

TESTING THE NEW BERMUDA DOCK.

BY HAROLD J. SHEPSTONE.

The new floating dock which has been built for the use of the British fleet at Bermuda underwent an exhaustive test recently at Chatham. As the dock has already been described in this journal a detailed account of the structure is unnecessary. It may be stated briefly, however, that the dock claims the distinction of being the longest and heaviest so far constructed. It has a length over all of 545 feet, and a hull weight of 6500 tons. It was built by Messrs. C. S. Swan & Hunter, of Wallsend-on-Tyne, England.

The huge structure was successfully launched last February from the yards of the builders, and, after completion, towed to Chatham, on the Medway, for testing purposes before being despatched to Bermuda. The test consisted in lifting the battleship "Sans Pareil." The operations were in every sense a success, particularly so when the conditions of the trial are remembered. A strong breeze was blowing at the time, and the water was very choppy. The "Sans Pareil," the ship selected by the British Admiralty, is regarded as a somewhat trying vessel to dock, being comparatively short and heavy, with a good deal of concentration of weight forward.

In the berthing operations the dock was sunk at high tide to the requisite depth. Tugs then brought up the man-of-war to the entrance. The vessel was hauled into its berth by the aid of strong steel-wire hawsers, fixed from the bow of the ship to the winches on the dock. As the ship drew 27 feet of water, the pontoon was sunk to a depth of 28 feet below the waterline. These operations occupied 2½ hours, which cannot be regarded as

an excessive time, for considerable care had to be exercised. In the first place, the ship had to be hauled in against the tide, which was running over three knots an hour, while above everything it was necessary to keep the ship perfectly level with the sides of the dock, as the least slip in this respect might have caused serious damage to the dock. One of our illustrations shows the ship in position, prior to the lifting.

As soon as the "Sans Pareil" was centered and the upper rows of shores adjusted, pumping was commenced, and after fifty minutes both dock and vessel were raised 13 feet. Another line of shores was then placed in position, and the pumping resumed. Al-

though the operations commenced at 11:30 in the morning, it was past 6 in the evening before the ship was clear out of the water as shown in our photograph. In smoother water it would be quite feasible, however, to berth a vessel in much less time. Great caution characterized the whole of the proceedings and often caused considerable delay; indeed, the placing of a row of shores in position frequently occupied an hour or more.

The "Sans Pareil" has a displacement of 10,470 tons. She was berthed with her guns and stores in position. It is interesting here to note that the biggest British battleship afloat—of the "London" class—displaces 15,000 tons, and the three battleships of the "King

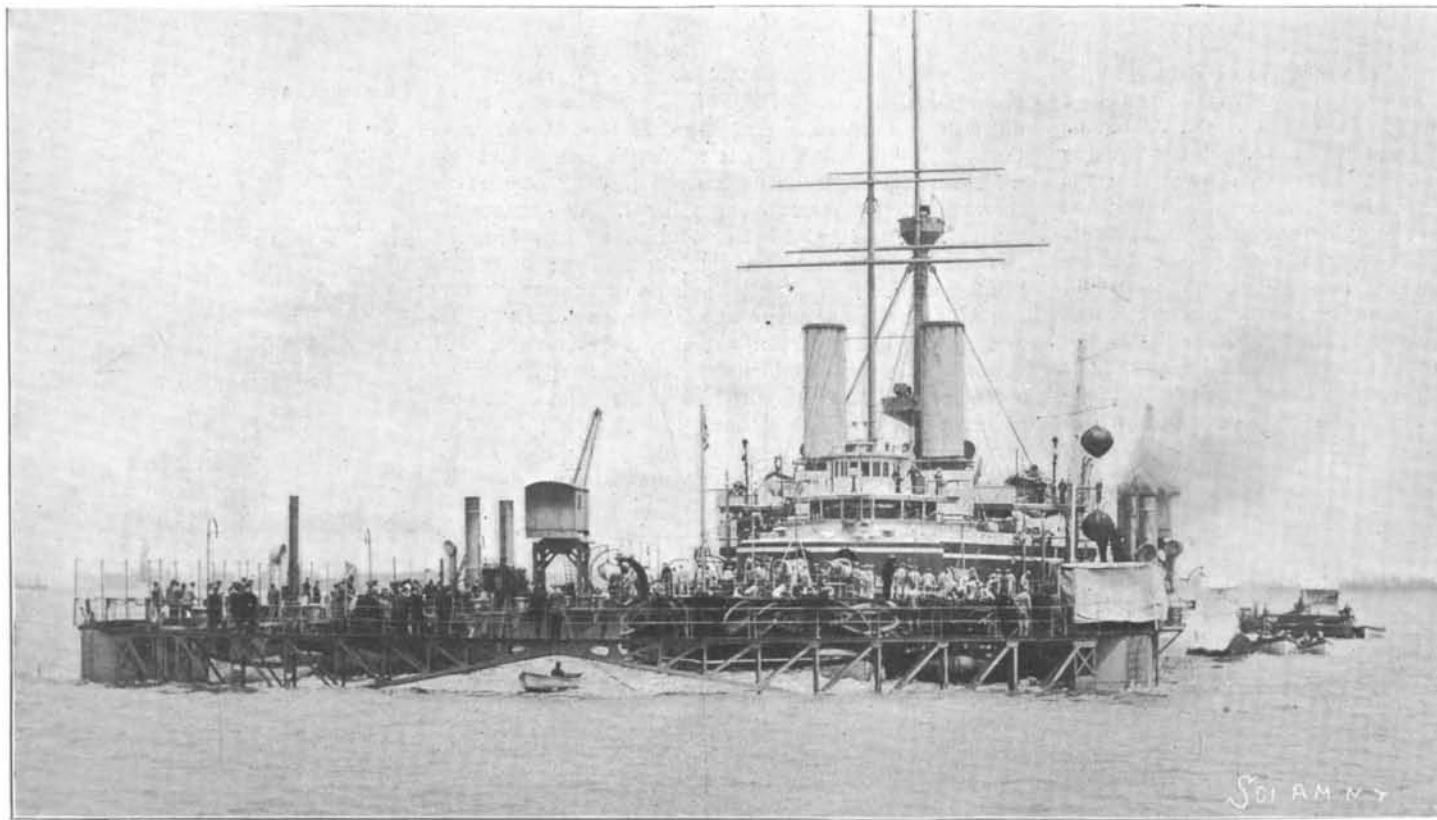
were "docked" or lifted out of the water, and after this the pontoon, or platform, on which the vessel rests. As the flooring of the dock is in three pieces the center was lifted first and then the two ends. Every part of the structure therefore can be docked separately, which is essential in the sub-tropical waters of Bermuda.

A reference here to the difference in the systems of docking ships, in the case of floating docks, between the United States and England will be appropriate, in view of the discussion it is causing in engineering circles. The American system dispenses with the use of shores, only using a few for centering purposes. This is practically impossible in the case of British

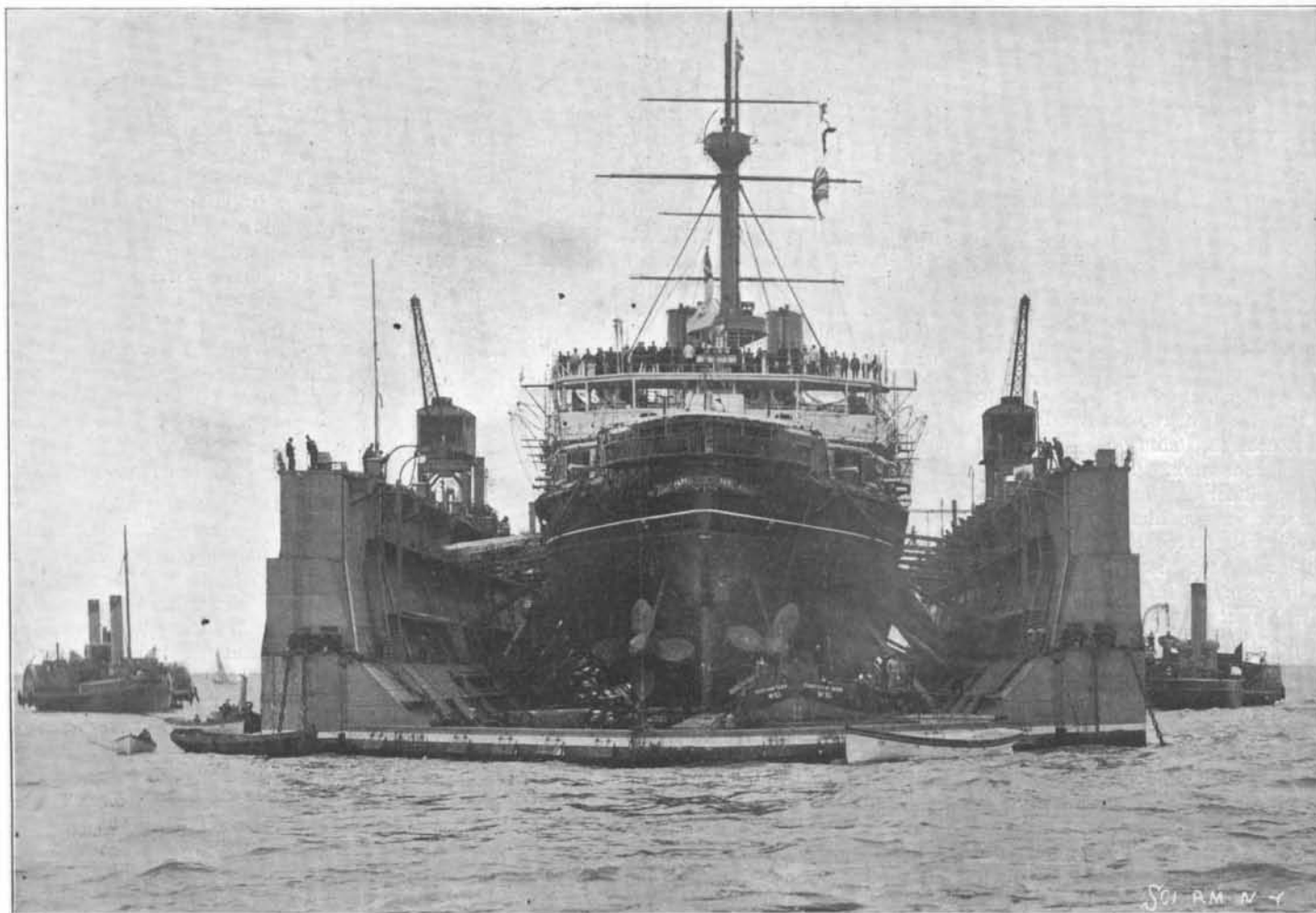
warships, as the vessels are minus the docking keels which are fitted to all American ships, and which enable the latter to sit upright on the keel blocks without the aid of side struts. By dispensing with shores a vessel, of course, can be docked much more quickly than it could otherwise be. But the English Admiralty refrain from adding docking keels to their vessels, believing that they detract from the speed of the ship. After all, it would appear from recent discussions on the subject that it is a very open question, no less an authority than Sir William White maintaining that such equipments detract little, if anything, from the speed of the ship, while they undoubtedly greatly strengthen the ship for docking purposes.

The trials of the new Bermuda dock being satisfactory, the structure left Chatham on June 16 last on its 4000 mile journey across the Atlantic. Three Dutch tugs, the "Zwarte Zee," "Ocean" and "L. Smit" were engaged for the task. Although float-

ing docks have been towed across the Atlantic before, the feat is nevertheless an arduous one. The structure is naturally very bulky and represents a dead-weight of over 8000 tons. This weight is made up with the numerous stores which have been placed upon the pontoon docks. The progress out of Sheerness Harbor was very slow, not more than four knots an hour, and it is expected this will be the average rate of speed across the Atlantic. The new dock, which is due to arrive in Bermuda at the end of July, has cost the British Admiralty £230,000, or about \$1,150,000, which price includes delivery at Bermuda. For the loan of the photographs the writer is indebted to the builders, Messrs. C. S. Swan & Hunter,



Dock Sunk, and Battleship Towed Into Position, Ready for Pumping.



Dock Pumped Out, Raising Battleship Clear of Water.

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Edward VII." class, now being built, will each displace 16,500 tons, so the new dock will be up to its work for some time to come. The "Sans Pareil" at the time of docking was drawing 27 feet of water. The sides or walls of the new dock, however, are high enough to enable a vessel of 32 feet draught to be berthed on the keel blocks, the latter being 3 feet 6 inches in height.

The docking of the man-of-war was part of the contract between the designers, builders and the Admiralty. Another of the official trials consisted in the self-docking of the structure itself. This was carried out a week previously on the Tyne before the dock was towed to the Medway. First of all the side walls