

LAUNCH OF THE FIRST SEVEN-MASTED STEEL SCHOONER.

The recent launching at the yards of the Fore River Ship and Engine Building Company of the seven-masted steel schooner "T. A. Lawson" was an event of more than common significance in the shipping world. The fore-and-aft trading schooner is a distinctly American craft. The history of its development from the original two-sticker up to the multi-masted vessels is full of interest. It is only of late years that the many-masted type has received any extensive development; but so successful have the four, five and six-masted schooners been, that it was only a question of time when a seven-masted craft should be constructed, for in this matter of shipbuilding, as in so many other forms of construction characteristic of our modern industrial life, it holds true that the bigger the unit, the less the cost of operation, and the larger the profits.

The largest schooner previous to the launch of the "Lawson" was a six-masted vessel which measured 330 feet in length, 48 feet in beam and 22 feet depth of hold, with a maximum carrying capacity of 5500 tons of cargo. That vessel, like all of her predecessors, was built of wood. The ship recently launched, however, is a great advance on her predecessors in every respect. In the first place she is built throughout of steel, with a cellular double bottom and three complete steel-plated decks. The lower masts throughout the vessel are also built of steel. The total length of the ship over all is 395 feet, beam 50 feet, and molded depth 34 feet 5 inches. She has a dead weight cargo capacity of 7500 tons and her displacement at her maximum draft is 10,000 tons. The sail plan is drawn on a generous scale. The main masts are all 135 feet in length from the mast step to the top of the upper band, and they are all of a uniform diameter throughout of 32 inches. The topmasts are of one length, being 58 feet in length over all and tapering from 18 inches to 10 inches in diameter. The total sail area of the lower sails and top sails is 40,617 square feet. The sails will be handled largely by steam power, the plant including a 9 x 10 double-cylinder ship engine, and five 6 x 8 hoisting engines, with two vertical boilers, one in the forward and one in the after house. As a result of the installation of steam power for hoisting the anchors and handling the same, the number of hands necessary to work this huge vessel will be reduced to nineteen men. The total cost is \$250,000. The craft was designed by B. B. Crowninshield, of Boston.

Test of the 10-Inch Coast Defence Gun.

It will be remembered that in last week's SCIENTIFIC AMERICAN was chronicled the test made at Fort Monroe with an 8-inch gun. On July 28 at Sandy Hook a 10-inch gun on a barbette carriage was fired for rapidity and endurance observations. The first ten shots were fired in exactly

sixteen minutes, the shortest intervals between shots being one minute twenty-five and two-fifth seconds.

After this test a series of thirty rounds was fired. The official time between the firing of the first and tenth shot of this series of thirty was thirteen minutes and twenty-two seconds. The next ten shots were fired by another crew in nearly nineteen minutes time. The

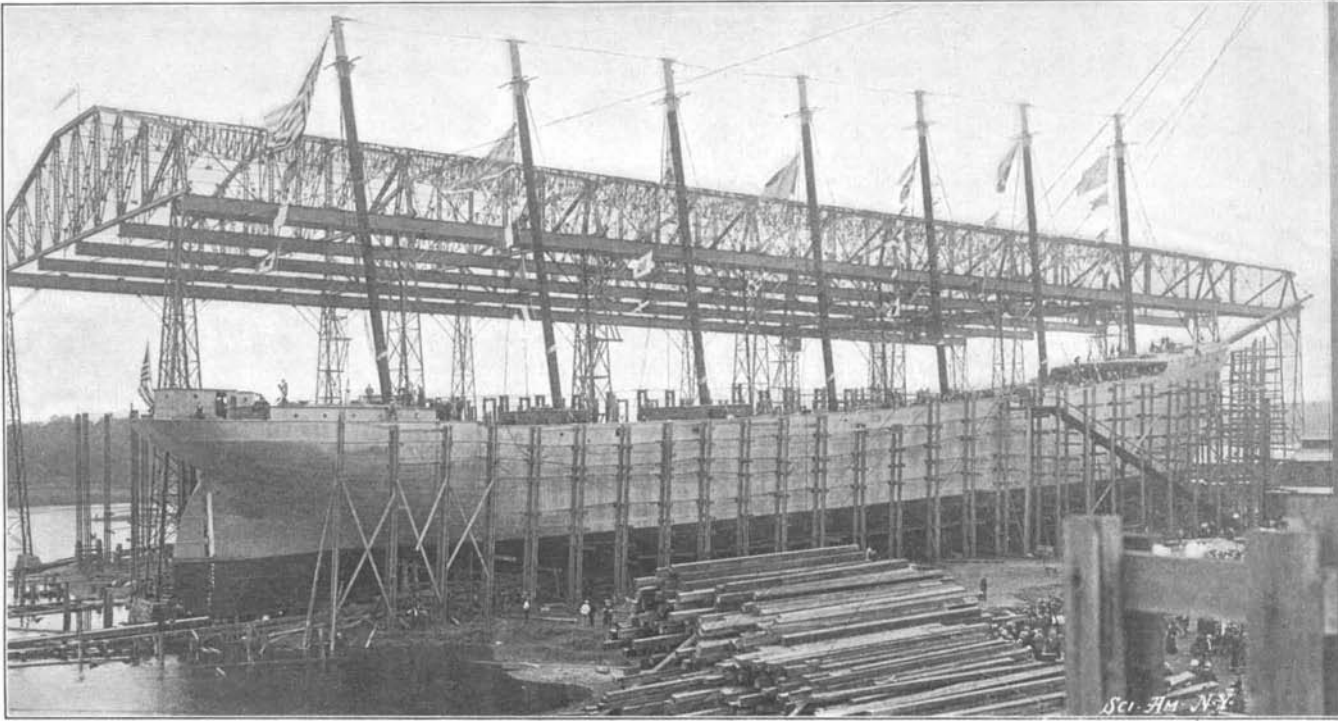
stauncher packing, a very essential point. In many places goods are carried by natives or Indians, either on their backs or suspended from a pole which rests across the shoulders of two men. In this manner quite a considerable weight is often carried. I have seen cases weighing 400 pounds carried through the streets by two men; on one occasion I saw four

men carry an upright piano. This, however, only holds good in the smaller cities; in the larger ones transportation is chiefly by wagons. It is into the interior, however, that most of the imports find their way, and as the continent is vast in size, the area of South America being equal to two and one-third times that of the United States, long distances must be covered, the method of transportation being as a rule to pack goods on the backs of burros. When we find horses they are of very small stature, excepting in

the southern or colder sections, and these small animals have a limited carrying capacity. Roads being scarce, goods must be packed on the backs of these diminutive animals, and packages should not weigh more than 150 pounds, and even that is strenuously objected to in many localities.

In some sections of the continent, especially along the west coast, I found the modes of transportation strangely interesting and picturesque. These conditions vary in the different localities. Arriving at Molendo, a port of southern Peru, through which pass practically all imports and exports of Bolivia, I found it was a most difficult problem to bring goods ashore on account of the rough waters, merchandise and passengers alike being hoisted onto the small dock by means of a steam crane. From here starts the great Arequipa and Puno Railroad, which has its terminus 317 miles away at Puno, on Lake Titicaca, whence merchandise is transhipped via steamer to Chililaya, in Bolivia, a country which has no seaport, having lost the province of Antofagasta some years ago. From here all goods are transported on the backs of burros, the typical donkey, for Bolivia is the home of this valuable pack animal. The burro will carry some 300 pounds on his back and travel day after day with but very little food or water. In the higher altitudes, and Bolivia is one of the highest inhabited countries on the globe, La Paz, the capital being some 12,000 feet above sea level, we find that graceful and invaluable pack animal, the llama, which will travel farther and with even less food than the burro, but will not carry more than 150 pounds. The llama resembles a camel, kneeling in camel fashion to receive its load, and it will not arise if more than 150 pounds are placed on his back; moreover, the weight must be evenly distributed over his back and sides.

Much complaint is made by the South Americans about the marking of cases. They should be marked in Spanish, the official language of all South American countries except Brazil, where Portuguese is



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final ten rounds were fired by a base-ball and foot-ball detachment, whose training was such that the ten shots were fired in ten minutes and fifty-nine and two-fifth seconds. The firing of the entire thirty rounds took only forty-six minutes.

HINTS FOR AMERICANS—TRANSPORTATION IN SOUTH AMERICA.

BY C. E. ROST.

After an extended tour through South America, the writer is convinced that one important reason why American goods are so seldom seen is because we will not adapt ourselves to the transportation facilities on that vast and populous continent. In all but one or two of the many large ports of South America steamers anchor off shore and all merchandise is transferred to the small docks by means of lighters. This necessitates an extra handling of goods, and therefore



LLAMAS USED IN TRANSPORTING GOODS FROM AND INTO BOLIVIA.



BURROS USED IN TRANSPORTING GOODS THROUGH PERU AND BOLIVIA.