NOTABLE BRIDGE CONSTRUCTION IN ONTARIO

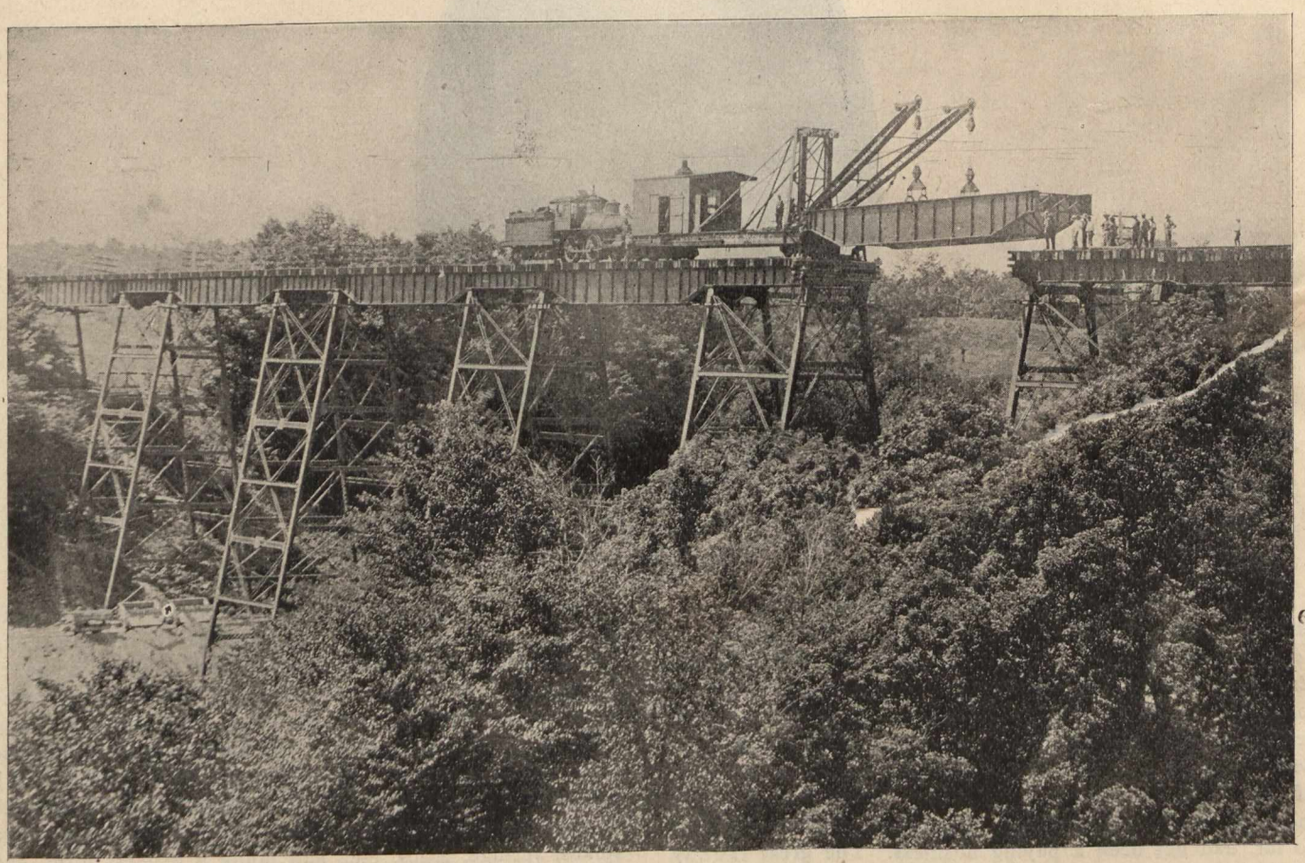
In the spring of 1905 the Canadian Pacific Railway awarded to the Hamilton Bridge Works Company, Limited, the contract to renew the deck plate girder spans, and to remove the towers of two steel viaducts on the main line of their railway, between Leaside and Agincourt, Ontario.

The work consisted of forty-five spans 60, 40 and 30 ft. in length, respectively; and the removing or strengthening of the towers was arranged by putting in heavy intermediate struts between those already in position, and doubling up the bracing.

These viaducts were built about twenty years ago, when traffic was comparatively light. Owing, however, to the increased weight of the heavy engines now in use, the bridges were found to be of insufficient strength to handle the ordinary traffic, hence it was either a case of renewing the bridges entirely, or, to overcome the difficulty by reinforcing the towers and putting in new spans. An important consideration in connection with this work was the necessity of making the alterations and erecting the new parts so as to interfere as little as possible with the regular traffic on the line. Figs. 1 and 2 show how this was accomplished. It will be noted that the work of replacing the girders was entirely done with a self-propelling steel derrick car. The method of procedure was to first rivet up the new spans at one end of the bridge, frame all the ties, and in the case of the 30 and 40 ft. spans, to actually put them in place on the girder. The derrick car would then run out on the bridge, lift out the old span, bring it back and drop it to one side, then pick up the new span, carry it out to the proper place, and drop it into position. This mode of erection was so successfully carried out, that on several occasions 60, 40 and 30 ft. spans were put into place one after the other. On one occasion, two 40 and two 30 ft. spans were placed one after the other, and this work was done without one minute's interruption to the regular freight or passenger traffic on the line. This is the first instance in Canada, known to us, of such heavy girders being lifted in and out of place in this manner; false work being entirely done away with. The bridges are approximately 120 ft. above the bottom of the ravine, and extra precautions were taken during the progress of the work to avoid accidents, such as placing signal men at proper distances from each end of the bridge, etc.

The Canadian Pacific Railway expressed themselves as being exceedingly pleased with the operations in connection with this work, and have placed an order with the same company to renew and reinforce their other two trestles between North Toronto and Leaside Junction.

When the magnitude of this work, and success achieved is considered; when it is recollected that thousands of rivets in the towers had to be cut out and thousands of new holes drilled, and new rivets driven, it is astonishing that no accidents of even a minor nature took place, and certainly reflects great credit on the engineering staff of the company, and erection foremen in charge.



The Donlands Viaduct, Near Toronto.

The work was under the supervision of W. F. Tye, chief engineer; C. N. Monserrat, bridge engineer; and A. L. Hertzburg, division engineer: all of the Canadian Pacific Railway Company.

This is undoubtedly one of the best pieces of erection work that has been carried out in Canada, and considering the difficulties, the success was very remarkable. Many railway engineers, who travelled from various parts of the country to see the work going on, have stated that the work was deserving of great credit.

The first electric tramway built in Japan was the line, eight miles in length, which was opened in Kyoto in 1895. Since then other cities of importance have built electric tramways, and there are now seventeen companies with an aggregate capital of 36,000,000 yen ($18,000,000), whose lines already opened aggregate 120 miles, with 85 more building.

Up to 1840, there were no iron bridges in the U. S. A., except suspension bridges, in which iron links were used in the cables and suspenders, the floor system being of wood. The first bridge in America consisting of iron throughout was built in 1840 by Earl Trumbull over the Erie Canal, in the village of Frankfort, N.Y.