

Cemetary Road Bridge  
Cemetary Road, spanning Black Creek,  
two miles southwest of Salem  
Salem  
Washington County  
New York

HAER No. NY-186

HAER  
NY,  
58-SAL,  
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PHOTOGRAPHS  
WRITTEN HISTORICAL DATA  
REDUCED COPIES OF MEASURED DRAWINGS

Historic American Engineering Record  
National Park Service  
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HISTORIC AMERICAN ENGINEERING RECORD

CEMETERY ROAD BRIDGE

HAER NO. NY-186

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**Location:** Cemetery Road spanning Black Creek, approximately two miles southwest of the Village of Salem and approximately 100 feet east of Black Creek Road in the Town of Salem, Washington County, New York.

UTM: N 4779740  
E 632570  
New York State Quad: Salem

**Dates of Construction:** Fabricated in 1888 by the Berlin Iron Bridge Company, East Berlin, Connecticut. A new wooden deck was installed in 1964.

**Present Owners:** Washington County.

**Present Use:** Active vehicular bridge.

**Significance:** The oldest known wrought iron truss, and the only surviving lenticular (parabolic) arch truss, bridge in Washington County, New York. A more detailed discussion of the lenticular truss and history of the Berlin Iron Bridge Company may be found in HAER NY-166, Quaquaga, Dutchtown Road Bridge.

**Project Information:** The documentation of the Cemetery Road Bridge was prepared by the Historic American Engineering Record (HAER), National Park Service, during the Summer of 1987 for the New York State Historic Bridges Recording Project. This project was sponsored by the New York State Department of Transportation and under the supervision of Eric DeLony, Chief & Principal Architect, HAER. This report was written by Charles Scott, with research assistance from Andrew Cole. When citing this report, please credit the Historic American Engineering Record and the authors.

## THE LENTICULAR TRUSS AND THE BERLIN IRON BRIDGE COMPANY

The four panel, pin connected, single span, lenticular pony truss Cemetery Road bridge across Black Creek was one of two bridges fabricated in 1888 for the Town of Salem, N.Y. by the Berlin Iron Bridge Company of East Berlin, Connecticut. The Cemetery Road bridge was contract number 983 of the Berlin Iron Bridge Company.

In 1878, the Corrugated Metal Company of East Berlin, Connecticut began constructing iron bridges using the lenticular truss patent awarded that year to William O. Douglas of Binghamton, N.Y. In 1883 the company was reorganized under the name of the Berlin Iron Bridge Company. Under the direction of Charles M. Jarvis, Chief Engineer and, after 1886, President, the Berlin Iron Bridge Company erected hundreds of lenticular truss bridges before discontinuing the use of the design around 1895. By 1889, the company listed 578 lenticular truss spans erected, with the majority located in New York and the New England states. The company fabricated primarily two styles of lenticular truss bridges, through and pony. Deck and half-deck styles of the lenticular truss bridge were built in only a very few instances. Among the many pony truss bridges built are numerous variations in the number of truss panels, type of web posts, configuration of the end post and end block.

## THE CEMETERY ROAD BRIDGE

The Cemetery Road bridge is a single span, four panel truss measuring 51 feet from center to center of end posts. Both abutments are dry laid rubble stone, with wingwalls. The west abutment was encased in concrete prior to 1931. The bridge has an out-to-out width of 14 feet, 2 inches and a clear roadway width of 11 feet, 2 inches. The bridge superstructure is 44 inches high at the end posts where the upper and lower chords are joined together to form the ends of the parabola. Six feet separates the upper and lower chords of the bridge at mid-span. Each of the four truss panels is 12 feet 9 inches long. The upper chord is an open box section formed from riveted plates and angles with lacing bars. The bottom chord consists of a pair of eye bars. Riveted angles connected by lattice bars form the tapered web posts between the upper and lower chords. All diagonal members are iron rods with turnbuckles. The deck crosses Black Creek at approximately 11 feet 6 inches above the stream bed. The depth of the tapered plate floor beams is 11 inches at the ends and 17 inches at mid-point. Floor beams are hung from the pin connections of the bottom chord by threaded rods. Threaded iron rods are also used for the lower lateral diagonal bracing between floor beams.

Floor stringers have been replaced and added over the years and, consequently, the current steel I beam stringers are of varying lengths and sizes. From the drawings accompanying the original Douglas patents, illustrations and descriptions of other Berlin Iron Bridge Company bridges, and the written specifications of many bridges erected during the 1880's, it is

hypothesized that the original 1888 floor stringers were wood. In addition to the deck, the wheel tracks and the two-inch-high curbs are also wood. Beneath the deck, below each wheel track, is a railroad rail used as a longitudinal floor stringer. From the small size and the heavily rusted condition of these rails and an examination of other lenticular pony truss bridges in New York State, the rails appear to be very early additions and, most probably, represent the transition from wooden to steel stringers. The most recent replacement of floor stringers was in 1982. The cast end post blocks, tapered web posts, diagonal web tie rods, horizontal struts between end and web posts, and pinned connections of the Cemetery Road bridge are all features typical of lenticular pony truss bridges under 75 feet long.

When the bridge was erected it weighed 9,850 pounds. In 1932 the Cemetery Road bridge had a rated load capacity of three tons. At that time a consulting engineering firm recommended a new through plate girder, concrete slab bridge at this site. In 1964 the load limit rating was downgraded to two tons. During the 1930's, the bridge was one of six truss bridges crossing Black Creek in the Town of Salem. The most recent survey of the traffic using the Cemetery Road bridge, conducted in 1982, counted a daily average of 125 vehicles.

At one end of the bridge the original builder's plate remains affixed to the upper chord cover plate and reads: "Berlin Iron Bridge Company, 1888, Rufus Coon, Commissioner." Coon was commissioner of highways in the Town of Salem during 1887 and 1888 and, in this capacity, contributed his endorsement to the 1889 catalog of the Berlin Iron Bridge Company:

The two iron bridges your company built for the town of Salem are models of construction, and are perfectly satisfactory to the tax-payers as well as myself. I am compelled to admit their superiority to the other iron bridges of the town put up by three other companies.

This bridge is the oldest known iron truss and the only surviving lenticular truss bridge in Washington County as well as one of the few very surviving examples of a type of bridge once found in large numbers across the State of New York.

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