

end of main hold, 2 in & separating lower holds, 1 after end of main hold, 1 after end of engine-room, & 1 at stern pipe stuffing-box, 7 in all; also partition of sufficient strength for coal bunkers, & a partition between engine & boilers, with all necessary sluices, valves, tunnels, doors, & slides, fitted complete to B. of T. requirements.

Shaft tunnel to have water-tight sliding-door from engine-room, large enough to admit engineers to attend to shafting, stools for shaft-bearing blocks to be carried down & connected to ship's floors; thrust stool to be immediately abaft the bulkhead, & to be heavy plated & closely riveted. The tunnel to be made strong & water-tight on account of the after ballast & trimming tank running at each side & over it, & to be roomy as possible for handling the extra heavy shafting, & fitted with all necessary appliances for lifting the tail shaft.

Platforms for two small guns, 1 forward & 1 aft, to be properly arranged on deck.

Deck house to be built of $\frac{1}{4}$ in. steel plate with iron angle frame, hardwood door casings & doors. The deck to be of narrow white pine $1\frac{1}{2}$ in. thick, tongued & grooved, put together with white lead, covered with heavy cotton duck, fastened on with copper tacks. Frames on each side where required to extend to the rail & form skids for boat chocks, to have scuppers on each side of 1 in. lead pipe running inside wood finish to deck. Inside of deck house to be fitted with saloon, state rooms, engine-room, stokehold entrance, galley, pantry, steward's room, purser's office, engineers' & officers' rooms, mess-room, lavatory & w.c.'s, also aft of engine room a purser's room, lamp room, & smoking room. The top of the deck house to project over sides or eve 1 ft., to prevent the water dripping in over doors & sidelights. House to extend from the fore hatch as far aft as may be required to give the required accommodation. To have strong-hinged glass sidelights of heavy plate glass. To have galvanized iron railings round top of deck house where required. Wood top rail on account of frost.

Smoking room to be fitted up in after end of deck house, with door on each side. Seats round sides to be cushioned and strongly upholstered. Copper heating pipes all round under seats, & radiator in centre.

Bridge house and pilot house to be on forward end of deck house abaft the bridge; to have heavy plate-glass look-out windows all round forward & aft; to be finished in hard wood, & as large as the space forward of funnel will allow, with room for steering wheel, steering compass, 2 engine rooms, telegraphs, signal code, chart table, & officers' lounge; also steam heating pipes; to be fitted with doors on each side to reach the bridge shortest way, and a stairway to saloon without going out to main deck; to have brass hand rail where required. Captain's cabin to be in after end of pilot house.

The officers' bridge to be strongly built of galvanized angles, with necessary ladders; bridge to extend from side to side over top of deck house, with brass railing over same and around pilot house, the whole to be well secured to deck house & deck. House to be built of oak or teak.

Accommodation for seamen & firemen, separate, to be arranged under fore-castle deck, space for 24 men, finished in a good strong manner, with berths & lockers for each, one folding table on each side, a sufficient number of side lights, fitted, to be of strong brass, having hinged cast-iron galvanized plugs, glass of best plate, 1 in. thick, as many as required, handles & double screws, a w. c. & urinal on each side, all to be well ventilated as required; also fitted with steam heating pipe on both sides.

Six pairs of strong davits to be placed where required. Four boats with equipments, etc., complete to B. of T. requirements.

To have steam & hand-steering gear placed as required; steam steering engine to be fitted forward of engine room. Particular attention to be given to have the steering gear, in every detail, made in the best possible manner to secure strength. Engine to be large size approved.

Saloon & staterooms to be in the forward end of the deck-house. Saloon to forward of amidships in deck house, from side to side of house. A ladies' cabin to be arranged & neatly furnished, on the port side, forward of the ladies' cabin, to have a large clean linen locker, & 3 staterooms on port side. On the starboard side next to saloon to be an extra fitted stateroom for bridal parties, then 2 staterooms, staircase to captain's room, linen locker, & 2 more staterooms. All staterooms to have 2 berths & cushioned seat full length of room, neat cabinet washstand to close up.

Messroom to be neatly finished and fitted. Pantry to be fitted up in the best manner. Galley to be supplied with cooking range & utensils large enough to cook for 75 persons.

Two closets for crew fitted forward, 2 for officers on main deck, & 2 closets fitted aft, 2 urinals on deck, all supplied with galvanized iron salt water tank, connected with sanitary pump worked from main engines, also by hand; discharge pipes through ship's side to be extra thick of lead with storm valves; scuppers supplied where necessary, as per Board of Trade requirements, with brass gratings; one bath-room fitted complete.

After cabin to be fitted up plainly in 'tween decks aft; rooms, berths & seating for pilot, carpenter, boatswain, watchman & others; entrance by stairway at after end of smoking-room in deck house.

All steam & heating pipes to be made of copper, all pipes to have sufficient bends to allow for expansion & contraction; all joints to be made on the most approved plan, to be arranged & carried inside as much as possible away from the weather & frost.

The ship to be wired throughout for electric light; dynamos & all necessary electrical apparatus provided; to run 150 sixteen c. p. incandescent lamps and 1 large searchlight; the searchlight is to be fitted on main deck forward.

The heating arrangements of the cabins, officers' rooms, pilot house, & captain's cabin to have double the capacity usually furnished to steamers in the coasting trade; all steam pipes to be copper, & exhaust connected to tank in stokehold.

Engines to be direct-acting, surface-condensing, tri-compound engines, with 3 inverted cylinders fore & aft over crank shaft secured to sole-plate by 3 strong cast iron columns at back & polished wrought-iron columns in front, with all the latest improvements, & of sufficient power to maintain a speed of 15 knots at sea in ordinary weather.

Crank shaft of Siemens-Martin steel, of sufficient increased size to give the required strength. To be built & made in parts, all interchangeable.

Tunnel and propeller shafts to be made of the best selected scrap iron, of the increased size required; tunnel shaft rough turned all over, solid couplings truly faced & bolted with 6 heavy bolts each, sufficient bearings provided, built extra strong, blocks to have white metal strips cast in them. Propeller shaft to be of proportionate size, lined in wake of stern bush & gland with gun metal $\frac{3}{4}$ -inch thick, to have suitable feather & nut, to secure propeller boss.

An evaporator to be fitted up in engine-room of sufficient size to supply not less than 15 tons a day.

Propeller to have cast steel boss, & 4 portable blades of Forsyth & Miller's cast malleable iron annealed, to be carefully fitted & firmly secured to boss with longitudinal key & Muntz metal studs & brass-capped nuts with safety bolts to approved plan, 4 spare

blades & a full spare set of nuts & bolts, all fitted to boss. The propeller to be of sufficient diameter & suitable pitch to drive vessel the guaranteed speed, $15\frac{1}{2}$ knots. End of shaft to be capped, & all bolt-ends & nuts to be carefully covered with cement.

To have 2 double-ended cylindrical return tubular boilers to be fired in the latest & most approved manner. Plating & stays of Siemens-Martin steel, & boiler to be of such dimensions as to supply a constant full pressure of steam, at 160 lbs. a square inch, & to give the vessel & maintain the required speed; back combustion chambers to have back plates and water spaces. The boilers throughout to be constructed in the best manner, according to & to comply with B. of T. rules, & to be tested with cold water to twice the working pressure.

Donkey boilers fitted in stokehole. To be larger than usual, so much steam being required for heating purposes, & to have all required connections.

The engines & boilers, & entire machinery, to be upheld for 3 months from date delivery is taken. Any defect in material or workmanship during that time to be made good by & at the expense of the builders. Such cost, however, not to exceed what the work could be executed for on the Clyde.

Richelieu & Ontario Navigation Co.

The steel hull of the steamer Toronto, which this Co. is building in Toronto, to run between Toronto & Prescott, was launched June 21, being christened by Mrs. Forget, wife of the President of the Co. The launching was witnessed by a large number of guests on the steamer White Star. The following is a detailed description of the steamer, as she will appear when completed.

The hull is of open hearth steel, & of the following dimensions: Length over all, 278 ft.; length, keel, 270 ft.; beam, moulded, 36 ft.; beam, over-guards, 62 ft.; depth, moulded, 14 ft. The engines are of the triple expansion, inclined jet condensing type; cylinders, 28, 44 and 74 ins. by 72 ins. stroke. The feathering paddle wheels are 22 ft. outside diameter, & $10\frac{1}{4}$ ft. face of bucket. The air & feed pumps are attached to & worked from main engine. The boilers are 4 in number & are of the return tubular type, 11 ft. diameter, & $11\frac{1}{2}$ ft. long, over heads. Each boiler has two $41\frac{1}{2}$ ins. outside diameter, suspension furnaces. The boilers are fitted with the hot draft, & are designed for a working pressure of 176 lbs.

Spacious & elegant passenger accommodations are provided, 140 staterooms, including 4 parlor rooms & large Pullman sleeping cabin, furnish sleeping accommodation for 430 passengers. The dining room, placed on the upper deck, has seating capacity for over 100.

The interior finish & decorations of the spacious halls & deck saloons are most elaborately executed, the main & gallery saloons being finished in Francis I. Renaissance style, with the dining rooms in Louis XVI. The entrance hall is decorated in Neo Grec, with modern Renaissance details, with the smoking room in Oriental treatment. The refreshment & writing rooms will be in Elizabethan panelling of prima-vera, natural wood finish. The main staircases are in Honduras mahogany, with wrought metal balustrades, in hammered leaf work, finished in antique bronze, the main newels carrying bronze figures supporting electric torches.

A 700-light electric light plant, with ornamental electrolliers, in carbons, furnishes light throughout the steamer.

The upper works & machinery are now being rapidly proceeded with & it is said the vessel will be ready for her trial trip during August, though it is hardly likely she will be put on the route this year.