At first glance, Martinsburg, West Virginia, would appear to be nothing more than a quiet town on the edge of the scenic Shenandoah Valley. But the small city of fewer than 20,000 people, about 80 mi northwest of Washington, D.C., was at the center of a trio of events that shaped 19th-century America.

As part of the state of Virginia at the time, it was a strategic target during the Civil War and later ground zero for the nation’s first national strike. Most famously, the town was home to a significant rail complex, including a machine shop, car shop, and cast-iron roundhouse, built by the Baltimore & Ohio (B&O) Railroad. It represents one of the last surviving and best-designed symbols of America’s 19th-century railroad expansion and is listed as a National Historic Landmark (NHL) and as an ASCE Historic Civil Engineering Landmark. In the 2003 nomination report for that listing, written by West Virginia University industrial archaeologist Michael Caplinger and labor historian John Bond, Martinsburg is lauded as the “only remaining example of the ‘first family’ of fully enclosed roundhouses on the B&O or any other railroad.”

Founded in 1778, Martinsburg owes its place in American history to the B&O, America’s oldest and first “common-carrier” railroad—one that would transport goods and people for any entity. The B&O was chartered in 1827 by merchants in Baltimore, a city that lacked a “suitable water route west” to compete with the Erie Canal, according to the NHL nomination document. Baltimore’s gamble paid off: the railroad industry became the internet of the 19th century with respect to its technological innovations, economic reach, and power to reshape the culture and life of the entire country.

As Caplinger and Bond describe it, “The newness of railroads in general combined with the incredibly difficult terrain presented by the central Appalachian Mountains made the Baltimore and Ohio ‘mainstem’ a hotbed of technological innovation. It was one of the largest civil engineering projects of the mid-nineteenth century and [its] innovations in track, rolling stock, locomotives, and civil engineering are legendary.”

It took workers almost 25 years, from 1828 to 1852, to build the B&O in three phases. The initial system extended from Baltimore to Wheeling, West Virginia. When it reached Martinsburg in 1842, the town became an important “division point,” at which train crews from Baltimore would be replaced.

The B&O’s engineering department became the home of many of the era’s influential architects and engineers, including Benjamin Henry Latrobe Jr., the B&O’s chief engineer (and the son of the architect who designed the U.S. Capitol); Austrian-born architect John Niernsee; and, most significantly, engineer Albert Fink. Fink arrived in America from Germany in 1850 and was, according to Caplinger and Bond, “better trained in mathematics and classical architecture than most American engineers.”

Fink made his reputation designing for the railroad more than 50 truss bridges—similar but distinct from those designed for the railroad by the respected engineer Wendel Bollman—and thus, helped lead a transition from wood...
to cast and wrought iron. “This was at a time when the reliability and characteristics of iron were still in question among most engineers, and this reliance on iron structures was considered risky by the majority of engineers,” Caplinger and Bond wrote. But trains were growing heavier, so engineers needed a “stronger, more durable, easier-to-erect” material for bridges.

Fink’s innovations led to improvements in another area: the design of structures to maintain and repair locomotives. According to Caplinger and Bond, “Engine smoke corroded structural materials and also made for poor working conditions, so both rectangular and semi-circular engine sheds routinely used smoke hoods—funnel-shaped metal fixtures that could be lowered over the locomotive smokestack—to remove smoke.”

By midcentury, a better and more efficient alternative to these largely rectangular sheds arose: the round engine shop. As a 1984 Historic American Engineering Record (HAER) report on the Martinsburg repair shops noted, “The roundhouse was developed for the steam engine, its shape derived from the centrally located ‘round table’ [a turntable] which acted as a rotating hub delivering any number of locomotives into the work bays, radiating from the hub like spokes on a wheel.”

Large overhead spaces combined with windows in the walls and roof provided light and ventilation and could funnel smoke and engine gases away from workers on the floor “like one gigantic chimney,” the HAER report states.

Fink designed many cast-iron roundhouses in the 1850s but left the B&O in 1859 to become assistant chief engineer of the Louisville and Nashville Railroad. A few years later, as the Civil War began, Martinsburg found itself at a critical point. Pro-Union counties in northwest Virginia split off from the state, and West Virginia entered the Union in 1863. Martinsburg, located in the state’s tiny northeastern panhandle, was sandwiched between Confederate Virginia and Union Pennsylvania, and the B&O offered a clear route into Washington, D.C. Both sides wanted control of the rail line.

The small town found itself at the “center of military action (and destruction), and the town changed hands several times during the Civil War,” wrote Caplinger and Bond. The original railroad shops, depot, and roundhouse were destroyed in 1861 during a raid by Confederate Gen. Stonewall Jackson. Jackson’s soldiers stole a dozen locomotives, outfitted them with vehicular wheels, hitched them to horses, and, as the nomination report puts it, “towed them over the dirt roads into Virginia for use on the South’s railroads.”

After the war, large portions of the railroad needed to be rebuilt. While Fink had moved on from the B&O, the company still owned the blueprints for his 1850s roundhouses and used them as the templates to build the roundhouse at Martinsburg. The new roundhouse was based on one Fink designed for Piedmont, West Virginia, in 1852. It was a 16-stall building that, as Latrobe bragged when it opened, “has an iron roof upon a new model, combining lightness and economy, with ample strength and entirely proof against fire,” according to the nomination document.

The roundhouse was a 177 ft diameter building with a 68.5 ft high domed roof and a complex, spiderweb-like structure. According to Caplinger and Bond, a lower shed roof that covered the engine stalls was supported by octagonal-shaped, hollow, cast-iron columns. These columns were placed in three concentric rings laterally connected by cast-iron trusses.

The nomination document states that the roundhouse’s central dome “is supported by sixteen columns inclined at a 42-degree angle. Each inclined column

Engineer Albert Fink pioneered the use of cast iron along the Baltimore & Ohio Railroad system.
is made up of four sections connected by mortise-and-tenon joints. The inclined columns are laterally connected at three levels by horizontal cast-iron bracing beams similar in cross-section to the inclined columns. Curved cast-iron brackets reinforce the connections between the inclined columns and horizontal braces at these three levels.

In addition to the roundhouse, two other buildings were rebuilt in 1886, this time by Niernsee: a rectangular machine building (184 ft long by 60 ft wide) and a brick car shop with a slate roof, measuring 101 by 200 ft. (In 1872, a second roundhouse was built east of the former. It became known as the East Roundhouse, and Niernsee’s became known as the West Roundhouse.)

“Architectural touches such as detailed brickwork, cast- and wrought-iron structural components, and rhythmic placement of doors and windows are repeated throughout the buildings,” Caplinger and Bond wrote, praising the complex for its engineering as well as its architecture.

The B&O was soon thriving as it had before the war, expanding its reach as far west as Chicago and St. Louis. As the NHL nomination notes, by the late 1870s, “Railroads were unquestionably the dominant force in American economic life.” But they had grown increasingly hostile to any interest but their own. They were able to resist government attempts to regulate freight rates, and they were notorious for paying out generous dividends to shareholders while slashing workers’ wages.

Growing national dissatisfaction with the power the railroads wielded finally came to a head in July 1877 during a series of national strikes dubbed the Great Strike of 1877, which began in Martinsburg. Railroads were, by then, the largest employer in the country, had the largest capitalization, and were the country’s main system for transportation of people and goods, wrote historian Michael A. Bellesiles in his book 1877: America’s Year of Living Violently (New York: The New Press, 2010). According to Bellesiles, in 1877 some 50 corporations operated more than 79,000 mi of track, representing roughly $5 billion in capital.

The country had been racked by depression throughout the decade, starting with the Panic of 1873; the railroads were hit hard, but they were still paying 6 to 10 percent dividends to shareholders while workers’ wages dropped by 20 to 50 percent. Bellesiles quoted a B&O worker from the era discussing the struggles of making ends meet: “We eat our hard bread and tainted meat two days old on the sooty cars up the road, and when we come home, find our children gnawing bones and our wives complaining that they cannot even buy hominy.”

Workers at various railroad companies, including the Pennsylvania Railroad and the B&O, began discussing strikes. B&O workers had taken a 10 percent wage cut in November 1876, bringing their wages down to half of what they had been in 1873, according to Bellesiles. They vowed to strike if their wages were cut any further.

This is what happened in mid-July, when B&O president John W. Garrett announced a second 10 percent cut for workers on the same day he had voted for a 10 percent dividend for company stockholders.

On July 16, rail workers in Martinsburg “declared themselves on strike and began uncoupling the engines from the trains,” Bellesiles wrote. “Moving the engines into the roundhouse, the workers declared that no trains would leave Martinsburg until management rescinded the wage cuts.” Mar-
tinsburg mayor A. P. Schutt ordered that the strike leaders be arrested.

Tensions ratcheted up. The local newspaper supported the strikers, as did the majority of the town’s 8,000 residents. On July 19, a railroad engineer refused to operate a train headed for Baltimore, under the guard of a railroad-hired militia, after his wife and daughter climbed on the footboard and begged him not to go. Bellesiles, referencing an 1877 article in the New York Sun, wrote, “These women were declared ‘heroines’ by the workers and were ‘applauded by other wives and children who had gathered around the engine.’”

The railroad responded by firing all the strikers, but workers issued a manifesto on July 20 that, according to the NHL nomination document, stated that if the company didn’t restore workers’ wages, “We shall run their trains and locomotives into the river; we shall blow up their bridges; we shall tear up their railroads; we shall consume their shops with fire.” That same day, the strike went national.

Within a week, Bellesiles wrote, some 500,000 workers, from New Jersey to San Francisco, walked off their jobs. The strike petered out by September when President Rutherford B. Hayes sent federal troops across the country to quell strikers but not before approximately 100 workers across the country had been killed—and not before unions began to grow in strength and savvy.

“You could almost make the case for this being the birthplace of labor unions,” says Jeff Hollis, a local railroad historian and board member of the Berkeley County Roundhouse Authority, a West Virginia public corporation charged with rehabilitating and preserving the B&O’s historic buildings in Martinsburg.

As success followed the railroads into the 20th century, Fink’s rich industrial architecture was all but lost. All his roundhouses, save the two at Martinsburg, were demolished, and the iron frame of the 1872 East Roundhouse was replaced, leaving the West Roundhouse as the company’s last surviving example of Fink’s work.

“The Martinsburg roundhouses functioned as locomotive sheds until [circa] 1898, when locomotive maintenance was transferred to a major new semi-circular roundhouse complex at Brunswick, Maryland,” the NHL form states. “Instead of demolishing the Martinsburg buildings, the financially strapped B&O reused the complex.”

Throughout the 20th century, the B&O developed the complex with additional maintenance buildings. Eventually the railroad became part of CSX, which closed the shops for good in 1988. In 1990 the East Roundhouse burned to the ground, and the remaining buildings sat derelict and in danger of demolition.

In 1999, the complex and its surrounding property were purchased by Berkeley County and later deeded to the Berkeley County Roundhouse Authority. Hollis says the original board members of the authority received a grant a few years later to stabilize the buildings: new windows were installed, new roofs were erected, and a cupola was reinstalled atop the bridge and machine shop. Public opinion was at first unenthusiastic, he adds—but now the roundhouse complex has become a center of the town’s life, hosting weddings, sit-down dinners, dances, Civil War reenactments, and other programs.

The authority is working to secure new grants to further refurbish the complex, including adding new restrooms and sprinklers, and to help bring in one or two commercial tenants. Amtrak is also building a new station platform to make it easier for visitors to reach the site.

During one of his stints working on the B&O bridges in the 1850s, Fink (who served as ASCE president in 1880 and died in 1897) wrote a letter to his wife summarizing the dreams and volatile spirit of the young nation—dreams that the railroad helped give birth to. According to the NHL document, he wrote: “The train trip through the peaceful valley of the Potomac was beautiful. In America there are no castles and no ruins, but the different greens of the trees make my heart glad.... A more excellent place for my development I could not dream of than the deep woods far away from materials with no communication. I must invent anything that is lacking or broken, and rely entirely on myself in any emergency.”

—T.R. WITCHER

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