



PROJECT Willamette River Bridge (Oregon City Bridge)

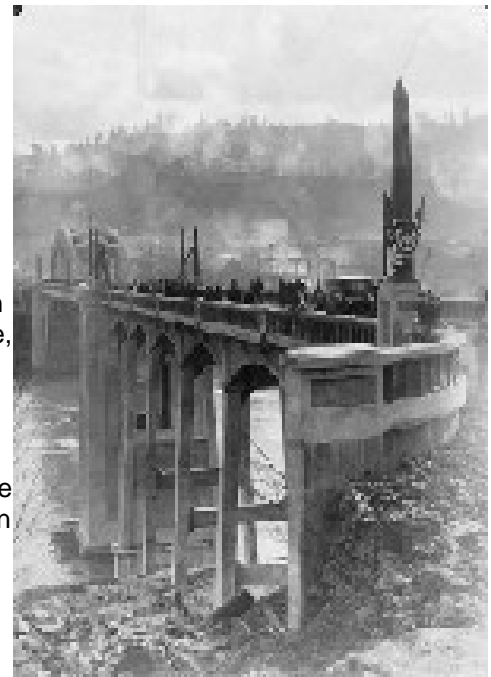
OR 43: WILLAMETTE RIVER BRIDGE

A Brief History

This bridge and other beautiful Oregon bridges are the legacy of Conde B. McCullough, one of the leading bridge engineers in the United States between the world wars. His work in Oregon—hundreds of structures including more than 30 arched spans—was part of the state’s nationally recognized highway system at a time when the automobile first claimed its place in the life and character of America.

McCullough constructed many concrete deck arches in the 1920s for Oregon highways. He first diverged from this form when he designed a span to cross the Willamette River at Oregon City in 1922. Here, an old wooden suspension bridge could not carry the additional traffic expected with the new Pacific Highway, which would cross the Willamette at Oregon City. McCullough studied the site for two years. A deck arch was possible, but steady traffic on the river and the main channel depth prohibited the use of wooden false work needed during construction. A steel-truss span or a suspension bridge was vulnerable to corrosion.

A steel half-through arch, in which the roadway is supported halfway up the arch, was what McCullough finally chose. The deck is suspended between two 350 foot massive arch ribs. Each arch rib is actually a series of connected hollow steel box segments. He employed the old suspension bridge’s anchors, towers, and main cables to support the box segments during construction. Once the arch ribs were built, he constructed the columns, hangers and roadway deck. Finally, he encased all of the exposed steel members in a concrete covering called Gunite. The Gunite was a combination of sand and cement that was mixed with water and blown by air onto the steel surfaces. This covering was used instead of paint to protect the steel from the corrosive atmosphere generated by the nearby mills.



QUESTIONS, COMMENTS OR SUGGESTIONS?

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