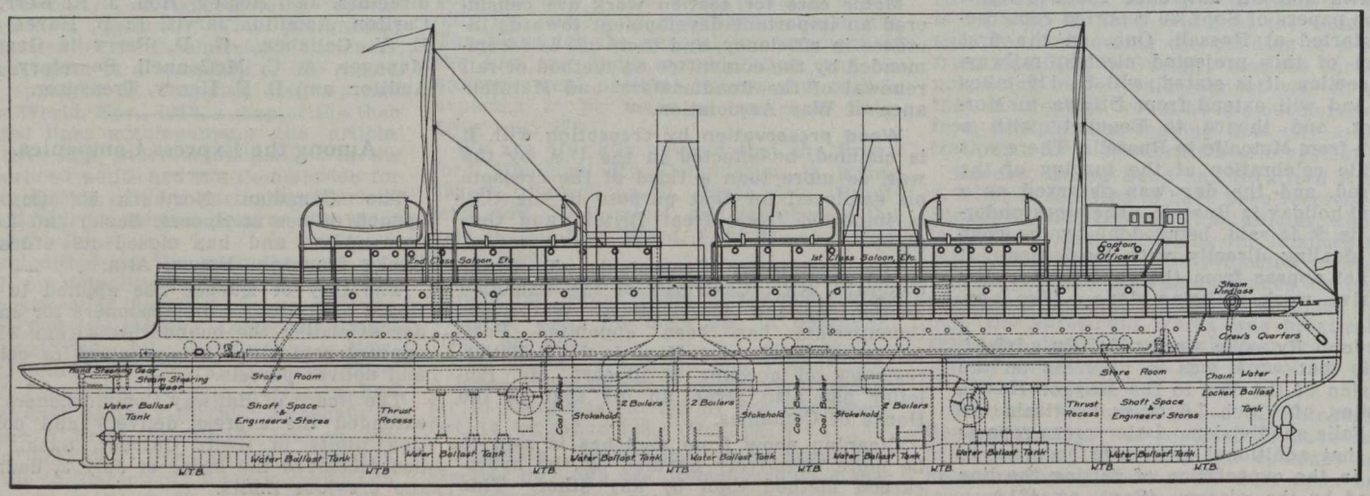
Marine Department

Car Ferry Steamship for Prince Edward Island Service.

As stated in Canadian Railway and Marine World for October, Sir W. G. Armstrong Whitworth & Co., Ltd., wrote us Aug. 31 that they had had to inform the Dominion Government that the launching of the Prince Edward Island car ferry had been indefinitely postponed, as the machinery had had to be put on one side to enable them to execute urgent Admiralty contracts for turbine machinery, which had to be completed with all speed, to the exclusion of everything else. Conditions, however, soon changed, as a London cablegram of Oct. 5 stated that the vessel was launched at Newcastle-upon-Tyne that day, Mrs. G. H. Perley, of Ottawa, wife of the acting High Commissioner for Canada in England, having performed the christening, the name chosen being Prince Edward Island. The builders presented Mrs. Perley with a silver model of the vessel. Earl Grey, ex-Governor-General of Canada, and Hon. G. H. Perley spoke.

The new vessel is an extremely interesting one and differs to some extent from anything of her class that has yet been produced. She is designed in accordance with the experience gained by the firm in building a number of icebreaking steamers now in use in the Baltic Sea and on Lake Baikal, on the Trans-Siberian Ry., and approaches to some extent the Russian icebreaker Ermack, although she is not such a powerful vessel. The governing principle in designing such vessels is to provide as far as possible against the nip of two approaching ice floes, a principle which was exemplified in the construction of the Fram, in which the Norwegian explorer, Nansen, drifted across the higher latitudes of the Arctic Ocean, and this principle has been adopted as far as possible within the limits of the present design. The ice conditions which this car ferry will be called upon to cope with are severe, although not of the same order of magnitude as those which have been successfully overcome in the Baltic Sea.

She is designed and built for the special service of transporting trains across the Northumberland Strait from Cape Tormentine, N.B., to Carleton Point, P.E.I., at all seasons. This passage is frozen over for some months in the year, and provision has had to be made for breaking ice which will probably attain a thickness of some 3 or 4 ft. This severe duty has formed the governing factor in the design, both as regards the form and scantling of the hull and the power and arrangement of the propelling machinery. The icebreaking ferry steamers of the Canadian Lakes and the railway ferry steamer Baikal maintain a constant connection between their stations through ice up to 4 ft. thick, as well as occasionally meeting and breaking through drift ice which may be piled up by the wind to nearly 20 ft., so that the problem to be solved, although it differs in many respects from any that has yet been attempted, does not in general principle present any insuperable difficulty. A well designed icebreaker should be capable of forcing a passage through ice of almost any thickness which is likely to be met with in these latitudes, provided of course that the ice has not grounded, but the exigencies of railway service, such as the deck area that is required for transporting, embarking and disembarking passenger or freight cars makes the combination of the best icebreaking form, and suitable ferry accommodation very difficult to attain in a vessel of comparatively small dimensions.



Car Ferry Prince Edward Island.

The principal dimensions of the s.s. Prince Edward Island are: Length over fender 300 ft.; length between perpendiculars 285 ft.; breadth extreme over fenders 53 ft. 10 ins.; breadth moulded at deck 52 ft.; depth moulded 24 ft. The mean draught of water when laden with gross weight of cars and freight of 500 tons, together with 150 tons of coal and stores, is 18 ft. The general arrangement of the vessel is shown by the accompanying plans. It has an upper or railway deck with a superstructure in which is provided accommodation for passengers and officers. The cars will be run over a hinged gangway at the after end of the vessel on to the railway deck, and will be secured in position by suitable appliances so as to avoid any chance of breaking loose in a rough sea.

A feature of the vessel is the arrangement of the propelling machinery. There are three sets of triple expansion engines working at 180 lbs. pressure, with Howden's forced draught. Two sets of engines drive twin screws fitted as usual at the stern, and a third screw at the bow. Icebreaking steamers to be effective must have considerable manoeuvring powers, as they have often a very small space in which to work, and for this reason the twin screw arrangement is advisable. The bow screw is not introduced for speed purposes, as it is generally known that a propeller in this position has very little propulsive efficiency, but when used for disintegrating packed ice it is very effective, and in disturbing the water under the ice, thus depriving it of its support, and so reducing its resistance to crushing so that the overhanging bow of the vessel can cut its way through without experiencing either the shock or resistance to which the older type of icebreaker was constantly exposed, and very often failed to overcome. The bow screw will also be very useful when the vessel is going astern or being manoeuvred alongside the landing pier, and for driving the vessel astern when working in heavy ice.

The after propelling machinery is of 5,000 i.h.p., the forward set 2,000 i.h.p., and is capable of propelling the vessel at 14 knots an hour in open water. The propelling machinery is of the inverted direct acting triple expansion type, the after engines having cylinders 23, 37 and 60 ins. diar. with a stroke of 39 ins., and the forward engines cylinders 21, 33½ and 54 ins. diar. with a stroke of 36 ins. Steam is supplied by six boilers 16 ft. diameter by 11¾ ft. long, of the usual single ended type, fitted with Howden's forced draught, and with a heating surface of about 16,500 sq. ft. There are four funnels placed at the sides of the vessels so as to give a clear train deck. Fore and aft tubular stays and cross lattice stays are fitted for binding the funnels together.

The hull is exceedingly strong and heavy. The stem and stern consist of heavy steel castings, which concentrate on a small space the momentum of the vessel and so give the maximum striking power. The frames are very closely spaced and the hull has been specially designed to give great strength to the railway deck, on which the trains will be run. A belt of flush plating some 12 ft. deep and 1 in. thick extends from stem to stern at the waterline and generally speaking every constructional detail has been worked out so as to offer the greatest resistance to ice