

Lehigh River shall, within a time reasonable for the construction of the necessary works, have been so treated as to remove settleable solids, to render the effluent non-putrescible and to effect a reasonable reduction of B. Coli Communis.

(2) All sewage discharged or permitted to flow into the channel of the Delaware River below the confluence with the Lehigh River shall, within a time reasonable for the construction of the necessary works, have been so treated as to at least remove settleable solids and shall be discharged through submerged outlets into said channel; provided that such submerged outlets shall be located and constructed as may be required by the commission; and provided further, that in order to protect the public health in specific instances such higher degree of treatment shall be used as may be determined to be necessary by the commission after due notice and hearing.

(3) All sewage discharged or permitted to flow into any tributary of the Delaware River, except the Lehigh River, shall be treated to that extent, if any, which may be necessary to maintain the water of such tributary immediately above its confluence with the Delaware River in a sanitary condition at any time at least equal to the sanitary condition at such time of the water of the Delaware River immediately above such confluence.

All sewage discharged or permitted to flow into the Lehigh River shall be treated to that extent, if any, which may be necessary to maintain the water of the Lehigh River immediately above its confluence with the Delaware River in that sanitary condition which the commission, after due notice and hearing, shall have determined to be necessary because of the nature and extent of the use of the water of the Delaware River below such confluence, provided, however, that the commission may not require the sanitary condition of the Lehigh River immediately above its confluence with the Delaware River to exceed that of the sanitary condition of the Delaware River immediately above such confluence.

(4) All industrial wastes discharged or permitted to flow into or be placed in or permitted to fall or move into the channel of the Delaware River or any tributary thereof shall first have been treated to such extent, if any, as may be necessary to maintain in the channel of the Delaware River sanitary conditions equivalent to those which would be attained by the treatment of sewage above required in this article; provided, nevertheless, that industrial wastes containing substances likely, in the judgment of the commission, to produce offensive tastes and odors in any public water supply from the channel of the Delaware River, shall either be wholly prevented from being discharged or from flowing into or from being placed in or permitted to fall or move into said channel or any tributary of the Delaware River, or shall first have been treated to such an extent as to wholly eliminate such taste and odor producing constituents.

The commission which drew up the compact was authorized by the legislatures of the three states early in 1923: Pennsylvania was represented by Dr. Charles H. Miner, commissioner of health, as chairman, Robert Y. Stuart, secretary of forests and waters, and Philip P. Wells, deputy attorney general; New Jersey by W. A. Starrett as chairman and Frederick C. Schneider; New York by George MacDonald as chairman, Rudolph Reimer and Jefferson DeMont Thompson. These three commissions organized as a joint commission by selecting George MacDonald as chairman, Charles H. Miner as vice-chairman and W. A. Starrett as secretary. The compact was drafted by a committee of technical and legal advisers consisting of, for Pennsylvania Charles E. Ryder, chief engineer of water and power resources, George W. Woodruff, attorney general, and Philip P. Wells, deputy attorney general; for New Jersey, H. T. Critchlow, hydraulic engineer, Department of Conservation and Development, and Francis H. McGee, deputy attorney general; for New York, J. Waldo Smith, consulting engineer, Board of Water Supply, City of New

York, and Frank H. Deal. Thaddeus Merriman, chief engineer of the Board of Water Supply, City of New York, acted as consulting engineer to the technical advisers on the drafting committee. The United States Government was represented by Lt. Col. John R. Slattery of the Corps of Engineers, and Col. William Kelly of the Federal Power Commission.

Old Foundations Used in Replacing Steel by Concrete Span

Masonry on Pier and Abutment Tops Cut to 5-Ft. Depth and Capped—Concrete Arch with Floor Tie

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IN PROJECTING a concrete road from Emporia south a problem was encountered at the crossing of the Cottonwood River. An old 125-ft. steel span had been carrying the traffic across the river and a 30-ft. I-beam approach span had been carrying it over the tailrace of a mill located against the north side of the bridge. The masonry abutments and pier were in excellent condition,

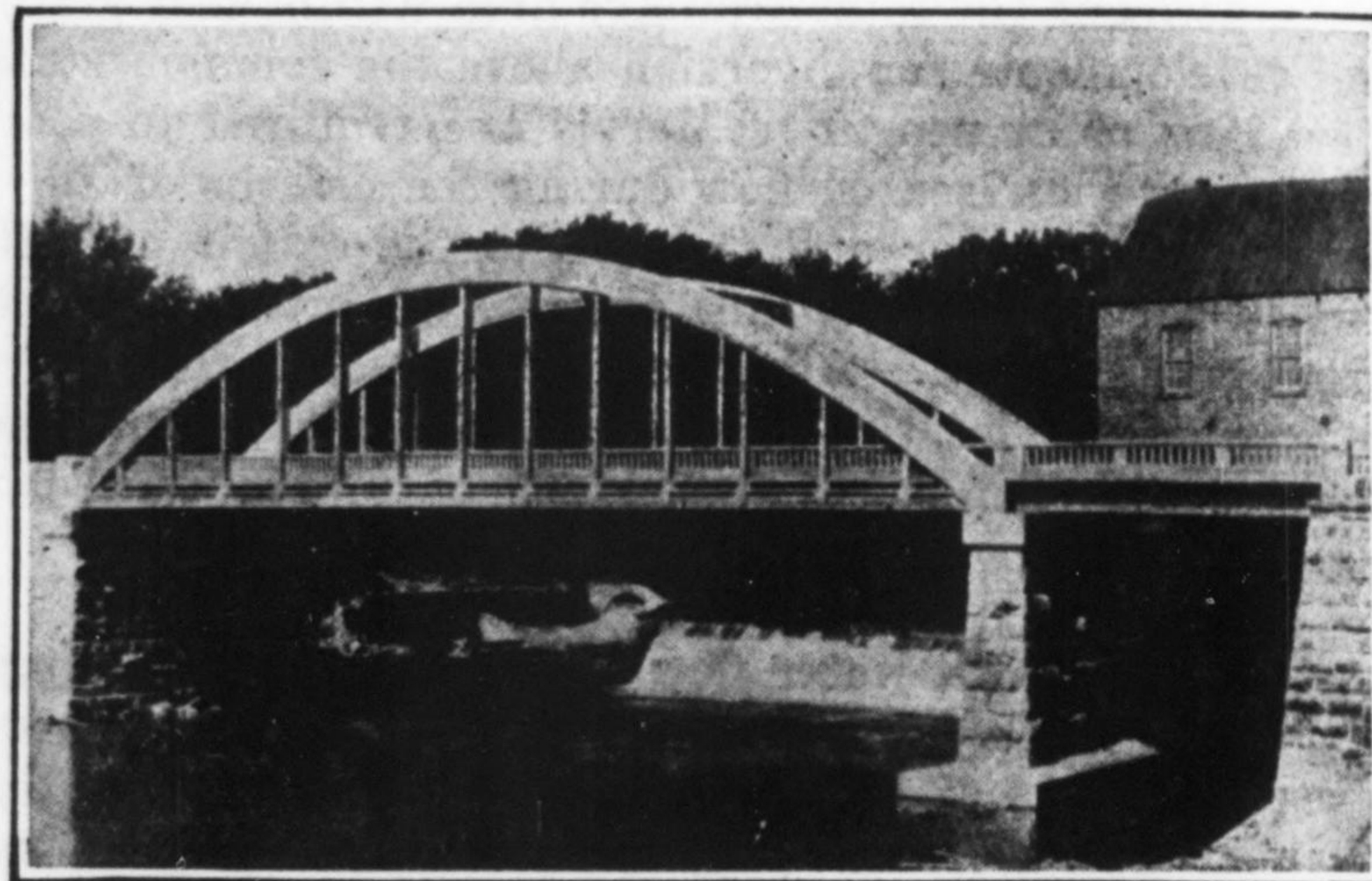


FIG. 1—NEW COTTONWOOD RIVER CROSSING—CONCRETE ARCH ON OLD MASONRY

though the face of the pier masonry at the water level next to the millrace was somewhat disintegrated. It was found on investigation that the old iron span would not carry a concrete floor or the live-load required of a bridge on a federal-aid project and a new bridge was called for by the state highway commission.

The county commissioners and county engineer were strongly opposed to putting in another steel structure at this location and they were anxious to have an arch built using as much of the old masonry as possible. A consultant was called and after considering all features advised the use of an arch with overhead rib and stiff bottom-chord tie, resting on the west abutment and the pier. A 30-ft. concrete girder design was advised for the approach span, with railing and other lines conforming to those of the arch span. As this type of structure fulfilled the requirements of large waterway, long span, high clearance and vertical reactions at abutment and pier, it was adopted by the county commissioners.

Before starting construction on the arch, repairs were made to the tops of both abutments and the pier by cutting away 5 ft. of the top of each or until satisfactory masonry was reached and replacing with a concrete cap in which expansion devices were embedded. A concrete

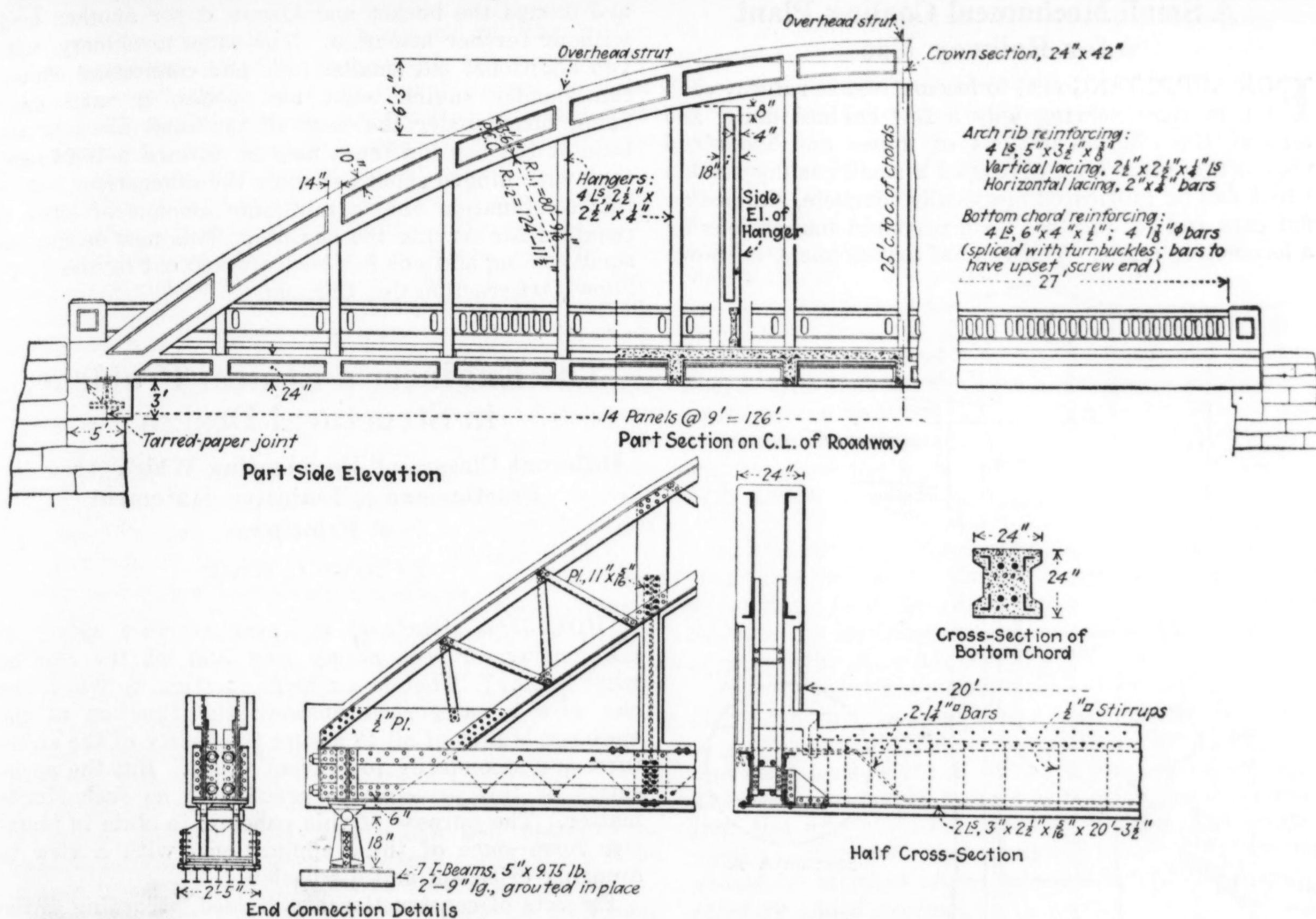


FIG. 2—CONSTRUCTION FEATURES OF COTTONWOOD RIVER BRIDGE

apron was placed around the pier base to protect it from further wash from the mill race.

The arch ribs were reinforced by four angles $5 \times 3\frac{1}{2} \times \frac{3}{8}$ in., laced on all sides and carrying connection plates at each panel point to which the four hanger angles ($2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{4}$ in.) were attached. These hangers were riveted to the floorbeam angles and also to the bottom-chord angles. The bottom-chord reinforcing, consisting of four angles $6 \times 4 \times \frac{1}{2}$ in., was augmented by four $1\frac{1}{8}$ -in. round bars with upset screw ends and nuts bearing on plates riveted to the end stiffeners. These bars were spliced with turnbuckles. The floor slab was carried by floorbeams spaced 9 ft. on centers. The arches were braced by three overhead struts reinforced with four angles $3 \times 3 \times \frac{1}{4}$ in. All connections of the structural steel reinforcement were riveted.

An unusual service was rendered by the consulting engineer in making detail drawings for all falsework and forms used on the job. Each panel of the arch was drawn out and full dimensions given for framing the sections. Details for joists supporting the bottom of the arch rib were drawn, giving ordinates of the curve every 12 in.

The alignment of the forms was maintained by using wedges between them and the falsework bents located under every other panel point.

This bridge was built under the direction of W. S. Ruggles, Sr., county engineer. The Marsh Engineering Co., consulting engineers of Des Moines, designed the structure.

The contract for the construction was given to the Western Bridge Co., Harrisonville, Mo., at their bid of

\$18,217.62, which covered construction of the bridge, complete.

Plans for Regulating Traffic in Paris

THE PERMANENT circulation committee of the Paris municipal council has drawn up a new series of street traffic regulations made necessary by the progressive congestion of Paris thoroughfares. Between the hours of 3 p.m. and 7 p.m. the circulation of slow-going vehicles is forbidden within an area centering around the Opera quarter. Two cross streets north and south and east and west, lying within this area, are excepted. Thus traffic is hampered as little as possible except that delivery vehicles, horse-drawn vehicles or hand carts of any nature are not permitted to pull up at any point within these limits and are only allowed to cross it by the streets indicated. Included in slow-going vehicles are motor trucks of 8 tons and upward.

A considerable number of one-way streets have been laid down and a new system of handling traffic by luminous signals at night and colored signals by day is being tried out in the Carrefour of the Opera.

Taxicab chauffeurs are to have a special license book upon which all contraventions will be inscribed. Bonuses will be offered to taxi chauffeurs who may not have transgressed any municipal regulations during the year.

The above measures, together with others which will ultimately remove street car and motor bus terminals from the center of the city, are the first adequate measures which have been taken on behalf of traffic control in Paris since the coming of the automobile.