the Barre Railroad, which shows the rails that extends all the way to each granite quarry at Millstone Hill. (Courtesy of Ward Crosby)

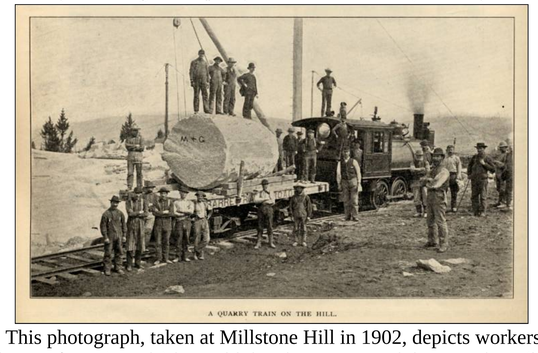

Figure 5. This photograph, taken at Millstone Hill in 1902, depicts workers loading a large column of granite, which would then be transported down to the rail depot in Barre by the train. (Photograph from the *Inter-State Journal*)

Barre Granite Industry

The abundant supply of granite in Barre was initially regarded as a nuisance because it was an obstacle to plowing fields and growing crops. Some limited uses for granite were found such as for underpinnings, fence posts, doorsteps, but this vast resource lay virtually untapped until the arrival of Robert Parker, who first recognized the economic potential of granites and opened the first-known granite quarry in Barre on his farm in 1814.

Barre’s proximity to Montpelier, Vermont’s capital, proved to be an advantage in the development and growth of Barre granite industry when it was decided that the wooden State House would be replaced by Barre granite. However, despite the prestige gained by Barre granite for its beauty and durability, the industry began to stagnate in the 1840s because of the expensive, painstakingly slow process of transporting the heavy granite by horse teams and by wooden rollers (Clarke, 1989). The suppliers actually lost money building the capitol due to the enormous transportation costs to ship the granite. For the industry to grow, a less costly, more efficient mode of transporting was necessary.

Barre Railway—Sky Route

The Central Vermont Railroad extended its line from Montpelier into Barre in 1875. However, the difficult trek down Millstone Hill, or The Hill, from the quarries to the rail depot in Barre was not connected by the rails because running rails from the rail depot in Barre to Millstone Hill, posed a serious engineering problem with its elevation of 1,025 feet above the town. The grade, at its steepest rising 470 feet to the mile, was too steep for a conventional traction system (Paton, 2003). Despite an engineering obstacle, the work on the “Sky Route,” as the line from Barre to Millstone Hill was called, began on July 4, 1888 and was completed five months later as the steepest traction railroad east of the Mississippi (Gove, 2004).

With the advent of railroads to the quarries in 1888, there was an explosive growth in Barre granite industry. Barre became the granite capital of the United States. The railroads simplified getting the stone from the quarries to the cutting sheds and also helped the marketing of the granite throughout the country. And as the year passed, in addition to the railroads, new drilling technology provided much safer and healthier work environment for the quarry workers, attracting immigrants from Europe’s stone centers, particularly Italy, Scotland, England, Norway, Sweden, Finland, France, Spain, and Germany, who came to Vermont in search of jobs in the quarries and a better life for themselves and their children. By 1914, granite overtook marble in importance in Vermont. Although some granite, like marble, was used in constructing public buildings, as early as 1915, three quarters of the granite sold was for memorials. At the industry’s peak in the early 1900s, there were nearly eighty granite quarries in Vermont, over half in Barre. Throughout this period, Vermont was first or second in granite production in the country. In 1945, the monetary peak for the industry came with a high demand for war memorials.

Today, there is only one, fully operational granite quarry in Vermont, owned by Rock of Ages Corporation and the demand for granite has decreased, but the industry still contributes about $75 million in annual sales to the Vermont economy and the state assures that the supply of Barre granite is far from depletion and the industry will remain as one of the main contributors to the state’s economy.

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