

sea speed of this vessel is 17 knots per hour. In closing this article, attention is drawn to the fact that the two largest and most important vessels building in American yards for an American company are the great unnamed vessels now upon the stocks at New London, Conn. As these remarkable vessels call for more lengthy treatment they are described in a separate article of this issue.

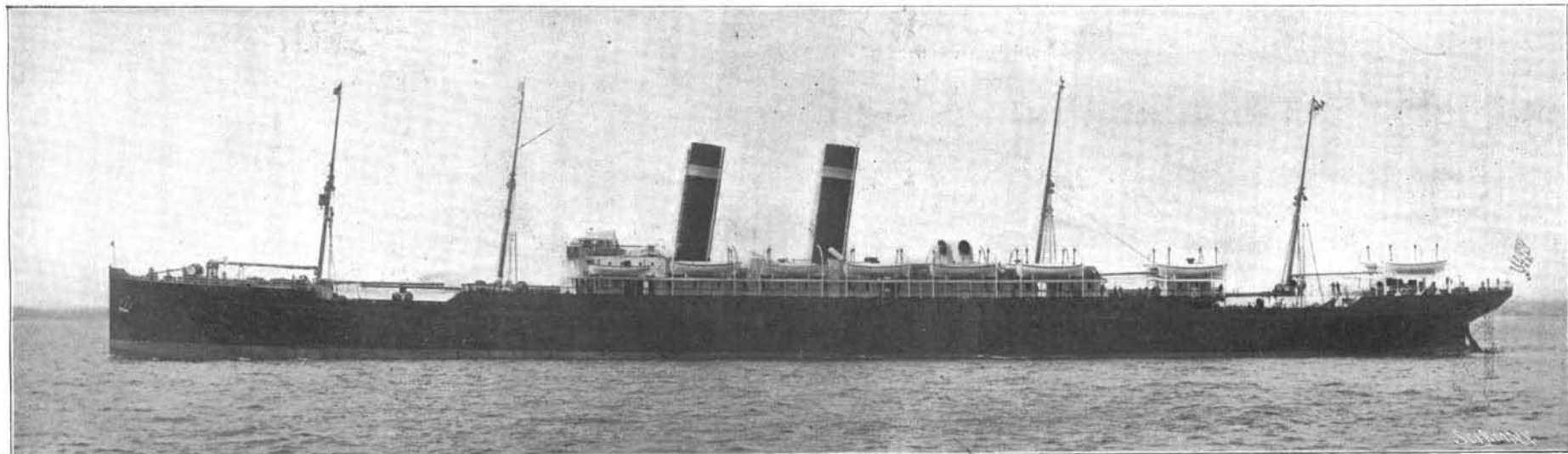
THE TWO GREAT FREIGHTERS FOR THE PACIFIC TRADE.

It is a curious fact that the two most notable ships under construction in American yards for the American merchant service are probably the two least known to the American public. This is to be explained by the fact that both the owners and the builders of these ships have gone about their great task in a very quiet way, and made no effort to draw attention to its importance, and the somewhat unprecedented character of the enterprise which has called these vessels into existence.

The last of the transcontinental lines to be built to a deep-sea terminus on the Pacific coast was the Great Northern Railroad. This road, which owes its existence to the energy of Mr. James J. Hill, is reputed to be the best constructed and equipped transcontinental line across the United States; for being the latest to be constructed, it naturally embodies the most modern ideas and improvements in railroad construction. The road has a terminus at Seattle, perhaps the finest harbor on the Pacific coast, and it was natural, in view of the easy grades, heavy steel and solid roadbed of the new line, and its consequent facilities for handling a voluminous and heavy traffic, that its owner should look to a furtherance of its interests by building a line of steamers to share in the undoubtedly large future trade with the Orient. An unex-

We present an inboard profile of the vessel, with the various decks and compartments filled with freight or occupied by passengers and crew, as they will be when the vessel is traveling with a full cargo and passenger list; and from this drawing one gets a very graphic idea of the enormous proportions of the vessel. From the outer bottom to the navigating bridge there are no less than eleven distinct decks or platforms. First we have the outer bottom of the ship; 6 feet above that is the inner bottom, which forms the floor of the ship; then follow, all within the plated structure, the orlop, lower, between, main, and upper decks. All these decks are of steel plating, and the whole inclosed structure is 56 feet in height. Above the upper deck, and in their order, are the promenade deck, the upper promenade deck, and the boat deck, the boat deck being 25½ feet above the promenade deck, or 81½ feet above the keel; while another 8 feet above this, or say 90 feet above the keel, is the navigating bridge. Now, since the vessel at her full draft will draw 33 feet, it follows that the navigating bridge will be 57 feet above the waterline; and since she draws only 17 feet in the light condition, the same bridge, when the vessel is running light, will be 73 feet above the water, and the passengers on the upper promenade deck will be 65 feet above the waterline. This means that at a medium draft of say 22 feet, the passengers can promenade at a height of 60 feet above the sea level. Now, it has been ascertained by observations that the very heaviest waves seldom exceed 30 feet in height; and hence passengers on these ships, even in the stormiest weather, will be able to look down upon the Pacific rollers from a point of observation 30 feet above their crests. The decks above the upper deck, which do not extend the full length of the vessel, but only for a certain distance amidships, are devoted entirely to the

struction considerably stiffer and stronger than any vessels built for the American merchant marine. The outer plating of the ship's bottom is of 1¼-inch steel, and the shell plating is strengthened by an additional strake of 1-inch plating at the main and upper decks, while continuous, 1-inch stringer plates are worked from stem to stern along these two decks as a stiffening to the regular deck plating, which on the main deck is 16-20 of an inch in thickness, and on the upper deck is 18-20 of an inch. The ship is strengthened against hogging and sagging strains by a continuous central, longitudinal bulkhead reaching from keel to upper deck. Longitudinal bulkheads have been used between adjacent engine rooms in other ships, but this is the first vessel that we know of that has a complete web of steel from upper deck to keel, and from stem to stern. This bulkhead is of ½-inch plating at the top and bottom, and a ¾-inch plating throughout the intermediate decks. The vessel also receives great longitudinal strength from a new system of stanchions and girders. Instead of using a large number of ordinary pipe or tube stanchions spaced at frequent intervals, there are three lines of heavy box section stanchions, measuring 13x24 inches in section. These stanchions are spaced 20 feet apart, longitudinally, and the deck loads of the deck above them are carried by means of continuous lines of 13x24-inch box girders. This is not only an economical distribution of material, but it adds enormously to the longitudinal stiffness of the vessel. The longitudinal bulkheads necessitate double hatches, and there are in the ship no less than fourteen cargo hatches. As we have stated, the vessel is designed to meet the special requirements of the Oriental trade, and one pair of hatches is made of sufficient length to enable a locomotive to be lowered complete into the hold. Under a horse power of 11,000 the sea



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THE AMERICAN-BUILT STEAMSHIPS "KROONLAND" AND "FINLAND" OF THE INTERNATIONAL STEAMSHIP COMPANY.

Length, 680 feet; beam, 80 feet; depth, 42 feet; speed, 17 knots; tonnage, 12,760 tons.

pected feature of the new shipping venture was the enormous size of the ships that were proposed and quickly contracted for. For instead of these vessels being, as one would expect in what might be termed an infant enterprise, of moderate proportions, Mr Hill ordered two vessels which will be about equal in total carrying capacity to the largest vessels ever constructed.

Another curious feature in connection with these ships is that an entirely new company, the Eastern Shipbuilding Company, was formed expressly for the purpose of constructing them, and that this company took the contract before it possessed plant, or equipment, or even the ground on which to build them. After a thorough survey of the Atlantic coast line, a site was chosen opposite New London, Conn. The vessels were designed by Mr. William A. Fairburn, naval architect, under the supervision of Mr. C. R. Hanscom.

Apart from their great size, "the New London ships," as they are popularly called, embody several features of construction and internal arrangement which render them of special interest. Their dimensions are, length 630 feet, breadth 73 feet, and molded depth 56 feet. On a draft of 33 feet the displacement will be 33,000 tons, and on a maximum draft of 36½ feet the displacement will be 37,000 tons, or within 870 tons of the displacement of the "Cedric" on the same draft, the "Cedric" being the largest vessel afloat. In length and breadth the New London ships are less than the "Celtic" and "Cedric," which are 700 feet in length by 75 feet in breadth; but the plated or molded depth will be greater by 6 feet 8 inches, the plating being carried up everywhere to the upper deck, which is flush throughout the whole length of the ship. The greater depth and more bulky model of the new ships account for their nearly equaling the longer and broader White Star boats in displacement.

first and second class passenger accommodation. The passengers are not only separated from the noise and general inconvenience incident to the operation of the vessel; but being amidships, they are removed from the vibration of the propellers, and are subject to but little of the pitching motion of the vessel. Accommodations are provided for 150 first-class passengers, 100 second-class passengers, 100 third-class passengers and 1,000 steerage. There are also quarters for the accommodation of 1,200 troops. The total cargo capacity is 20,000 tons.

Referring to the inboard profile, the vessel is proportioned as follows: First we have the 6-foot double bottom, which contains the trimming and ballast tanks for trimming the vessel and giving her ample stability in the light condition. The engine and boiler space and the coal bunkers are amidships, extending between the double bottom and the main deck. With the exception of the space occupied by engines, boilers and coal, the space below the main deck is given up entirely to cargo, one series of compartments on the boat being devoted to cold storage and the storage of silk from the Orient. The main deck forward of the engines and boilers is occupied by the crew, cargo and cattle, and the space aft of the engine is devoted to second-cabin passengers and to the steerage passengers. Forward on the upper deck is a deck-house filled with refrigerating machinery, and aft on this deck are the second cabin smoking room and ladies' room, while astern is the laundry and steering gear. Amidships on the main deck are the first-class dining saloon, lavatories, first cabin staterooms, galley, and the officers' rooms. On the promenade deck amidships are the library, a series of first-class passenger staterooms, and a children's room. On the upper promenade deck are the first cabin staterooms, smoking room and barber shop, while on the boat deck are the chart house and accommodations for the captain and officers.

It is claimed that the new vessels are in their con-

speed of the ships is expected to be about 14 knots an hour.

THE LATEST OF THE FAST TRANSATLANTIC LINERS.

The "Kaiser Wilhelm II.," which will shortly sail for this port, was built at the Vulcan yards, Stettin, by the same firm that has built the "Kaiser Wilhelm der Grosse," the "Deutschland" and the "Kronprinz." It is for this reason, and because of the uniformly good results obtained with these vessels, that the new ship is expected to develop the horse power and to show the high speed contracted for. Indeed, if she lives up to the record of her predecessors, she will greatly exceed her contract requirements in these respects. Her advent, moreover, should serve to settle all doubts as to whether high-speed transatlantic liners of this type are paying investments. On a round trip made in the "Deutschland" of the Hamburg-American Line by a representative of this journal, a sum of \$200,000 was taken in for passenger fares alone. As the total expenses including every fixed charge of the round trip were \$100,000, or slightly under, there was a profit of about \$100,000 for the single trip to Europe and back.

The building of high-speed liners is first and last a business proposition, and although it has been claimed that the companies that run these vessels are willing to suffer a financial loss on the ships themselves, for the sake of the great prestige and the advertisement which they secure, it may be taken for granted that if the ships already constructed had not been a paying proposition *per se*, the "Kaiser Wilhelm II." would never have been built.

The new vessel is constructed with the usual double bottom. The molded depth is 44 feet 2 inches, and it includes four separate decks, the plating extending to the upper deck. This portion of the hull is divided by sixteen transverse bulkheads, all of which extend to the upper deck, while there is a longitudinal bulk-