

searchlight, it was possible to sweep the seas, and when an object such as a submarine came within the beam the sound waves were reflected and echo effects were produced. Prof. McLennan says that the echo method can be used for ordinary sounding as well as for locating icebergs, surface vessels, and rockbound coasts in a fog. The directional wireless can also be used to give the position of ships in the North Atlantic, when they are prevented from getting it by fogs or bad weather. The Admiralty, in consequence of these developments and of what they promise, proposes to establish a research and experiment department to increase the efficiency of the navy, and also to provide aids to navigation for the mercantile marine. The expense will be heavy, but Prof. McLennan says that if it prevents two or three wrecks per year, or lowers the time of the voyage between Great Britain and Canada on the average by one day per voyage per ship through the fog-covered areas in the neighborhood of Newfoundland sufficient will be saved in a year or two to cover the whole cost.—Toronto Globe.

### Trent Valley Canal Construction.

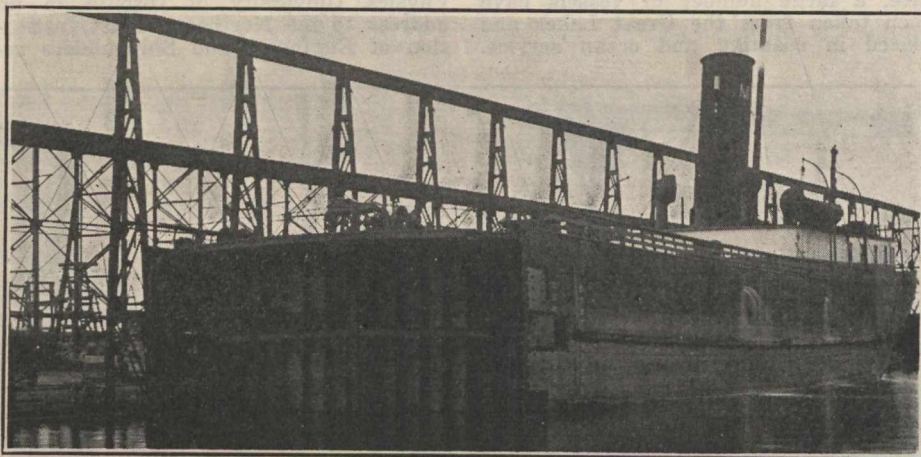
The route of the Trent Valley Canal as now in operation and under construction lies between Trenton, on the Bay of Quinte, where direct connection is made with Lake Ontario, and Honey Harbor, on Georgian Bay, from which port the waters of the upper great lakes are at once accessible. The portion of the canal now under construction lies between Lake Couchiching and Georgian Bay.

The Railways and Canals Department report for the year ended Mar. 31, 1918, contains the following in regard to the

will have cost slightly over \$5,000,000.

The Severn Division includes the portion between Lake Couchiching and Port Severn, on Georgian Bay, a total distance of 43 miles. In this distance there will be included 4 miles of canal,  $5\frac{1}{4}$  miles of subaqueous channel, and  $33\frac{3}{4}$  miles of deep river and lake navigation. The rise of about 139 ft. between the level of Lake Huron and that of Lake Couchiching will be overcome by

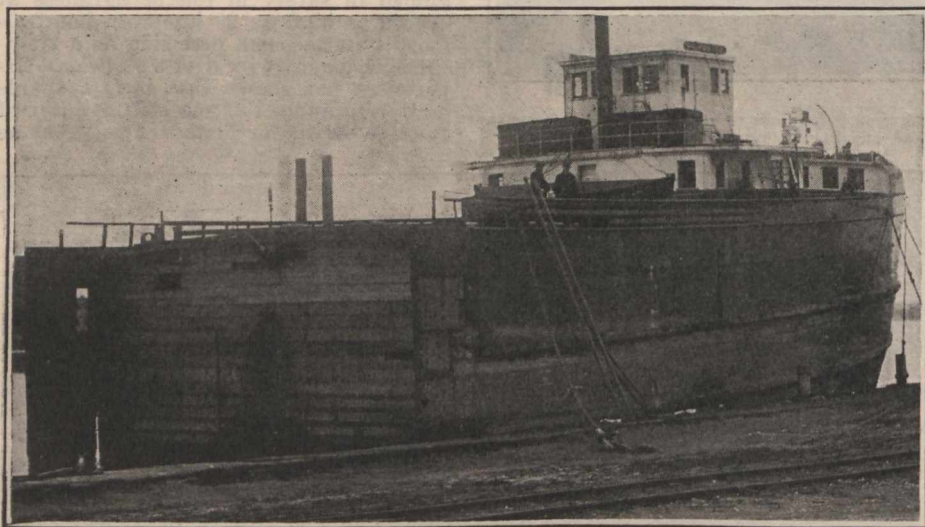
construction of the Canadian Northern Ry. bridge at Ragged Rapids. The dam at Pretty Channel was completed towards the close of 1915. The dam at Swift Rapids was completed near the close of navigation in 1917. Since the completion of this dam, the elevation of the water in the river between Swift Rapids and Ragged Rapids has been raised  $47\frac{1}{2}$  ft. The power house at this point has been completed and all machin-



Aft section of steamship Paipoonge afloat.

5 locks. For the regulation of the river levels, 15 dams will be required. The route of the canal will be crossed by 8 steel bridges, 5 for highway and 3 for railway traffic. Five of these bridges will be fixed spans, and the remainder swing spans. For construction purposes this division has been subdivided into 4 sections or contracts known as sections 1, 2, and 3, and the Port Severn section.

ery installed, and it is expected that the plant will be in operation within a few days. Work on the lock has been proceeding satisfactorily. The excavation for the lock pits is about completed. The concrete work of the lock and the entrance piers is now about two-thirds completed. The upper entrance piers, breast wall and gate recess walls have been finished, and work on the side walls is well advanced. The swing span of the bridge at Washago for the crossing of the Canadian Northern Ry., was completed during the year. The girder approach at the west end has not yet been erected, and the completion of the railway diversion on either side of the bridge has been delayed for want of rails. No further work was done on the substructure of the Ragged Rapids bridge. Section 3, about  $15\frac{1}{4}$  miles in length, extends from the easterly end of section 2 to deep water in Lake Couchiching. The contract for the work to be undertaken includes the construction of a lock just north of Lake Couchiching, 2 highway swing bridges, 1 railway swing bridge, and several small dams near Washago, as well as a large amount of rock and earth excavation. Owing to the conditions resulting from the war, a surrender of the contract was effected. Of the total amount of work to be performed under the contract, a little more than half has been completed. Of the work thus far carried out, the following items are among the more important: The excavation for the Couchiching lock is practically completed, and the concrete work on the upper entrance piers, breast, and recess gate walls is well advanced. The dredging of the channel in Lake Couchiching is nearly completed. The canal cut across country, from the Muskoka Road bridge to the river, is well advanced. The highway bridge at Muskoka Road is completed and now in use. The construction of the pivot pier only at the Hamlet Highway crossing of the canal has thus far been carried out. The swing bridge for the crossing of the Canadian Northern Ry. is complete, except for the fixed spans at the west.



Fore section of steamship Paipoonge afloat.

work: The portion of the canal which lies between Trenton and Rice Lake is practically completed; the extent of the canal in operation or ready for operation may therefore be stated as about 200 miles, or between Trenton and Washago. In addition to this, other channels maintained would approximate 90 miles.

The Ontario-Rice Lake Division includes the canal which lies between Trenton and the easterly end of Rice Lake, a total distance of  $56\frac{1}{2}$  miles. This section is now practically completed, and will be opened for traffic early next season. (Note. This has been done.) The entire work when fully completed

Section 1 is not yet under contract, and it is not likely that tenders on it will be called for until after the close of the war. The work to be undertaken will include the reconstruction of 3 locks and 2 regulating dams, and will extend from deep water in Georgian Bay, near Island No. 181, 17 miles easterly, to a little above the Big Chute near the mouth of the Severn River. Section 2, now under contract, extends from the Big Chute to above McDonald's Rapids,  $11\frac{1}{2}$  miles. The work included in the contract comprises principally the construction of a dam at Pretty Channel, a dam, lock, and power-house at Swift Rapids, and the re-