

approximately 30 feet. On the top deck will be carried three tracks, the centre line being for the C.P.R. service, and the one on either side to serve the Edmonton Radial Railway Company. Underneath and about 24 feet from the top deck and between the main trusses will be a roadway 24 feet in width, the floor of which will be concrete covered with wood paving blocks. On the outside of the trusses on each side is an 8-foot sidewalk with concrete pavement. To protect the roadway from cinders or other articles dropping from the trains the top deck will be covered with steel buckle plate. At the Strathcona end of the bridge it is necessary to bring the vehicular and pedestrian traffic up to the level of the top deck. This will be accomplished by diverting the roadway at some distance back from the abutment to the outside of the trusses and raising the roadway and sidewalks on a grade to meet the rail level at the end of the bridge. The substructure will be concrete, the river piers having a height of 100 feet above water level. The steel towers will be supported on concrete pedestals, these resting where required on concrete piles. This bridge, when finished, will have the most complete and commodious accommodation for highway and electric traffic of any combined service structure in Canada.

The Canadian Northern Railway Company have at present but one steel bridge on their system in the province, that across the North Saskatchewan River at Fort Saskatchewan. This structure, also a combination railway and traffic bridge, consists of four 190-foot pin connected deck spans with a 65-foot plate girder deck span at each end. On the lower chords of the bridge is the highway floor, 14 feet in width, with lattice hand-rail on either side. The base of the rail is 80 feet above water level, and the piers of concrete 50 feet in height. At the west end of the bridge is 1,475 feet of a two-deck timber trestle 50 feet in height on a four-degree curve. This trestle will ultimately be made an earth embankment. A rather peculiar accident happened while the east end span of this bridge was being erected. When there were still three end pins to drive the ice moved and took out all the centre false work, leaving but two bents standing at the shore end. The span sagged about five feet and then arched, in which position it remained suspended until false work could be re-driven and the span jacked up. No injury was apparently done to the span, nor has any developed since. The amount of steel in this structure is approximately 1,790 tons.

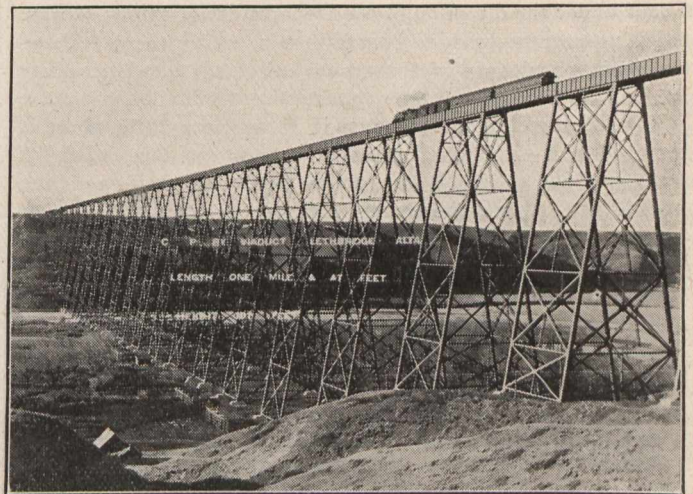
On the Grand Trunk Pacific Railway all the important bridges in the province are of steel. The first is the viaduct across Battle River. This structure consists at the east end of thirty-two plate girder deck spans, each 50 feet in length supported on steel towers. The river is crossed on a lattice truss deck span 150 feet in length and 175 feet from water level to base of rail. The west end of the viaduct is made up of nineteen 50-foot deck plate girder spans supported on steel towers similar to those at the east end. The total length of the structure is 2,770 feet and it contains 3,440 tons of steel. The substructure consists of a series of concrete pedestals, except at the river where a low pier is built on either side. The only other steel structure east of Edmonton is that crossing the North Saskatchewan River at Clover Bar. This bridge consists at the east end of six 50-foot plate girder deck spans and two 40-foot spans of the same type, these being supported on steel towers resting on concrete pedestals. The river is crossed by one 150-foot lattice truss deck span followed by three 275-foot spans and one 150-foot span of the same type. At the west end the viaduct consists of four 50-foot and two 40-foot plate girder deck spans on steel towers supported on concrete pedestals. The total length of this structure is 1,655 feet. The

river piers are of concrete and reach a height of 140 feet above the water level, and a total height from the base of 225 feet. These are stated to be at present the highest concrete piers in existence. In this structure there are 2,100 tons of steel and 22,000 cubic yards of concrete.

West of Edmonton on this line are four important structures. The first, across the Pembina River, has a total length of 902 feet and a height above low water of 214 feet. It is symmetrical in design and consists of 60-foot plate deck girder span at each end followed by a 210-foot lattice truss deck span, at the inner end of which are 60-foot plate girder deck spans, while the centre span crossing the river consists of a deck truss 240 feet in length. All the spans are supported on steel towers resting on concrete pedestals.

The bridge crossing Wolf Creek is of the same type as that just described and consists of three deck truss spans of 150 feet, while at the ends of the bridge and between each span is a 40-foot plate girder deck span. The total length of the crossing is 650 feet, and the height above the river level 116 feet.

Immediately following Wolf Creek is the crossing of the McLeod River. This bridge has a total length of 1,066 feet



11 inches, and a height above the water level of 118 feet. It consists of four deck spans each 210 feet in length with a 40-foot plate deck girder between each, and a 60-foot plate deck girder at each abutment.

Prairie Creek, which flows into Athabasca River is crossed on a viaduct consisting of five 70-foot and nine 50-foot plate girder deck spans supported on steel towers. The total length of the structure is 800 feet, and its height 81 feet above river level.

These structures are all supported on concrete pedestals carried down, where possible, to a rock bottom. The total length of these structures on the G.T.P.R. is 7,844 feet or 1.49 miles. The steel amounts to 10,355 tons and the concrete supporting the same to 47,345 cubic yards.

The three railway systems in the province give a total length of steel bridges of 24,977 feet or 4.73 miles, and a total weight of 44,679 tons.

The Province of Alberta possesses the best system of steel highway bridges in the Dominion. This system was inaugurated under the old Territorial Government, and since the formation of Alberta into a province the Provincial Government has further improved these in strength and design, so that with the exception of a few old light structures the heaviest traction engine may travel through any part of the province with the assurance that it will be able to safely cross