

## A New Steam Yacht

By H. G.



THE large palatial steam yacht recently contracted for by the Bath Iron Works of Bath Maine, is to be built to the order of Col. Oliver H. Payne of New York City. She will have the distinction of being the largest, most luxuriously appointed and speediest sea-going steam yacht ever con-

structed in this country. No expense will be spared in making this new vessel, just what the specifications insist upon, viz.—the finest vessel of her type afloat. The designer of this handsome vessel is Mr. Charles R. Hanscom, Naval Architect and General Superintendent of the Bath Iron Works Co., a man well-known in yachting circles, as the designer of the successful American steam yachts, Eleanor, Peregrine and Illawarra. About a year ago Col. Payne chartered Mr. W. A. Slater's cruising yacht Eleanor. He was very much pleased with the performance and general design of this vessel, so much so, that after a few month's cruise he decided to build a somewhat similar but larger and speedier vessel. The new yacht will therefore resemble in some respects the steam yacht Eleanor. She will be bark rigged  $\frac{3}{8}$  full sail power spreading about 17,000 square feet of canvas. The sails will give steadiness in a seaway, and in an emergency will enable her to make fair speed under canvas alone. The hull of the vessel will be extra heavy, and the distribution of the material will be such that the vessel will be capable of withstanding the greatest stresses due to waves, and the pounding of the heaviest seas. She will probably be classed by the British Lloyds, American shipmasters, and the United States Standard Association. The contract calls for a minimum speed of 15 knots for four hours natural draft under steam alone. Owing to this enormous sail spread, a single screw has been considered preferable to twin screws as a means of propulsion, and although the machinery is not in duplicate, yet the vessel can (in case of an emergency, such as a break-down of the machinery), owing to this canvas, show her heels to the majority of sailing craft. The principal dimensions of the new yacht are as follows: Length over all, 300 feet; molded beam, 35 feet; draft, 15 feet 9 inches; length between perpendiculars, 260 feet; molded depth, 21 feet 3 inches; gross tonnage about 1,350 tons.

The yacht will have a flat keel instead of the usual side bar keel. She has moderate deadrise, an easy bilge, with graceful curving sides, and the usual tumble-home. The displacement is well proportioned, the centre of buoyancy being about amidships, with the ends not too fine. The sheer plan shows a drag aft of about 9 inches, and the forefoot is cut away considerably, so as to decrease the wetted surface and eliminate weight when there is but little buoyancy.

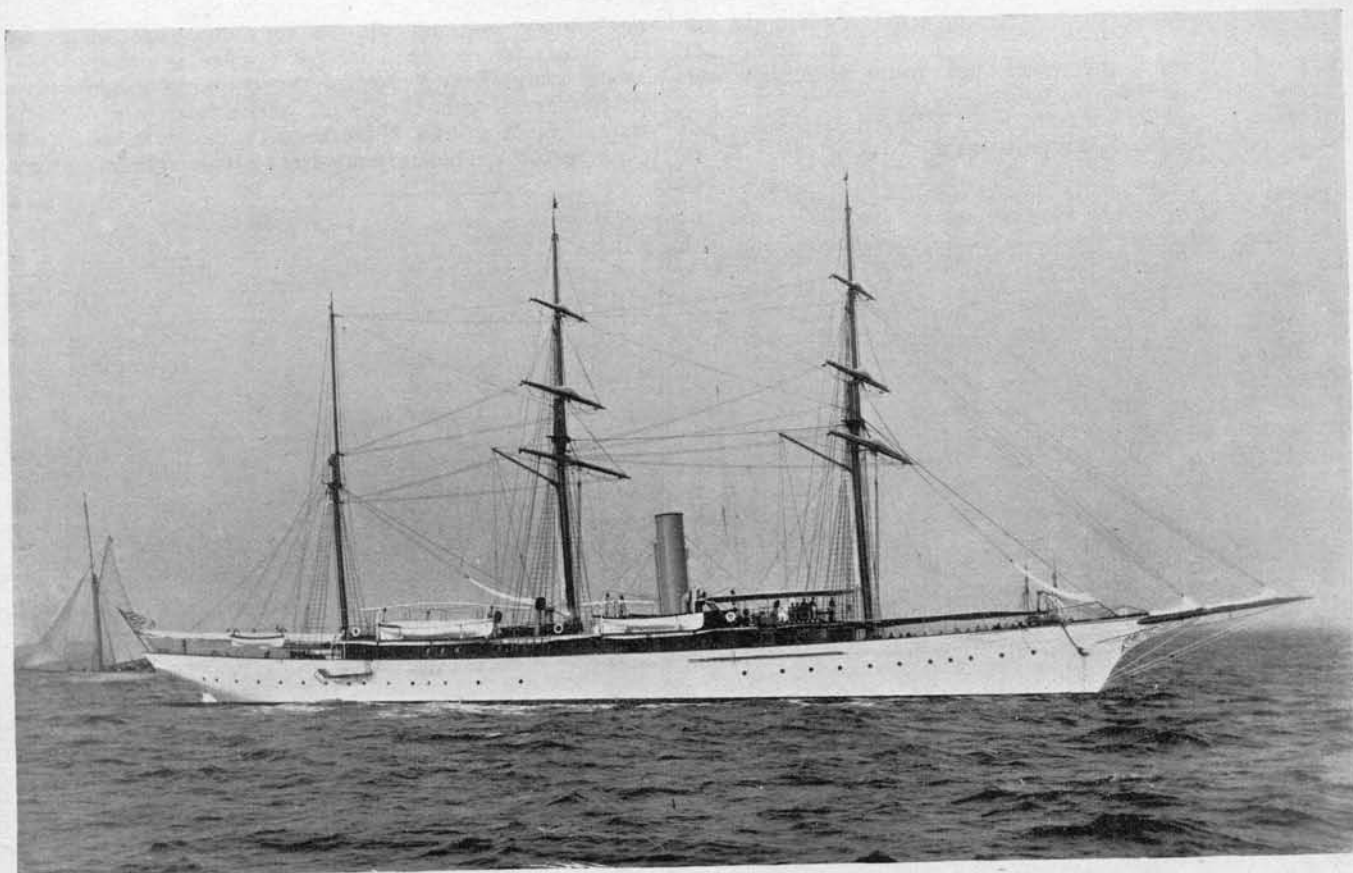
The bow lines flare above the load water line, so as to make the vessel more comfortable in a head sea. She will be fitted with bilge keels about 24 inches deep. No permanent ballast will be necessary to insure sufficient initial stability, but two large water ballast tanks, will be fitted one forward and one abaft of the machinery space, so that the displacement can be increased, and the trim regulated at will. The hull of the vessel is divided into

fifteen water-tight compartments. There are no less than seven athwartship steel bulkheads, and no doors are cut in any of them unless absolutely necessary.

The main deck is plated with steel throughout the entire length. There is also a fore-castle deck, with full headroom between it and the main deck. In the fore-castle are located the bath-rooms and water closets for the crew and petty officers; there is also a large Hyde patent steam windlass, and various desirable store-rooms for deck and spare gear. The deck house, which is about 160 feet long, will be a magnificent structure. Concealed by handsome panelled mahogany, will be a steel house of great strength and stiffness. Round sliding air-posts will be fitted in this house, for these are more efficient on an ocean-going vessel, and they also tend to give a much more shippy appearance than the rectangular windows.

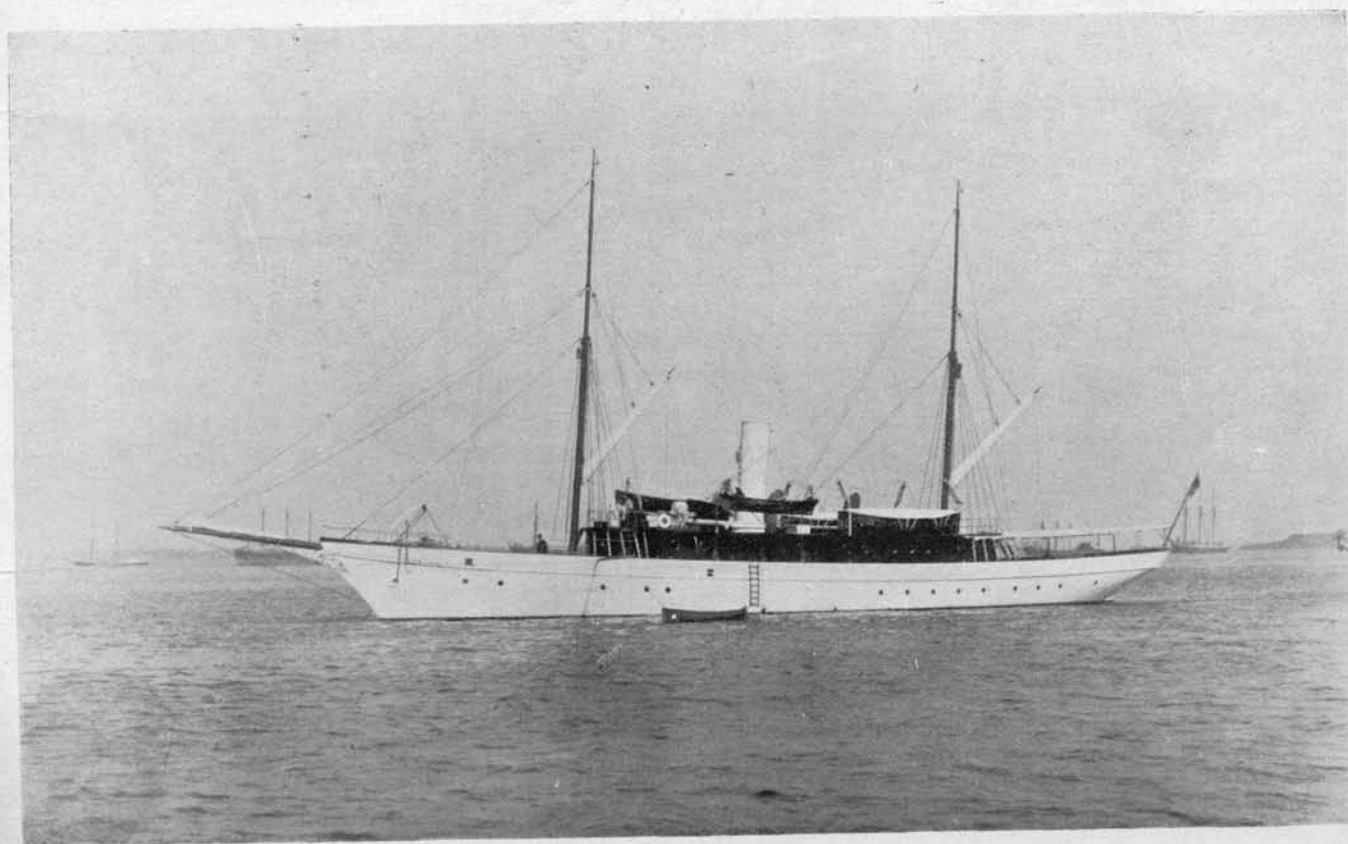
There will be a clear deck space of nearly seven feet between the rail and the deck house on each side, and although this somewhat reduces the house accommodation, it gives Col. Payne the deck room he so desires. He is a bachelor, a sailor, and a lover of the sea, therefore he does not desire any big saloon or reception room on his vessel, but it seems to be his idea to secure ample deck space and freedom at sea rather than large rooms in which to entertain.

In the interior arrangements, the officers and entire ship's company are located forward, while the apartments of the owner are aft on the main deck, and the guests accommodation is aft on the lower deck. Occupying the extreme forward end of the deck house is the dining saloon, the only saloon or cabin in the vessel. This room will be most luxuriously furnished complete in all its appointments. It is thirty feet long and seventeen feet wide. In direct communication with and just abaft of the dining hall is located a commodious pantry, which in turn opens into the galley. Then comes the fire room or boiler hatch, with the fireman's wash room. About amidships is located a steam laundry and drying room, fitted with all necessary appliances. There is also a deck water closet and toilet room, and lockers for waterproofs, deck chairs, rugs and such like articles. Aft of the large engine room hatch is the stairway which leads below to the guests' room on the lower deck. Aft of this on the main deck are the owner's suit of rooms. The owner's private state-room will be unexcelled by any cabin afloat, and no expense will be spared in the furnishings and finish. This room will be fitted up in New York, under Col. Payne's direct supervision. It is about sixteen feet square. The two other rooms are sixteen feet long by ten feet wide, and they are fitted with toilet rooms and all modern conveniences. They will be most luxuriously and artistically furnished. Communication between all the rooms in the deck house, without exposure in bad weather is secured by an inside passage traversing the entire length on the starboard side. A stairway adjoining the dining room gives access to a smoking room sixteen feet square, in upper structure or bridge house thirty-two feet long, the remainder of which is devoted to the captain as a chart room and bridge room. In the chart house will be located a steering stand with binnacles and compass, but as top of this house will form part of a bridge which runs out to the sides of the ship, a steering wheel with binnacles, tele-



ELEANOR

*Photo. by Stebbins*



PEREGRINE

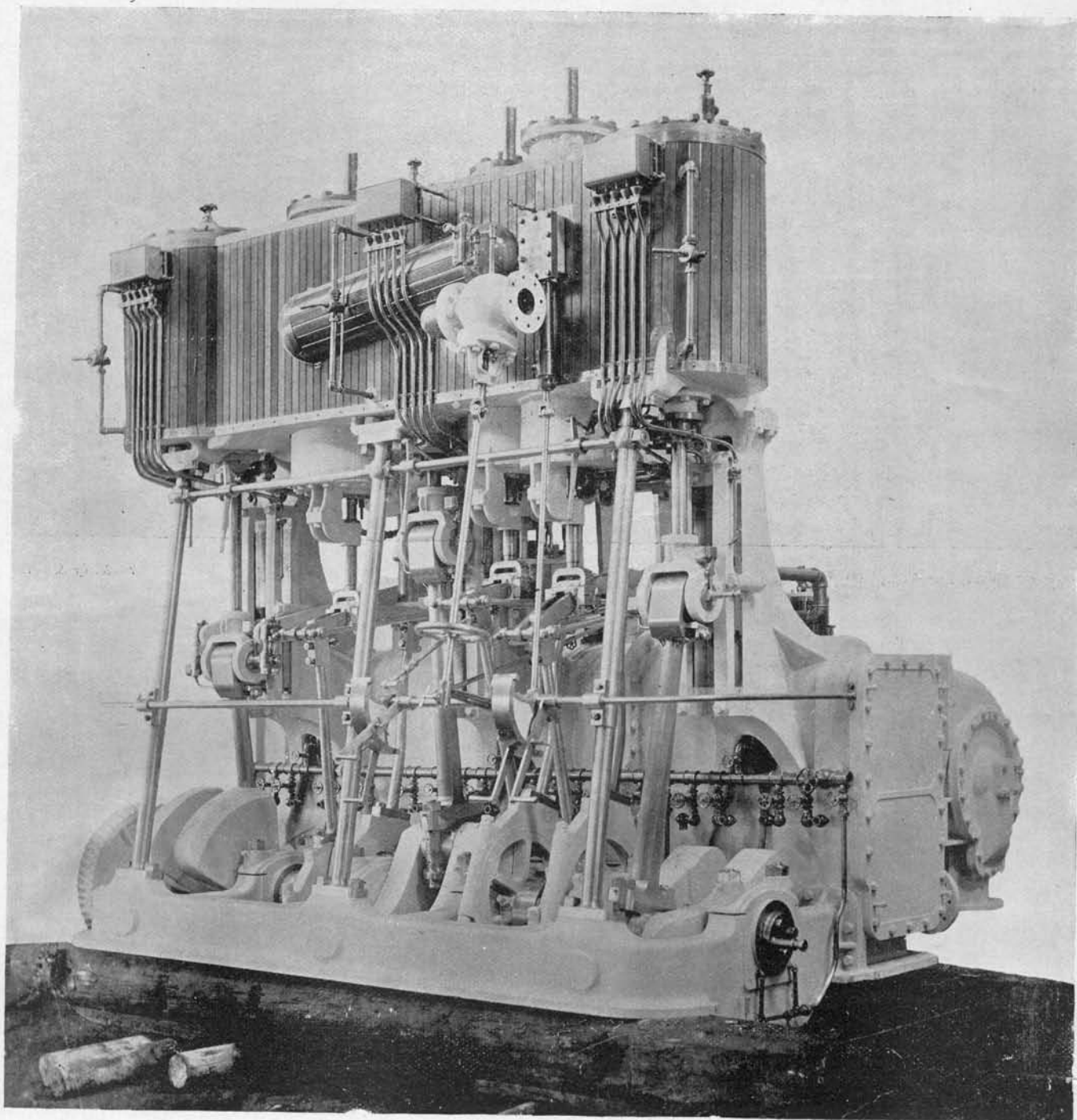
*Photo. by Stebbins*

## THE RUDDER

graph, bell-pulls, and so forth, will also be located here. The top of the main deck house forms a promenade, sun or shade deck, as it runs out to the side of the vessel, thus giving abundant open deck room above, besides sheltering the main deck below.

From the owner's quarters aft a broad staircase leads down to handsome apartments on the lower deck. There

be used as a trunk and baggage room. The ventilation and piping systems will be very complete. The lower deck forward of the machinery space is devoted to the ships' complement. Aft of the collision bulkhead is the petty officers' quarters, with accommodation for fifteen men. Then comes the crew's space, with twenty-four pipe berths. These rooms will be well lighted and venti-



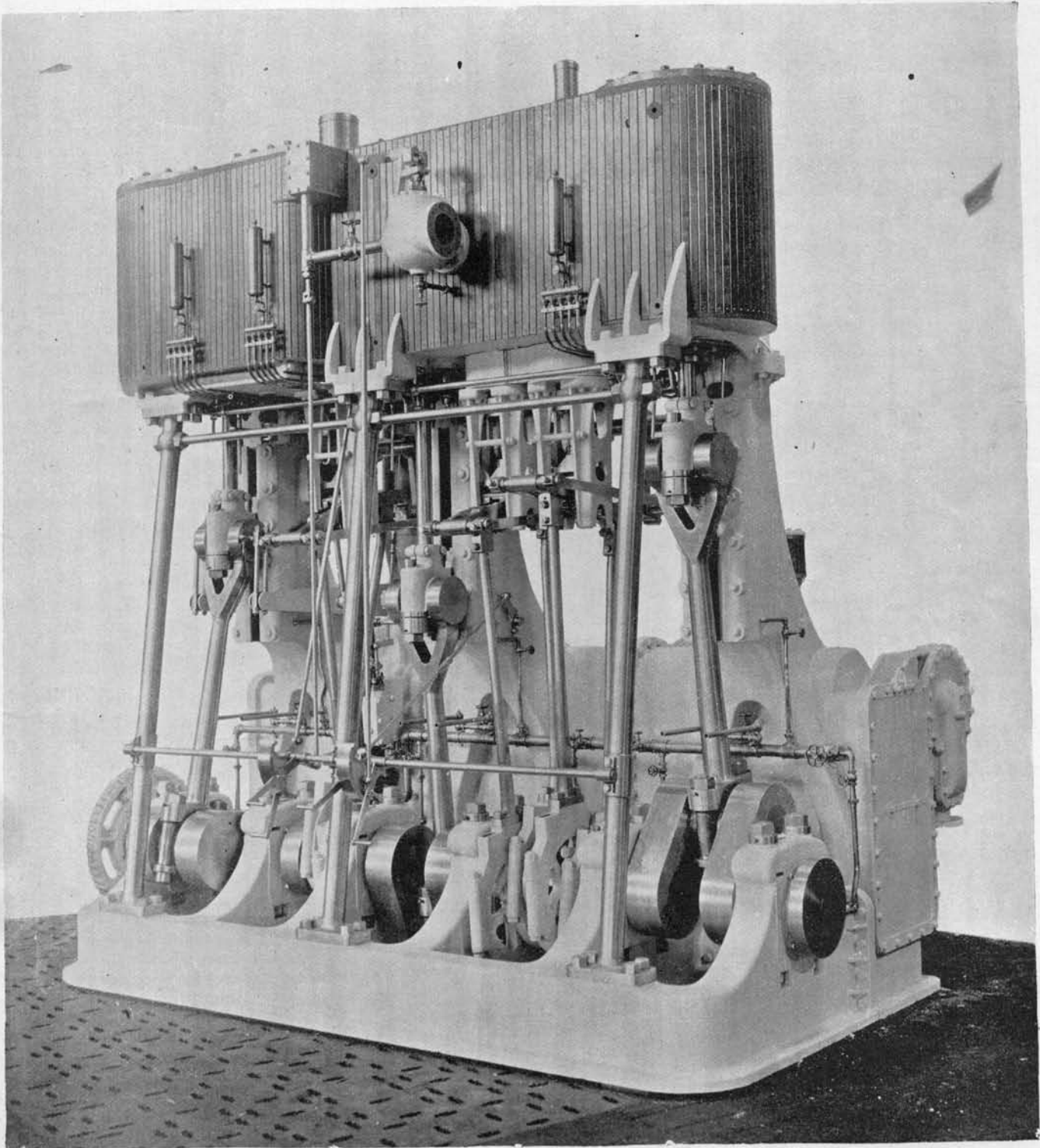
ENGINES OF S. Y. PEREGRINE

are six state rooms for guests, four of the rooms being fourteen feet square, and two of them fourteen feet wide by ten feet long, each having a private toilet room attached. Aft of the guests' accommodation are located the servants' quarters, comprising two large rooms and a bath room. The extreme aft end of the lower deck will

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date four oilers and two mess boys. The captain, it will be remembered, has also a room abaft of the chart room, which he will use in bad weather; but this room on the lower deck will be fitted up in the most comfortable manner, so that when below he may enjoy the rest and quiet-

all modern conveniences. Forward of the captain's and oilers' rooms, in the center of the vessel, is the officers' mess room, twenty-four feet long and twelve feet wide; opening from it on the sides are six large state rooms, a pantry and a bath room with water closet. These state

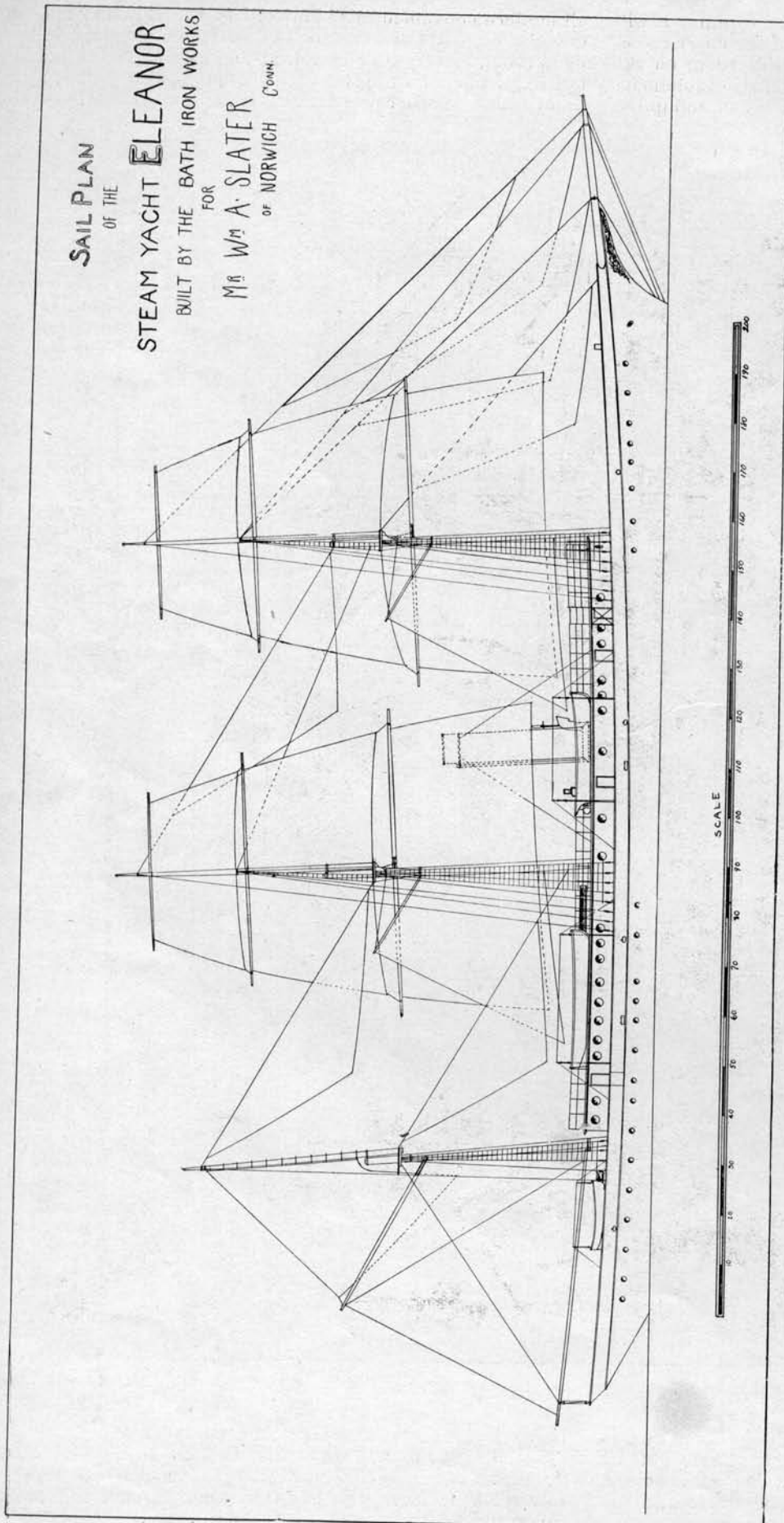


ENGINES OF S. Y. ELEANOR

ness which one in his capacity so much needs and desires, but yet when his state room is on deck seldom obtains. This room is fitted up with a large bed, lounge, concealed bath and water closet, bureau, wardrobe, washstand, and

rooms will accommodate the chief engineer and his two assistants, two mates, steward and cook. In the forward hold is an immense cold-storage compartment, with separate rooms for flesh, fish and fowl. Forward of this are

## THE RUDDER



rooms for the storage of provisions, boatswain's gear, sails, and miscellaneous stores. In the after hold are located six fresh water tanks, engineers' stores, armory, cabin stores and wine room.

The space amidship devoted to machinery and coal is over 100 feet long. The machinery consists of a vertical triple-expansion engine with cylinders 28, 44 and 72 inches diameter respectively, the stroke being 38 inches. With 130 revolutions and a piston speed of about 820 feet per minute, the 1-H.-P. will be about 3,000. The high and intermediate-pressure cylinders are provided with piston valves, whilst the low-pressure cylinder will be fitted with a slide valve. The valve gear is actuated by eccentrics and link motion and a steam starting and reversing engine. The surface condenser will be independent of the engine framing. It will be of brass, cylindrical with about 3,700 square feet of cooling surface and located in the wings on the port side within easy reach. The air pump will be fixed to the back of the engine and will be worked by a beam from the crosshead of the low-pressure cylinder. Circulation is maintained by a centrifugal pump driven by a special compound engine. The feed, bilge and sanitary pump will be located close by. The line shaft will be of steel about  $12\frac{1}{2}$  inches diameter, and the tail shaft will be  $13\frac{1}{4}$  inches. The propeller will be of Hyde Manganese bronze, about 13 feet diameter and 4-bladed, of the built-up type. In the engine room are located an evaporater, an electric plant in duplicate, an ice-making plant of the most modern make, and a Williamson steam steering engine. It is probable that an electric storage battery will be fitted. Steam for the engine will be supplied by four steel single-ended Scotch boilers, built for a working pressure of 165 lbs. These boilers which are located in a common watertight compartment will be 14 feet 4 inches in diameter and 12 feet long. Each will be fitted with 3 corrugated furnaces 45 inches in diameter, the total grate surface being 320 square feet, and the total heating surface about 10,500 square feet. The smoke pipe will be elliptical 10 feet long by 8 feet wide. It is probable that forced draft will be fitted after the vessel has had her official natural draft trial. The total coal bunker capacity is 500 tons, and of this amount 310 tons will be stored in an amidship transverse bunker, whilst the remaining 190 tons will be carried in a transverse

unker forward of the boilers. This large capacity will give her a radius of action of 3,500 knots at full speed. The vessel will carry six boats on the promenade deck, viz., two 28-foot life boats, two 25-foot launches, a 25-foot owner's gig and an 18-foot dinghey. A hand capstan will be located on the quarter-deck aft. All the iron work on deck will be sheathed with mahogany or else mahogonized, and the fittings of the vessel will in all respects be up to the highest standard. The yacht will be completed in the spring of 1899 or about 14 months from the date of signing the contract, and when completed she will undoubtedly be one of the finest vessels afloat, and a credit to her designer and builders.

**ELEANOR**

**W**AS designed by Mr. C. R. Hanscom for Mr. Wm. A. Slater of Norwich, Conn. She is to-day the most successful cruising steam yacht afloat, as she has already circumnavigated the globe and steamed upwards of 80,000 miles without an accident or hardly a dollar having been spent in repairs.

Although designed for a 12-knot boat, she has frequently logged 14½-knots per hour for days at a time, and under steam alone, her average speed across the Atlantic under most unfavorable conditions has been 12½-knots. Her principle dimensions are: Length over all, 240 feet; length water line, 208 feet; beam molded, 32 feet; draft, 14 feet 2 inches; gross tonnage, 803 tons; net, 401 tons. The triple-expansion engines of the Eleanor, which is illustrated on page 67, is of 1,200-H.-P. The cylinders are 18, 28 and 45 inches diameter respectively, with a stroke of 30 inches. The revolutions are 130, which gives a piston speed of 650 feet per minute. Steam is supplied by 2 steel single-ended Scotch boilers working at 165 lbs. pressure. They are each 12 feet 5 inches in diameter and 11 feet 7 inches long, with 3-42-inch corrugated furnaces. The total grate surface is 120 square feet, and the heating surface, 4,016 square feet. The vessel carries 280 tons of coal, which is sufficient to give her a radius of about 3,800 knots at full speed. She has fresh water tanks with a total capacity of 120 tons, and is fitted with a steam laundry, evaporator, duplicate electric plant, ice-making plant, steam steering gear, and steam windlass. The total complement is about 50 men.

**PEREGRINE**

**T**HIS yacht has cylinders 14, 21 and 34½ in. diameter, stroke 22 inches. The cooling surface of the surface condenser is 940 sq. ft. With 160 revolutions the in. H.-P. is 650, the piston speed, being about 590 ft. per minute. She has two Almy Water-Tube boilers, 86 in. long, 89 in. wide, and 106 in. high. Total grate surface, 75 sq. ft.; collective heating surface, 2,770 sq. ft.; working pressure, 225 lbs. She is 158 ft. over all; length at water line, 131 ft.; beam, 23 ft.; draft, 10 ft. 9 in. Designed by Mr. C. R. Hanscom for Mr. Ralph H. White of Boston, two years ago. Although designed for a speed of only 14 miles per hour, she is capable of making about 16 miles under favorable conditions.

