



Historic Bridge Foundation Facebook Archives

Did You Know...

...the first modern vertical lift bridge was built in Chicago in 1893? Although Chicago today is known as the bascule bridge capital of the world, it also played a major role in vertical lift bridge history as well. In 1892, an iron swing bridge at Halsted Street over South Branch Chicago River was destroyed by the Steamer Tioga and a new bridge was required. Famous engineer J. A. L. Waddell designed a replacement bridge. The design was a through truss suspended by cables from tall steel towers and connected to counterweights, allowing for the span to be lifted directly up to provide clearance for boats. This design, new to the engineering world, received considerable coverage in engineering periodicals of the time, perhaps aided by the immense attention directed to Chicago in 1893 as the World's Columbian Exposition was taking place in the city. The general design principals of this bridge became the template for most vertical lift bridges built after this period, and it also established Waddell as one of the leading engineers for vertical lift bridges. Operating under a variety of names over several decades, Waddell and Harrington, being a name used for a substantial number of years, he designed lift bridges across North America. His lift bridge at Halsted Street was replaced by a city designed bascule bridge in 1934.

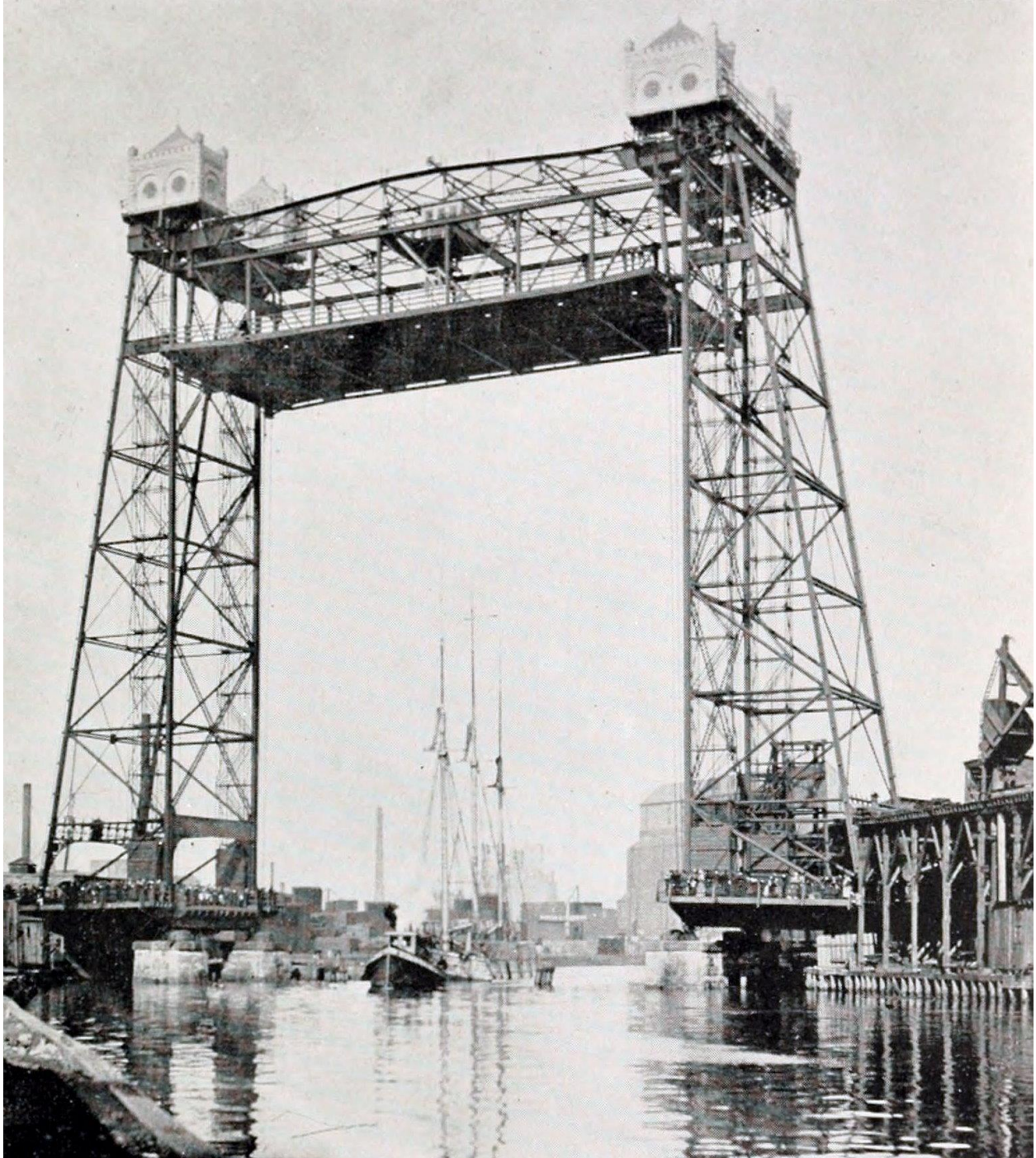
Although bascule bridges would become the most popular movable bridge type, vertical lift bridges remained in use throughout the 20th century and they continue to be built today. The only major difference between the early Waddell lift bridges and modern lift bridges is the location of the operating machinery. In older lift bridges, the lifting machinery was mounted on the lift span; later lift spans more commonly locate the machinery on the towers. Although vertical lift bridges offer boat clearance that is limited by the height of the towers, they are economical for extremely long movable spans compared to bascule spans. The longest bascule bridges typically are less than a 400-foot span, while vertical lift spans in excess of 500 feet can be found, such as the 544-foot span of the 1935 Cape Cod Canal Railroad Bridge in Buzzards Bay, Massachusetts.

The state of Louisiana stands out for adopting the vertical lift bridge as its preferred bridge type for movable bridges. Waddell and Harrington constructed a vertical lift bridge with a Warren pony truss lift span over Caddo Lake in Murringsport in 1914. Later, the Louisiana Department of Highways would develop and construct its own standard vertical lift bridges in large numbers across the many navigable bayous of the state. The department's design is noted for its short deck girder lift span and simple

lightweight towers that are braced by trusses between the tops of the towers. The bracing also supports the machinery room that powers the lift.



The Abbeville Bridge, built in 1938, is a good representative example of a standard highway department design lift bridge in Louisiana.



A drawing from the American Society of Civil Engineers showing the design of the Halsted Street lift bridge.



Cape Cod Canal Railroad Bridge in Buzzards Bay, Massachusetts



The Caddo Lake Bridge in Mooringsport, Louisiana.