

**HISTORIC AMERICAN ENGINEERING RECORD**

**RED RIVER BRIDGE**

**HAER No. AR-14**

**LOCATION:** US Highway 82, spanning the Red River. Garland City, Miller County, Arkansas.

UTM: 15/N3690760/E434360  
Quad: Garland

**DATE OF CONSTRUCTION:** 1931

**CONTRACTOR:** Kansas City Bridge Company of Kansas City, Missouri.

**PRESENT OWNER:** Arkansas Highway and Transportation Department, Little Rock, Arkansas

**PRESENT USE:** Vehicular Bridge

**SIGNIFICANCE:** Four known examples of the Pennsylvania truss remain in Arkansas (see also HAER reports AR-23, AR-24 and AR-45). The main span length of the Red River Bridge is double and its overall bridge length is triple that of the other three in the state. The bridge is one of several toll bridges designed for the Arkansas State Highway Department just before the Great Depression by respected Southern engineer Ira G. Hedrick.

**HISTORIAN:** Corinne Smith, Engineer.  
Arkansas Historic Bridge Recording Project, 1988.

## LOCAL HISTORY

Garland City is situated between State Highway 82 and the old path of the Cotton Belt Railroad where Miller County meets LaFayette County. The highway follows an old military road which is the oldest road in the county.

Miller County was created by an Act of the Congress of the Territory of Arkansas in 1820 from a portion of Hempstead County. The name for the new county was a tribute to General James Miller, the first governor of the Arkansas Territory. At the time, the boundary between Texas (Mexico) and Arkansas was thought to be ten miles farther west than it really was. Many of the citizens of Miller County preferred the jurisdiction of Texas to Arkansas. Sixth judicial circuit court judge William B. Conway reported in 1830 that "Texas has usurped full jurisdiction over Miller County . . ." (1) After his inauguration in 1836 as first governor of the state of Arkansas, James S. Conway proposed that "the easiest and most effectual remedy that presents itself to my mind, is the abolition of Miller County and the attachment of her territory to some other possessed of more patriotism." (2) Miller County was re-established in 1874 with the addition of land from neighboring LaFayette County. The county seat was appropriately placed on the known border with Texas at Texarkana.

The effect of its proximity to Texas is evident in the oil wells around Garland City. The city was named for Rufus Garland, a merchant who settled near the present community in 1833. The official name raises some questions, however. The city is referred to as Garland City by the post office, the old train depot, and the Arkansas Highway and Transportation Department. The U.S.

Census and the town smokestack label it Garland. Most of the citizens simply say Garland, sometimes adding the "City" with a smile on their faces. (3)

An amber-colored bootleg whiskey made in the area in the 1920s took the name "Garland City Pride." The city became the liquor capital of "a large area of the Southwest," (4) reaching as far away as Colorado. Boot-legging in Garland City brought with it gangs and violent disputes over business dealings. The end of prohibition ended the fights, the gangs, and the boot-leggers. Garland City became a quiet little town which has undergone few changes in the last sixty years. The 1940 census recorded 325 people, the 1970 census 321, and the population peaked in 1960 with 377.

### CONSTRUCTION

The Southwest corner of Arkansas depended upon ferries for crossing the Red River, which separated that area from the rest of the state until well into the twentieth century. In the late 1920s, the state highway department at last started considering designs for bridges at Fulton and Garland City, Arkansas. In October 1927, consulting engineer Ira G. Hedrick sent state engineer S.C. Christian a general layout and elevation for a bridge at Garland City. The foundation problems of the Cotton Belt Railroad bridge upstream from Garland City convinced Hedrick that only a steel bridge with four main piers sunk deep by a pneumatic process would be appropriate for the site. His design was for three 300-foot fixed spans, 40 feet above highwater, with an average of 300 feet of concrete approaches on either side. The estimated cost of \$496,465 included the steel superstructure, foundations, approaches, tollkeepers' houses, and engineering fees. Hedrick told

state bridge engineer, N.B. Garver "I am satisfied that this plan will meet with the approval of the War Department and if satisfactory with the Commission I can proceed with the details. I am willing to take a chance on securing the approval of the War Department of this plan."(5)

Local citizens were also eager to see a bridge constructed over the Red River at Garland City. The old military road which would be connected over the river was the most direct route between El Dorado to the east and Texarkana to the west. In mid-December of 1927, residents of Miller County held a meeting at which a petition was circulated favoring the early passage of a Congressional bill for the bridge construction. The Garland City Bridge Committee would approve a state-owned toll bridge providing it became a free bridge when sufficient funds had been received to pay original construction and incurred maintenance costs. The bill introduced to the Senate by Congressman Tillman Parks included this provision. No objections to Hedrick's design were publicly voiced at the state hearing held on September 7, 1928, in Texarkana. Public support was organized in November 1929, with the formation of a highway association at Magnolia. The association's main objective was the "early completion of the two bridges, one across the Red River and one across Ouachita River and early completion of [Highway 82] as a high type road." (6)

The owner of the Garland City ferry, Charles A. Beasley (also the mayor of Garland City), was opposed to the bridge bill because of the effect on his business. Apparently Beasley planned to lower his rates to compete with the bridge tolls. There was a possibility that those in Texarkana who were pushing for the bridge would try to block a reduction in ferry tolls: if the ferry stole business from the bridge, it would take longer for the bridge tolls to repay the cost. (7)

The contract was ready to be bid on July 18, 1929. Twenty-three contractors received the plans and specifications, with only a handful returning them unbid. The Kansas City Bridge Company of Kansas City, Missouri, won the contract with a bid of \$448,162. The work order was issued September 9, 1929. Construction began after the state paid Beasley and ferry co-owner Jess Smith \$19,000 for a right-of-way through their land. (8)

Animosity between the state and city seemed to characterize the bridge construction process. In July 1930, the city council threatened to arrest state laborers who were graveling a city street that the state intended to use as a detour to the main highway from a temporary approach embankment. Graveling was an improvement for the dirt road, but the city council resented the state's assumption that it could block traffic on streets outside the state's right-of-way. The state in return resented the city's attitude toward the free improvements it was making to the street. Mayor Beasley complained to the judge handling the case that the highway department ignored the city council. The judge ruled that the city had absolute authority over its streets.

In addition, the city was unhappy with the plans for the temporary and permanent approaches on its side of the bridge. A permanent elevated approach across private property and two city streets was required to connect the state highway to the bridge. The highway department condemned the land because it could not agree on a price with the owners. A temporary solid approach would block traffic of one street. The state refused to install an underpass as the city requested. Garland, already hemmed in on three sides by levees and railroads, felt that the solid approach would block city growth to the south. Mayor Beasley said that construction on the temporary and permanent approaches would be halted until the highway department told the city council its plan for erecting

the approaches although, legally, the city could not prevent work on the temporary approach because the state owned that land. The outcome of these incidences was not recorded in the newspapers, but some decision must have been reached because the bridge and approaches were near completion by September 1, 1930.

The ill will between Garland City and the Arkansas highway department climaxed early in the morning of September 3, 1930, when two large blasts rocked the center span of the Red River Bridge off its piers into the river. The blast was heard twenty-five miles away, and steel shrapnel was scattered throughout Garland City. The owner of a filling station and drink stand gave the following account:

I was sleeping on a sleeping porch, with a view through a screen window of the east end of the bridge, about one-hundred fifty feet away. I tumbled out of bed when the report came, and called to my wife that lightning must have hit close by. I looked outside to see where it had struck, and noticed the stars were shining. About that time the big crash came. It was like an earthquake. All the elements seemed afire; the sky seemed to be blazing in all directions. The middle span seemed to jump and quiver in the air. Thick, white smoke spread over everywhere; you couldn't see through it, but you could hear the grinding noise as the bridge wrenched loose, and then the smack and roaring as it hit the water. (9)

J.E. Hays, bridge superintendent for the Kansas City Bridge Company, had returned to Garland City unexpectedly the day before the blast to inspect the almost-completed bridge. The approaches were not finished, but the first car had crossed the three steel spans the previous day. Hays estimated the damage at \$150,000. Only the center span and the heads of the piers it bore on were damaged; the span resting in the river was a complete loss, and to replace it would require four to five months.

Several motives for the dynamiting were presented. The first was labor disputes due to the use of non-union laborers by the bridge fabricator, Virginia Bridge and Iron Works. Kansas City Bridge Company refused this theory, but warned the highway department that the bombing could be part of a statewide arson plan. The local opinion was that the owners of the lucrative ferry business were trying to preserve their profits.

Regardless of who blew up the bridge or why, responsibility for the loss was the most immediate question for the state and the bridge company. Initially the state told the press that the contract held the bridge company liable for any damage or delays in the bridge's completion until the state accepted it. Understandably, the bridge company did not want to carry the \$150,000 loss alone, so repairs were postponed while the company and state discussed responsibility. Almost four weeks after the blast, the two parties reached an undisclosed agreement.

In the meantime, local law officers had few clues to the identity of the perpetrators of the crime. On the night of the blast, two Negro men had been chased from the bridge by two white men, returning later to sleep on the bank 500 feet from the bridge. J.E. Hays hypothesized that a shot of nitroglycerine had been placed in each end shoe, timed to explode west to east to rock the span into the river. Sheriff Magee of Miller County agreed with Hays' theory.

Since the evidence was so sketchy, Magee estimated the investigation could take several months, costing thousands of dollars that the county and city could not afford. State Senator John M. Quarles of Helena urged the state to offer a \$5000 reward for information on the arsonists. Congressman Parks asked the Secretary of War to start a federal investigation since the bridge was federally funded.

In December Charlie Brown, an employee on a highway construction project near Garland City, was arrested. He was reportedly one of the best dynamite handlers in the state.(10) The police kept his incarceration a secret until January 1931, when six other men were arrested. Their names and the charges against them were withheld because the police suspected as many as ten to fifteen more people were involved in the conspiracy. Within a week five of the men were dismissed, while two were retained with recognizance bonds as material witnesses. Brown and Carl Bell were held on \$10,000 bond as the primary suspects in the bombing. They were charged under Section 2528, which covers malicious and willful injuring or destruction of property by means of dynamite or explosives. A conviction could carry a fine of \$100 to \$500, one to five years imprisonment, or both.

Bell denied his part in the blast, but Brown testified that Bell approached him about blasting the bridge for payment of \$1000 each. They had stolen four-and-a-half cases of dynamite from their employer, a highway contractor in Lewisville, and placed a total of 450 sticks of dynamite under the plates connecting the center span to the piers. They chose the night of September 2 because the watchman was off duty. After the fuses were lit, timed to go off in four minutes, spaced one minute apart from west to east, Bell and Brown ran to a car and drove a mile without their lights on. Brown claimed that he never received any money for the job and that, when he tried to collect his share, he overheard Bell plotting his murder with some friends.

Brown, not given any leniency for implicating Bell, received the maximum sentence. In June Bell was acquitted in Miller County circuit court because he was able to prove that he was in Ingleside, Texas, the night of the blast. The person who supposedly hired Brown and Bell was never

identified in the hearings or trials because the state thought his identification would hamper their investigation.

Repair of the Red River Bridge had started one week prior to the arrests for the blast. Piles were sunk in the river bed to lift the ends of the east and west spans from the damaged piers. The shattered pier heads were enclosed in forms and repaired.

Highway Commissioner D.H. Blackwood planned to have the central span ready by July 1 and hoped to organize a celebration with the city's chamber of commerce. The highway commission would determine the date and character of the program, and the chamber would follow its wishes. The city was busy planning a celebration for the inauguration of air mail and passenger service at the municipal airport on June 15, so the bridge celebration was not foremost in the summer events. The chamber of commerce did feel, however, that "the completion of the structure marks such an advance for this section that an elaborate celebration would be appropriate." (11)

Despite the commission's interest, by the end of June no date had been selected for a bridge celebration and the bridge remained unopened. By the end of the first week of July, a Texarkana newspaper columnist complained that the bridge had been ready for three weeks and that the highway department was wasting time. The Texarkana Chamber of Commerce convinced the commission to open the bridge temporarily for the Fourth of July ". . . in time to harvest the holiday toll receipts." (12) The lack of communication between the state highway department and Garland City had resurfaced, and the bridge celebration never happened. The city claimed that Blackwood was ignoring their letters. The bridge officially opened July 15, 1931, with no fanfare. The ferry was supposed to cease operation at six o'clock that evening.

The toll for a car to cross the bridge was 50 cents one way. An enactment of a Special Session of the Arkansas General Assembly in early 1938 made all toll bridges in the state free bridges, whether they were paid for or not. The highway department recorded the final cost of the bridge at \$492,293.40, almost \$12,000 less than the original estimate. This figure is surprising considering the reconstructed center span; it is possible that the state convinced the Kansas City Bridge Company to suffer the \$150,000 loss from the explosion.

#### PRESENT STATUS OF THE BRIDGE

Fifty-seven years after the Red River Bridge opened to traffic, a \$7.9 million bridge a half-mile upstream is being built to replace it. The construction of the new bridge will be a temporary economic boost to Garland City fifty to sixty local workers are needed to help. The location of the new bridge on the other side of town, however, will remove customers from the businesses strung along the present path of the highway. Mayor Martha Franklin optimistically views the new bridge as an opportunity to extend the city limits and stimulate growth in a new direction, as the first bridge did.(13)

The old bridge cannot support the heavy truck traffic on Highway 82 much longer. In 1986 the east end of the bridge was strengthened with an added steel support system.(14) The three concrete piers have severe cracking and spalling. A bridge inspector received a broken shoulder a few years ago when a slab of concrete fell from a pier after he poked a screwdriver into a crack in the concrete. (15)

The fate of the bridge is undecided. The Arkansas Historic Preservation Program is urging the highway department to consider keeping the bridge for pedestrian or bicycle travel; after all, the bridge's dramatic beginning added a major event to Garland City's history.

### BRIDGE DESCRIPTION

The 1931 Red River Bridge is a three-span Pennsylvania truss of total length 1849 feet, consisting of three identical trusses 303 feet each and concrete approaches of 390 and 550 feet. The longer approach is on the east side of the river. Each truss has fourteen 21½-foot-wide panels, where a panel is defined by the distance between floor girders. The strength of a Pennsylvania truss is that the sub-struts allow more floor girders to be used. All members are built-up from channels, plates, angles, and lacing, and are riveted into the overall truss. The polygonal top chord is 25 feet high at the first vertical and reaches a maximum height of 42½ feet. The top chord is made from four angles, paired with web plates to imitate two channels, and connected with a continuous top plate and double lacing on the bottom.

The compression forces in the top chord are countered at the bearing shoes by the tension forces in the bottom chord. The bottom chord of the end spans cambers 12 feet upward from the approaches to the center span to obtain the 40-foot height over the highwater mark. The bottom chord is identical in section to the web members, with four angles connected by one plane of single lacing. The web members are rigidly connected to the top and bottom chord and to each other.

The lateral bracing is achieved in three ways: the portal braces are built with struts made from four angles joined by single lacing; the sway bracing uses single angles, leaving over 16 feet

of vertical clearance; the top lateral system consists of diagonal and transverse struts made from four angles with single lacing and longitudinal struts made from two angles with single lacing. The longer legs of all the angles are horizontal. The bottom laterals are built from two angles, with transverse struts at mid-panel height and without longitudinal struts. The intersections of the diagonal struts at chord points is concentric with the center lines of bottom chords and floor girders.

Five 18-inch I-beam stringers frame into the 24-inch I-beam floor girders at each panel point. The 20-foot clear roadway is a reinforced concrete slab with a parabolic crown and a curb.

As a toll bridge, the Red River Bridge started with a couple of amenities that are no longer present. The one-story, two-bedroom tollkeeper's house was positioned north of the roadway at the end of the west approach. The wooden structure featured an office and public restrooms near the road, in addition to the spacious living quarters for the tollkeeper and his small family. The bridge was lit with 250-candle-power lamps on the approaches and main spans. The lamp posts were located about every 40 feet on the approaches. The lamps were hung on brackets on the first, fifth, seventh, ninth, and thirteenth verticals of each span.

ENGINEER: IRA G. HEDRICK

In the late 1920s and early 1930s, the Arkansas State Highway Department employed Ira G. Hedrick for the design of many large scale bridges throughout the state. He designed double-cantilever spans over the White River at Clarendon (HAER No. AR-49), Newport (HAER No. AR-12), and Augusta (HAER No. AR-13). These three, in addition to the Red River Bridge at

Garland City, were toll bridges. Hedrick was considered to be "one of the outstanding engineers of the South." (15)

Hedrick's capabilities as a bridge designer were due in part to his extensive education in the general sciences and structural engineering and to his involvement in engineering associations. He graduated from the University of Arkansas at Fayetteville in 1892 with a bachelor's degree in civil engineering. In 1899 he received his bachelor's degree in Applied Science at Arkansas, followed one year later by another civil engineering degree and by a Master of Science in 1901. He went to McGill University in Montreal to study for a Doctorate, which he earned in 1905. He was a member of the American Society of Civil Engineers, the Engineering Institute of Canada, and Tau Beta Pi engineering honor society.

After receiving his bachelor's degree in engineering, Hedrick was an assistant engineer for J.A.L. Waddell, a widely respected bridge engineer, for six years. Hedrick then spent one year with the Kansas City, Pittsburgh, and Gulf Railroad Company as an assistant chief engineer, and then returned to his first employer to be a junior partner in the firm of Waddell and Hedrick from 1899 to 1907. After leaving Waddell for a second time, Hedrick was a partner in two consulting firms. Hedrick and Cochrane worked together from 1907-1915 and then Hedrick started a consulting firm with another Hedrick in 1915. He was also a senior member of Hedrick, Smith, and Frost. His last consulting firm worked from offices in Hot Springs, Arkansas, Shreveport, Louisiana, and Kansas City, Missouri.

ENDNOTES

1. Barbara Overton Chandler, et al., History of Texarkana and Bowie and Miller Counties (Shreveport, LA : J. Ed. Howe Publisher, 1939) p. 62.
2. Ibid., p. 63.
3. Donald Harington, Let Us Build A City (Orlando, FL: Harcourt Bruce Jovanovich, 1986) p. 365.
4. Ibid., p. 358.
5. Ira G. Hedrick, bridge designer, letter to N.B. Garver, state bridge engineer, October 21, 1927.
6. "Highway Association Formed," LaFayette County Democrat, (November 15, 1929) p. 1.
7. "Melton Arnold Leave to Take Part in Fight," Texarkana Gazette, (December 16, 1927) p. 1.
8. "Final Barrier to New Bridge Erased Monday," Texarkana Gazette, (July 17, 1929) p. 1.
9. "Highway Officials Believe That Garland City Bridge Mystery Is Nearing Solution With Arrests," Camden News, (January 28, 1931) p. 1.
10. "Bomber Tells How Span Blasted," Texarkana Daily News, (January 30, 1931) p. 1.
11. "Bridge Celebration Program Held Up," Texarkana Press, (June 30, 1931) p. 1.
12. "Seek to Open Garland Bridge for July Fourth," Texarkana Press, (July 3, 1931) p. 1.
13. Robert Kerr, "History Argument Can't Save Bridge," Texarkana Gazette, (November 23, 1986).
14. Joe Crommett, "Bridge Could Be Good, Bad News," Arkansas Gazette, (August 24, 1987).
15. Joe Crommett, "Bridge Could Be Good, Bad News," Texarkana Gazette, (November 23, 1986).

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