KENTUCKY STATE ROUTE 1032 BRIDGE
Spanning the South Fork of the Licking River
Berry
Harrison County
Kentucky

HAER No. KY-25

PHOTOGRAPHS

WRITTEN HISTORIC AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Southeast Region
Department of the Interior
Atlanta, Georgia 30303

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Historic American Engineering Record

KENTUCKY STATE ROUTE 1032 BRIDGE HAER No. KY-25

Location: Spanning the South Fork of the Licking River at Berry, Harrison County, Kentucky

Longitude - 84°23'12" Latitude - 38°31'15"
QUAD: Berry, Kentucky

Date of Construction: 1906

Present Owner: Kentucky Transportation Cabinet
State Office Building
Frankfort, Kentucky 40622

Present Use: Vehicular bridge on KY 1032

Significance: A metal truss bridge consisting of two identical Pratt through trusses, constructed in 1906 by the Champion Bridge Company.

Historian: Jayne C. Henderson

The KY 1032 bridge is eligible for listing in the National Register of Historic Places. The bridge crosses the South Fork of the Licking River at Berry, in northern Harrison County, Kentucky. Harrison County is located in central Kentucky and the Licking River is one of the state's major drainage basins. KY 1032 is a two-lane secondary state route.

The KY 1032 bridge is a one-lane metal truss bridge consisting of two spans classified as Pratt through trusses. The two identical spans of seven panels are 120 feet in length and 16 feet wide. The bridge was constructed by the Champion Bridge Company of Wilmington, Ohio, in 1906. The Champion Bridge Company was active in Kentucky bridge construction from 1890 to 1945.

The most popular late 19th and early 20th century bridge type was the Pratt truss. This truss type was patented in 1844 by Thomas and Caleb Pratt and utilized wooden compression posts and wrought iron tension members. Soon all members were constructed of metal, first case and wrought iron and then steel.

On all truss spans the end posts and top chord act in compression with the bottom chord in tension. In a truss, unlike a rigid arch, at least one bearing point at the abutment must be able to expand or move. In the Pratt truss, the verticals between the end posts go into compression to keep the top chord from collapsing, and the diagonals act in tension to support the deck. However, the first vertical member (hip-vertical) next to the

inclined end post must be placed in tension to support the deck when a load first enters the bridge.

Pratt trusses have both diagonals and counters in the web system acting in tension. Inclined members that are not parallel to the nearest end post are called diagonals. Inclined members parallel to the nearest end post are called counters. Diagonals support the dead load of bridge weight and the live load of traffic. Counters support only the live load of the bridge. Counters always intersect with a diagonal between two panel points (or floor beams) of the bridge.

Counters accept or counteract the live load support from the diagonals as a load moves across the bridge. Tension support for the deck goes from a diagonal past the compression post, which is released as a load passes, to the next counter or diagonal. When a load passes an interior compression post and it is released, the compressive stress is thrown into the adjacent compression posts or end posts to keep the top and bottom chords apart.

The compression members of a Pratt truss must be rigid and of sturdy construction. On the KY 1032 Harrison County bridge, the end post and top chords are constructed of 2 channels, cover plate and lacing bars. The intermediate posts are two channels and two sets of lacing bars. The tension members are less rigid bars with eyes for pin-connected panel points and are referred to as eye-bars. The main tension members on the KY 1032 bridge are as follows: bottom chords are 2 rectilinear loop-welded eyebars with a stirrup round rod on the end panels (added), hip-verticals are single square eyebars that are loop-welded and pinned four feet

above the deck, diagonals are loop-welded, single or double rectilinear eyebars and double square eyebars, and the counters are single square loop-welded eyebars with open turnbuckles for field adjustment.

The floor system of the KY 1032 bridge has rolled I-beam floor beams and stringers. The deck is wood with one inch asphalt overlay and the abutments and pier are concrete capped rough cut stone. Due to the post-1885 construction date for this structure, the metal members are steel rather than wrought iron. A stamp on the channels of some compression members identifies Cambria Mills as a supplier of materials for bridge construction.

The "Survey of Truss, Suspension, and Arch Bridges in Kentucky" completed in January, 1982, located 134 Pratt through truss bridges in the state. Seventy-eight percent of these structures, including the KY 1032 bridge, are pin-connected. Most of the Pratt through trusses were constructed before 1920. Sixty of these trusses have identifying builder/date plates representing the work of 12 separate bridge builders or companies.

The KY 1032 bridge is eligible for the National Register of Historic Places as a structure of state and local importance which possesses integrity of location, design, setting, materials and workmanship and embodies the distinctive characteristics of a type, period and method of construction. The bridge, although in poor structural condition, is a good example of civil engineering technology and bridge construction in Kentucky in the early 20th century.