

Lafayette/Spring Street Bridge  
(Oswegatchie River Bridge)  
Lafayette and Spring Street, spanning the  
Oswegatchie River and the former New York  
Central Railroad right-of-way  
Ogdensburg  
St. Lawrence County  
New York

HAER No. NY-174

HAER  
NY,  
45-06BU,  
1-

PHOTOGRAPHS  
WRITTEN HISTORICAL DATA

HISTORIC AMERICAN ENGINEERING RECORD

LAFAYETTE/SPRING STREET BRIDGE (OSWEGATCHIE RIVER BRIDGE)

HAER NO. NY-174

HAER  
NY,  
45-DGBU  
1-

**Location:** Lafayette (and Spring) Street spanning the Oswegatchie River and the former New York Central Railroad right-of-way in the City of Ogdensburg, St. Lawrence County, New York. Bridge is approximately 3,500 feet south of the mouth of the Oswegatchie River at the St. Lawrence River.

UTM: N 4948430

E 460850

New York State Quad: Ogdensburg East

**Dates of**

**Construction:**

The three span bridge across the Oswegatchie River was completed in 1916. The two span bridge across the former New York Central Railroad right-of-way was completed in 1919.

**Engineer/**

**Builder:**

Concrete-Steel Engineering Company of New York City.

**Present Owners:**

City of Ogdensburg, New York.

**Present Use:**

Vehicular and Pedestrian Bridge.

**Significance:**

An example of early twentieth-century reinforced concrete construction using the "Melan-von Emperger" systems of steel reinforcement. The western two spans were constructed as part of a grade crossing elimination program active throughout New York State during the years between 1910 and 1920. The Lafayette Street viaduct, all five spans, was designed by William Mueser of the Concrete-Steel Engineering Co. Information about Mueser, the company, and another historically significant concrete arch bridge may be found in HAER No. NY-173, Court Street Bridge, Watertown, New York.

**Project**

**Information:**

The documentation of the Lafayette Street Bridge (Oswegatchie River 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 first bridge at this site, a wooden structure linking the Town of Oswegatchie with the Village of Ogdensburg, was erected in 1867. This bridge was replaced by a five span, through truss iron bridge, 586 feet long, erected in 1874. The King Iron Bridge Company of Cleveland, Ohio erected this bridge at a total cost of \$20,000, with the iron superstructure costing approximately \$12,000. The bridge had a single eighteen foot wide roadway and two sidewalks.

By 1913 the iron bridge had deteriorated and required replacement. In February, Oswegatchie residents approved, by a 1,253 to 207 vote margin, a proposal to remove the iron truss bridge to an upstream river crossing and replace it with a reinforced concrete arch bridge linking Lafayette Street in Oswegatchie with Spring Street in Ogdensburg. In October, the approval to issue \$80,000 of bridge construction bonds to finance the project received a somewhat less enthusiastic 264 to 25 vote endorsement by the residents of Oswegatchie. Both Oswegatchie and Ogdensburg anticipated that two additional spans would be built at the western end of the bridge to eliminate the Lafayette Street grade crossing of the New York Central Railroad tracks. With this plan for a viaduct across the river and railroad tracks, the Town of Oswegatchie commissioned the Concrete-Steel Engineering Company, consulting engineers from New York City, to design the bridge, draft the plans and specifications, and supervise the actual construction after a contractor had been selected on the basis of competitive sealed bids. Concrete-Steel Engineering, headed by William Mueser, specialized in reinforced concrete bridge design and construction supervision.

In March of 1914, William Mueser exhibited the plans for a 422 foot long, three arch span bridge crossing the Oswegatchie River and using the "Melan-von Emperger" systems of reinforcement. Josef Melan was an Austrian engineer who devised an early means of reinforcing concrete by incorporating into the arch a series of I-beams bent to the appropriate shape of the arch. Fritz von Emperger, a designer of many of Melan's bridges in America and a leading experimenter in concrete construction himself, patented in 1897 two additions to the Melan system. Von Emperger reinforced the concrete deck slab with steel beams, and connected the arch and deck beams with steel bars in the spandrel. According to structural historian Carl Condit, the resulting bridge was almost more a steel arch bridge than a concrete bridge.

The Oswegatchie's town supervisor issued a notice to contractors in April of 1914 soliciting sealed bids for the construction of the bridge in accordance with the plans and specifications prepared by the Concrete-Steel Engineering Company. The engineer's estimates for the three spans crossing the Oswegatchie River included:

Concrete Crade A	1,953 Cu Yds
Concrete Crade B	353 Cu Yds
Concrete Crade C	2,449 Cu Yds
Concrete Sidewalks	448 Sq Ft
Concrete Curbs	780 Lin Ft
Concrete Parapets	821 Lin Ft
Angle Ribs	223,600 Lbs
Reinforcing Bar	58,000 Lbs
Earth Fill	600 Cu Yds
Wood Block Pavement	1,064 Sq Yds
Approach Fill	1,261 Cu Yds

Three bids, all from New York state contractors, were received and opened on April 18, 1914. The low bidder and contract winner was Kirk, Raleigh and Company of Syracuse, New York.

The iron truss bridge was immediately closed to traffic, but delays in removing the spans resulted in a month delay in the construction of the concrete arch bridge. Delays in receiving machinery and equipment further hampered progress, but by June of 1914 construction was proceeding with a cofferdam in place and pier excavations beginning. Within two months the contractor was pouring concrete for the abutments.

According to local newspaper coverage, the contractor used a novel and attention-getting system to pour the concrete in the foundations, piers, and arches. On one side of the bridge a 174 foot high tower was erected and a steel cable strung from it across the river. Concrete, mixed at a central plant on shore, was raised to the top of the tower and gravity fed to the foundations, piers, and arches through a 12 inch diameter spout hung from the cable.

The construction of the bridge was complicated by labor problems such as the temporary departure of some fifty laborers and the arrest of a construction supervisor for "padding the payroll," and by negotiations pertaining to the two western spans intended to eliminate the Lafayette Street grade crossing of the New York Central Railroad tracks. In January of 1915, William Mueser advised the Oswegatchie Town Board that the Concrete-Steel Engineering Company was prepared to present plans for the western sections of the viaduct if the City of Ogdensburg would employ them. The primary stumbling block was the inability of the New York State Public Service Commission to finance its share of the cost of the grade crossing elimination. Again in 1916 the City of Ogdensburg petitioned the Public Service Commission to appropriate the funds. The following month the Commission approved the project and authorized the needed funding. William Mueser addressed the Ogdensburg City Council and recommended adopting the plans he had previously prepared. On March, 21, with the approval of the Public Service Commission in hand, the Council approved the issuance of \$20,000 of bonds to raise the City's share of the project costs. Both the New York Central Railroad and the City of Ogdensburg approved the retention of the

Concrete-Steel Engineering Company as consulting and supervising engineers for the construction of the remaining two spans of the Lafayette Street viaduct.

By July the plans were accepted by the city and the railroad and a \$36,975.79 construction contract was awarded to the Mecca Construction Company. With the final approval of the Public Service Commission on July 18 construction began. The two spans of the bridge crossing the railroad tracks were completed by May 15, 1919.

The plates on the eastern end of the bridge read:

Oswegatchie River Bridge  
Designed By & Erected Under The Direction Of  
Concrete-Steel Engineering Co., Consulting Engineers, New York, N.Y.  
William Mueser, Supervising Engineer - Mark D. Ewell, Resident Engineer  
Built By Kirk, Raleigh and Co., Contractors, Syracuse, N.Y.

Oswegatchie River Bridge  
Erected 1915-1916 By The Town Of Oswegatchie  
1914 Supervisor 1915  
Nathan T. Lovejoy W. H. McCadam

The total length of the five span viaduct is 637 feet. The three arches crossing the Oswegatchie River have open spandrels. Closed spandrels are used in the two spans crossing the former New York Central Railroad right-of-way. The two closed spandrel arches both have a length of 98 feet. The open spandrel arches are, from west to east, 120, 115, and 109 feet in length. The out-to-out width of the bridge is 46 feet and the curb-to-curb width is 30 feet, 1 inch. In plan, fifteen steel reinforcing ribs are spaced between the spandrel walls. At the crown of the arch the ribs of the intrados and extrados are separated by 26 inches. At the skewbacks, 50 inches separates the two levels of reinforcement.

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