

way to the job, where it was dumped on the subgrade. The requirements of the traprock were that it should have a French coefficient of wear of at least 17, and should be the run of the crusher that would pass a 1½-in. ring and be retained on a ¼-in. screen. The sand used was dredged sand of exceptionally good grading, with the larger particles nearly ¼ in. in size. By using this sand with the graded stone the theoretical grading of the aggregates of the concrete was nearly perfect, and a very dense concrete resulted. A representative of the Bureau of Standards, who made a number of tests to determine the movement of the pavement, declared that the density of this concrete was greater than any he had previously drilled.

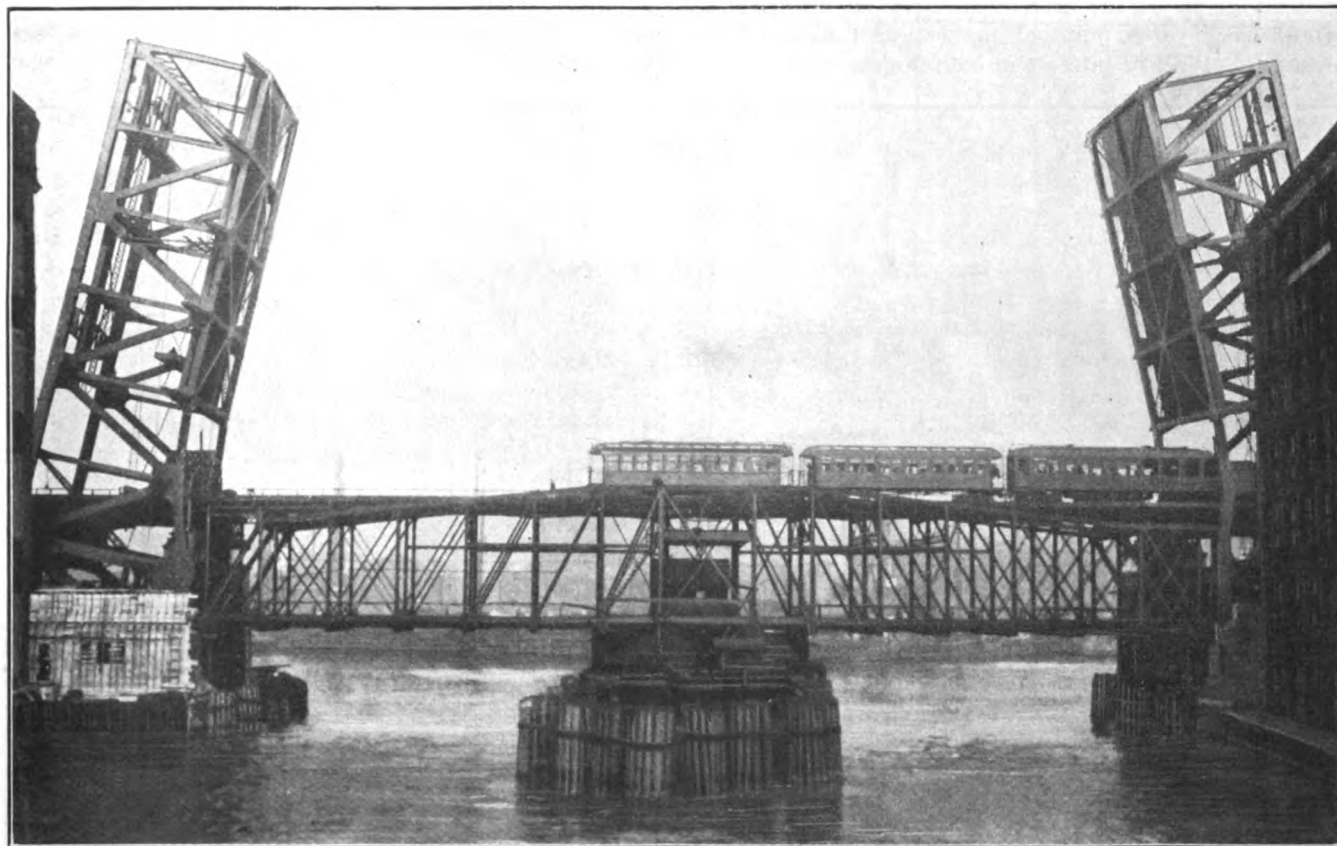
In view of the well-known diversity of opinion as regards the spacing of expansion joints, it was decided to place them on this road only when the mixer was shut down

Renewing a Drawbridge Across the Chicago River

The new double-deck bascule bridge and the old center-pier double-deck swingbridge over the Chicago River at Lake St. are shown in the accompanying view, which represents the condition of work a month ago.

The old swingbridge is kept in service to carry the elevated-railway trains, but the roadway is closed to traffic. The bascule bridge was erected with its leaves in the raised position, the deck and bracing of one panel in each leaf being omitted to allow trains to pass through until the bridge is ready for operation. Then traffic will be stopped for a short time while the old bridge is removed and the floor system of the new structure is completed.

The bridge is of the trunnion bascule type, with a span of 245 ft. c. to c. of trunnions, giving a width of 209 ft.



OLD AND NEW DRAWBRIDGES OVER THE CHICAGO RIVER AT LAKE ST.

for 15 min. or longer. This resulted in some long slabs—in some cases reaching as great a length as 460 ft.

The specifications permitted the use of "any machine devised to finish pavement." On Section 1 a power screed, manufactured by the R. D. Baker Co., was employed successfully. On the other sections hand screeds made by bending 4x1½-in. angle iron are used.

As soon as the concrete is finished, it is protected from the sun and wind by canvas-covered frames. As soon as possible after the concrete becomes hardened it is covered with 2 in. of earth and kept wet for 11 days. No traffic is allowed on the concrete pavement for at least 30 days.

Each of the four contract sections is inspected by a resident engineer, who reports to the Chief Engineer, Charles Upham. Associated with Mr. Upham is C. D. Buck, Superintendent of Construction.

between the piers for a channel 195 ft. wide in the clear. The old bridge gives two channels only 65 ft. wide. The trusses are spaced 42 ft. c. to c. and are 30 ft. deep at the center. On the lower deck are a 38-ft. roadway (with car tracks) and two outside 16-ft. walks; on the upper deck is a double-track railway between the trusses.

The bridge was designed and built under the direction of John Ericson, City Engineer, and Thomas G. Pihlfeldt, Engineer of Bridges and Harbor. The contractors were the Fitzsimons & Connell Dredge and Dock Co. for the substructure, the American Bridge Co. for the steelwork, and the Ketler-Elliott Erection Co. for the erection. The steel was stored on the dock shown beyond the center pier and was floated into place on lighters.

The bridge and its construction were described fully in *Engineering News*, Nov. 4 and 11, 1915.