



Canaan River Bridge, New Brunswick. Mile 21.6 from Moncton. Length, 532 ft. Height, 84 ft. Tons Steel, 424.

structure was approximately \$680,000. The actual erection of the steel occupied 144 working days (about 50 tons per day), although from the time the erection commenced until all painting and riveting was fully completed, slightly over one calendar year had elapsed.

The second longest crossing occurs about three miles north of the Quebec bridge, and is known as the Cap Rouge viaduct. This single track structure is 3,335 feet long, and is composed of the following spans: 1 @ 125 ft.; 1 @ 150 ft.; 1 @ 160 ft. (deck trusses); 32 @ 40 ft.; 27 @ 61 ft. (deck plate girders)—the whole supported on 30 towers of 40-ft. span, and one rocker bent, the height of the towers varying from 53 ft. to 146 ft. The height from water line to deck is 172 ft. The actual quantity of steel in this viaduct is 8,456,297 lbs., or 4,228 tons, and timber used for the deck amounts to 613,122 ft. B.M. The total cost of the superstructure was approximately \$360,000.

From the Transcona division yard to the terminals at Winnipeg, a distance of 5.3 miles, the line is double-tracked, and all the bridges and viaducts are arranged accordingly.

From the entrance into St. Boniface to the west side of Water Street in Winnipeg (included in the above), a distance of 2.1 miles, all crossings of streets and tracks are taken at high level, and beside these are the crossings of the Seine River and the Red River. The total quantity of steel in bridges and viaducts placed in this distance (2.1 miles) is 10,036,306 lbs., or 5,018 tons.

The Seine River is crossed by a

viaduct, composed of the following spans: 1 @ 100 ft.; 4 @ 50 ft.; 2 @ 30 ft. (deck plate girders), resting on two towers of 30-ft. span, piers and abutments.

The Red River is crossed by four 150-ft. through truss spans, and one Strauss bascule lift span, having a length from centre of trunnion to end of span of 129 ft. 6 in., and from centre of trunnion to centre of in-shore rest pier 40 ft. 0 in. This lift span is electrically operated and the whole system thoroughly interlocked. The counterweight is of concrete contained in a steel cage, and concrete used for this purpose amounts to 467 cubic yards. The operating machinery weighs approximately 50 tons.

As will be seen by Table I., which gives a complete list of steel bridges and viaducts, there are a number of structures, other than those already mentioned, with weights of steel varying from 500 tons to 1,700 tons, and in lengths of crossings up to about 1,300 feet. While the timber trestles mentioned are designated "permanent," there is no doubt but that in the course of a few years these will be replaced by steel trestles or embankments.

The traveller becomes aware, immediately, of the crossing of the bridges and viaducts, but there are a large number of waterways that one would cross in a journey from Moncton to Winnipeg of which there would be no indication on the train, as concrete arch culverts have been used, some of which are 40 feet in diameter, and all are covered by embankments brought up to the permanent grade line.



Little Salmon River Viaduct, New Brunswick. Mile 184 from Moncton. Length, 3,918 ft. Height, 200 ft. Tons Steel, 6,995.