

# Marine Department.

## Dominion Hydrographic Survey Steamship for Atlantic Coast, Hudson Straits and Bay.

A preliminary description of this vessel was given in Canadian Railway and Marine World for July, an illustration of the profile was published in the August issue, and the letting of the contract for construction at Wallsend on Tyne, Eng., was announced in the October issue. Following is a more complete description:—

Owing to the conditions that will be encountered in surveying Hudson bay and straits this vessel has received special attention in design to meet the severe ice conditions under which she is likely to operate, and in determining the type of ship this had also a considerable influence and it was deemed advisable to depart from the two recent vessels designed for the above department, consequently a spar deck type was considered advisable. Also, to meet the severe conditions referred to, it was decided to build her along the lines that practice has determined as being most suitable for the ice boats in operation in Newfoundland. The bow or forefoot will therefore be well cut away and well rounded at the bottom where the plates are moulded into the stem, giving quite a spoon effect to the lower part of the forefoot so that the boat could easily ride over or upon the ice obstructions.

In frame this vessel will be considerably heavier than required for classification in Lloyds 100 A1, and the half length forward will not only be considerably heavier in frame, but the frames will be spaced much closer together. From one third the length abaft the stem the frames will be only 16 ins. apart. From there to one half the length they will be 18 ins. apart, and the balance the usual pitch determined by Lloyds.

It was considered desirable to considerably increase the plating of the forward end of the ship. Consequently all plating for the forward half length will be twice as thick as that called for by Lloyds, and the two strakes at the water line will be twice as heavy as that demanded by Lloyds for the full length, it being assumed that after the bow has broken up the ice, that in its travel aft these two upper strakes should be protected. In fact, the designer, after a visit to St. Johns, Nfld., felt satisfied that she will be in every way suited for the purpose intended.

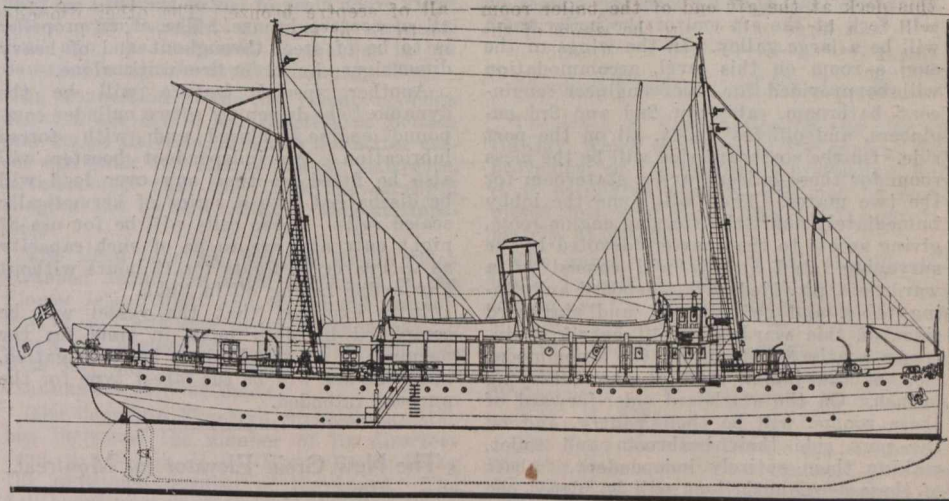
It was decided to maintain a very minute water tight subdivision. Consequently this boat could easily flood two or more of her compartments and still be perfectly seaworthy, a condition, however, that would not very likely occur. Notwithstanding, in as much as she will operate so far from her base it was considered advisable to take no chances. In her ability to meet and pass through large floes of field ice she will have very few equals.

The type of boat adopted, as before stated, is a shelter deck ship built of steel throughout, with scantlings practically twice as heavy as required by Lloyds. She will have a straight stem and elliptical stern, with two pole masts of wood, equipped with a full outfit of sails and all necessary standing and running rigging. The forward end of the spar deck will be specially stiffened from the stem to back of the breakwater, and under the windlass and cables special

teak beds will be provided, and in addition this deck will be specially stiffened by extra pillaring to the main deck. The star deck will be steel plated throughout, and then covered with Oregon pine with teak margins. The main deck will be plated amidships over and around the machinery spaces and then laid with Oregon pine. The orlop decks will be plated and all caulked water tight, so that if these orlop decks are considered as tank tops there will be a double bottom throughout her complete length, although what is usually understood as double bottom will extend only from the aft engine room bulkhead to the forward bunker bulkhead. This space will be divided into three compartments transversely and then subdivided longitudinally by the centre keelson, making practically six separate water tight compartments. To carry the watertight subdivision to a further point the longitudinal bunker bulkheads in both engine and boiler spaces will also be watertight.

On the boat deck will be stowed two 27 ft. gasoline launches of a type that has been demonstrated by the Canadian Hydrographic Survey as most suitable for this work. The engines used in these launches will be the standard of New Jersey. Abaft of the launches will be stowed two 27 ft. cutters, also specially equipped for surveying service. These launches and boats will be swung in and out by a complete outfit of Welin davits and chocks.

On the spar deck will be placed the usual steam windlass and abaft this a deep breakwater to throw over any water that she may shed. Then will come a spacious chartroom, the sailing master's bedroom and day cabin, and the coxswain's storerooms, and abaft the engine and boiler casings a wireless office and a stateroom for the wireless operator. On the aft end of this deck will be a complete sounding outfit, including a deep sea sounding donkey, and on the port quarter aft will be a specially designed steam driven sounding machine and on the



Dominion Government's Hydrographic Survey Steamship for Atlantic Coast, etc.

The vessel over all will be 182½ ft. long; length between Lloyds perpendiculars, 170 ft.; beam moulded, 33½ ft.; depth moulded to upper deck, 13½ ft.; displacement on mean draft of 11 ft., 1,050 tons, with 250 tons of coal on board and 60 tons of stores and water; speed on the above displacement 12½ knots for a 10 hours continuous trial.

On the boat deck will be placed the pilot house, to be heavily built of teak and the interior lined in quarter oak and the house then bolted by a series of sceptre bronze bolts to the chart house. On the top of the pilot house will be the standard compass, and owing to the dip of the compass in the northern latitudes in which this vessel will operate it is specified that no iron work shall be nearer this compass than 18 ft., and to fulfil this requirement it was found necessary to make the greater portion of the chartroom of sceptre bronze, which possesses very remarkable qualities as it is found that the galvanic action that usually takes place between bronze and iron in sea water in this case is at a minimum, and is practically a negligible quantity.

starboard quarter a submarine sentry. On this deck also will be placed the small dinghy for ship's use, and on the port quarter aft this dinghy a sounding platform and two additional sounding platforms under the bridge at this level, one port and one starboard.

Immediately abaft the engine hatch will be a powerful steam winch, for warping ship and in addition for handling the falls of the boats and launches.

It is expected that when this vessel proceeds north for her season's work, she will carry quite an extensive outfit, and to handle this outfit there will be three pairs of extra davits on the spar deck and two 3½ ton cargo booms, one to the mainmast, one to the foremast.

Special reference should be made to the chartroom, which will really form the ship's workshop. In it after the several boats have done their day's work, will be plotted the results, on a preliminary chart. Consequently it has received special attention. In the centre of the room will be a large chart table under which will be a lot of drawers for stowing the complete and in-