BRYANT STATION BRIDGE
Texas Historic Bridges Recording Project
Spanning Little River at County Route 275
Buckholts Vicinity
Milam County
Texas

HAER No. TX-60

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BRYANT STATION BRIDGE

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Location:	Spanning Little River at County Route 275, Buckholts vicinity, Milam County, Texas. UTM: 14/672620/3413920 USGS: Sharp, Texas, quadrangle (1989).
Date of Construction:	1909.
Designer:	Chicago Bridge and Iron Company, Chicago, Illinois.
Builder:	C. Q. Horton, Austin, Texas, agent for Chicago Bridge and Iron Company.
Present Owner:	Milam County.
Present Use:	Vehicular bridge.
Significance:	The Bryant Station Bridge is one of two surviving bridges employing a single-span pin-connected camelback through truss in Texas and one of five employing a camelback through truss. The bridge features the unusual configuration of a sloping deck installed above the horizontal bottom chord.
Historian:	Estella M. Chung, August 1996. Revised September 1998.
Project Information:	This document was prepared as a part of the Texas Historic Bridges Recording Project performed during the summer of 1996 by the Historic American Engineering Record (HAER). The project was sponsored by the Texas Department of Transportation (TxDOT).

I. Introduction: Little River And Bryant Station

French explorer Louis Jucherearu de St. Denis would have been delighted to use Bryant Station Bridge when he guided Spanish Captain Domingo's seventy-five-person party of priests, lay brothers, and soldiers over Little River in 1716. He still managed to navigate the party across the river, which he called *San Andres.* Marquess of Aquayo, the governor and captain general of Coahuila and Texas, would have also appreciated a bridge. He had to wait seventeen days with his five hundred men and four thousand horses to cross the flooded river, which he called *Espiritu.* The name Little River came into use in the late 1830s.[1]

Bryant Station Bridge is named after a U.S. Army station established to keep Native American tribes out of the Republic of Texas capitol at Washington-on-the-Brazos. At the order of Sam Houston, president of the Republic, Benjamin F. Bryant set up the station in 1840. On about three thousand acres, he built a log cabin and fort on the north side of the Little River. Eventually a village developed around Bryant Station and it became an important stop on the route to Austin.[2]

"Since Milam County contains so many waterways, bridges and ferries were conveniences if not downright necessities," stated Lelia N. Batte, author of a *History of Milam County, Texas.*[3] The transportation system was a priority for the citizens of Cameron, the county seat, who were mandated to participate in road construction and maintenance. When Bryant Station Bridge was built, roads were becoming more important to the farm economy. Farmers in Milam County discovered farm machinery, produced crops above subsistence level, and needed better roads to transport their goods to market.[4]

II. The Chicago Bridge and Iron Company

The economics of fabrication led to the formation of the Chicago Bridge and Iron Company. Without their own fabricating yards, independent bridge builders Horace E. Horton and George E. King could not stay competitive in the bridge building business. They were at the mercy of prices and fabrication delays of their competitors. The Chicago Bridge and Iron Company was created in 1889 when Horton merged with the Kansas City Bridge and Iron

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[1] Lelia M. Batte, *History of Milam County, Texas* (San Antonio, Texas: Naylor Company, 1956), pp. 4-8.

[2] Bell County Historical Commission, *Story of Bell County* (Austin, Texas: Eakin Press, 1988).

[3] Batte, p. 81.

[4] Ibid., pp. 103-10.

Company, which had fabrication facilities. King joined the Chicago Bridge and Iron Company in 1890.[5]

The mergers created a company that could cover a substantial part of the national market. Horton, originally based in Rochester, Minnesota, contributed a sizable portion of the midwestern market. King, from Des Moines, Iowa, contributed much of the Iowa market. Kansas City Bridge and Iron Company of Rosedale, Kansas, had business established in Kansas, Missouri, Nebraska, and most importantly for the Bryant Station Bridge, the new market of Texas.[6]

The $5980.00 contract for Bryant Station Bridge was awarded to Chicago Bridge and Iron Company agent C. Q. Horton.[7] Horton, based in Austin, was originally the southern agent for the Kansas City Bridge and Iron Company.[8] After the merger, Horton worked as the southern agent for the Chicago Bridge and Iron Company. However, after the financial panic of 1893, Chicago Bridge and Iron Company closed its Austin office.[9] Though Horton had become an independent bridge builder by 1900, he was back with the Chicago Bridge and Iron Company by 1904.[10]

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[5] *The Bridge Works: A History of the Chicago Bridge & Iron Company* (Chicago: Mobium Press, 1987), pp. 2-9.

[6] Ibid.

[7] Milam County, Texas, *Commissioner's Court Minutes,* vol. 4 (Milam County, Texas), p. 475 (June 18, 1909).

[8] *The Bridge Works,* p. 6. Horton is listed as an agent for Kansas City Bridge and Iron Company in *Morrison & Fourmy's General Directory of the City of Austin 1889-1890* (Galveston, Texas: Morrison and Fourmy, 1889).

[9] In *Morrison & Fourmy's General Directory of the City of Austin 1895-1896* (Galveston, Texas: Morrison and Fourmy, 1895), C. Q. Horton is listed as president of the Texas Electric Company and southern agent for the Chicago Bridge and Iron Company. Horton's post in the Texas Electric Company suggests a slowdown in the bridge-building business and his changing relationship with the Chicago Bridge and Iron Company.

[10] *Morrison & Fourmy's General Directory of the City of Austin 1900-1901* (Galveston, Texas: Morrison and Fourmy, 1900). Bridge Manufacturers File, Texas Department of Transportation, Austin, Texas. For information on other Milam County bridges built by C. Q. Horton, see U.S. Department of the Interior, Historic American Engineering Record (HAER) No. TX-59, "Brushy Creek Bridge," 1996, Prints and Photographs Division, Library of Congress, Washington, D.C.

III. Bryant Station Bridge

The bridge's camelback design is a variant on the Pratt truss. According to historian David Plowden, bridges that were "designed without pretension" with "inconspicuous" monumentality were "much more indigenously American."[11] The Pratt truss, typically used for spans from 125'-0" to 250'-0", was the inconspicuous truss of the late nineteenth and early twentieth century. Both Howe and Pratt trusses are divided into rectangular panels each crossed by two diagonals. The Pratt truss carries loads with diagonals in tension and verticals in compression; this situation is reversed in the Howe truss. The Pratt truss' verticals, shorter than the diagonals in the Howe truss, are less likely to buckle under compression.[12] The Pratt form was created by Thomas Pratt, probably around 1842; he and his father Caleb patented it in 1844.[13] Technology historians such as Carl Condit recognized the practicality of the Pratt truss:

> Among truss bridges, the nearly universal reliance on Pratt and Warren trusses has helped to make possible the elegance and precision of form that was once regarded as hopelessly unattainable in such structures. Simplicity has led to a unity of line and surface which has nothing to obscure or interrupt the clarity of the main elements and the naturally pleasing geometric pattern arising from their necessary relations. . . .[14]

The camelback truss replaced the Pratt design's horizontal top chord with a polygonal top chord and increased the truss' strength.[15]

The Bryant Station Bridge consists of one camelback through truss of 200'-0" span, both ends of which are supported on pairs of cylindrical concrete columns joined by a wall.[16] Approach spans supported on I-beam bents bring the structure's total length to 343'-0". At its greatest depth, the camelback truss measures 30'-0" from pin to pin. Of the main span's ten

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[11] David Plowden, *Bridges: The Spans of North America* (New York: The Viking Press, 1974), p. 171.

[12] Ibid., p. 40.

[13] Carl W. Condit, *American Building Art: The Nineteenth Century* (New York: Oxford University Press, 1961), p. 110.

[14] Condit, *American Building Art: The Twentieth Century* (New York: Oxford University Press, 1961), p. 302.

[15] Milam County Bridge File, Texas Department of Transportation, Austin, Texas.

[16] During a site visit in 1996, an old concrete column was found tossed to the side of the bridge, suggesting that the pier has been replaced at least once.

equal panels, the middle four have crossed diagonals and a horizontal upper chord; the next two panels on either side have diagonals ascending toward the supports and an inclined top chord; and the top chord descends to the supports in the endmost two panels.

Two 9 1/2"-deep channels marked "LACKAWANNA" are riveted to a 12" x 1/4" plate on top and 1 1/2" x 3/16" single lacing beneath to form the rectangular section of the upper chord. The lower chord consists of double eye bars, increasing in size from 3/4" x 2 1/2" in the endmost panels, to 7/8" x 3 1/2" in the next two panels, to 7/8" x 4" in the middle four panels. Struts, consisting of 2 1/2" x 3 1/2" angles riveted with their longer legs together, span between the upper chords, bolted to the top of each upper chord. Crossed 7/8"-diameter rods, attached to angled brackets riveted to the top of the upper chords, form upper lateral bracing in all but the endmost panels. A riveted lattice of 2 1/2" x 2 1/2" angle sections forms the inclined portal bracing, bolted to the upper chords and supporting the builder's plate in the middle. A rubbing of the plate, which reads "1909 BUILT BY C. Q. HORTON AUSTIN TEXAS," can be found in the field notes.

Verticals consist of two 5"-deep channels connected with riveted single lacing to form a 10"-wide rectangular section. Square-, rectangular-, and round-section eye bars of various sizes form the diagonals in the vertical plane. The 15'-9"-wide wooden roadway is supported on 7"-deep stringers, which are channels on the outside and I-beams in between. The stringers rest upon I-beam deck beams with lower lateral bracing of crossed rods. These rods decrease in size from 1 3/4" diameter in the endmost panels to 7/8" diameter at mid-span.

From a distance it seems as if the verticals of the bridge are of unequal length, although closer inspection reveals that the deck is built on a slope. The banks at each end of the bridge are not of equal height. To account for this, the 15 1/4"-deep deck beams are bolted to double-angle brackets that are riveted to the verticals at varying distances above the lower chord. As a result, the deck gently slopes to match the abutments. For some site-specific circumstances, such as banks of unequal height, it was probably less expensive to adjust a standard truss when it was erected, than for custom fabrication.

Those in rural Milam County who use Bryant Station Bridge today can imagine lofty, romantic thoughts of crossing Little River with French explorers, Spanish captains, or turn-of-the-century farmers. At a minimum, they can appreciate the historical significance of the crossing. In addition, Horton's modification of a standard truss to fit its site makes the bridge an artifact showing compromises and choices made in the built environment in 1909. The Bryant Station Bridge is one of two surviving bridges employing a single span pin-connected camelback through truss in Texas and one of five employing a camelback through truss.

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