

Hannibal Bridge

completed 1869, demolished 1917

by David Conrads

The Hannibal Bridge was never admired as an architecture treasure, but it was undoubtedly one of the most significant structures ever erected in Kansas City. Known originally as the Kansas City Bridge, it was the first permanent rail crossing of the Missouri River and an engineering feat of the first rank in that regard. It also provided a rail connection between Kansas City and Chicago and sparked Kansas City's subsequent economic and population boom. Over the decades, the circumstances that brought "The Bridge" to Kansas City and its subsequent role in the city's development have reached mythic proportions. While the Hannibal Bridge was not the only factor, it contributed enormously in the transformation of Kansas City from a small, obscure river outpost into a regional metropolis and a city of importance.

The project to build a bridge over the Missouri River required an act of the United States Congress in the form of an omnibus railroad bridge act, passed in the early summer of 1866, before work could begin. That Kansas City was chosen as the site of the bridge, rather than one of its upstream rivals, especially Leavenworth, Kansas, was the result of intense and prolonged politicking on the part of a group of tireless civic leaders in Kansas City. Much was at stake. Their assumption was that the town that first bridged the Missouri would become the commercial hub in the southern Midwest.

Octave Chanute (1832 - 1910), a young, self-trained civil engineer working for the Chicago and Alton Railroad, was hired to oversee the building of the Kansas City Bridge. The bridge later became known as the Hannibal Bridge, after the Hannibal and St. Joseph Railroad, the company that built and owned it. A native of Paris, Chanute had moved to the United States with his family at age six.



Prior to his arrival in Kansas City, he had overseen construction of a drawbridge over the Illinois River, at the time the longest railroad drawbridge in the world. Later in his illustrious career he designed the original stockyards in Kansas City and Chicago, platted the town of Lenexa, Kansas, helped design the early elevated train system in New York City and was a pioneer in aviation. He also mapped rail lines in southeastern Kansas for two different railroad companies. When four contiguous towns along the route merged, the new town was given the name of Chanute, in honor of the engineer's important work in that part of the state.

When Chanute took charge of the bridge project in February 1867, he faced a formidable task. The Missouri River had long been considered unbridgeable because of its swift currents, shifting channel, propensity to flood, and its scour – the churning turbulence at the sandy bottom of the stream. Weighing also on Chanute's design were the sometimes-conflicting demands of safety and innovation. He was undoubtedly aware that, in the period between 1850 and 1865, 25 or more bridge failures occurred in the United States annually. Further compounding the challenge, the town of just a few thousand residents was on the edge of the frontier, largely isolated from the industrial and transportation support available to large-scale engineering projects in bigger cities in the east. Indeed, special tools needed for the job had to be fabricated at a machine shop near the site.

Working with his engineering staff out of offices over the First National Bank, at Delaware and 4th streets, Chanute made extensive studies of the river and chose to locate the bridge near one of the river's great bends, at the foot of Broadway (near the site of today's [Broadway Bridge](#)). The bridge charter required a design that would not interfere with navigation on the river. Chanute considered building a high span, which would allow steamboats and other vessels to pass underneath and a two-tiered structure. He ultimately settled on a low-level span with a pivot draw to allow the passage of river traffic.

The superstructure of the bridge rested on seven piers built of locally quarried limestone. Three of the piers were founded on bedrock. Designing and building the foundations for the four channel piers presented a critical challenge for Chanute. He considered a number of different techniques for building underwater and, in 1868, published a series of reports on seventeen European bridges whose foundations had been built with the use of pneumatic tubes or caissons. He particularly admired the Kehl bridge in Germany, erected in 1858 between Alsace and Baden. Despite his fascination

with pneumatic caissons, Chanute ultimately chose open caissons for the construction of the underwater foundations of the Kansas City bridge.

Although construction of the bridge was fraught with delays and setbacks, work on the bridge was completed in about two and a half years. (In fact, Chanute and his chief assistant, George Morison, developed a reputation for rapid bridge construction.) Each of the seven piers had to be individually designed and no two were exactly alike. In March 1868, a sudden scour attacked the construction apparatus at pier four, wrecking the caisson and causing it to settle on the river bottom. The designers worked around the impenetrable mass of timber, concrete, and stone by repositioning the pier.

Design of the bridge's superstructure began in August 1867 and was built by the Keystone Bridge Company of Pittsburgh, Pennsylvania. The structure that Chanute designed was a hybrid, with varying forms and an irregular shape, all dictated by the designer's concern for safety, efficiency, and economy. The span closest to the town was a 68-foot pony truss made of wrought iron, rather than wood, which would not pose a hazard from the sparks from the trains passing underneath. All major trusses were constructed of wrought iron and wood; Chanute intended that the wooden members be replaced by iron over time. Iron was being used more and more, both structurally and decoratively, and Chanute incorporated decorative, ornamental ironwork into the design of the superstructure, particularly in the pivot section.

The finished bridge was 1,371 feet long, with the superstructure standing 50 feet above the normal level of the river and 10 feet above the high-water mark of the disastrous flood of 1844. The total cost was just over \$1 million. When not in use by a train, the bridge was available to carts, wagons, livestock, and the like. Trains could cross the span in about two minutes; carriages in five minutes. The pivot draw, designed by the Keystone Bridge Company and modified by Chanute, could be opened by four men in two minutes.

The bridge opened to national fanfare on July 3, 1869. For two and a half years, local residents had been watching the progress of the bridge with keen interest and more than 30,000 celebrated its opening, along with the governors of five states, mayors of 21 midwestern cities, and officials representing the nation's major railroads.

The bridge was a source of immense pride for generations of Kansas Citians. Indeed, the city became an important rail center in the wake of the opening of the bridge, and its population shot past that of its regional rivals. The bridge was a major milestone in the career of Octave Chanute. It also launched the career of his chief assistant, George Morison (1842 - 1903), who later became known as the "father of bridge-building in America."

The Hannibal Bridge proved to be sturdy and efficient, if not especially elegant. It stood up under increasingly heavy traffic, withstood a tornado in 1886 and a flood in 1903. In 1912, Kansas City's second bridge, a unique telescoping vertical lift bridge, was built to serve rail and street traffic. The original Hannibal Bridge was torn down in 1917 and replaced by a double-decker steel-span bridge. The original pivot pier was incorporated as the downstream rest for the "[new](#)" [Hannibal Bridge](#), which still carries rail traffic.

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