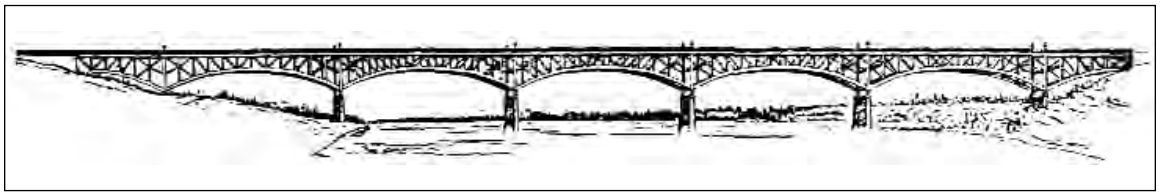
the verticals are angles paired back to back with cross lacing. On the main 45-foot span, the bottom chords in the two center panels are paired rectilinear eyebars and in the flanking panels are paired cylindrical eyerods. Diagonals in the two center panels are paired cylindrical eyerods and in the flanking panels are paired rectangular eyebars. Counters are single cylindrical tie rods. The composition of the 40-foot span is similar, except for the diagonals in the center panels that are single rectilinear tie rods and the counters that are single rectilinear tie rods. On the 20-foot truss, the bottom chords are paired cylindrical eyerods.

The Tennessee Department of Transportation, in cooperation with Bradley County and the Federal Highway Administration, replaced this bridge in 1984 and relocated the trusses to a Girl Scout campground in Jackson County for use on an internal road system.

(#27) 47-03775-00.26: Gay Street Bridge spanning Tennessee River in downtown Knoxville, Knox County (Knoxville Quad, 147 NW).



Significant under Criterion C as early cantilever truss and for aesthetic design and as work by the Youngstown Bridge Company.

This transportation corridor first contained a bridge during the Civil War when Union troops built one bridge and possibly two at this site. The military bridge at this site washed away in

March 1867. Knox County built a covered bridge here in 1874 that blew down 1 May 1875. In 1879, Knox County leased the piers and right-of-way to G.W. Saulpaw who built a wooden Howe truss bridge that opened 2 March 1880. This bridge remained in use until the county completed the current bridge in 1898. The Gay Street Bridge was the only vehicular river bridge in downtown Knoxville until the 1930 Henley Street Bridge (#132, 47 SR033 06.72).

By the early 1890s, Knox County had begun trying to replace Saulpaw's bridge. In October 1894 the county appointed a committee of G. L. Maloney (Chairman), W. H. Crawford, and G. W. Hines (Secretary). Over the next two years, the committee investigated masonry arch bridges but the county considered the initial bids of $1.5 million too high and began to consider metal truss bridges.

In April 1896, the county hired nationally recognized Edwin Thacher of Detroit as consulting engineer for the new Tennessee River Bridge, as the county called it. The extent of Thacher's involvement is unknown, but the county paid him $750 for his work. In May 1896, the county accepted and reviewed bids for a new bridge from the Schultz, Youngstown, Toledo, and Groton Bridge Companies. The county chose Youngstown's plan and signed a contract in June. The representative for the Youngstown Bridge Company was Charles Fowler. Fowler claimed he drew the sketch for the Gay Street Bridge on the back of an envelope during his train ride to Knoxville prior to his first meeting with the county. In addition to designing the bridge, Fowler supervised construction. Other engineers associated with the project were resident engineer W. C. Crozer whom the county paid $1,255.22 and inspector L. C. Carter whom the county paid $2,062.13.

Completed in July 1898, the bridge cost $233,000. The bridge opened Monday 4 July and the county formally accepted it 6 July proclaiming (in the midst of the Spanish-American War) it be opened as a "highway bridge for the use of all the world except Spain." After the grand opening, the county closed the bridge the following Friday night while the Girl's Relief Society held a festival on the bridge to raise funds for the war hospital. The county closed the old bridge Saturday and began advertising for bids to remove it.

The original plans called for a fixed span, but to get approval from the War Department, the channel span had to be erected without falsework, which required a cantilevered span. This eventually led to the main controversy involving the bridge, Youngstown's payment. The county claimed that using a cantilevered span required less metal than the original fixed span, and Youngstown claimed that costs involved in changing the plans as well as unforeseen foundation problems offset those savings. Further, Youngstown's shops burned during the project, and the company had to reproduce some materials. Youngstown claimed that it lost $8,000 on the project. However, Youngstown and the county reached a compromise and settled out of court by the time the bridge formally opened (East Tennessee, Clipping File; Knox County Court Minutes Volume M:591, Volume N:619-623; *Knoxville Journal and Tribune* 1898; *Knoxville News-Sentinel* 1940, 1977; Rule 1900:302-303).

The Gay Street Bridge contains five pin-connected steel arched cantilever trusses that are 252 feet long and two 126 foot truss approach spans on a granite foundation, for an overall length of 1,512 feet. Fowler proposed a four-lane design but the county chose a two-lane design with streetcar tracks that were removed in 1949-1950. The bridge now carries three traffic lanes within a curb-to-curb width of 30.1 feet. There are also two 6.0 foot sidewalks. The bridge originally contained elaborate streetlights but these no longer remain. There is an elaborate

rail with lattice design and circular cut-outs. Composition of members is typical. Top and bottom chords are channels with lacing. Verticals are small channels with lacing. Diagonals are small channels with lacing or paired rectilinear eyebars, and counters are paired rectilinear eyebars. The anchored abutments are an unusual feature of the bridge. This system anchored down the ends of the bridge instead of the typical arrangement in which the ends rest on the abutment of their own weight. Fowler's design allowed contractors to work toward the middle of the bridge while relying on the anchored abutments to offset the weight of the equipment.

An 1896 article in *Engineering News* featured this bridge as an example of a trend toward more aesthetic bridge designs (*Engineering News* 7 May 1896:300). Also, the 1911 publication *Bridge Engineering*, by noted engineer Henry Tyrrell, discussed this movement and cites this bridge as a good example of the trend toward more aesthetic bridge designs (Tyrrell 1911:385-386). Fowler himself considered the aesthetic appearance of great importance. In one of Fowler's thirty books, the 1929 *Ideals of Engineering Architecture*, he used a photograph of this bridge on the frontispiece and cited it as an ideal aesthetical design saying that it "was of extreme simplicity; of five spans perfectly symmetrical and balanced; in entire harmony in all parts and with the natural beauties of the location; and the theoretical proportions as correct as possible for five arched openings" (Fowler 1929:fp, 50, 109-111).

With funds through the Highway Bridge Replacement and Rehabilitation Program, TDOT in cooperation with the City of Knoxville and the Federal Highway Administration rehabilitated the Gay Street Bridge for continued vehicular use between 2001 and 2004.