CANADIAN PACIFIC RAILWAY

NORTH BAY SHOPS

Canadian Pacific Railway Lake Superior Division Shops at North Bay.

The C.P.R. divisional shops at North Bay, Ont., having become inadequate to meet the requirements of the heavy traffic, the company set about enlarging the shops and mechanical yards to meet the new demands. This work was commenced last spring, and its extent is shown in the accompanying plan.

The shops prior to this change consisted of a 23 stall locomotive house, with small machine and blacksmith shops attached to the west end, and a freight car repair shed separate from these other buildings, some distance to the west. All these old buildings are shown in light or dotted lines, indicating the old shops that have been left or removed.

The locomotive house and machine shop annex have been retained, but to the west of them there is being added a combined machine and erecting shop, served by a transfer table running along the west frontage of the shop. The erecting shop will be 70 by 208 ft., and 43 ft. high, of a steel frame construction with brick walls, the whole resting on concrete foundations. The width of the shop is spanned by steel trusses, resting on columns at 20 ft. centres. The shop will have a 5 ton travelling crane serving the full length of the building. The runways will be composed of 15 in. I beams with 56 lb. rails on top. The roof will be of mill construction, with 8 by 14 in. purlins at 8 ft. centres carrying a 3 in. plank roof surfaced with tar and gravel.

There will be 10 tracks in the shop, each [illegible] round cedar posts.

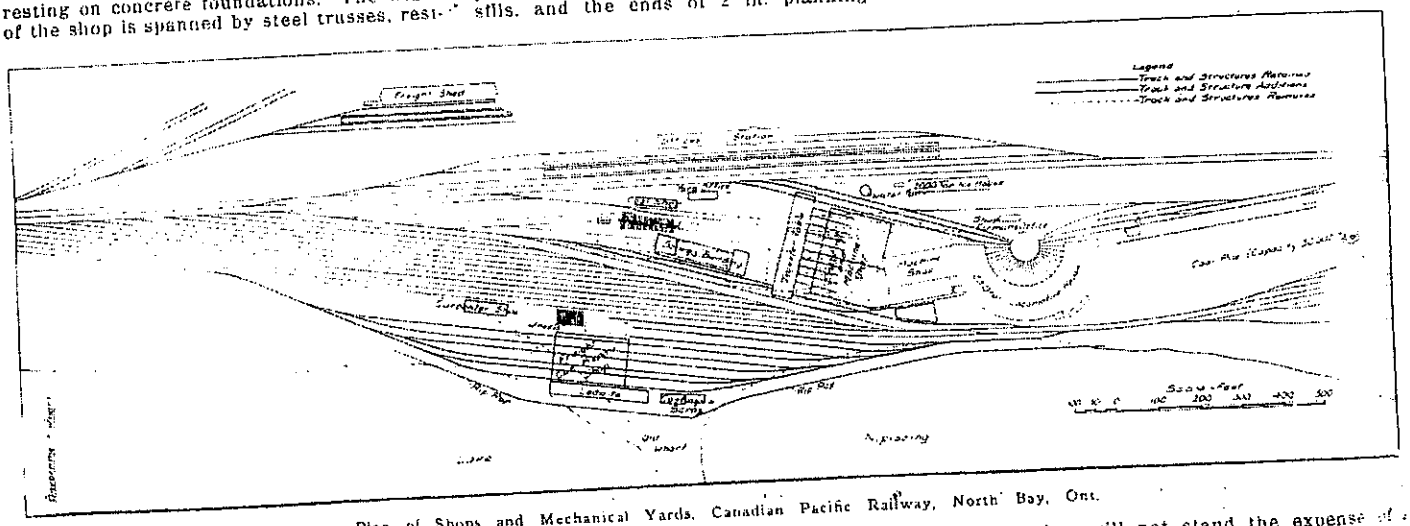
The old stores building will be moved to the new location shown, remodelled and replaced on concrete foundations, with an extension added to the west end. The extended building will be 170 by 40 ft., with a basement the full length of the building. There will be an 8 ft. platform along the track side, with a 38 ft. platform on the side nearest the erecting shop.

The machine shop, connecting with the outside yard tracks through turntables. Both these tracks will facilitate the handling of parts through the shop. The new machine shop will be connected with the existing blacksmith shop and the present machine shop by means of a triangular annex. The present machine shop will be remodelled so as to provide additional boiler accommodation, as well as a new tool room and lavatory. Electric lighting and a hot air fan with heating ducts will be installed in both the new erecting and machine shops.

The transfer table along the front of the erecting shop will connect with the several erecting shop tracks with the main inbound track from the locomotive house and the yard runaround track, so that locomotives may be brought in from either side of the yard. The track alongside the stores building will also continue to the transfer table, facilitating the handling of the material to the machine and erecting shops. The transfer table will run on four tracks. The side walls of the transfer table pit will be composed of 8 in. square timbers resting on sills, and the ends of 2 in. planking and The roof will be of mill construction, composed of heavy purlins, with 2 by 3 in. planks laid on edge and finished with a 4 ply tar and gravel roof. The flooring will be of cinder. Electric lighting will be used, and hot air for the partial heating of the building, from a fan and engine located in the boiler room leanto.

There will be 6 standard gauge tracks in the shop, two in each bay, running the full length of the car repair yard, and connected by ladder tracks at each end to the main yard. Between each pair of these tracks, there will be a 2 ft. gauge service tracks connected together and to the wheel storage yard by small turntables and cross tracks. The repair yard tracks will be equipped with air, steam, and water pipes, and will be electrically lighted. The leanto will contain offices and auxiliary rooms.

The data on which the foregoing article is based was supplied by J. W. Orrock, Principal Assistant Engineer, and R. McKillop, Assistant Engineer, through the courtesy of J. M. R. Fairbairn, Assistant Chief Engineer.



Plan of Shops and Mechanical Yards, Canadian Pacific Railway, North Bay, Ont.

Car Failures.—A writer in a contemporary sums up his observations on the reason for and manner of overcoming freight car failures by suggesting the following means of relief: 1. Reinforcing the older types of cars that will not stand the expense of a steel underframe, with a long metal draw arm that extends through and over the body bolster; this in turn to be reinforced or backed up with good heavy compression timbers. 2. On such cars as will permit of the expenditure, the application of a fully designed steel underframe. 3 [illegible] cases apply the draught gear that will stroy the greatest amount of shock with the entire elimination of recoil. [illegible]

CANADIAN PACIFIC RAILWAY

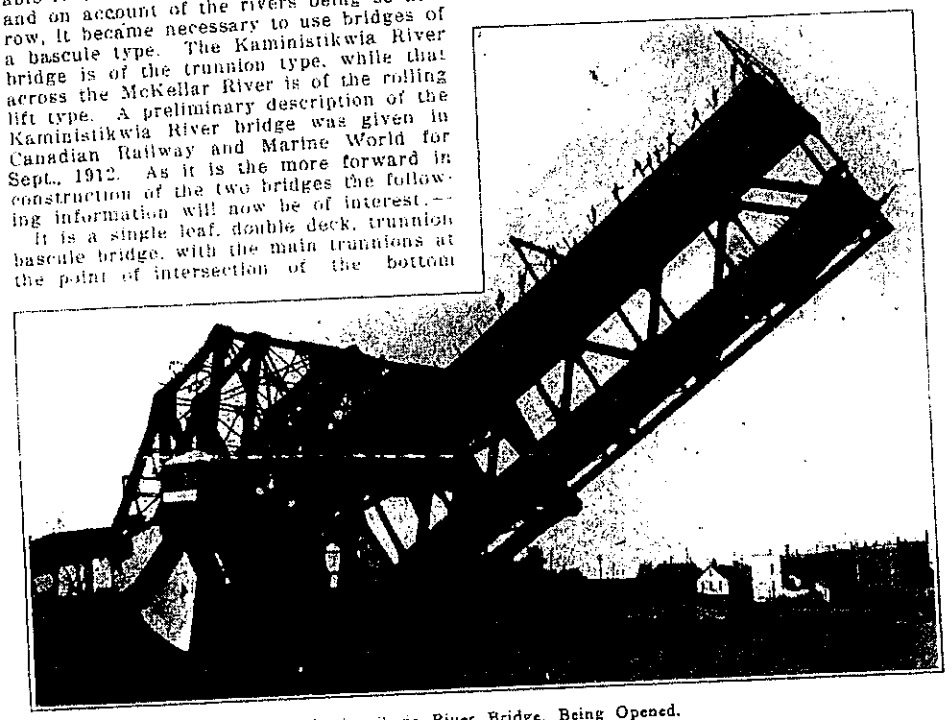
KAMINISTIKWIA BRIDGE FORT WILLIAM

Canadian Pacific Railway Bascule Bridge Over Kaministikwia River.

The C.P.R. is building extensive terminal yards and loading docks on island no. 1 at Fort William, Ont. In order to reach this island it was necessary to build bridges across the Kaministikwia and McKellar Rivers. Inasmuch as these are both navigable rivers, movable bridges were required, and on account of the rivers being so narrow, it became necessary to use bridges of a bascule type. The Kaministikwia River bridge is of the trunnion type, while that across the McKellar River is of the rolling lift type. A preliminary description of the Kaministikwia River bridge was given in Canadian Railway and Marine World for Sept., 1912. As it is the more forward in construction of the two bridges the following information will now be of interest.—

It is a single leaf, double deck, trunnion bascule bridge, with the main trunnions at the point of intersection of the bottom chord, and the end post of the truss (heel trunnion type), and embraces a 150 ft. movable span, giving a clear channel in the river of 150 ft. and a 40 ft. stationary span on tower. The lower deck carries a double track railway, and the upper deck a 30 ft. roadway, on which are two electric railway tracks. The counterweights are separately mounted on trunnions supported at the top of the tower and the counterweight trusses, which carry part of the highway floor, are connected to the moving leaf through the counterweight links, which are pin connected both to the counterweight trusses and the bascule trusses. There are long approach viaducts on both sides of

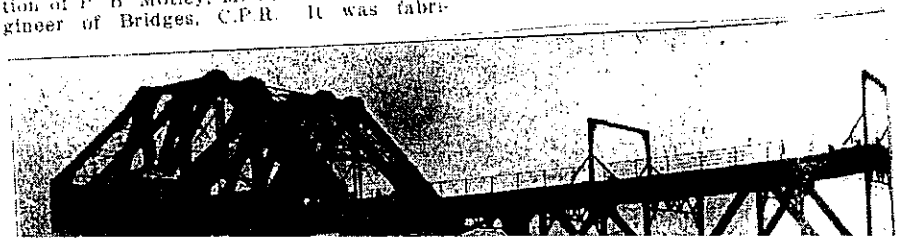
tained from the Kaministikwia Power Co. It has two 85 h.p. motors for raising and lowering, and it is interlocked in such a way that every operation must be performed in sequence, and unless the bridge is actually moving up or down, it is held rigidly in position by a brake operated by an independent 5 h.p. motor.



Kaministikwia River Bridge, Being Opened.

The total weight of steel in the bridge, exclusive of the approaches, is about 2,500 tons. The counterweight weighs about 2,400 tons.

The bridge was designed under the direction of P. B. Motley, M. Can. Soc. C.E., Engineer of Bridges, C.P.R. It was fabri-



October 1913

Kaministikwia River Bridge, Being Opened.

chord, and the end post of the truss (heel trunnion type), and embraces a 186 ft. movable span, giving a clear channel in the river of 180 ft. and a 40 ft. stationary span or tower. The lower deck carries a double track railway, and the upper deck a 30 ft. roadway, on which are two electric railway tracks. The counterweights are separately mounted on trunnions supported at the top of the tower, and the counterweight trusses, which carry part of the highway floor, are connected to the moving leaf through the counterweight links, which are pin connected both to the counterweight trusses and the bascule trusses. There are long approach viaducts on both sides of the river for the electric railway, to enable it to cross the bridge on the upper deck.

The bridge was erected in the open position by means of an erection tower such as is ordinarily used in erecting this kind of a bridge. The placing of the concrete for the counterweight was carried on simultaneously with the erection of the steel, so as to balance the structure at all times. On account of the size of the structure, the available space for the concrete was small, and it was necessary to make concrete weighing as much per cubic foot as was possible. Iron ore was used in place of stone for this reason, and concrete was obtained weighing about 175 lbs. a cubic foot. This concrete has such great tensile strength that most of the reinforcing ordinarily used in these counterweights was omitted. There was occasion to remove some of this concrete afterward, and it was found to be so tough that the only way it could be got out was by blasting.

The bridge is operated by electricity ob-

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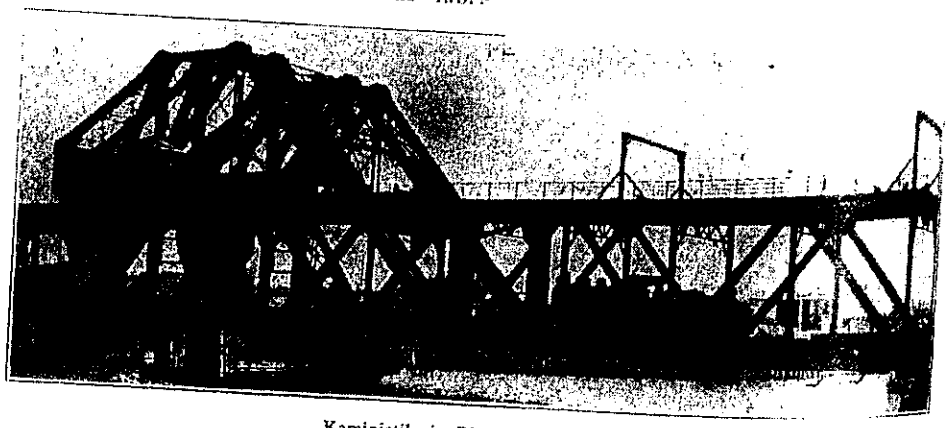

Kaministikwia River Bridge, Closed.

cated in the Canada Foundry Co.'s Davenport works, Toronto, and all calculations in regard to counterweight were worked out in that company's engineering department after the shop drawings were made.

It is said to be the largest double track, double deck bascule bridge in the world.

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