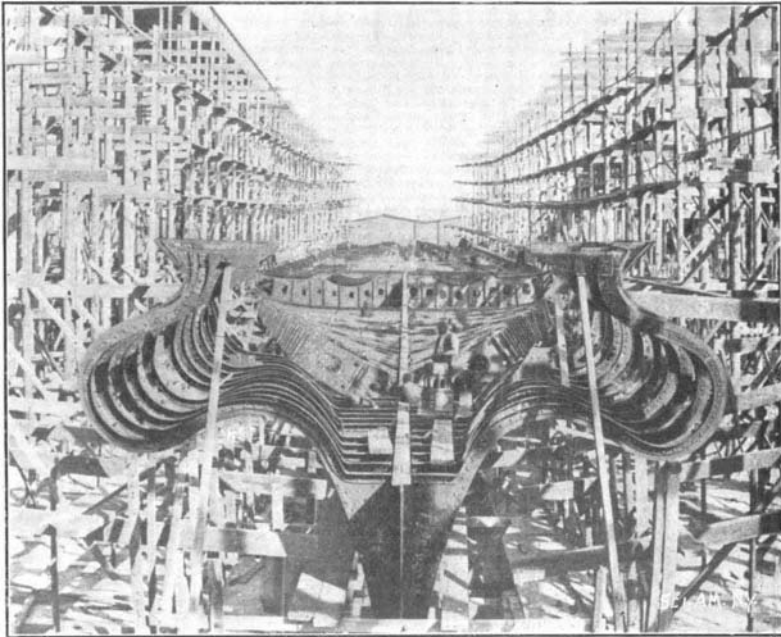


LAUNCH OF THE PACIFIC MAIL LINER "KOREA."

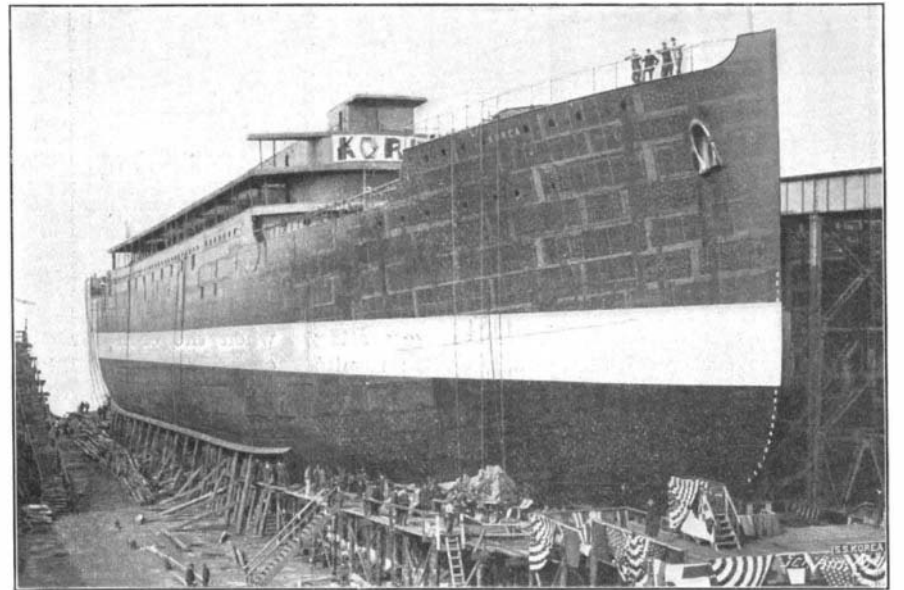
The handsome passenger and freight liner "Korea" which is the largest steamship ever built in America, was successfully launched at the works of the Newport News Shipbuilding and Dry Dock Company, Newport News, Va., Saturday, March 23. The "Korea" will ply between San Francisco and Hong Kong, stop-

eter, oil cylinder 5 inches in diameter, and a stroke of 20 inches. The thrust bearings are of the horse-shoe type, with fourteen collars each. The propeller shaft is fitted with composition sleeves where it works in the stern bearings of lignum-vitæ. The propellers are three-bladed, 19 feet in diameter by 25 feet pitch. The blades are of manganese bronze, and the hub is of

A. M.; the shock was felt over a wide area, and was distinctly heard at Los Angeles, ten miles away. Our engravings give an idea of the widespread destruction caused by the explosion. Walls of solid brick 40 feet long and 2 feet thick were converted into débris, and piles of wreckage were to be seen everywhere. Corrugated roofing was blown away, and



STERN VIEW, SHOWING SPECTACLE FRAMING FOR PROPELLER SHAFTING.



Length over all, 572 feet 4 inches. Beam, 63 feet. Depth to upper deck, 40 feet. Displacement, 18,600 tons. Horse power, 18,000. Speed, 18 knots.

LAUNCH OF THE PACIFIC MAIL LINER "KOREA," AT NEWPORT NEWS.
(The largest ship built in the United States.)

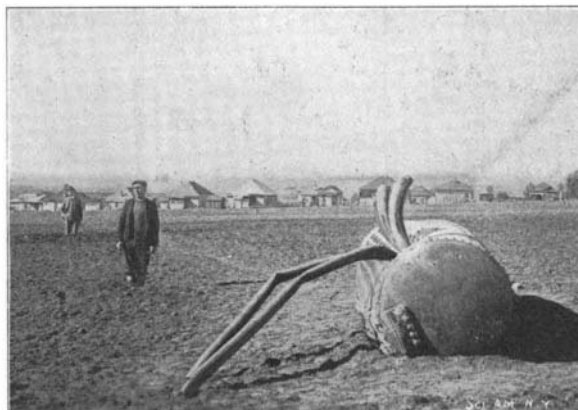
ping at the ports of Honolulu, Yokohama, and Nagasaki. Besides her great freight capacity, she will have accommodations for 300 first-class passengers, 30 steerage, and 1,200 Chinese. The Chinese quarters are so fitted that the space may be used for cargo if unoccupied by Chinese. The cost of the "Korea" is \$2,000,000, and her contract speed is 18 knots.

The principal dimensions of the vessels are as follows: Length over all, 572 feet 4 inches; length between perpendiculars, 550 feet; beam, 63 feet; depth, 40 feet to upper deck; draft, 27 feet; displacement, 18,600 tons. The hull is of steel, with frames spaced 32 inches throughout. The double bottom runs the entire length of the ship and extends to the turn of the bilge. The decks, in their order, are called the orlop, lower, main, upper, promenade, and boat. The lower, main, and upper decks extend the full length of the ship, while the promenade is on a level with the fore-castle and poop.

The vessel is fitted with two sets of quadruple-expansion, four-cylinder, vertical inverted engines, with cylinders 35, 50, 70, and 100 inches in diameter and 66 inches stroke. They are designed to develop 9,000 indicated horse power each, at 86 revolutions per minute. The order of the cylinders from forward is high pressure, low pressure, second intermediate, and first intermediate. The engine framing consists of cast-steel housings of I section, bolted to the cylinders and bed-plate, four to each cylinder. The crosshead guides are of cast iron and bolted to the housings. The bed-plates are also of cast steel of I section. Piston valves are used on all cylinders. The piston rods, connecting-rods, valve stems, eccentric rods, and shafting are of forged steel. The crosshead slippers are of cast iron, lined with Parsons' white metal, which is used for all bearing surfaces throughout the engines. The pistons are cast steel, dished. The crank shaft is made in four interchangeable parts, and is 19½ inches in diameter, with a 6-inch hole. Two of the eccentrics, which are of cast iron, are fitted over couplings, while the others are keyed to the shaft. The reversing engine is of the steam and hydraulic type, with steam cylinder 9 inches in diam-

cast steel. The main condensers are cylindrical, 7 feet 2½ inches in diameter and 15 feet long between tube-sheets, with a combined cooling surface of 11,787 square feet. Each condenser will have an independent air pump and two circulating pumps. There will also be two auxiliary condensers with combined air and circulating pumps.

Steam is furnished by six double-ended and two single-ended Scotch boilers, 16 feet in diameter and 20 feet 3 inches and 10 feet 5¼ inches long, respectively, working at a pressure of 200 pounds. They are placed in two watertight compartments. The double-ended boilers have eight furnaces, and the single-ended four. Their total heating surface is 44,912 square feet, and grate surface 1,072 square feet. Forced



DOMES THROWN 1,768 FEET FROM BOILER SETTING

draft is furnished by thirteen blowers. There is also a donkey boiler on the upper deck, of the cylindrical, upright type.

The particulars of the launching ways are as follows: Length of ways, 690 feet; width of ways, 4 feet; distance between ground ways, 23 feet; grade of ways, ⅝ inch to 1 foot; grade of keel, ½ inch to 1 foot. The launching weight of the vessel was 7,000 tons. The pressure per square foot on the ways was two tons.

The "Siberia," which is a sister ship to the "Korea," will be launched in about two months.

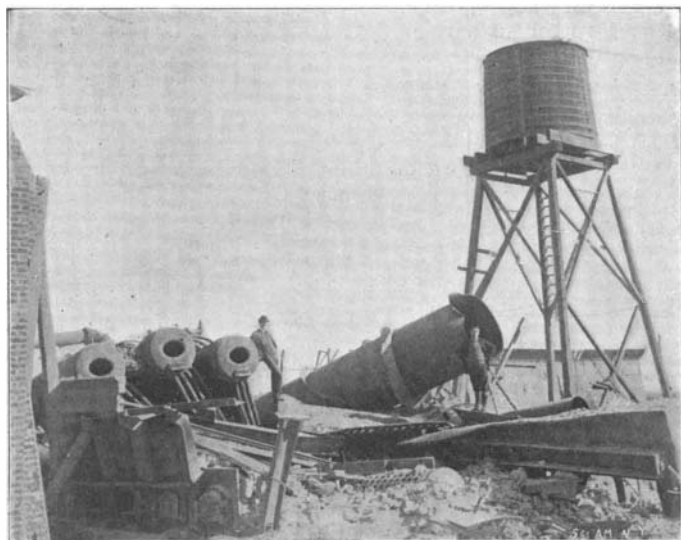
AN INTERESTING BOILER EXPLOSION.

Our engravings represent an interesting boiler explosion which occurred at Sherman, a small place between Los Angeles and Santa Monica, Cal., on the Pasadena and Pacific Electric Railway Company's lines and in the power plant of the company. The accident occurred on the 5th of December, 1900.

The boiler was of the water-tube type, made by the Stirling Company, being one of a battery in the plant of the railway company at Sherman. This was the second, and by far the worst, explosion of this type of boiler in the plant within three months. This special battery was of 2,500 horse power, and the boiler which exploded had been in use five years. The explosion occurred at 2:45

three steel drums, each 16 feet long and 3 feet in diameter, were lifted bodily and hurled to far-distant points. The power house rests on the side of the foothills, which at this point have a rise of 150 to 200 feet to the mile. Two of the drums seem to have taken a general course up this incline toward the mountain. One passed over two rows of cottages, and just missing one, landed on and demolished a shed and outbuildings, landing just 556 feet in an air-line from the starting point; while another, taking the same course, passed over two more rows of cottages, depositing water tubes, etc., along its route, and throwing them through roofs and side walls of the dwellings along its course. It landed 1,768 feet from its original site. The power plant was, of course, tied up by the explosion, and power had to be obtained from other sources. The boiler which exploded in December was not the same one which exploded several months earlier. That one was being repaired, and had not yet been put into use; it was a newer boiler than the others. After the first explosion, and at the request of the railway company, the superintendent of the works in which the boiler was built went to Los Angeles for the purpose of ascertaining, if possible, the cause of the explosion. He made a close examination of the other boilers, and pronounced them in good condition. There was, therefore, no reason to suspect that there was any defect in any part of their battery.

Reports have been made on the accident, which occurred on September 10, 1900, in which the middle drum of one of the boilers was ruptured. It was found that the pressure carried was from 170 to 175 pounds, while the boilers were not designed for a working pressure of more than 150 pounds. This necessitated the screwing down of the safety valves to such an extent as to entirely destroy their efficiency; in fact, after having been screwed down to 175 pounds all the elasticity of the springs was gone. The mud drums were bricked in solidly, thus depriving them of freedom of movement to allow for expansion and contraction. The standard method of introducing feed-water into the rear upper drum was abandoned, and in its place a series of pipes or nozzles was placed in the mud drum, no means, however, being



VIEW OF PART OF WRECKED PLANT SHOWING DRUMS.



DAMAGE DONE BY BOILER EXPLOSION, SHOWING LOCATION MOTIVE WHICH WAS COMPLETELY STRIPPED.