

# HISTORIC AMERICAN ENGINEERING RECORD

## OLD RIVER BRIDGE

(Saline River Bridge)

HAER No. AR-46

**LOCATION:** Old Military Road (River Road), spanning the Saline River, Benton, Saline County, Arkansas.

UTM: 15/536070/3821980

Quad: Benton, Arkansas

**DATE OF CONSTRUCTION:** 1891

**BUILDER:** Youngstown Bridge Company, Youngstown, Ohio.

**PRESENT OWNER:** City of Benton, Arkansas

**PREVIOUS OWNER:** Saline County, Arkansas

**PRESENT USE:** Pedestrian Bridge (1974-present)

**PREVIOUS USE:** Vehicular Bridge (1891-1974)

**SIGNIFICANCE:** The Old River Bridge is the second oldest bridge in Arkansas, and is an excellent example of a pin-connected Pratt through truss, a common nineteenth-century bridge type. The bridge was constructed by the Youngstown Bridge Company of Youngstown, Ohio, a significant bridge-building company. The bridge crosses the river on the Old Military Road, an early route through Arkansas used by Indians and settlers.

**HISTORIAN:** Lola Bennett

**DESCRIPTION:** Corinne Smith

Arkansas Historic Bridge Recording Project, 1988.

Built in 1891 by the Youngstown Bridge Company of Youngstown, Ohio, the Old River Bridge is the second oldest remaining bridge in Arkansas, and one of two known nineteenth-century bridges in the state. It is an excellent example of a pin-connected Pratt through truss, a common middle to late nineteenth-century bridge type. A unique feature of the bridge is the connection of the floor beams at each panel point. The floor beams are suspended from U-shaped bolts, which hang from the a pin through each vertical member. Ordinarily, the floor beam would be attached directly to the vertical with a series of rivets, thus making a rigid connection.

The bridge crosses the Saline River on the Old Military Road, an important early route in Arkansas, along which Indians and settlers traveled. The point where the trail crossed the river was the area of the first white settlement in Saline County in 1817.

The Old River Bridge was nominated to The National Register of Historic Places in 1977.

#### EARLY HISTORY OF BENTON, ARKANSAS (1)

The first recorded white settler in what is now Saline County was William Lockhart, who came from North Carolina in 1815. He settled on the banks of the Saline River, at the point where the Southwest Indian Trail crossed. Other settlers came to the area after 1817. A post office was established at "Saline Crossing" on August 5, 1831, with Lockhart as postmaster. That post office was closed in 1836, shortly before another post office opened at "Benton Courthouse," the present town of Benton. The county seat was established at Benton in 1837.

### THE OLD MILITARY ROAD

One of the oldest routes leading into Arkansas was known as the "Southwest Trail," which began at St. Louis and ran down the Mississippi River to Cape Girardeau, where it followed a southwesterly course into the Osage country. Indians and Indian traders primarily used the route, until 1831 when President Andrew Jackson approved an act of congress to declare it a military road and appropriate money for its improvement. It was then completed as far as the present northern boundary of Arkansas. In 1832 the army cut the rest of the road through Arkansas, allowing travel from Missouri to Texas, along the southwest Indian trail.(2) The road crossed the White River below Batesville, and the Little Red River just above Searcy, and from that point ran in a nearly direct line to Little Rock. From Little Rock it ran southwest, via Benton, Rockport and Washington to Fulton on the Red River, which formed the boundary between the United States and Mexico.(3)

The Old Military Road has served a number of different purposes over the years: during the Civil War, when the federal soldiers threatened to take over Little Rock, the Governor fled to Washington, and had another capitol built there so he could resume his duties, creating traffic along the Military Road between little Rock and Washington(4); after the Civil War, the road was used by carpetbaggers heading south; and at all times it was lined with ox-drawn carts and horsemen going west, many of whom settled along the route.(5) The Military Road is now used as a farm-to-market road, joining two main highways: Highway 270, which runs into Hot Springs, and Highway 67, which is the main artery from St. Louis, Missouri, to Texas.

AN EARLY BRIDGE ON THE MILITARY ROAD AT BENTON

In 1831, the Legislature passed a law giving William S. Lockhart a franchise, good for twenty years, to build and operate a toll bridge over the river where the Military Road crossed it, "at or near where the leading road from Little Rock to Washington, AK, crosses the said Saline river."(6) Lockhart was permitted "to receive of all persons crossing, and for all species of stock, such rates as the proper court . . . shall from time to time authorize and direct."(7) It was provided, however, that the bridge must be in operation within three years from the passage of the Act, and that the bridge must be kept "in good order and repair."(8). It was also stipulated that the Act should not prohibit any person from fording the river, free of toll, at or near the crossing of the road, when the river was fordable and the traveler preferred that method of passing over it. It is unknown whether Lockhart ever constructed the bridge, but within sixty years, the county needed a new bridge at that point.

COUNTY COURT PROCEEDINGS

On July 11, 1889, Isaac Harrison and "many other citizens" petitioned the Saline County Court for "the letting of contracts to build a bridge across the Saline River at or near the crossing of the Military Road, and also a bridge across the North Fork of Saline River."(9) The court considered the petition, and agreed to investigate the practicality and cost of building said bridges before they took any definite action in the matter. The court appointed J.F. Shumaker, H.S. Glenn and J.T. Claiburne as bridge commissioners, and ordered them "to make examination of the sites proposed, and to furnish such plans, specifications, recommendations, estimates, and other facts as

will enable this court to act advisedly herein."(10) The commissioners were to report their "actions, opinions, plans, costs and specifications" to the October 1889 term of the court.(11)

On October 7, the commissioners recommended to the court that construction of the proposed bridge across the North Fork of the Saline River be postponed and that the bridge across the Saline River near Benton at the crossing of the Military Road be built, "as soon as practicable."(12) The plans and specifications for the latter bridge, "furnished by the King Iron Bridge and Manufacturing Company," were submitted to the court and approved.(13) Judge A.A. Crawford was then authorized by the court:

to advertise for bidders for said Bridge according to said Plans, and to make all arrangements and contracts necessary to the carrying out of the purposes of this order, and to negotiate in the name of the county in any lawful manner, for any and all funds found to be necessary in the building and completion of said bridge.(14)

On October 9, the court found that it would be necessary to borrow money to build the bridge, so they appointed John F. Shumaker as a financial agent for Saline County. Shumaker was ordered to "secure if possible a loan to said Saline County of a sufficient sum of money to build said bridge, . . . not to exceed \$5000, and the interest . . . not to exceed eight per cent . . . the time of payment not to exceed five years."(15)

At the January 8, 1890, court session, the Saline County Court ordered the bridge commissioners to publish a notice in the Benton Courier, "advertising for bids for the building and erecting of a good and substantial wrought Iron Bridge across the Saline River . . . to be built and completed by July 10, 1890."(16) The notice was to run for two consecutive weeks, and all the bids received by the first Monday in April, at which time the commissioners would recommend to the

court which should be accepted.

On Monday, April 7, 1890, the bridge commissioners let the contract to the lowest bidder, the Youngstown Bridge Company of Youngstown, Ohio.(17) The company's bid was \$7000, \$1000 of which was to be paid when the iron was delivered to the erection site. The company, under its authorized agent, H.T. Sinnott, agreed to complete the bridge on or by the first day of October, 1890.(18)

At the October 6 session of the county court, the court levied a one mill tax, "for building a Bridge across the Saline river near Benton, as per contract with the Youngstown Bridge Co."(19)

#### CONSTRUCTION OF THE BRIDGE

On January 26, 1891, the county court records stated that "a force of workmen are at work on the Iron Bridge across Saline river near Benton, and . . . the Bridge company will need funds to pay off their band at work on said bridge as it progresses."(20) The court ordered that the clerk draw warrants on the county treasurer in favor of the Youngstown Bridge Co., payable out of any funds in the treasury appropriated for bridges, "for such amounts as may be necessary in his judgement to keep the work on said Bridge progressing fairly, not to exceed however the sum of one thousand dollars before the 10th day of July 1891."(21)

On April 7, the court ordered the clerk to draw warrants, amounting to \$145.75, for cement for the piers furnished by T.H. Jones of Little Rock. The record stated that "the work on said bridge has progressed sufficiently to justify the court in paying for said material."(22)

On July 15, 1891, the bridge commissioners presented to the court their report stating that

they had carefully examined the bridge, and recommending that the completed bridge be approved, and that the county pay to the Youngstown Bridge Company "any and all amounts of money yet due" for the building of the bridge.(23) The commissioners further recommended that "about 20 loads of stone or the weight thereof in concrete be placed between and around the center tubes or piers to make them more secure and that another guard rail be put on to each side of the iron part of said bridge."(24)

The July 28 record of the court indicated that the balance due to the Youngstown Bridge Company was \$5357.88 and, because there was only \$1047.83 in the county bridge fund, John F. Shumaker, the financial agent for the county, had secured a loan in the amount of \$4310.05 from John L. Hughes.(25) The loan contract stated that the county would repay the loan, at 8 percent interest, in annual payments by July 15, 1894.(26)

At this same session of the court, the county judge ordered that John Shumaker inspect the guard rails and concrete work on the bridge piers, which had been let to John Pitts for \$69.50. Shumaker was authorized by the court to pay Pitts when the work was completed.(27)

### BRIDGE REPAIRS

On November 1, 1894, the court record stated that "the Iron Bridge across the Saline river on the Military road is in need of repairs and that said repairs should be made at as early a day as possible."(28) The court, therefore, appointed John L. Callott, J.F. Shappach, and J.W. Atkinson as commissioners to examine the bridge and submit "a full and complete report of the condition of said bridge, the needed repairs and full plans and specifications for the needed repairs, with the

probable cost of the same."(29) The commissioners submitted their report to the court on November 10, and the court let a contract to W.A. Crawford for the sum of \$71.50.(30) The court record of January 10, 1895, indicates that Crawford was actually paid a total of \$112.85, as it was necessary for him "to furnish more material and to perform more labor than the specifications called for."(31)

On April 2, 1895, the court record stated that the iron bridge across the Saline River on the Military road was badly in need of painting and "tightening up," and that a contract for such should be let to the lowest bidder.(32)

The bridge needed more repairs in October of 1897, and the court authorized the clerk to advertise in the Saline Times Courier for a contractor, the contract to be let on October 16.(33) No further mention of these repairs appears in the records.

#### YOUNGSTOWN BRIDGE COMPANY

In 1878 Charles and Henry Morse established the Morse Bridge Company at Haselton, Ohio, with the intention to concentrate on building solid, well-tried structures, which guaranteed high profit margins, rather than innovative designs.(34) A disastrous fire closed the plant in 1888, and the brothers moved to Chicago and Delaware, respectively, to start over. Sometime between 1888 and 1890, the Youngstown Bridge Company formed and bought the Morse plant site and rebuilt the bridgeworks.(35)

In 1900, the company was acquired by the American Bridge Company, at which time its plant was sold to, and dismantled by, the Youngstown Steel and Tube Company.(36) The American Bridge Company was incorporated by J.P. Morgan and Company in New Jersey on April 14, 1900.

The following year, the company became a subsidiary of United States Steel Corporation. The Youngstown Bridge Company was one of twenty-four bridge companies--representing 50 percent of the nation's fabricating capacity--which were consolidated by the American Bridge Company in its first year alone.(37) Personnel from the Youngstown firm figured prominently in the administration of the new company, with a secretary being given the position of company treasurer, and the president becoming the general manager.(38)

#### CLOSING OF THE BRIDGE

The Old River Bridge served the community of Benton from 1891 until 1974, when, on April 12, Melvin Grigsby of Hot Springs tried to cross the bridge in a truck loaded with concrete blocks, and the floor of the bridge collapsed.(39) An estimator told County Judge, H.W. Green, that he guessed it would cost between \$4000 and \$5000 to repair the structure.(40) The present condition of the bridge, compared with photographs taken shortly after the accident, indicates that some repairs were undertaken on the structure, but the bridge has been closed to vehicles since 1974.

#### DESCRIPTION

The Old River Bridge consists of two 130-foot Pratt trusses with six panels and a single lane for traffic. The ends of each span bear on 4-foot-diameter columns, filled with concrete, made from riveting steel plate rings together. The piers are braced with laced channel struts and eyebar counters. The bridge has built-up members, rectangular and round eyebars, and turnbuckles.

The top chord, reaching a maximum height of approximately 20 feet, is constructed with two

channel sections riveted to a continuous top plate with lacing on the bottom of the chord. The compression forces in the top chord are resisted at the bearing blocks by the two rectangular eyebars of the bottom chord, which are punched to be pin-connected to the end bearing shoe. Tension forces along the bottom chord of the bridge are passed through pinned connections at each panel point. The top chord is rivetted throughout the bridge, but the bottom chord, verticals, and diagonals are all pin-connected, introducing flexibility into the design.

The vertical members are channels, flanges turned outward, with single-bar lacing on two sides. The last vertical on either end of the span consists of two one-inch-diameter eyebars. One-inch-diameter eyebars are also used as counters in the truss panels, and have turnbuckles to allow the members to be adjusted as necessary. The single eyebar passes between two rectangular punched eyebar diagonals in each panel. The handrail, running the full length of the bridge on either side, consists of two steel cables passed through steel loops welded to each vertical. The lateral stability of the bridge is maintained by portal bracing, upper lateral rods, sway bracing at each vertical, and floor rods. A six-panel, double-intersection Warren truss acts as the portal brace at each inclined impost. Brackets made from angle sections brace the bottom of these four-panelled trusses. A single angle bar brackets the strut at each vertical. The top and bottom chords are laterally braced with rods, two in each panel, running diagonally from each panel point.

In the floor system, these rods brace a series of timber stringers. A unique feature of the Old River Bridge is the connection of the floor girders at each panel point. The two 15-inch-deep channels forming the girder are suspended with a hanger from the pin that the verticals and diagonals connect to. The deck at the southwest end of the bridge is reinforced with composite stringers made

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by rivetting an I-beam to a channel with 12-inch-wide batten plates. These stringers, following the tire paths, are strengthened on their underside with arches made from pipe.

ENDNOTES

1. Goodspeed's Biographical and Historical Memoirs of Central Arkansas, (Chicago: Goodspeed Publishing Co., 1890).

2. Hot Spring County Historical Society, "Looking Back: The Old Military Road," Malvern Daily Record, October 10, 1975.

3. *ibid.*

4. *ibid.*

5. *ibid.*

6. "An Act authorizing William S. Lockert to erect and build a Toll Bridge across the Saline River," Acts of Arkansas 1831 (Little Rock, 1831).

7. *ibid.*

8. *ibid.*

9. Saline County Court Records, July 23, 1888, Book C, P.195.

10. *ibid.*

11. Court Records, July 11, 1889, Book C, p.324.

12. *ibid.*

13. *ibid.*

14. Court Records, October 7, 1889, Book C, p.332.

15. *ibid.*

16. *ibid.*

17. Court Records, October 9, 1889, Book C, p.344.

18. Court Records, January 8, 1890, Book C, p.356.

19. Court Records, April 7, 1890, Book C, p.371.
20. *ibid.*
21. Court Records, October 6, 1890, Book C, p.451.
22. Court Records, January 26, 1891, Book C, p.491.
23. *ibid.*
24. Court Records, April 7, 1891, Book C, p.504.
25. Court Records, July 15, 1891, Book C, p.569.
26. *ibid.*
27. Court Records, July 28, 1891, Book C, p.573.
28. *ibid.*
29. *ibid.*
30. Court Records, November 1, 1894, Book D, p.543.
31. *ibid.*
32. Court Records, November 10, 1894, Book D, p.550.
33. Court Records, January 10, 1895, Book D, p.590.
34. Court Records, April 2, 1895, Book D, p.612.
35. Court Records, October 6, 1897, Book E, p.86.
36. Court Records, October 2, 1923, Book J, p.150.
37. David Simmons, Unpublished transcript of lecture for the Iron Bridge Symposium, Poland, Ohio, May 2, 1987.
38. *ibid.*
39. *ibid.*

40. Victor Darnell, A Directory of American Bridge Building Companies 1840-1900  
(Washington D.C. : Society for Industrial Archeology, 1984), pp.85-86.

41. Simmons.

42. Benton Courier, April 15-16, 1974, p.1.

43. *ibid.*

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Acts of Arkansas, 1831. Little Rock, 1831.

Arkansas Gazette, April 15, 1890, p.4, Little Rock, Arkansas.

Benton Courier, April 15-16, 1974. Benton, Arkansas.

Butler, Joseph G., Jr. The History of Youngstown and the Mahoning Valley, Vol. I, American Historical Society, 1921. p.674.

Darnell, Victor C. A Directory of American Bridge Building Companies 1840-1900. Society for Industrial Archeology, Washington D.C., 1984.

Goodspeed's Biographical and Historical Memoirs of Central Arkansas. Goodspeed Publishing Company, Chicago, 1890.

Hot Spring County Historical Society. "Looking Back: The Old Military Road," Malvern Daily Record, October 10, 1975.

National Register Nomination: Old River Bridge. Arkansas Historic Preservation Program, Little Rock, 1977.

McClurkan, Burney B. "Arkansas' Historic Bridge Inventory, Evaluation Procedures, and Preservation Plan," report on file. Arkansas Highway and Transportation Department, Little Rock, 1987.

Saline County Court Records, 1889-1898, Books C-E. Saline County Courthouse, Benton, Arkansas.

Simmons, David A. Unpublished transcript of lecture for the Iron Bridge Symposium, Poland, Ohio, May 2, 1987.

Wednesday April 9<sup>th</sup> 1890.

In the matter of the Contract for building an Iron bridge across Saline River, and the approval of the Bond therefor.

Now on this day come John F. Shuman, Hiram S. Glenn and J. T. Osborne and file in open Court the proof of publication of the Notice to Contractors herein.

and the Contract let under the provisions thereof with the Bond and the plans and Specifications of the Bridge as adopted by this Court.

And it appearing that said Commissioners <sup>by order of County Court</sup> did let at public outcry to the lowest bidder on Monday April 7<sup>th</sup> 1890. the Contract for the building of said Iron bridge, across Saline River at the place designated in said notice.

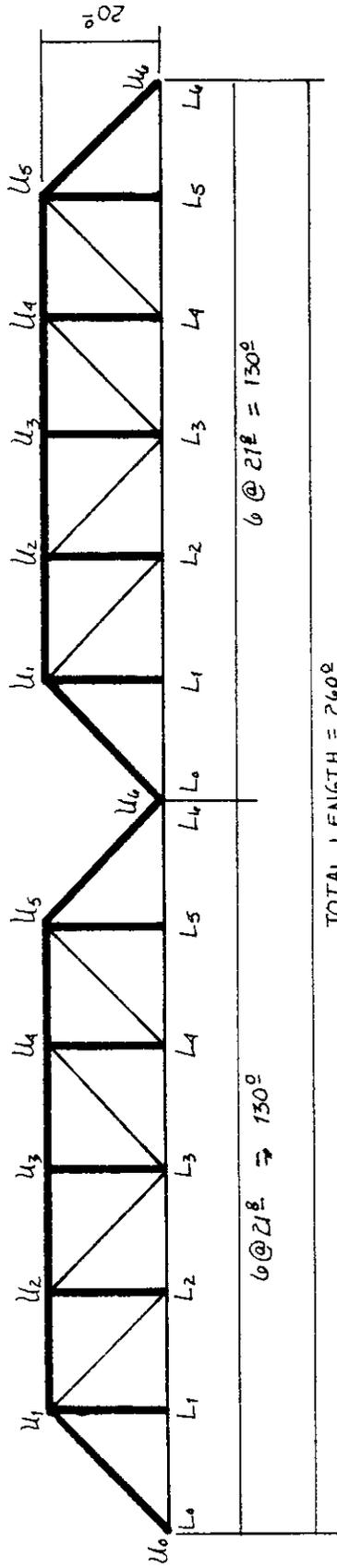
And it further appearing that said Contract was struck off and let by said Commissioners to the Youngstown Bridge Company, of Youngstown, Ohio, said Company being the lower bidder, at the sum of Seven Thousand Dollars, of which amount, one thousand dollars is to be paid when the Iron is delivered upon the ground, and the <sup>other upon the</sup> completion of the same according to Contract;

And it further appearing that said Youngstown Bridge Company has entered into a contract with the Judge of this Court and with said Commissioners, by its authorized agent H. T. Dimmick, agreeing to build construct and complete said Bridge according to the plans and specifications adopted and on file in this Court for said sum, and has moreover, filed and executed a good and sufficient bond to Saline County in the sum of Seven thousand Dollars, conditioned for the faithful performance of said contract, with John L. Hughes as security, and having undertaken in said Bond and Contract to build erect and complete said Iron Bridge on or by the 1<sup>st</sup> day of October 1890. ready for travel.

It is therefore considered, ordered and adjudged by the Court that the letting of said Contract by said Commissioners to said Youngstown Bridge Company, be and the same is hereby confirmed, and that said Contract be now by this Court accepted and approved. And it is further ordered by the Court that said Bond be and the same is hereby received and approved. And it is further ordered by the Court that <sup>upon</sup> the delivery by said Company of the Iron for said Bridge upon the ground as specified in said Contract, that the Clerk of this Court draw his warrant upon the Treasurer of Saline <sup>County</sup> in favor of said Company for the sum of one thousand Dollars payable out of the bridge funds, the fact of delivery to be ascertained by report in writing of two or more of said Commissioners.

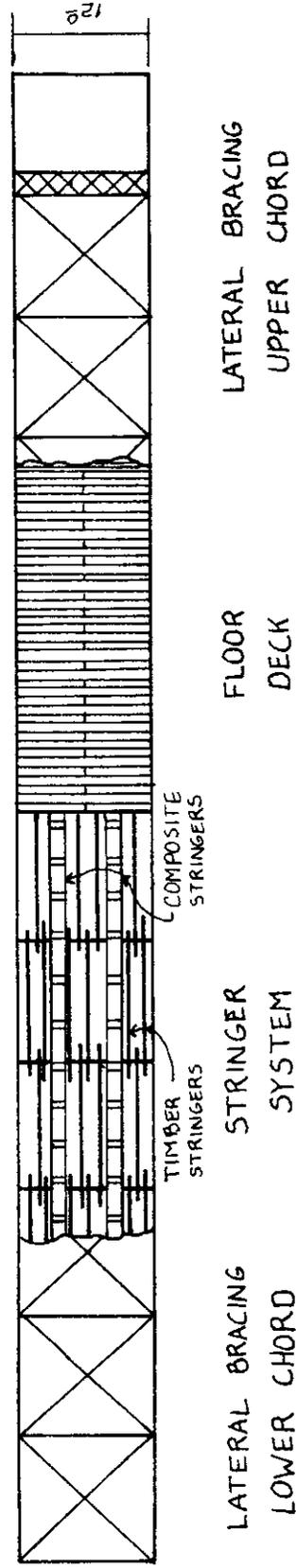
And it appearing that this order was made and should have been entered of record on yesterday, but was not, it is ordered that the same be done now-pro-tem.

# ELEVATION



TOTAL LENGTH = 260'

# PLAN



DIMENSIONS ARE APPROXIMATE

DRAWINGS NOT TO SCALE

DRAWN BY CORINNE L. SMITH