

THE HOOSAC TUNNEL

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When Greenfield celebrates its 200th anniversary in June of this year 1953, doubtless many of its visitors will make the journey here via the Boston & Maine Railroad. In so doing, those from the West will necessarily pass through the Hoosac Tunnel; those from the East should if possible, continue their trip West and enjoy the beautiful scenery along the stretches of the Deerfield River and the novelty of going through the tunnel.

It appears that in about the year 1825, serious thought was being given to the construction of a canal from Boston to the Hudson River, to facilitate a much-needed means of conveying produce and manufactured items between the east and west parts of the country. Accordingly, a commission was appointed by the legislature, with a Mr. ~~James~~ Loami Baldwin as chief engineer to ascertain the most practical route. Consideration was given to a course from Boston to Ware and Springfield, and a course from Boston to Fitchburg and Greenfield, with North Adams as a point common to both routes. There was no hesitation in deciding on the route via Greenfield, even though it would be necessary to build a tunnel through Hoosac Mountain. However, during this same year, the first RAILROAD FOR the transportation of freight and passengers was completed, and the idea of a canal was abandoned.

By 1842 the Western Railroad (now the Boston & Albany) was completed, but according to the various petitions presented to the Legislature for a franchise to construct the Troy and Greenfield Railroad, the service rendered was no sufficient to handle the increased business between the east and the west. Two items of interest were the statements concerning the vast undeveloped resources of the north and western portions of the state and the transportation of pork from the western states. Up to this time

all pork had been processed in the West and two-thirds of it shipped to Baltimore, Philadelphia, New York and Boston via New Orleans. Naturally, shipments by such a route took many days to arrive at their destination and loss from spoilage was very high. If the Troy and Greenfield Railroad was built, pork could be shipped to these eastern markets " in the hog" , thereby cutting transportation costs and high spoilage.

Six years later, in 1848, the Troy and Greenfield Railroad Company was incorporated by the Legislature with a capital of three and one-half million dollars. Six more years passed and subscriptions to the project were still insufficient, so that the Commonwealth loaned its credit to the company to the amount of two million dollars. A contract was made with E.W.Merrill and Co. and work started in earnest in 1855. Difficulties were encountered in the loan conditions, so that in 1856 a new contract was made with H.Haupt & Co. for completion of the road and tunnel for \$3,880,000.

Within two years excavations were made at each end of the tunnel, and the road from North Adams to Troy completed. Again in 1861 a difficulty arose over payment of the State loans and work was abandoned by the contractors. Things were at a standstill until the winter of 1862, when an act was passed providing that the state should take possession of the road, tunnel, and all property of the Troy and Greenfield Company. Finally, about a year later, work was resumed by the commissioners, under the superintendence of Mr. Thomas Doane and continued for another five years. At this time the Legislature made an appropriation of \$4,750,000 , and a contract was given to F. Shanley & Brother of Canada, to complete the tunnel and lay the track by March 1, 1874.

The tunnel, from portal to portal, is approximately four-and three-quarters miles long, and the rock formation for the greater part is

solid mica slate. Since the beginning of its construction , considerable progress had been made, but not nearly up to expectations. When H. Haupt and Company started work, an enormous boring machine, weighing seventy tons, was built in South Boston and transported to the east portal. This machine was designed to cut a groove thirteen inches wide and twenty-four feet in diameter by means of revolving cutters; then when it had penetrated to the proper depth, it would back out on its own railway track and the center core would be removed by gun powder and wedges. A demonstration cut was started adjacent to the proposed entrance and progressed to a depth of about ten feet at the rate of sixteen and one-half inches per hour. Unfortunately, the machine did not stand up, and this was the extent of its use. Another boring machine was built at a cost of \$25,000. This was devised to excavate the heading only, or a hole eight feet in diameter, the balance of the opening to be removed by manual drilling and blasting. This machine made absolutely no progress, and it was at this time that Mr. Doane took charge of the work.

It was planned to use power drills, which at that time were run by steam pressure, but such a method would foul the air too much, and the decision was made to try a newer method, using compressed air. A dam on the Deerfield River, just above the east portal, would furnish the power. This proved to be a great disappointment as it did not supply enough power even for the east entry. Up to this time the total penetration from the east portal was two feet over a mile.

Meanwhile, the crew that had started at the west portal was encountering great difficulty, due to the fact that shortly after

starting the drilling, they ran into a soft rock mixture of disintegrated mica and talc schist, with continuous water seepage. It was finally decided to make an open cut at that end, since the terrain above the tunnel grade was less abrupt than at the eastern end. To facilitate this, a shaft was sunk several hundred feet to the east to a grade depth of 318 feet, so that work could be carried on in both an easterly and westerly direction. This open cut extended about 550 feet before encountering rock solid enough to allow tunneling again. The entire section of soft material had to be supported by timbers and a casing arch of masonry, together with a flooring of an inverted arch of brick, this invert was built to a length of 1,883 feet. This difficult piece of construction was supervised by Mr. B. N. Farren, donor of the Farren Memorial Hospital, located in Montague.

A central shaft was being sunk at a point about one-half mile east of the west portal, eventually reaching a depth of 1,028 feet, and it was here that one of the worst tragedies occurred on October 18, 1887. Near a building at the opening of the shaft was a storage tank of gasoline, which in some manner exploded, destroying the building which contained hoisting equipment, pump lines, etc. At the time thirteen men were at work in the shaft at a depth of 583 feet. With the destruction of the pump house, water rose in the pit, timbers fell to the bottom and the air completely fouled; no human being could possibly escape. The following day a man by the name of Mallory volunteered to be lowered into the shaft by a rope around his body; his report confirmed all fears. The water was ten to fifteen feet deep and covered with debris - no sign of life. It was not until a year later to the month, that new equipment had been installed so that the shaft could be cleared

and the bodies recovered.

This central shaft, a great perpendicular tunnel 15 x 27 feet in dimensions and 1,028 feet deep, was long used for ventilation. As the traffic through the tunnel became heavier during its first quarter-century, smoke and gasses in hot weather finally made it impossible for trackmen to work inside, and in 1899 ventilating machinery, including a sixteen-foot fan was installed in the building over the shaft. Later, trains were operated electrically through the tunnel, but with the advent of the diesel engine, this method was discarded.

After about twenty years of heart-breaking labor, at the cost of 195 lives and nearly \$20,000,000, quite appropriately on Thanksgiving Day, November 27, 1874, at a distance of 10,134 feet from the west portal, the headings met in the presence of a large audience of ~~officials~~ legislators and railroad officials. It was not until the following February 9th that a string of work cars passed through, and not until October 13, 1875, that the first passenger train bore a few dozen thrilled, half-frightened riders through on its way from Boston to Troy.