

A CONCRETE BRIDGE, California.

A handsome, yet simple concrete bridge built by the Young Construction Co., of Los Angeles, California, is illustrated in this issue. The bridge is 700ft. long and cost about £4,000, and was built over the San Luis Rey river at Oceantide.

There is nothing new in the 3-hinged arch rib type of bridge, for such bridges have been built in all parts of the world, although the type is not as common as the elastic arch or girder construction. There is a 3-hinged arch rib bridge at North Main street, Los Angeles. This bridge, however, is of the

method of construction. Both bridges were designed after the Thomas System, on which patents have been secured by Mr. W. M. Thomas, C.E., now a resident and practicing engineer of Los Angeles, an associate of the American Society of Civil Engineers, and a member of the firm of Thomas and Post. The contractors on the San Diego structure were The Young Construction Company of Los Angeles.

The highway commission of San Diego county had under way 450 miles of new county highways, being built under the bond issue of £250,000. Along



Concrete Bridge in Sections—The Bridge assuming shape.



Concrete Bridge in Sections—The Bridge ready for use.

compressible joint hinge type, while the San Luis Rey bridge is of the hinge open spandrel type.

The uniqueness of the bridge here illustrated lies in the fact that all its several members were built on the ground, where they were left until the concrete was sufficiently cured, and then hoisted into position. The arch ribs were poured in two sections and the spandrel posts cast separately. After these were put in place on piers and abutments the forms were bolted in place for the deck. By this method the excessive cost of falsework was saved. The designer maintains that these arch ribs or beams can be made in this manner and hoisted into place for less money than it takes to build the falsework required in constructing an arch of the same proportions after the usual methods prevailing.

The San Luis Rey bridge is second of its kind erected in the State, the first one having been built over 8 years ago at Santa Cruz by the same engineers. The San Diego County bridge, however incorporates later developments and improvements in design and

these thoroughfares were to be constructed a number of bridges and culverts. Necessarily, with this comparatively small sum of money to cover so large an amount of construction work the commissioners had to figure closely, and were limited in expenditures for any particular part of the work. Chief Engineer A. Fletcher of the commission favoured concrete bridges, and both the commission and taxpayers desired this form of construction wherever possible. In determining the appropriation for the bridge over the San Luis Rey river an amount could be allowed that would seemingly warrant the construction of only a combination wood and steel bridge, and plans and specifications were drawn by the engineering department to meet these conditions.

These plans and specifications called for a combination wood and steel structure 690 feet in length, fourteen feet above the river bed; to complete the highway connection less expensive fills were provided. Under these specifications bids from £2600 to £3200 were secured. But in calling for bids the commission