

A History of Progress

AMERICAN SOCIETY OF CIVIL ENGINEERS

THE YEAR 1848 IN ENGINEERING HISTORY

By Edward E. Wood, Jr.

Whatever may be said about the early part of the nineteenth century, it cannot be considered as static or unprovocative in the arts and sciences, especially in the fields of engineering. There had been great development of transportation in the early nineteenth century, particularly in the area of highways, canals and railways, in the United States as well as in Europe. Less obvious but equally important were the water and sewer systems which were being improved and extended at that time. These developments brought about a re-introduction of the nearly forgotten Roman arts of bridge and aqueduct construction, plus a great expansion in tunneling, much of it in the comparatively virgin territory of the United States of America.

It was not until 1848, on February 2, at the end of the Mexican War, that the United States and its territories extended in an unbroken band from the Atlantic Ocean to the Pacific. The addition of the California Territory would have been enough, by itself, to begin agitation for a transcontinental railroad. However, another event made a spark setting alight a fuse (albeit a slow one) which eventually would explode into actual construction of such a road.

Just before the signing of the treaty, on January 28, in California at a sawmill outside Sutter's Fort, near Sacramento, a millwright named Marshall found gold. Small wonder that, after the Civil War was over, the first transcontinental railroad was begun at Sacramento!

Actually, in 1848, railroads had not gotten that far west. In that year an old, third-hand locomotive, the *Pioneer*, built in 1837, became the first steam engine to operate in Chicago, pulling a short train five miles to Galena to pick up a load of grain. The *Pioneer* now rests in the Museum of Science and Industry but can, when the occasion warrants, operate under her own steam.

Coming east, we find that the Scottish engineer, James Kirkwood, in 1848 completed the great stone 1200-foot, seventeen-arch Starucca Viaduct in Pennsylvania. Like our own older and smaller Canton Viaduct, here in Massachusetts, this bridge is still in use by main line trains.

Coming east again, the Western Railroad of Massachusetts began double-tracking its line through the Berkshires just eight years after its opening. While this project was beginning, another road was in the process of organiz-

ing. This was the Troy & Greenfield, which had avowed intention of tunneling through Hoosac Mountain, a mission which it could not financially undertake. All of this was going on in 1848.

It was the year when the first eight-wheeled freight cars (except for those makeshift ones on the isolated Granite Railway in Quincy, Massachusetts) began to appear in New England.

This was the year in which it was proposed that the rock barriers in the Hell Gate, East River, New York be destroyed by surface blasting.

In June of 1848, Daniel Webster, that scourge of public transportation, or, rather, the lack of it, suffered himself to be a passenger on the first train of the Northern Railroad of New Hampshire, from Concord to White River Junction, Vermont.

Over in Maine, where the battle of the gauges was a never-ending one, fifty miles of 5'6" track had been laid by 1848's end, from Portland toward Montreal, Quebec.

In December of that year, the New York & New Haven finally secured trackage rights into Manhattan, opening an all-rail route between Boston and New York. This put the kibosh, at least temporarily, on the New Haven & New London, which, earlier in 1848, had obtained a charter to build a shore line rail route, using boats to ferry cars across the as yet unbridgeable Thames and Connecticut Rivers.

In Europe in 1848, construction was begun on the first railroad across the Alps, to connect Vienna and Trieste, then both in the Austro-Hungarian Empire. In Wales, Thomas Telford completed his first great tubular bridge, forerunner of the famous Britannia Bridge, but across the Conway River. It had a span of 400 feet and was of wrought iron. This bridge still carries traffic on the rail-sea line between London and Dublin.

Back in Boston, a new railroad was opened between Boston and Dedham via West Roxbury, an alternative to the old 1834 route via Readville. And, wonder of wonders, fresh water was piped into Boston all the way from Cochituate, out beyond Wellesley; an engineering marvel *par excellence*.

Thus, in this remarkable year, on July 3, 1848, the Boston Society of Civil Engineers, the first engineering society in the nation, held its first regular meeting, and chose James Fowle Baldwin, railroad locating engineer and early hydraulic engineer as its president.

And this was the way it was in that great year, 1848!