Otter Creek Bridge

CALD26

GENERAL DATA

structure no.: 303000.4
county: Caldwell
city/town: 6.0 miles east of Proctorville
feature inters.: Otter Creek
cadastral grid: S11, T56N, R27W
highway route: County Road 303
highway distr.: 1
current owner: Caldwell County

STRUCTURAL DATA

superstructure: wrought iron, 10-panel, bolted Bowstring through arch-truss
substructure: timber pile bent abutments and wingwalls

span number: 1
span length: 120.0'
total length: unknown'
roadway width: unknown'
condition: fair
alterations: bridge closed to traffic
floor/decking : timber deck over steel or iron stringers
other features: upper chord: 2 channels with cover plate and double lacing; lower chord: 2 rectangular eyebars, spliced; vertical: star iron; diagonal: round rod with threaded ends; lateral bracing: round rod with threaded ends (top and bottom); strut: pipe; floor beam: riveted plate girder, U-bolted to lower chords; outrider: star iron

HISTORICAL DATA

erection date: 1875
erection cost: $4000.00 (approximate cost)
designer: Missouri Valley Bridge and Iron Works, Leavenworth KS (probable)
fabricator : Missouri Valley Bridge and Iron Works, Leavenworth KS (probable)
contractor: Missouri Valley Bridge and Iron Works, Leavenworth KS (probable)

references: Missouri Highway and Transportation Department, Structure Inventory and Appraisal: Structure Number 303000.4; **History of Caldwell and Livingston Counties, Missouri** (St. Louis: National Historical Company, 1886), page 254; field inspection by Lon Johnson, 8 September 1990.

sign. rating: 76
evaluation: NRHP eligible (excellent example of now-rare structural type)

inventoried by: Clayton Fraser and Michelle Crow-Dolby 7 July 1993

HAER INVENTORY
Missouri Historic Bridge Inventory

NAME(S) OF STRUCTURE
Otter Creek Bridge
MHTD: 303000.4

CALD26

DATE(S) OF CONSTRUCTION
1875

LOCATION
County Road 303 over Otter Creek; S11, T56N, R27W
6.0 miles east of Proctorville; Caldwell County, Missouri

USE (ORIGINAL / CURRENT)
roadway bridge / closed

RATING NRHP eligible (score: 76)

CONDITION
fair

OWNER
Caldwell County

span number:	1	superstructure:	wrought iron, 10-panel, bolted Bowstring through arch-truss
span length:	120.0'	substructure:	timber pile bent abutments and wingwalls
total length:	unknown	floor/decking:	timber deck over steel or iron stringers
roadway wdt.:	unknown	other features:	upper chord: 2 channels with cover plate and double lacing; lower chord: 2 rectangular eyebars, spliced; vertical: star iron; diagonal: round rod with threaded ends; lateral bracing: round rod with threaded ends (top and bottom); strut: pipe; floor beam: riveted plate girder, U-bolted to lower chords; outrider: star iron

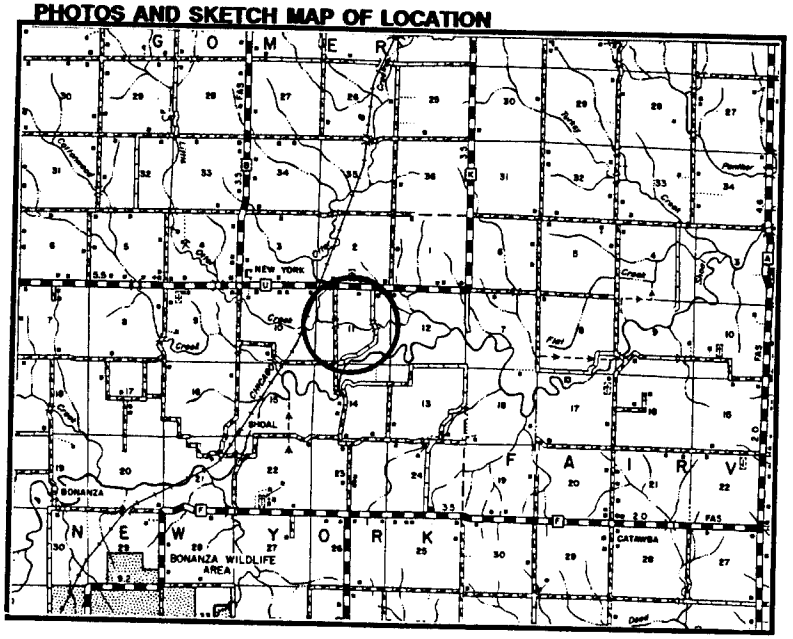
Like virtually all of Missouri's counties, Caldwell County followed a definite progression in its bridge construction in the 19th century, in response to evolving transportation needs and technological development in the bridge industry. The first simple spans, built as the county was undergoing its initial settlement, were rudimentary timber structures. These were cheap and easy to build but lacking in durability and limited in span length. With greater revenues from increased settlement, the county could undertake more ambitious timber/iron combination trusses in the 1860s and 1870s. These, in turn, were superseded in the mid-1870s by all-iron spans, made readily available by mass production. Although the county court barely noticed the transition from iron to steel in the 1890s, this evolution marked a watershed that would continue into the 20th century for bridge fabricators and the rolling mills that supplied them. Only one of the earliest iron spans remains in place in the county: this medium-span bowstring arch-truss that spans Otter Creek in New York Township. According to an 1886 history of Caldwell County, the Otter Creek Bridge was erected at this rural crossing east of Proctorville in 1875 for an approximate cost of $4000.00. The fabricator is not reported, but physical attributes of the arch itself suggest that it was built by the Missouri Valley Bridge and Iron Works of Leavenworth, Kansas. The Otter Creek carried traffic for over a hundred years, with only maintenance-related repairs, until its more recent closure to traffic. Today it stands at the end of a vacated county road.

The bowstring arch-truss was the iron span of choice for Missouri counties in the late 1860s and 1870s. Marketed extensively throughout the Midwest by such industry giants as the King Iron Bridge and Manufacturing Company, the Wrought Iron Bridge Company and the Missouri Valley Bridge and Iron Works, these often-patented bridge forms featured a wide range of span lengths, economical fabrication costs and relatively quick erection. The proliferation of the bowstring corresponded with the initial development of Missouri's road system; as a result, perhaps thousands of these prototypical iron spans were erected throughout the state. The bowstring had some rather severe structural flaws, however, relating primarily to lateral stability of the arches, and it was largely superseded by the pin-connected

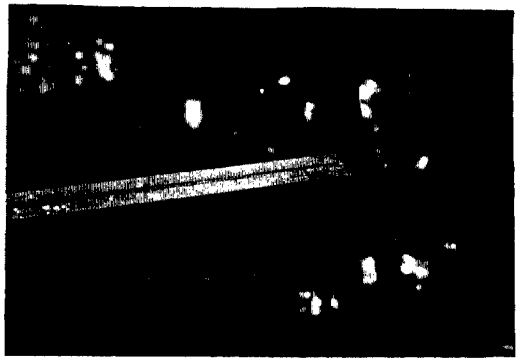
truss in the early 1880s. Despite this, some bowstrings were still erected in Missouri in the 1880s, although the number dwindled precipitously by the decade's end. Through subsequent attrition, almost all of Missouri's bowstrings have since been demolished and replaced. Now only a handful remains in place. Caldwell County's first all-iron span, the Otter Creek Bridge is thus technologically significant as a well-preserved, now-rare example in the state of what was once a mainstay structural type.

NAME(S) OF STRUCTURE
Otter Creek Bridge

PHOTOS AND SKETCH MAP OF LOCATION



LOCATION MAP
TAKEN FROM MISSOURI HIGHWAY AND TRANSPORTATION DEPARTMENT
GENERAL HIGHWAY MAP



SOURCES
Missouri Highway and Transportation Department, Structure Inventory and Appraisal: Structure Number 303000.4; **History of Caldwell and Livingston Counties, Missouri** (St. Louis: National Historical Company, 1886), page 254; field inspection by Lon Johnson, 8 September 1990.

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DATE
7 July 1993