

**IN THE PATH OF THE PORTO RICAN
HURRICANE.**

The accompanying views showing the destruction wrought by the recent hurricane in Porto Rico speak for themselves, and give a more graphic picture of the terrific force of wind and flood than can be conveyed by descriptive writing. Three of the photographs

ed. The river San Piedras is in ordinary seasons an inconsiderable stream, but within four hours after the storm had burst in this locality it had swelled into a raging torrent. As viewed in the illustration it flows in the direction of the bridge as seen from the point of view at which the photograph was made. The rush of water appears to have washed away the embankment which

shown was wrought entirely by the wind and consisted chiefly of the unroofing of houses and, in some cases, the complete demolition of the upper stories.

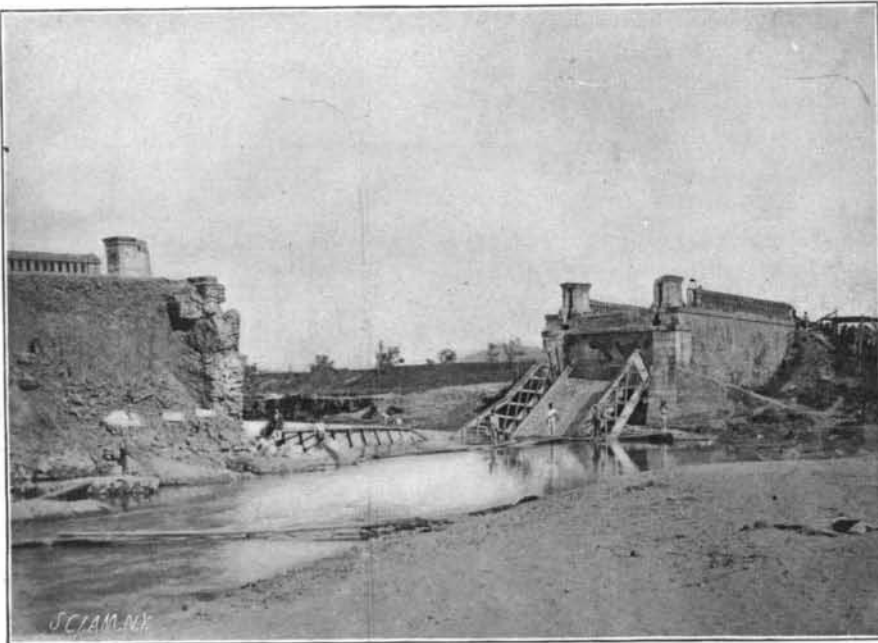
One of the greatest scenes of desolation after the storm was presented in the public square of Caguas, which was formerly one of the attractive sights of the town and the common place of recreation for the



DAMAGE IN THE MAIN STREET OF CAGUAS.



DESOLATION IN PUBLIC SQUARE, CAGUAS.



WRECK OF STEEL BRIDGE ON THE MILITARY ROAD.



STREET OF NATIVE HUTS, SUBURBS OF CAGUAS.

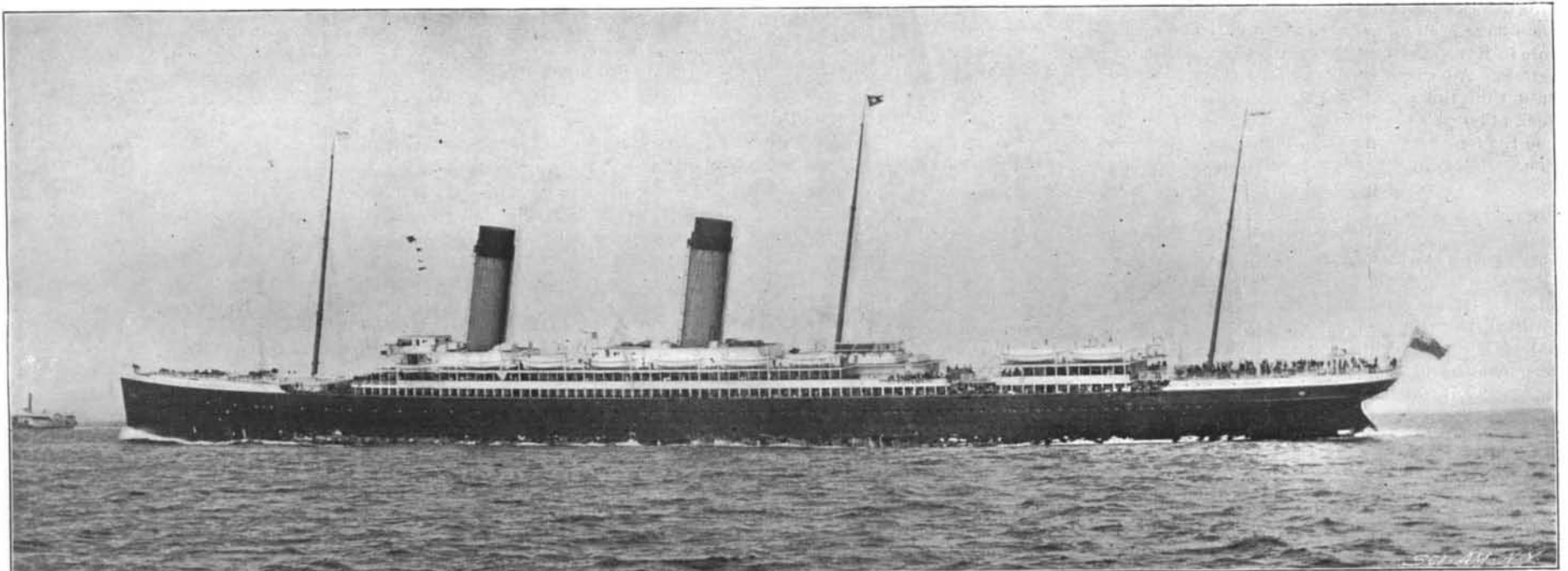
were taken in the town of Caguas, a place of 14,000 inhabitants which is situated in one of the richest tobacco districts of the island and is like Cayey and Camerio one of the most productive centers of the tobacco industry. The other view is taken on the celebrated military road which runs from San Juan through the island to the city of Ponce. This bridge is a modern steel structure which was built to carry the road across the river Piedras. It is situated about 21 miles from San Juan, and in the solidity of its construction it was a fair sample of the excellent work which is characteristic of the whole of the military road above mention-

formed the approach to the bridge on the left, and getting in behind the abutment it brought down the masonry with one end of the bridge, as shown in the illustration, letting the whole superstructure fall into the river.

The street which is shown in another photograph is Furabo Street, one of the principal thoroughfares of Caguas. It coincides with and forms part of the military road, and along it are to be found the principal stores and places of business. Generally speaking, the lower stories were built of brick and the upper stories were of wooden frame construction. The damage here

people. It contained a handsome grove of Framboyan trees, and how complete was the havoc wrought by the wind will best be understood from an inspection of the accompanying photograph. Not merely was the foliage entirely stripped from the trees, but the greater part of the branches were torn off and scattered in a confused mass throughout the plaza.

The American people have heard a great deal lately about the flimsy huts which serve as dwelling places for the poorer inhabitants of Cuba and Porto Rico, and the accompanying view taken in the poorer quarters in the suburbs of Caguas proves how extremely



"OCEANIC" PASSING SANDY HOOK ON HER MAIDEN TRANSATLANTIC TRIP.

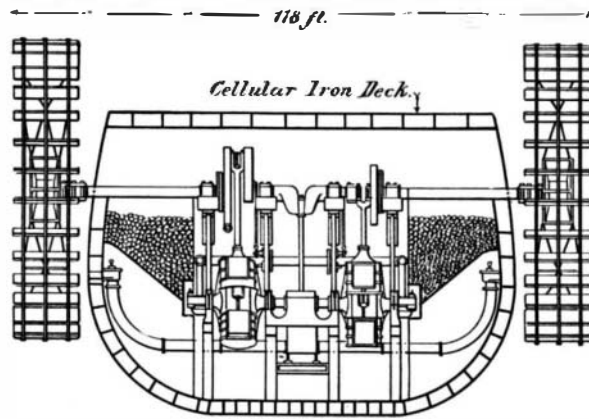
primitive these dwellings really are. The walls consist of rather slight posts set in the ground, closed in with the bark of the native trees, while the roof consist of light pole rafters with a thick covering of palm leaves. The inhabitants of these huts are employed chiefly on the farms and in the tobacco factories, where they do the common laboring, receiving for their services a wage which varies from 38 to 60 cents a day. These poorer classes live on dried codfish, sweet potatoes, rice, beans, bananas and coffee. It can easily be understood that the ravages of the hurricane were not so severely felt by these people as by the owners of the better class of houses; for the matter of repairing one of these huts is merely a question of a day or two.

THE "GREAT EASTERN" AND THE "OCEANIC"—A COMPARISON.

With the arrival of the magnificent liner "Oceanic" of the White Star Line Company at this port after a successful maiden trip, the people of New York city are carried back to the time when, some forty years ago, that other mammoth steamship, the "Great Eastern," made her first trip across the Atlantic. Although the "Oceanic" is a first-class passenger steamship in every particular of the hull, engines, safety and accommodation, and represents in all these respects the highest development of the steamship builders' art, there is no question that it is in respect of her unprecedented size that she will command most attention. For this reason we have thought best to make this article a comparison of the "Oceanic" with the "Great Eastern," with a view to bringing out, incidentally, the great strides which have been made during the past forty years in the building of transatlantic liners.

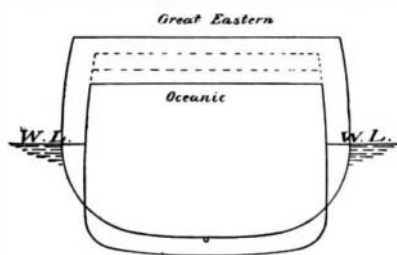
To begin with the question of size, the "Oceanic" is longer over all by 12 feet and her displacement at a working draught of 32½ feet is greater by 1,500 tons. In beam and depth, however, the ship of the fifties was enormously larger, having a beam of 83 feet as against 68 feet for the "Oceanic," while her depth was 57½ feet as against 49 feet. These differences are shown very clearly in the sectional view of the two ships. At first sight it would naturally puzzle the reader to understand how the "Oceanic" with a cross section so much smaller could have a larger displacement than the "Great Eastern," when both ships are of approximately the same length; but it must be remembered that while the average draught of the "Great Eastern" was only 25½ feet, that of the "Oceanic" is 32½ feet. The fact that a larger proportion of the hull is above the water-line will also explain

the more bulky appearance of the "Great Eastern" in our broadside view of the two vessels. Moreover, the model of the "Great Eastern" was considerably finer than that of the "Oceanic"; she did not maintain her



CROSS SECTION OF "GREAT EASTERN" AT THE PADDLE ENGINES.

full beam for any considerable distance amidships, her under-water body fining away toward the ends like that of a yacht. Further, her bilges were very much easier, being rounded up with a broad easy sweep, while those of the "Oceanic," as is the fashion in modern steamships of this class, are nearly square with a flat floor, a small dead rise, and a short radius at the turn.

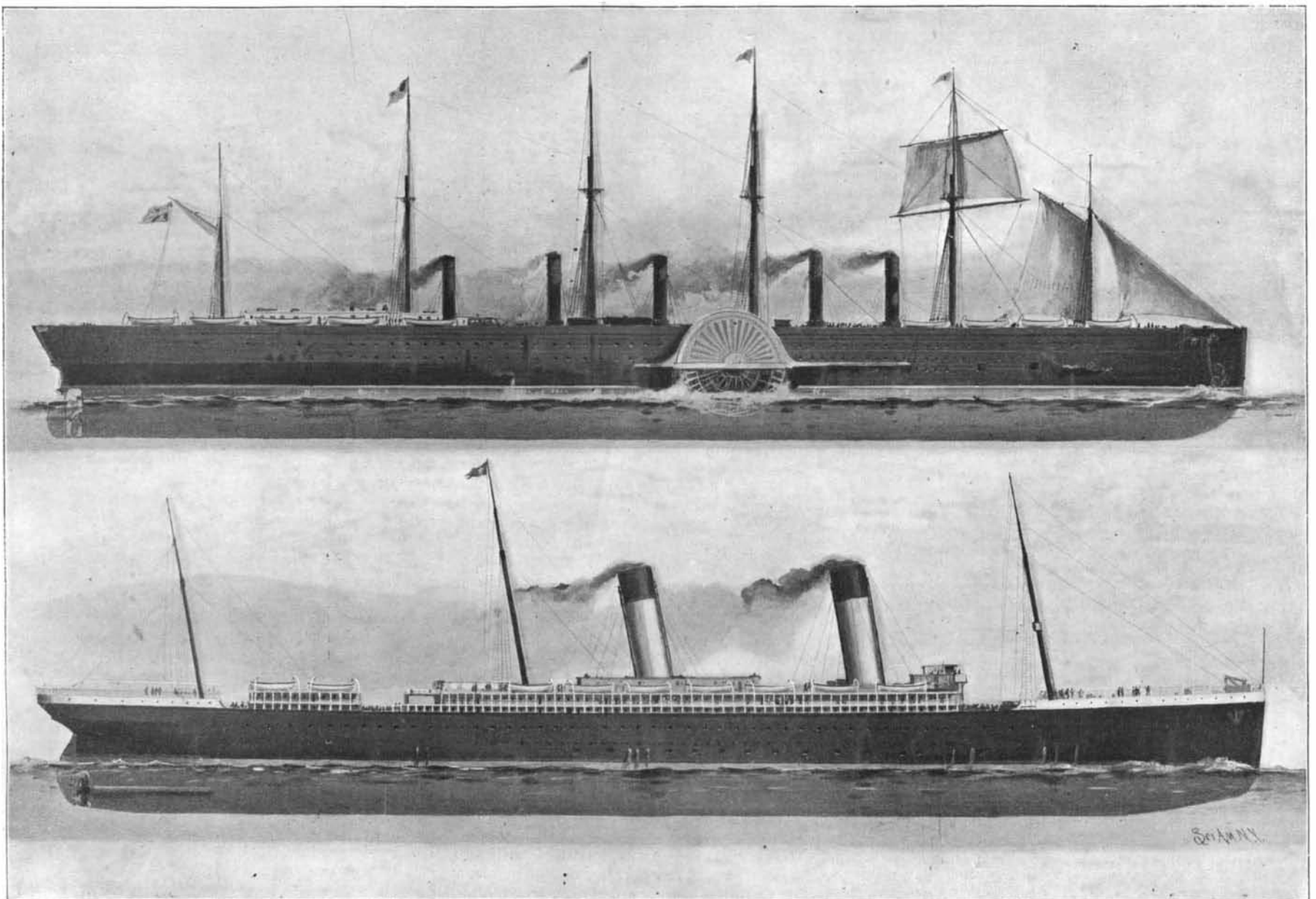


MIDSHIP SECTIONS OF "GREAT EASTERN" AND "OCEANIC."

Another feature which serves to make the "Great Eastern" look more bulky than the modern vessel is the fact that her plating was carried up to the top deck, which was entirely flush from stem to stern and carried only a few deck houses. In the "Oceanic," on the other hand, the two upper decks amidships are carried upon stanchions and extensions of the side frames and have no side plating.

THE "GREAT EASTERN."—The construction of the "Great Eastern" was commenced in the spring of 1854 on the banks of the Thames. She was built broadside on to the water, and the enormous difficulties attending her launch delayed her taking the water until the last day of January, 1858. Her total cost was probably about \$4,400,000. She was propelled by two sets of engines. Amidships was a four-cylinder paddle wheel engine of huge dimensions, while astern of this was a horizontal four-cylinder single screw engine. The paddle wheels were enormous affairs, 56 feet in diameter, and each of them weighed over 90 tons, while the breadth of the ship over the paddle wheel boxes was 118 feet. Each of the paddle wheel engine cylinders was 6 feet in diameter by 14 feet stroke, and the indicated horse power was 3,500. The four cylinders of the single screw engine were 7 feet in diameter with a 4-foot stroke, the indicated horse power being 4,500. Steam was supplied by ten double-ended multi-tubular box boilers, which carried a working pressure of 20 pounds to the square inch. The total daily consumption of coal when the vessel was running at full speed was 400 tons. The bunkers had the enormous capacity of 12,000 tons, this large supply being provided with a view to enabling the vessel to steam out to Australia and back without recoaling. The hull was constructed of iron, and, considering the early date at which it was built, it was a masterpiece of construction, and was of a strength which has probably never been exceeded in modern vessels. In the first place, the double bottom was carried, as shown in our cut, well above the water-line, and the upper deck, like the bottom, was of cellular construction, and consisted of a series of longitudinal girders extending throughout the entire length of the ship and closed in at top and bottom by plating. Fully 30,000 plates were used in the vessel, and when she was launched her estimated weight was about 8,500 tons. Provision for safety was made by building the ship with twelve watertight compartments below the lower deck and nine compartments above it. The ship carried four decks in all, and her passenger accommodation, in respect of the total number carried, was far ahead of anything that has ever since been attempted, provision being made for 800 saloon passengers, 2,000 intermediate, and 1,200 steerage passengers. The staterooms and saloons were built on what were for those days very generous proportions. The main saloon measured 36 feet in width by 100 feet in length and 13 feet from floor to ceiling.

On her first trip to this country she made the passage in eleven days two hours. Her maximum speed was 14½ knots, and her average speed during the time



"Great Eastern"—Length over all, 692 feet; beam, 83 feet; depth, 57½ feet; displacement on 25½ feet draught, 27,000 tons; horse power, 8,000; maximum speed, 14½ knots.
"Oceanic"— " " 70½ " " 68 " " 49 " " 32½ " " 28,500 " " 28,000; " " 21¼ knots.

"GREAT EASTERN" AND "OCEANIC" COMPARED.