The Eads Bridge

The Structure That Made St. Louis

Saying that the Eads Bridge saved a riverboat town from irrelevance and created the modern city of St. Louis seems like a bold declaration, but it is entirely defensible. By 1860 the United States had 30,000 miles of railroads—roughly the same as Europe—but nearly all those tracks lay east of the Mississippi River. Without a direct rail connection to that network, the town would surely wither. The delay in building a bridge at St. Louis has been ascribed to everything from parochial thinking to romantic attachment to the steamboat era to a failure to embrace railroads, but the biggest hurdle was how to conquer the combined flow of the Mississippi and Missouri rivers. The unique talents of Captain James Eads—a steamboat man, mechanical engineer, and promoter par excellence—eventually triumphed with the graceful structure that endures to this day.

By *John K. Brown*

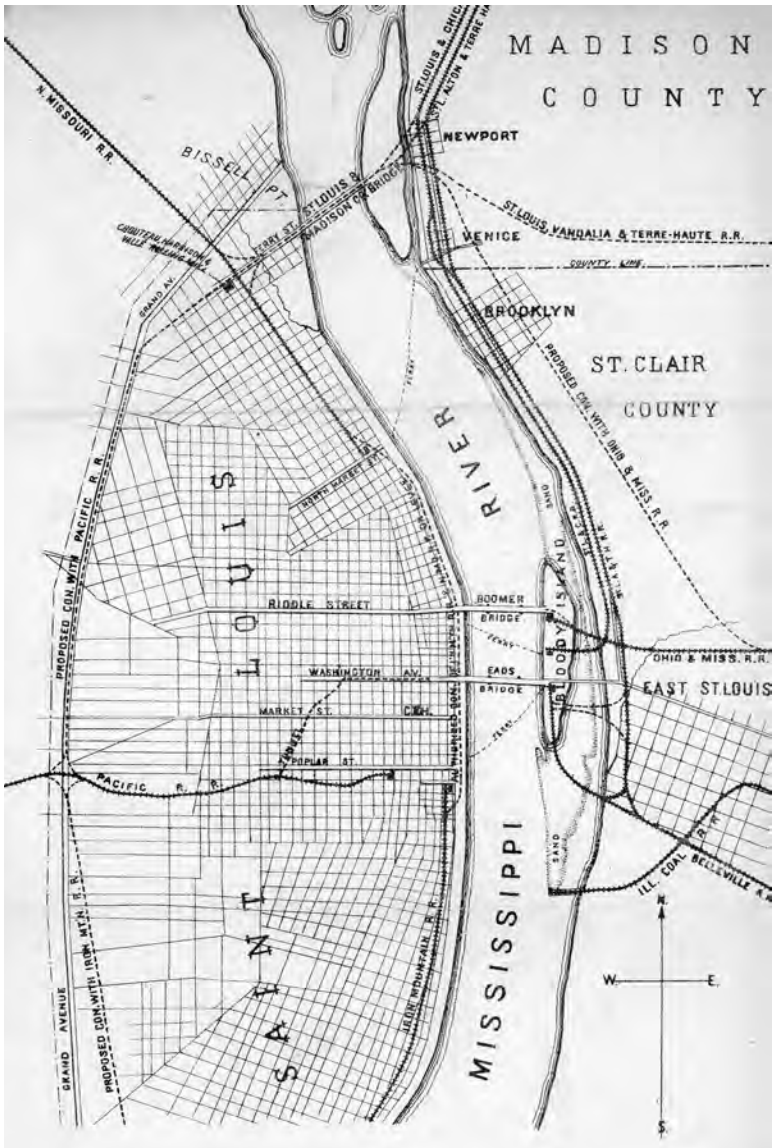
From the start, Eads's plans encompassed much more than a bridge. Its associated yards, underground tunnel, and passenger station for all area railroads would give the entire bistate region an industrial-age boost. By the turn of the 20th century St. Louis's population had grown from sixth to fourth place among US cities. Its striving business leaders saw opportunity in St. Louis's ideal location. They tapped and served the farm economies of the Midwest, Deep South, and Southwest. By 1900 the city's bridge would foster a railroad infrastructure second only to Chicago's.

In 1839, Charles Ellet, one of the nation's leading civil engineers, pitched one of his signature suspension bridges for common roadway traffic at St. Louis. Costing $600,000 (or $20.3 million in 2024), his pro-

The Magnificent Eads Bridge.
Stereograph by Keystone View Company, 1899.
Missouri Historical Society Collections.

posal went nowhere. A venture in 1855 for a railway suspension bridge had no hope of raising its estimated cost of $1.5 million. By then, most American engineers had concluded that suspension bridges were unable to safely bear the dynamic loads of steam locomotives and their heavy freight trains.

Beyond that engineering issue, other daunting challenges remained for St. Louisans. Composite wood and iron bridges, like the patented Howe truss, were state of the art in the mid-1800s. They ably carried trains over the smaller, placid rivers of the eastern United States but were no match for the wide tempest at St. Louis. The nascent iron industry had yet to master the quality issues to make long-span railroad bridge. After visiting the city in 1850, Ralph Waldo Emerson wrote, "They think the river here unconquerable and that man must follow and not dictate to it. If you drive piles into it to construct a dam or pier, you only stir the bottom which dissolves like sugar and is all gone." Even if a bridge became technically feasible, the burdensome cost estimates put such ventures beyond the reach of government. Entrepreneurs held back too, constrained by the young American capital markets.



This 1867 map illustrates locations for three bridge ventures. The northern project aroused little interest, leaving the field clear for Lucius Boomer or James Eads. Detail from a map in the author's collection.

Competitors for Change

The Civil War overwhelmed the country and blocked any bridge ventures. After it ended, five promoters stepped up with unique designs to move trains across the river. City and state governments did not request these proposals nor would they pay for them. Instead, private-sector engineers and businessmen pitched their plans, lured by the profits that would come from passenger tolls and freight charges.

In the summer of 1867, Lucius Boomer's Chicago company was the nation's largest specialized bridge maker and the top contender to create a successful, profitable bridge for St. Louis. For more than 20 years Boomer had been building bridges across the country out of wood, and more recently, in iron. He proposed to use an all-iron bridge, built to a design already well proven in railroad service.

Boomer's St. Louis bridge venture also possessed a trump card. His company had secured corporate charters from Missouri and Illinois, necessities because it would operate in both states. The Illinois Legislature boosted the new firm with an exclusive privilege: For 25 years, it alone could operate a Mississippi River crossing from St. Clair County, Illinois, into St. Louis.

This charter gave Boomer a monopoly after the bridge was finished, and it discouraged any would-be competitors in the meantime. But Captain James Eads did not discourage easily.

Starting in February 1867, Eads proceeded as though his bridge would inevitably triumph. He enlisted a board of directors, issued new stock, hired engineering assistants, unveiled his plans, and cultivated the press. He scored his own coup when Thomas Alexander Scott, vice president of the Pennsylvania Railroad (PRR) and an investor in new railroads across the West, joined his board. Scott also held a substantial interest in Keystone Bridge Company, a leading competitor to Boomer's American Bridge Company.

Eads unveiled his plans that summer, which included all of the bridge's most recognizable elements, including its three arches built largely of steel that could carry a wide roadway above a dual-track railway deck. There was nothing like it in the world. At 500 feet, the span lengths far exceeded Boomer's plans for 368-foot trusses. The two stone piers would reach down to bedrock—as much as 100 feet below the Mississippi, the deepest subaqueous foundations anywhere in the world.

Eads's choice for steel arches was conceptually elegant, though problematic in practical terms. Steel offered more strength at a lower weight than iron did, and its qualities were particularly suited to the compression loadings of an arch. By 1867 the Bessemer process—the pioneering method used to make steel in industrial quantities—was well advanced in Great Britain, but America's first Bessemer plant had just opened. Despite Eads's confidence, structural steel had never been used to construct a bridge, building, or ship anywhere in the world. The British Board of Trade had even banned the use of steel in bridges, a policy that remained in force until 1877.

Eads and the Right to Try

With its utterly novel qualities, the bridge that Eads proposed in 1867 fell somewhere between visionary and foolhardy. He had never designed a bridge before, a fact that could support either assessment. His alliance with Tom Scott and the Pennsylvania Railroad would prove essential in besting Boomer's considerable advantages. With the PRR against him, Boomer had little chance to interest investors and railroads in his project, and he withdrew from contention. After all, he had a big factory to run back in Chicago and plenty of lucrative work. There would always be more bridges for Boomer, while Eads had staked everything on a big win in his hometown.

Studio portrait of James Eads. Unknown photographer, ca. 1874. Missouri Historical Society Collections.

Eads's and Boomer's separate bridge ventures merged in February 1868. Boomer took a cash payment, and Eads now had a free hand. Crucially, the combined firm now held the monopoly granted by the Illinois Legislature. But in vanquishing his rival, James Eads had simply earned the right to try. He still faced towering challenges in his design, at the site, and in the river.

Eads sent his preliminary drawings to Jacob Linville, the design chief of Keystone Bridge Company, asking for suggestions. One of the country's top bridge designers, Linville replied with a 14-page letter that roundly condemned Eads's plan, writing, "I cannot consent to imperil my reputation by appearing to encourage or approve of its adoption." On the question of foolhardy or visionary, Linville had delivered his verdict.

To make his bridge, Eads had to raise funds, build the piers and abutments down to bedrock, improve the superstructure plans, secure suitable steel, and erect the three arches and two decks above the churning river. Any failure would delay the project and potentially bankrupt Eads's company.

Meanwhile, the Wiggins Ferry Company possessed its own monopoly, charging St. Louisans high rates for miserable service—when its boats ran at all. Whereas railroads operated all night, Wiggins ferries ran only during the day. Winter ice floes threatened the boats, and hard freezes shut down service entirely. During the winter of 1865–1866, no ferries ran for 27 days; the next two winters brought even longer delays. If the ice appeared reliable, the hardy or the desperate walked across the Mississippi, while the whole city suffered isolation and mounting prices throughout winter's grip. Wiggins Ferry Company created great wealth for its owners but year-round inconveniences or worse for St. Louis residents.

ICE BRIDGE OVER THE MISSISSIPPI AT ST. LOUIS.—[Photographed by R. Benecke, St. Louis.]

This wood engraving by E. A. Abbey from R. Benecke's photograph, published in the January 18, 1873, edition of Harper's Weekly, *depicts a hard winter freeze that blocked ferries from running. People were compelled to walk across the river on the ice. Eads's unfinished bridge can be seen in the background. Missouri Historical Society Collections.*

Eads was consumed with raising money throughout 1868. His first report as chief engineer had calculated total costs at an estimated $4.9 million (equivalent to $124 million in 2024). Eads and his associates at St. Louis Bridge Company had hoped that the Pennsylvania Railroad would put its own guarantee on their bonds. With that assurance from the world's largest corporation, the bonds would sell readily, raising cash to build a bridge whose tolls would then service the debt.

But Scott and the PRR held back. The PRR's president, J. Edgar Thomson, believed that only two steelmakers in the world could meet Eads's demanding needs: the Krupps plant in Prussia and John Brown's Atlas Works in Sheffield, England. Linville's harsh criticism also explains their reluctance. Furthermore, Thomson, Scott, and Scott's right-hand man—a young Andrew Carnegie—wanted to drop Eads's plans entirely and turn the whole project over to Keystone Bridge Company.

Instead, Eads and William McPherson, St. Louis Bridge Company president, developed an audacious prospectus that promised a 400 percent return to an initial group of stockholding investors. To forecast that kind of reward, Eads and McPherson based their projections not on the cost of the bridge but on the full income potential of the completed structure. Written in Eads's hand, the first line of the new prospectus read, "It is assumed and believed that the tolls on the Bridge will safely pay interest on ten millions." From that starting point, the plan proposed the company would issue $4 million in stock, $4 million in first mortgage bonds, and $2 million in second mortgage bonds. If events unfolded as Eads planned, half of the $10 million raised by those securities would cover the cost of building the bridge. The remaining stocks and bonds could reward investors personally. Intrigued by the prospectus and the project, 55 merchants and bankers in St. Louis and New York City bought shares in the initial stock offering. With ample funds in hand, Eads turned to his second challenge.

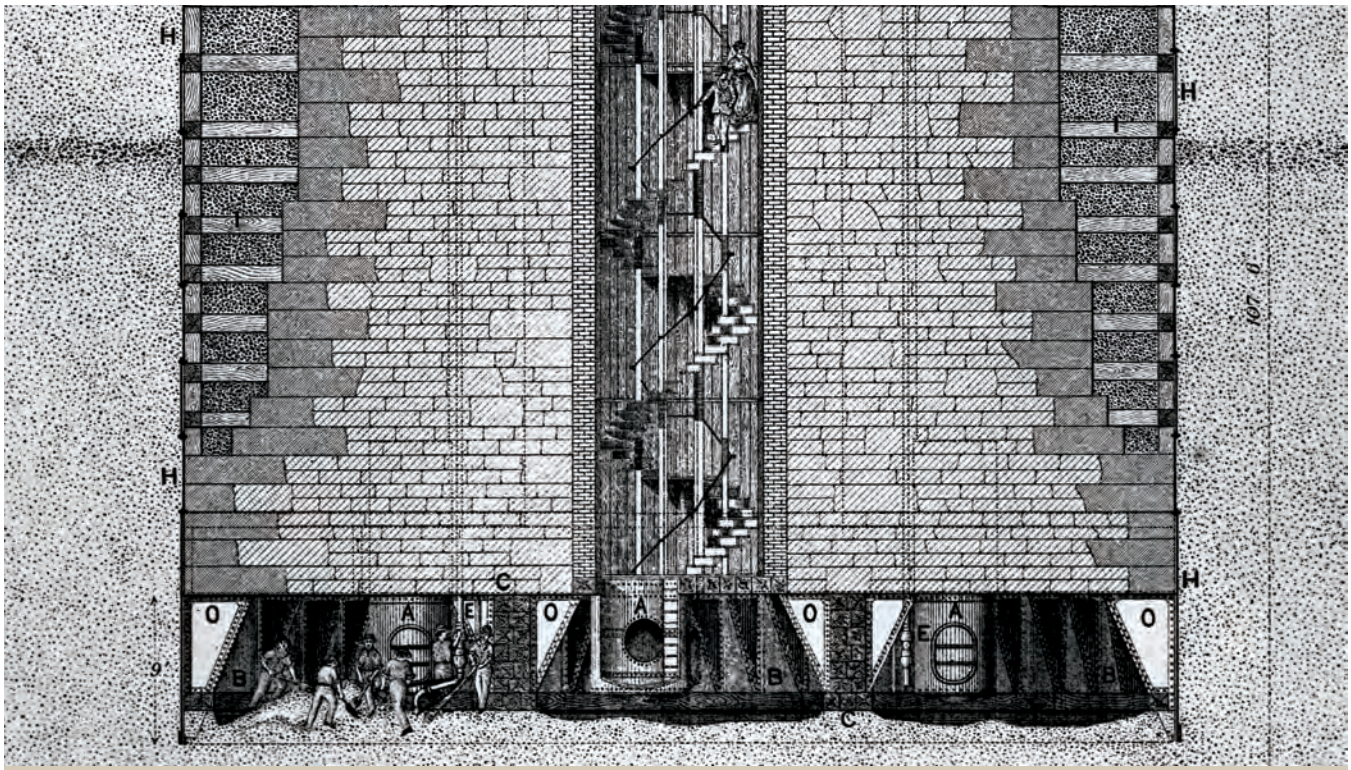
Building to Bedrock

In March 1869, Eads traveled to France to observe a method for building underwater foundations for bridges or docks. He returned to the US a month later, convinced that he had found the best path ahead for his bridge inside an iron box or caisson. This "pneumatic plenum" method to lay subaqueous foundations had its North America debut at St. Louis. Raising the stakes, Eads was proposing the largest and deepest caisson-built foundations yet attempted in the world.

Two pontoon boats equipped with cranes are used to build the Eads Bridge's western pier. Unknown photographer, ca. 1870s. Missouri Historical Society Collections.

The caisson was a large iron box—similar to an inverted hatbox—but without a bottom. Once pinned into place with wooden pilings, it floated at the spot where Eads would build a pier. The top face of the east pier caisson, a hexagon, measured 82 feet by 60 feet. Crews then brought limestone and granite blocks out to pontoon boats that Eads had designed, tied to the caisson. Each boat had six double-beaked cranes, controlled by operators perched 50 feet above the deck. From that lofty spot, a crane operator could pluck a 7-ton block off a barge, move it over his boat, and place it on the caisson. Each new block forced the caisson down into the river. Air compressors on the boats would adjust the buoyancy of the descending caisson until it landed on the sandy riverbed—a kind of brute-force ballet.

The caisson for the east pier reached the riverbed, 34 feet below the surface, one month after the first stone came aboard. Now the work entered a challenging new phase. Knowing the river's forceful currents and its winter ice gorges, Eads had chosen to limit his



Detail of east caisson under construction and submarines at work. After entering the main airlock (A), workers began to dig. They'd cart sand to the sand pump (E), where an operator would suction the spoil. A woman and man can be seen descending the spiral staircase to observe the process. Engraving by Julius Bien, 1880. Missouri Historical Society Collections.

bridge to just two stone piers that he would take all the way down to bedrock. To achieve this, the east pier would need to descend another 60 feet through sand and gravel. After the air compressors expelled the water from the caisson, laborers descended an iron staircase built inside the pier. An airlock gave access to the caisson. Laborers worked around the clock, shoveling sand to patented "sand pumps," another Eads innovation that ejected the spoil into the river.

Workers were paid $4 per day (equivalent to $98 in 2024), a good wage for unskilled labor. They earned it: At a depth of 60 feet, many began to feel aches and pains in their joints and muscles. The caisson landed on bedrock 93 feet down on February 28, 1870. To keep the water out, air pressure inside grew to three times the norm at sea level. By then many laborers endured severe pains, even bouts of paralysis. Still they went to work every day, filling the caisson with concrete to seal it forever. Before completing that essential task, 13 men died from caisson disease. Today known as "the bends," the condition is caused by too-rapid decompression. The remaining stonework for the two piers and two abutments took another 18 months. With improved safety measures, there was just one more fatality from the bends. Eads then turned his attention toward the next looming issue—securing adequate steel to build the superstructure.

Pathfinding in Steel

Eads's first report as chief engineer in June 1868 conceded there was much to learn about steel, but he reassured stockholders and potential investors that "leading steelmakers" of the United States and Europe had offered to furnish steel and "to guarantee its strength fully up to the standard required." In fact, those offers did not exist. Nobody in the newborn American steel industry had any real basis to make such assurances.

Two years later Andrew Carnegie wrote a telling description of the bridge company's challenges with steelmakers. By this point "Carnegie and Associates"—

Edgar Thomson, Tom Scott, and Carnegie himself—had become directly tied to the bridge at St. Louis, despite their reservations about Eads's arches and his insistence on steel. The prospect of $1 million in profits and bonuses led the trio to a comprehensive agreement with Eads in February 1870. That deal included commitments by Carnegie and Associates to market the bonds of the bridge company, erect its superstructure, and guarantee it the freight and passenger traffic of the Pennsylvania Railroad.

Against all that good news, in October 1870, Carnegie wrote privately to the president of St. Louis Bridge Company: "After inviting every steel manuf'r in the world to bid upon the Captain's specifications, only one party bids + he the most sanguine of men, one who has broken up every concern with which he has been identified." With no alternative in sight, two weeks later Keystone signed a contract with the sanguine William Butcher. The immigrant proprietor of a small Philadelphia steelworks, Butcher typically made crucible steel in small batches to create edged tools. A pleased but dubious Carnegie wrote to Eads, "At last we have succeeded in getting that steel matter closed." In truth the contract only signaled the start of new challenges. Over the next two years, troubles with steel would bedevil the project.

But Eads and his capable staff of engineering subordinates largely overcame those problems. As built, the superstructure used approximately 4.8 million pounds of steel, most of it in the load-bearing arches. Additionally, the bridge used 6.3 million pounds of wrought iron, largely in the bracing that connected the steel chords, and 1.6 million pounds of wood in the decks and sidewalks. Thanks to this solid structure, the bridge endured growing and heavier railroad traffic for 70 years. Steel explains why it's still in service 150 years later, carrying autos, trucks, and light railcars.

Making a Bridge

After reliable deliveries of acceptable steel began in March 1873, the bridgemen took up their ultimate challenge: erecting the three arches and two decks over the ceaseless river. St. Louis remained the nation's largest inland port, so Eads's assistant engineer, Henry

View from the St. Louis levee showing the cantilevering construction method. Photograph by Emil Boehl, 1873. Missouri Historical Society Collections.

Flad, devised a novel cantilevering method to build the superstructure. With temporary towers and cables, work crews from St. Louis Bridge Company and the Keystone Company built the arches without causing any obstructions to maritime traffic.

Placing the final tubes into each steel arch was devilishly tricky. Working by torchlight, laborers slipped the central tubes of the eastern span into place the morning of December 18, 1873. When news of this triumph spread, factories and river steamers tooted their whistles in joy. The city finally had its bridge, seven years in the making. According to a story in the *New York Times*, at noon "a party of ladies and gentlemen walked out [on scaffolding] to the middle arch and hoisted the Stars and Stripes." More whistling and cheering marked the moment. Finishing the railway deck, roadway, sidewalks, and approaches filled the months until May 1874.

On July 4, 1874, St. Louisans and visitors from near and far turned out for a grand parade to celebrate their republic and their bridge. The hometown newspapers estimated the snaking throng stretched 14 miles, even as the midday heat reached 102 degrees. Reporters from Chicago grudgingly conceded that the parade was "damnably long." Upward of 200,000

spectators had come to celebrate the great feat. With his St. Louis Bridge, James Eads had conquered the river and brought the city and the region into the modern age.

Initial Disappointments

While St. Louis celebrated on that hot July day, the country at large had entered its worst-ever industrial depression. Before the economy began to recover in 1878, half of all American railroads had fallen into receivership—bad news for the new bridge. To service its large debts in working capital and bonds, Eads and the investors had counted on a flood of railroad traffic. Instead, the bridge received a trickle. Moreover, the Wiggins Ferry Company met the newcomer with a price war that soon cut freight rates in half. So railroads, shippers, omnibuses, riders, and pedestrians had little incentive to switch their business to the new bridge in town.

Many St. Louis merchants chose to ally with Wiggins because they wanted to force the St. Louis Bridge Company into foreclosure. If given a free hand, Eads's company would clearly charge high tolls to pay off its heavy debt-servicing costs and throw profits to investors. Fearing that prospect, an analyst for the merchants wrote that the commerce of the entire region "should not be taxed" by those charges. Such a course would make St. Louis, its industries, and every one of its workers uncompetitive against those in rival cities not choked by the grip of a monopoly. Pointing to the bridge, that analyst wondered if the business community had "an elephant on their hands." A foreclosure could restructure and trim the interest payments on bonds and erase all dividends to stockholders. Arguably this would be a good thing for the region, if not for the insiders who had promoted the elephant and the investors who had paid for it.

The bridge company's toll house in Illinois. Roadway traffic could manage a steeper grade than trains, which used the iron viaduct visible at left. Photograph by Richard Henry Fuhrmann, unknown year. Missouri Historical Society Collections.

The bridgemen also confronted a third, intractable obstacle—Tom Scott. In the venture's early days, Scott had taken an insider's seat at St. Louis Bridge Company: a director, stockholder, hidden partner in contracts for materials, promoter of its bond sales, and leader of Carnegie and Associates. By May 1874, however, Scott had become the president of the Pennsylvania Railroad and a powerful opponent of the bridge. In a private letter to the company's London banker, Junius Morgan, Eads complained that the PRR had "cost our company not less than a million and a half of dollars." Scott blocked a new passenger station in St. Louis, and he led a boycott of freight rail traffic over the bridge.

Why Scott turned from booster to opponent is unclear. He too may have wanted to push the company into foreclosure, then acquire it for the PRR at a fraction of its initial cost. As these challenges grew, Morgan's New York partners sent a telegram to London in February 1875: "Satisfied foreclosure inevitable." For the next three years, Eads's company sheltered under the bankruptcy protection of federal judge Samuel Treat of St. Louis.

A Fresh Start

Earlier accounts of the St. Louis Bridge stumble over this denouement. Reorganized in 1879 and leased by Jay Gould in 1881, St. Louis Bridge Company and the Tunnel Railroad of St. Louis became highly profitable. Gould used those infrastructures to link an 8,000-mile network of railroads under his control, a skein of lines that stretched from Lake Erie to Texas. From 1889, the bridge became the chief asset of the Terminal Railroad Association of St. Louis (TRRA), formed that year by

six St. Louis carriers. By 1902, 14 railroads shared ownership of the TRRA, which in turn provided terminal and interchange services to all area lines. In 1902, the TRRA netted revenues of $1.83 million. After debt servicing, this left a cash surplus of $367,000, a 20 percent return on its gross. (A year earlier, profits had reached 24 percent.) Here was success writ large.

The bridge's rail connections powered growth in the regional economy from the 1880s to the 1920s. In 1895 the St. Louis Merchants Exchange proudly trumpeted the city's superlatives, including Anheuser-Busch, the country's largest brewery. St. Louis's striving merchant and dry-goods houses supplied retailers across a vast hinterland stretching from Kentucky and Tennessee to Louisiana, Texas, and New Mexico. In 1910 the Merchants Exchange used a pie chart to illustrate St. Louis as the central node where 27 rail carriers converged. Before Eads's great structure, the Mississippi River had forced the city's first railroads to terminate at either shore. After the bridge opened, new carriers built their tracks into the region, drawn by the bridge, the connections it provided, and the prospective growth of this gateway metropolis. Then St. Louis Bridge and the Terminal Railroad Association knitted them together. The rail lines became a steel circulatory system, connecting the city to the bistate region and the nation.

In 1894 the TRRA opened St. Louis's Union Station, at the time the world's largest railway terminal. Its first schedule listed 279 daily arrivals and departures. For all its size and reach, the TRRA wasn't quite a soulless corporation. At the new station it employed "an efficient matron, Mrs. Frazier, who takes charge of all helpless females and such as arrive without friends or protection." By her attentive care, "many stranded young girls were saved from evil intentions."

The St. Louis Bridge also resulted in far-reaching transformations in nearby Illinois, chiefly in East St. Louis, Granite City, and Venice. Thanks to the railroad and streetcar connections the bridge provided, those towns boomed for 60 years. Many large manufacturers put their offices in St. Louis and their factories across the river, where land was plentiful, rail connections good, and coal cheap. East St. Louis doubled in population during the 1890s, then doubled again to 58,540 by 1910. Behind those numbers East St. Louis became a gritty, tough place of absentee corporate owners and a striving working class pursuing the American dream or, failing that, their next meal.

View of Union Station from 12th and Poplar streets in 1890, before a massive modern trainshed was built in 1894 that housed 32 tracks and served 22 railroads. Photograph by Emil Boehl . Missouri Historical Society Collections.

The bridge literally saved countless lives in the summer of 1917. On July 2 mobs of working-class white people rampaged Black neighborhoods throughout East St. Louis. As police stood by, the rioters torched homes and businesses, then savagely beat and shot residents fleeing the fires. At least 50 people were killed. Thousands of African Americans escaped the brutality by crossing the bridge into St. Louis, where they found protection in churches and homeless shelters. Eventually a congressional committee concluded that corrupt local officials and manipulative industrial managers in Illinois had contributed to the anarchy.

Throughout its history, the Eads Bridge has survived all manner of threats. On May 17, 1896, a devastating cyclone tore through the city. On the ground for 30 minutes, the twister killed more than 200 people and injured thousands. The bridge took a direct hit. The roadway and sidewalks were torn loose on its eastern span. Farther east, the cyclone toppled the stone arcade supporting the roadway deck. But the steel arches and railway deck sustained little damage. The next day trains filled with relief workers and supplies crossed the repaired bridge.

The devastating tornado of May 27, 1896, heavily damaged the Eads Bridge, but its arches were unscathed. Photograph by Richard Henry Fuhrman. Missouri Historical Society Collections.

When the St. Louis Bridge first opened, some rivermen had protested that it obstructed navigation, a dubious claim that rose all the way to President Ulysses Grant, who overruled the steamboat operators and their friends in the US Army Corps of Engineers. On rare occasions steamboats, modern towboats, and their barges have struck the stone piers, with few consequences for the bridge.

The steel arches are vulnerable during periods of very high water, although navigation typically stops during flood conditions. For example, on October 24, 1969, with the river 30 feet above normal stage, the towboat *Elaine Jones* was overpowered by the current, struck a pier of the Veterans Bridge, then continued downstream to hit the superstructure of the Eads Bridge. The impact broke two tube segments of the upstream rib of the center arch, tore the steel pilothouse from the towboat, and killed the pilot. The bridge was subsequently repaired.

Neglect could have proven even more damaging than errant towboats. In line with national trends, rail traffic through St. Louis declined from the 1950s to the 1970s. In 1974 the TRRA stopped sending trains over the Eads Bridge. It put the structure up for sale in 1981 but found no buyers. During the 1990s the deteriorating roadway deck also closed.

Amid those dark days, some advocates spoke up for this neglected asset. In 1989 the City of St. Louis swapped its MacArthur Bridge (originally known as the Municipal or Free Bridge) for the Eads crossing.

Myths and Misunderstandings About James Eads and His Bridge

- Born in 1820, James Buchanan Eads was not named for the man who would become the president of the United States in 1857.
- Most accounts present Eads as a savior who pushed his company to triumph over an underhanded competitor from Chicago who didn't like St. Louis. In fact, Lucius Boomer was a leading maker of iron bridges, his proposal was entirely feasible and serious, and his bridge would have opened three years ahead of Eads's. Boomer was not a late-arriving schemer nor was Eads a selfless defender of his hometown.
- The bridge's long life now justifies Eads's decision to use steel, but in the 1860s iron trusses were the latest thing in railway bridges. By using steel, Eads pushed up costs, delayed completion by two years, and nudged his bridge company toward foreclosure. That said, Eads was an important pathfinder for the era of structural steel that began in the 1880s.
- Andrew Carnegie had no role in designing the bridge or supplying its steel; he did not enter the steel industry until after the bridge was completed. On three occasions he tried to replace Eads's novel arch design with a conventional iron-truss structure. In his *Autobiography*, Carnegie offers a slew of colorful distortions and deceptions about the bridge that have been repeated ever since.
- As he was finishing his bridge at St. Louis, Eads had already moved on to his next feat of original engineering. His jetties at the South Pass of the Mississippi River delta succeeded brilliantly in creating a deep-water channel so that ocean-going freighters could reach New Orleans. But it was preposterous to think that such vessels could or would reach St. Louis.
- Most accounts cast the Eads Bridge as an engineering success and a financial failure. In fact Eads's fellow engineers saw little to like or emulate in the structure. On the other hand, the bridge became a cash cow after 1879, largely because Lucius Boomer had secured a monopoly for all bridge traffic at St. Louis. Thanks to the merger of the Boomer and Eads ventures in February 1868, that gift from the Illinois Legislature helped ensure decades of ample profits for the Eads Bridge.

City planners wanted Eads's infrastructures to create a route for electric-powered light-rail trains to serve downtown. With its rededication in 2003, the oldest bridge on the Mississippi was back in business. The restored roadway deck carries auto traffic in four lanes without tolls. Broad sidewalks again offer unobstructed views of the river and the city. On the rail deck below, MetroLink trains connect St. Louis's inner-ring suburbs to the urban core and Lambert Airport. Each weekday, passengers on 300 MetroLink trains have fleeting views of the river and the bridge's iron and steel sinews before plunging into the darkness of the 1874 tunnel with its two new downtown stations. Thanks to a $48 million restoration in 2016, the bridge and its approaches have returned to like-new condition. Engineering projections estimate the restored bridge should have a service life reaching to 2091 or beyond.

Captain Eads would greet that news with his characteristic self-assurance. In his remarks on the day the bridge opened, he predicted that "[it] will endure as long as it is useful to man." Across the years, Eads's unique structure has won approval for its beauty as well as its utility. In 1879, Walt Whitman wrote, "I have haunted the river every night lately, where I could get a look at the bridge by moonlight. It is indeed a structure of perfection and beauty unsurpassable, and I never tire of it."

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An emeritus professor, ***John K. Brown*** *taught history, ethics, and writing for 25 years in the Department of Science, Technology, and Society at the University of Virginia.*

This article draws from the author's new book, Spanning the Gilded Age: James Eads and the Great Steel Bridge, *published by Johns Hopkins University Press.*