low the water pressure from above to swing down the other gate, allowing the water from the upper reach to fill the lock with a rush, causing damage. This difficulty has been minimized by the use of safety appliances which maintain the gates in an interlocked position even when bumped, but the danger still exists if a gate receives a sufficiently hard bump. With a single leaf gate, it is believed this trouble cannot be experienced, as even if the gate is opened slightly, the pressure will force it back to its seat.

The gate at the foot of the lock will be 83 ft. high and 88 ft. long, and will weigh in the neighborhood of 1,100 tons; the gate at the upper end will not be quite as deep. The gates will swing from a hinge set into one wall, and will swing across against a recess cut in the opposite wall. The gates will not swing into a position square across the lock, as it was found that by making only a slight increase in the length of the gate, the outer end might set 23 ft. forward of its square position, reducing the length of movement of the gate, with a consequent reduction in time of operation. The gates are to be electrically operated, the details of which are as yet to be developed. The tremendous size of the gates and the character of their construction will prove an effective stop for vessels that are beyond control. In addition to this protective construction, there is to be a chain fender across the lock above each gate, fitting into a recess in the lock walls. Below lock 1 there will also be guard gates.

The danger from vessels ramming the gates when passing into the lock from below is eliminated in this design of lock on account of the great lift in each lock. It will only be possible for a vessel to ram the upper gate when the lock is nearly full, when the danger resulting would be at a minimum on account of the nearly equalized pressures. Practically the only occasion on which a vessel will be liable to ram the gate will be when it is entering the lock. As the vessel enters, at the upper end of the lock there will be a wall 16.5 ft. high presented to the vessel, the sill of the gate above being that much above the lower level. The bump, if any, would be received by this wall.

The natural flow of surplus water from the upper reaches of each lock will be provided for by a double weir adjoining each lock. These weirs will be of concrete construction. To minimize the excavation work, the drop through the weirs is divided into two parts, the first of 29 ft., and the second of 17.5 ft. As the construction of the weirs will not involve considerable excavation, as just explained, a rock foundation for the weirs is not presented. In consequence, the weir will be built on a sheet piling foundation, spreading over a width of 80 ft. at the upper, and 65 ft. at the lower weir, to give the requisite bearing area.

The surveys for the new canal were made under the direction of J. L. Weller, M. Can. Soc. C.E., Engineer in Charge, who also prepared the plans, etc., and to whom we are indebted for the data for this article.

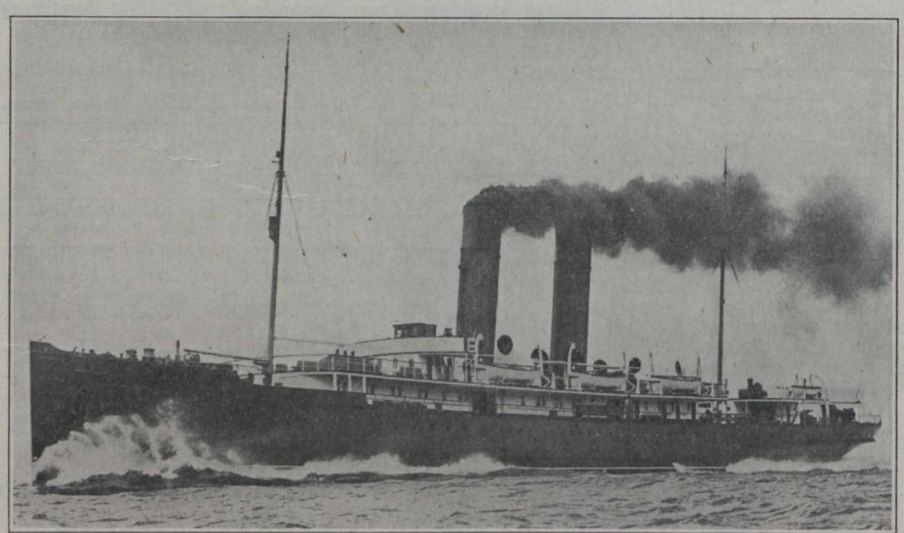
The Western Steamship Co.'s s.s. Wexford, which went aground near Lime Island, Aug. 15, was released on the following Sunday. Some temporary repairs were undertaken which enabled her to proceed to Goderich to discharge her cargo.

Turbine Steamship for Canadian Pacific Railway Bay of Fundy Steamship Service.

In a previous issue of Canadian Railway and Marine World, it was announced that the C. P. R. had acquired, from the Great Western Ry. of England, the s.s. St. George, which it intends to operate between St. John, N. B., and Digby, N. S. The St. George has been operated for the past six years, between Rosslare, on the southwest coast of Ireland, and Fishguard, in South Wales, in conjunction with two other vessels of similar type, forming a connection between the Great Southern Ry. of Ireland, and the Great Western Ry. of England. She was built at Birkenhead, Eng., in 1906, and has the following principal dimensions: Length, between perpendiculars, 350 ft.; breadth of beam, 41 ft.; depth moulded to main deck, 17ft. 8 ins.; and to shelter deck, 25 ft. 11 ins. She is built of steel, and special attention was paid to the strength of the scantlings, which are above the average for vessels of this type. The hull is divided into nine watertight compartments.

The propelling machinery consists of three sets of turbines, the high pressure turbine being on the centre shaft, and one combined low pressure and astern turbine on each of the wing shafts. The propeller shafting is of steel, turned all over and supported by plummer blocks, two to each length of shafting. The propellers are of the solid type, of manganese bronze, polished all over to reduce friction to a minimum. The condensers are placed alongside the after ends of the low pressure turbines, and are of steel plates with brass ends and doors, the cooling surfaces being composed of solid drawn brass tubes. Each condenser is connected to one of the low pressure turbines by a large rectangular steel eduction pipe, and the cooling water is supplied to the condensers by two large centrifugal circulating pumps, so arranged that either pump may supply either, or both, condensers. Pumps are also supplied for the forced lubrication of the bearings, and for water service purposes, and there is a full complement of bilge, sanitary and fresh water pumps. There are eight single ended, return tube boilers, suitable for a working pressure of 185 lbs. a sq. in. They are divided in two boiler rooms with a common stokehold to each four boilers. The two funnels are elliptical in section, and are 75 ft. high above the level of the firbars. The boilers are worked under Howden's system of forced draught, and the air is supplied by four motor driven fans in a special fan room amidships. An electrical ash hoist and ash ejector are fitted in each boiler room. The thermo-tank system of heating and ventilation is provided throughout the vessel, and a complete system of electric light, with two engines and dynamos, capable of developing 150 kilowatts, is also installed. The steam steering gear is placed on the main deck, and is of the latest type with single control valves and telemotor gear from the wheel house on the flying bridge and from the after bridge.

There are four decks, viz., boat, shelter, main and lower. On the boat deck are located the captain's room and chart house, the flying bridge and six lifeboats, the remainder of the space being utilized as a promenade for first class passengers. The shelter deck, which is divided as promenade space for first and second class passengers, has state rooms and public rooms for first class passengers. The main deck is chiefly occupied by first-class accommodation, the main entrance being from the shelter deck. The general design and panelling are in polished teak, and the floor is laid with locked rubber tiling. The drawing room, about 50 by 21 ft. and 9 ft. high, is decorated with West India satinwood panels and framing with inlaid bordering, and the ceiling is in panels of lincrusta, painted and decorated. The furniture is of dark mahogany, and the floor of parquetry. At the forward end of the room there is a large electric heater enclosed in a brass grille. The smoking room is panelled in oak with fumed oak framing, and the floor is of parquetry. The dining saloon is forward, and has accommodation for 90 passengers arranged at small tables. The decorations are in Hungarian ash and satinwood. The couch seats round the dining saloon are so arranged that in case of necessity, they may be converted into berths. The state room accommodation consists of 47 rooms on the shelter, main and lower decks, providing berths for 150 passengers, in two and four berth apartments. The total number of berths for first class passengers is 210, including those in the dining saloon and ladies' rooms. The ladies' retiring room is on the main deck



Canadian Pacific Railway s.s. St. George.