The Milwaukee Road

By the end of the nineteenth century the Chicago, Milwaukee & St. Paul had reached west to the Missouri (Map 261, below) but relied on the transcontinental roads for incoming traffic from the west, revenue that was often diverted. The Milwaukee was caught between the lines owned either by James Hill of the Great Northern or Edward Harriman of the Union Pacific. The Milwaukee feared for its long-term independence, despite being, unusually at that time, in sound financial condition.

In 1906 the Milwaukee decided to try and ensure its continued competitiveness by building a line to the Northwest, and that year it extended its rails north on the Missouri from Evans, its previous terminal, to a better bridging point, named Mobridge. From this northern South Dakota point the railroad built its Puget Sound Extension, choosing Seattle as its West Coast terminus. But it was an expensive proposition. The Milwaukee had no land grant and had to buy the land for its line or purchase existing short lines, such as the Montana Central. The road crossed the Cascades at Snoqualmie Pass, already examined and rejected by the Northern Pacific in favor of Stampede Pass a little to the south.

Built from both west and east, the two sections met near Garrison, Montana, where a last spike was driven on 14 May 1909. Through passenger service to the Pacific began on 10 July. A final link, the 2½-mile-long Snoqualmie Tunnel, was completed in 1915.

The original cost estimate for the line was $45 million, increased to $60 million to allow for contingencies. But the actual cost came in at $124 million, not including electrification of two mountain sections totaling 656 miles, carried out a little later. The Puget Sound Extension never produced the revenue projected for it. The Milwaukee was saddled with debts that crippled it and by 1925 found itself in receivership. A new company, the Chicago, Milwaukee, St. Paul & Pacific Railroad, was created in 1928.
A Casualty of War

The narrow-gauge Newfoundland Railway ran for 906 miles clear across the island but required a ferry to connect with the rest of North America. A ferry from Port aux Basques, on the southwest tip of Newfoundland, sailed daily to North Sydney on Cape Breton Island, Nova Scotia, a distance of 100 miles. At this time Newfoundland was a British colony and not part of Canada.

At 3:30 AM on 14 October 1942, as the ferry was making its usual crossing, it was torpedoed by a German submarine, U–69, which blew a gaping hole in its side, sending the ship to the bottom five minutes later. Some 136 men, women, and children perished out of a total of 237 passengers and 45 crew. It was the worst attack on civilians in North America during the entire war.

The corvette HMCS Grandmere, which had been assigned to protect the railway ferry, was immediately on the scene but was unable to locate the submarine. After the war, German records showed that it had lurked under the area where the survivors were in the water, knowing that the corvette would be reluctant to release depth charges there.
A Thousand Glorious Tomorrows

Following World War II the railroads faced the future with renewed optimism. They had come through the war years with flying colors, bending under the strain sometimes, but not breaking, and were even making a profit again. Like the Rock Island (illustration below), they looked forward to “a thousand glorious tomorrows.”

Yet, as with the Rock Island, trouble lay ahead. There seems to have been a general failure to see that the war had forced shippers and passengers alike to use the railroads, and that the trend to the automobile, the truck, and the new competitor, the airplane, would renew itself in the years ahead. Indeed, the railroads seemed to have a particular disdain for aviation, for it seemed that a noisy piston plane would never be able to compete with their luxury streamliners. That, of course, all changed in 1958 when the first jet entered service.

The period from 1945 to 1970 was one of slow decline. After an initial burst of enthusiasm it became clear to the railroads that they were unable to compete on the uneven playing field that outdated government regulation had created and their own conservative business strategies had abetted, and most had neither the inclination nor the investment capital to maintain or improve their services. The decline culminated in 1970 with the bankruptcy of the largest railroad system, the Penn Central, which itself had been created from failing railroads two years before (see page 192).

Then followed a period of government intervention and, most importantly, deregulation, which allowed the railroads to compete anew, making it worth their while to invest in new facilities and operate efficiently. The seminal events were the government takeover of passenger services, in 1971 in the United States and 1978 in Canada; the creation of Conrail, in 1976; and the deregulation of the industry, in 1980. These events, coupled with the emergence of new technology and operating practices, notably the rise of intermodal freight, led to the thriving—but much smaller—railroad industry of today.

Probably the most destructive factor in the initial decline of the railroad industry was over-regulation. In the days when the railroad was an omnipotent monopoly, regulations were needed for the public good, but as the monopoly eased, so should have the regulatory environment. But it got worse—from the railroad point of view. The 1906 Hepburn Act had given the Interstate Commerce Commission almost complete power over railroads; they could not cut a train nor add one, abandon tracks that were uneconomical, or increase—or even decrease—their rates without ICC approval. And the ICC required that railroads cross-subsidize their money-losing passenger services with their sometimes profitable freight.

The labor situation was also difficult, with some rail unions so powerful they virtually controlled what the company could do. Trains were overstaffed, and railroads could not take proper advantage of new technology. The classic example of this inefficiency was with the new diesels: until the 1960s they still had to have a fireman on board even though the position was totally redundant.
**Local Lines**

Most of the first railroad lines in North America were portage lines that connected either two waterways or an inland place with a navigable waterway. They overcame a geographical difficulty more efficiently than the usually horse-drawn alternative but did not compete with the more established water routes, which were already quite efficient at transporting both freight and passengers—though slowly. No thought was given at first to any sort of network.

**Horatio Allen’s Mad Ride**

The Delaware and Hudson Canal Company completed a canal in 1828 from Rondout Creek, which flowed into the Hudson River, and Honesdale, on the Lackawaxen River, to transport anthracite from the northeastern Pennsylvania coalfields to New York. Their mines, however, were at Carbondale, 16 miles farther inland and, for a canal, impractically higher. To carry the anthracite to the canal, the company determined to construct a series of rail lines and inclined planes (see page 22). In 1828 their young assistant engineer, Horatio Allen, was dispatched to England to learn about railway practice and purchase four locomotives and strap iron for rails. One of the locomotives was built by Robert Stephenson and three by Foster & Rastrick of Stourbridge. Two were destroyed in a fire. One, dubbed the Stourbridge Lion, was assembled by Allen and prepared to run on track laid near Honesdale. There, on 8 August 1829, Allen opened the regulator of the first commercial locomotive to travel on a railway in North America and charged off on a hair-raising trial run covering 3 miles. Unfortunately the uneven ironstrap track proved not up to the task of guiding a 7-ton steam locomotive and was nearly destroyed. The Stourbridge Lion was converted to a stationary engine and used to power the ropes hauling wagons up one of the inclined planes.

**Charleston’s Best Friend**

Knowledge of Allen’s expertise spread. He was hired soon after by the South Carolina Canal & Railroad Company, which planned a rail line between Charleston and Hamburg, the latter on the Savannah River opposite Augusta, Georgia. Augusta had become a transshipment point for freight traveling down the river to Charleston’s larger rival city Savannah at the river mouth, and Charleston merchants hoped to siphon off some of this business for themselves.

The line was to be 136 miles long and would be excellent for the use of steam locomotion. Allen was involved in designing a locomotive, which was built in New York. His Best Friend of Charleston was the first steam locomotive built in North America. On Christmas Day, 1830, the South Carolina Rail Road is shown in red on this 1839 map. The 136-mile line runs from Charleston to Hamburg, the latter on the Savannah River opposite Augusta. The map clearly illustrates the intent of the line: to divert trade from the Savannah River to Charleston, which grew up at the mouths of the smaller Ashley and Cooper rivers and later found itself competing with the city of Savannah, at the mouth of its eponymous river: The inset illustration is a more recent one, drawn in 1941, and shows the Best Friend of Charleston leaving Charleston, but the background is inaccurate given where the line actually ran in the city, shown in Map 27, below.
The Inclined Plane

Inclined planes offered an easy solution for early railroads seeking to overcome grades too steep for normal operation. The train, usually broken into short sections, would be hauled up the incline by a cable driven by a stationary engine at the top. This element of design stayed with North American steam locomotives to the end. The Mohawk & Hudson was conceived by local entrepreneur George Featherstonhaugh, who, for apparently personal reasons, withdrew from the project before its completion. The road was seen as a shortcut around the string of locks required to bring the Erie Canal down to the level of the Hudson River—one that passengers would take, at any rate, as it would save many hours. Ironically, the railroad itself had to use inclined planes.

The directors were sold on the idea. Early the next year they announced their own locomotive trials, getting the idea from the Rainhill experience (see page 17). The competition was won by York; another Grasshopper-type engine that would soon be superseded by the British Rocket type. Another Grasshopper, Atlantic (see photo, page 18) was added the following year.


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AROUND THE LOCKS

The difficulty at this early stage was designing locomotives that could run on rather flimsy track without destroying it. In 1834, when New York’s first railroad, the Mohawk & Hudson, brought in a Stephenson locomotive from Britain, it tore up the metal-strap-topped line. The railroad’s chief engineer, John Jervis (who had been herkimo Almen’s chief at the Delaware & Hudson) designed a new locomotive and had it built by the West Point Foundry in New York. It was the DeWitt Clinton, named after the governor of the state—and one of the principal supporters of the Erie Canal. Jervis did not last long at the Mohawk & Hudson, being fired for importing the useless Stephenson locomotive, but the following year developed a very important improvement in American locomotive design—a pivoting front bogie ahead of the driving wheels to both distribute and guide the weight of the locomotive around sharp bends so that it stayed on the rails. This element of design stayed with North American steam locomotives to the end. The Mohawk & Hudson was conceived by local entrepreneur George Featherstonhaugh, who, for apparently personal reasons, withdrew from the project before its completion. The road was seen as a shortcut around the string of locks required to bring the Erie Canal down to the level of the Hudson River—one that passengers would take, at any rate, as it would save many hours. Ironically, the railroad itself had to use inclined planes.

The line of the Mohawk & Hudson Railroad from Albany, on the Hudson River, and Schenectady, in the valley of the Mohawk River, is shown on this 1834 map. The poster (left), from the same year, advertises the connection with the railroad at Schenectady, using the Erie Canal.

Below is a wonderful photograph of a replica of the DeWitt Clinton and its stagecoach-like coaches, just as it would have appeared in 1835.
A Railroad War

Railroads completely transformed the face of war. Before the railroad, armies had to live off the land, and they lived or died by what they could carry with them or scavenge locally. Rail lines linked armies with sources of supply and connected factories with the battlefield. Ammunition, more guns, reinforcements, food, and everything else could now be delivered to the battlefield as demanded, and the wounded could be more speedily evacuated. The logistics of the movement of armies changed forever.

Military strategy had to radically change to account for this new speed. It was not sufficient to consider the manpower immediately available to both sides; now other troops and firepower that could be delivered to the battlefield from quite a distance also came into play.

During the Civil War the railroad advantage was demonstrated for the first time. And because the North had more railroads, a more developed network, and generally better infrastructure, especially better track quality, the South was at a major disadvantage right from the beginning. The North was more industrialized than the South, and the railroads allowed it to easily exploit this fact. The Southern strategists knew at once of their disadvantage; it was no coincidence that Stonewall Jackson moved to Chattanooga from Washington in 12 days using some 30 trains. Clearly the railroad made a major difference to the way war was fought. In July 1862 the Union conveyed 25,000 the 600 miles to Chattanooga, Tennessee, within a week—nearly 800 miles using 6 railroads. Similarly, a year later the Union conveyed 35,000 the 600 miles to Chattanooga from Washington in 12 days using some 30 trains. Clearly the railroad made a major difference to the way war was fought.

The railroad led to the development of trench warfare, a military strategy that was to reach its apex fifty years later during the First World War. The decisive battle of the war, the Battle of the Somme, was fought in 1916. The railroad made it possible to move it within range of the Confederate lines surrounding Petersburg. The mortar could fire a 200-pound exploding shell at a target 1 miles away.

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