

## Steel Bridge Replacements on Sydney Subdivision, Canadian Government Railways.

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To take care of the heavy power which the management desired to operate on the Sydney Subdivision, C. G. Rys., the work of replacing 16 steel bridges and viaducts on the line between Point Tupper and Sydney was undertaken by the engineer-

The most interesting part of this work was perhaps the replacing of the old spans of Grand Narrows bridge with heavier ones. This bridge, which is across the narrows between the Big Bras d'Or and Little Bras d'Or Lakes, is one of the

of this bridge were replaced with heavier ones during the winter of 1915-16, by the Dominion Bridge Co., which company built the old bridge in 1888. The new swing span is operated by a 4-cylinder, 4-cycle marine engine, located in a cabin



Ottawa Brook Steel Viaduct, showing new steel work in place, and old partly taken down.

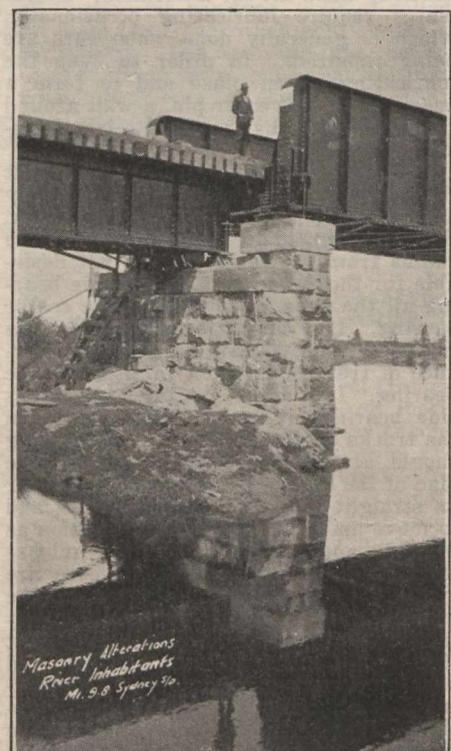
ing department in 1915, and is now completed. This section of the Intercolonial Ry. was built in 1887, and consequently the bridges are of a lighter design than the present day requirements, and are not strong enough to carry the heavy locomotives which it is now necessary to operate, in order to economically handle the great amount of freight going to and from the Sydneys in connection with the large steel works, coal mines and other industries located at these points, and also for trans-shipment by vessel to Newfoundland and other places. It has consequently been necessary for some years past to place speed restrictions on nearly all the steel bridges on this subdivision, resulting in a slow schedule and a loss of much valuable time.

It would be impossible to give anything here but a very brief description of the more important portions of this work. Eight steel bridges were replaced with heavier spans during 1916, including the big bridge at Grand Narrows, necessitating in most cases quite extensive alterations to the old masonry abutments and piers. Two steel viaducts have been entirely replaced with steelwork of a heavier design, on new concrete pedestals and abutments, viz., Ottawa Brook and Walker's Gulch, and 5 steel viaducts have been filled in. This extensive bridge replacement work, involving an outlay of approximately \$750,000, has made it possible to remove the speed restrictions from all these bridges, and during 1916 we removed the restrictions from 10 bridges.



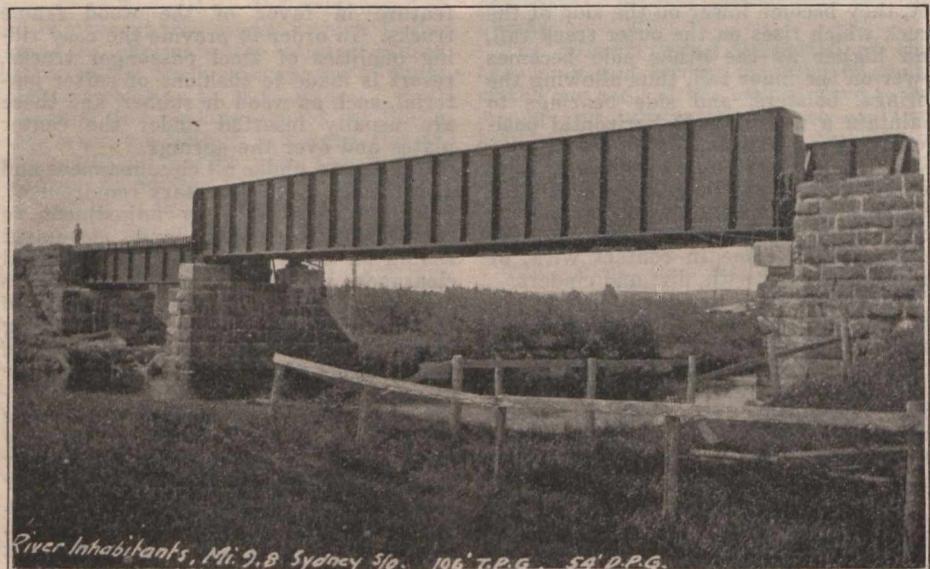
McDonald's Gulch, showing construction of rail concrete culvert, before filling commenced.

objects of special interest to tourists on this section of the C.G.R. It is 1,697 ft. long, or nearly a third of a mile, and consists of 6 through truss spans, each 242 ft. long, and a swing span at the east end of approximately the same length.



River Inhabitants Bridge, showing new concrete bridge seats.

overhead in the center of the span, which will open or close the bridge in one minute. The method of replacing these heavy spans—the new ones weighing almost 400 tons each—was as follows: Falsework was driven near the shore, at the east



River Inhabitants Bridge, showing new spans in place.

The piers are of stone masonry and the highest ones are over 80 ft. above the bottom of the lake. The water is very deep, coming up to within 5 ft. of the top of the piers at high water. All the spans

end of the bridge, and just south of the existing structure. Each new span was erected and rivetted up complete on this falsework. When a new span was ready to go in, scows containing water ballast