

direct to a covered promenade on the shelter deck, will be second class entrance and lounge, which in turn will lead to the second class saloon. These rooms will be fitted in a large, airy deckhouse about 50 by 48 ft. and 9 ft. high, lighted on three sides by large plate glass windows. At the aft end of the shelter deck, isolated from the first and second class, a large covered airing space for Asiatic steerage will be provided. The hospitals, laundry, embalming room, etc., will be at the extreme aft end of the ship on the shelter deck.

Ascending the grand staircase from the reception room the first class staterooms on the bridge deck will be reached. These rooms will be enclosed in a complete steel deckhouse 340 ft. long. Each of these rooms will be 10 by 9 ft., with sleeping berths for two persons, and a couch so arranged as to be easily converted to a bed should it be found necessary. The sleeping berths again are so designed that should one passenger only engage the room, all evidence of the other berth will be hidden, leaving only a single brass bedstead. Another feature will be that two staterooms can be converted into one suite, with dressing room (with hot and cold water) adjoining. Surrounding the deckhouse will be one of the first class promenades, on either side of the house on the straight this promenade will be 430 ft. long, with a maximum width of 8 ft. At the aft end for 100 ft. it will extend from side to side of the ship. Encircling the promenade at the forward end of the deckhouse a screen will be erected at the ship's side and across the ship 8 ft. in front of the house, with large observation windows, which will give a sheltered promenade 240 ft. long. Forward of the screen the bridge deck will continue to the forecastle deck, and will be fitted with powerful cable holders and capstans for quick and efficient handling of the vessel. At the head of the grand staircase will be the promenade deck, with a deckhouse 320 by 44 ft., in which will be first class staterooms for one and two persons, parlor suites of two, three and four rooms, all self contained with bathroom, dressing room and lavatory accommodation. At suitable intervals in the deckhouse other stairways will be fitted, giving easy access to the first class on the bridge deck below and the saloon on the shelter deck. Midway in the length of the deckhouse will be the lounge, 48 by 38 ft and 14 ft. high at the centre. Further aft a writing room will be introduced and at the aft end a smoking room and verandah cafe 57 by 40 ft., and 14 ft. high. Around the deckhouse will be an open promenade with screen protection at the forward end, similar to that fitted on the bridge deck. On the house top, with an internal stairway from the deckhouse on the promenade deck, a large gymnasium, 16 by 28 ft., will be fitted up with exercising machines. The officers' accommodation and navigating bridge, forward on the house tops, have received special consideration, in view of the length of the voyage and the variety of climates the ship will pass through. All the latest devices for the quick handling and control of the vessel will be installed. A dining room, served by an electric lift from the ship's main pantry, and a cosy smokers room will be among the arrangements provided to conduce to the officers' comfort. The outstanding features of these vessels will be the size, design and quality of the public rooms, parlor suites, special and ordinary staterooms, also the large proportion of the second class and Asiatic accommodation. The public rooms in the one ship will be of English design and in the other of French. Among other special features worth mentioning are the various methods of heating and ventilating the ships. Each first class room or public

room can be heated and ventilated on the thermo tank principle, and also the second and the steerage accommodation, about 20 of these tanks being distributed throughout the length of the vessels. Natural ventilation will also be provided in various sections. Electric radiators and electric fans can be used in the state or public rooms should conditions so demand.

The sanitary accommodation will be of the most improved description, each group of lavatories being fitted with an ample number of baths, showers, washbasins, etc., supplied with hot and cold sea and fresh water passing through specially designed filters. A powerful electric suction fan in each section will keep the lavatories fresh. The electric generating plant will consist of five independent sets of engines and dynamos, provides a complete system of electric lights, radiators, and power for the large stokehold fans, also for the ventilating fans throughout the ship, and the silent working cranes and winches for rapid handling of cargo. Signalling at sea can be carried on by a semaphore on the bridge, of the type used in the British Admiralty for short distances. A Morse lamp for night signalling and the long range Marconi system will be installed.

The propelling machinery will consist, as above stated, of four turbines, embodying the most recent improvements in design and construction to ensure the maximum economy of fuel consumption on service attained. The port wing shaft will be driven by a h.p. turbine which will exhaust into a l.p. turbine driving the starboard wing shaft. The two inner shafts will each be driven by a l.p. turbine, which will have a powerful astern turbine incorporated in the same casing. The introduction of a l.p. turbine to the installation will provide a much wider range for the expansion of the steam, and will effect a marked improvement in steam consumption as compared with the usual arrangement of turbines, driving either three or four shafts, hitherto adopted in large mail steamships and naval vessels. Hitherto these have been fitted with either one h.p. turbine, exhausting to two l.p. turbines, or two h.p. turbines, exhausting to two l.p. turbines. For manoeuvring when entering or leaving harbors, independent high pressure steam connections will be provided on each l.p. ahead turbine. An independent high pressure steam connection will be provided on the l.p. turbine, which, combined with a suitable arrangement of valves, will enable the h.p. turbine to be cut out, or should the l.p. turbine be out of action, the h.p. turbine will be able to exhaust direct into one or other or both of the l.p. turbines.

The four turbines will be situated in one watertight compartment, and in a separate compartment immediately aft, two condensers will be placed, together with the circulating pumps, dual type wet and dry air pumps, evaporators and distillers. The circulating and air pumps will form two distinct and separate sets, each set working in conjunction with one condenser, and independent of the other, but they will also be arranged with suitable cross connections, so that either set of pumps may, in case of emergency, work in conjunction with both condensers. The installation of auxiliary machinery will be exceptionally large, and, as in the case of the turbine installation, has been designed with a view to securing the greatest economy in fuel consumption and convenience in working. The feed water system for the boilers will comprise two twin filters of the gravitation type, through which the water from the air pumps will be discharged on its way to the hotwell tanks; and two hotwell pumps, which will discharge the feed water, first through a surface feed water heater, and

afterwards through a contact feeder from which the four feed pumps will take their supply and discharge direct to the boilers. The feed water will be heated by the exhaust steam from the auxiliary machinery throughout the ship, the steam from the ship's heating systems and drainage systems from steam pipes, etc. The system evolved is the result of careful consideration, and will ensure that all waste heat from the auxiliary steam and exhaust systems will be utilized in heating the feed water instead of the heat being carried away by the circulating water from the condensers.

For harbor use, a separate auxiliary condenser with circulating pump, air pump, feed filter and feed pump will be fitted, to admit of the corresponding auxiliary machinery used on service being opened out for cleaning and examination as necessary. All the bearings for the turbine and line shafting will be connected to the forced lubrication system, and the oil supply will be maintained by four large oil pumps which will discharge the oil through special coolers before entering the bearings. Separate pumps will be fitted for circulating cold sea water through the oil coolers. Drain tanks, into which the oil will gravitate from the bearings and settling tanks, for separating any water or impurities from the oil, will be fitted in the condensing room. The pumps for ship's service will consist of two general service pumps, three sanitary hot and cold water pumps, two bilge pumps, two fresh water pumps and a ballast pump.

The refrigerating machinery and electric machinery will be situated in a separate compartment aft of the condenser room. In view of the service in which these vessels are to be engaged, the installation of refrigerating machinery will be very large, and will comprise two machines of the CO₂ type. The electrical generating machinery will consist of four independent units, each of which will comprise a compound wound dynamo, driven by an enclosed forced lubrication compound engine.

Steam will be generated in six large double ended boilers and four single ended boilers, situated in three separate compartments and working under forced draught, the air supply being maintained by an installation on the main deck. Two pole masts and three large and well proportioned elliptical funnels, one for each boiler compartment, will give the vessels a strikingly handsome appearance. For dealing with the ashes at sea, ash ejectors will be fitted in each stokehold, and in each boiler compartment a specially designed ash ejector pump for supplying the water under pressure to the ejectors will be fitted. Steam ash hoists of a silent type will also be fitted in each boiler compartment for harbor service. The ash hoisting arrangements have received special consideration, in order to minimize the noise which is so objectionable, and this machinery will therefore be removed entirely from the vicinity of the passenger quarters.

The report of the British Government commission, headed by Lord Mersey, which investigated the loss of the s.s. Titanic has been published in pamphlet form under the title "Shipping Casualties (Loss of the s.s. Titanic)." It may be purchased from Wyman & Sons, Ltd., Fetter lane, London, E.C., price 7½d.

Work was commenced early in September on the construction of the wharf at Port Moody. It is expected that it will be completed during October, when there will be no difficulty in bringing ocean going vessels right alongside. There is a depth of 60 ft. in the harbor. The contract price is \$8,500.