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## THE LEPANTO.

The Lepanto, launched on the 17th of March last, is sister ship to the Italia. The following description is partly abbreviated from one given in King's "War Ships," and copied from that work into Sir Thomas Brassey's work on the "British Navy." Side armor proper is dispensed with, the only plating being about 19 inches of steel-faced or steel armor on the barbette tower, and horizontal armor in the form of a deck, 4 feet 6 inches below the water line, consisting of 3 inches of steel. She carries four Armstrong breech-loading 100 ton guns in the center barbette tower, which is of peculiar shape, and consists of a wall inclosing two turntables placed diagonally, like the turrets of the Inflexible, and so arranged as to permit of all-round fire from the guns. The hull is of steel sheathed with wood, the lines fore and aft being very fine. It is constructed with the usual double bottom, 3 feet 3 inches between the skins amidships, and divided into numerous separate cells. Great strength is given to the structure by the bulkheads and decks. Two longitudinal water-tight bulkheads extend for the length of 254 feet 6 inches in the ship. These, together with the transverse bulkheads, divide the hull into fifty-three large compartments, which are again subdivided horizontally by four water-tight decks. The first of these is the armored deck above mentioned, which extends from stem to stern, and is incurvated at both extremities, meeting at the bow the extreme point of the ram, and thus adding material strength where most needed in the event of ramming an enemy.

Immediately above this armored or lowest deck is another, 6 feet above the water line, constructed of thin iron or steel and covered with wood. The side compartments between this and the lower deck just named, which are divided into water-tight cells, are to be filled with cork, as in the Inflexible. There is, however, this important difference, that whereas the last named ship has a long citadel in the middle of her length, protected by heavy armor, and relies upon cork only at her extremities, in the Italia the cork and water-tight cells afford the only means of preserving stability when the

sides are penetrated near the water line. The third or battery deck is 14 feet above the water line, and upon it are to be carried twelve guns of 6 inches caliber; and 7 feet 9 inches above this, and 25 feet above the water line, is the fourth or upper deck, supporting the casemate battery, 7 feet 6 inches in height, in which are to be placed the great guns in quadrantal shields at each extremity of the oval. The guns are to be fired *en barbette*, being supplied with ammunition from below the armored deck through armor-plated cylinders or shafts, of 9 feet inside diameter.

M. Dislère, in the *Revue Maritime*, gives further particulars as to the Italia and Lepanto. Each vessel is to be propelled by two screws of 19 feet diameter, each of them being worked by an engine of six cylinders. The power expected is 18,000 horses, giving, it is hoped, a speed of sixteen knots. The usual amount of coal is 1,500 tons, but 2,500 can be carried. At low speed the fires might be kept in for six months. The principal dimensions are as follows:

|  |               |
|--|---------------|
| Length between perpendiculars .....                          | 400 ft. 6 in. |
| Breadth of beam at water line.....                           | 72 " 9 "      |
| Breadth of beam at upper deck.....                           | 65 " 6 "      |
| Draught of water forward.....                                | 25 " 6 "      |
| Draught of water aft .....                                   | 30 " 6 "      |
| Draught of water, mean .....                                 | 28 " 0 "      |
| Area of immersed midship section.....                        | 1,770 sq. ft. |
| Displacement at load draught .....                           | 1,148 tons.   |
| Length of armored tower on fore and aft line.....            | 88 ft. 6 in.  |
| Breadth of armored tower across ship, extreme.....           | 72 " 6 "      |
| Length of armored tower <i>per se</i> .....                  | 96 " 0 "      |
| Breadth of armored tower .....                               | 52 " 9 "      |
| Distance of stem from armored tower.....                     | 170 " 0 "     |
| Thickness of sides of tower, including armor.....            | 3 " 3 "       |
| Thickness of iron armor on tower.....                        | 1 " 7 "       |
| Height of center of heavy guns above water line....          | 32 " 8 "      |
| Height of top of tower above water line.....                 | 30 " 0 "      |
| Height of upper deck above water line forward.....           | 25 " 0 "      |
| Height of upper deck above water line aft.....               | 23 " 0 "      |
| Height of upper deck above water line amidships..            | 22 " 6 "      |
| Height between upper deck and battery deck.....              | 7 " 9 "       |
| Height between battery and second deck.....                  | 7 " 9 "       |
| Height between second and armored deck.....                  | 7 " 6 "       |
| Depth of lower deck below water line amidships at sides..... | 5 " 6 "       |

|   |              |
|---|--------------|
| Depth of hold under lower deck .....              | 21 ft. 0 in. |
| Extension of ram beyond forward perpendicular.... | 6 " 4 "      |
| Distance of point of ram below water line.....    | 8 " 6 "      |

### MOTIVE MACHINERY.

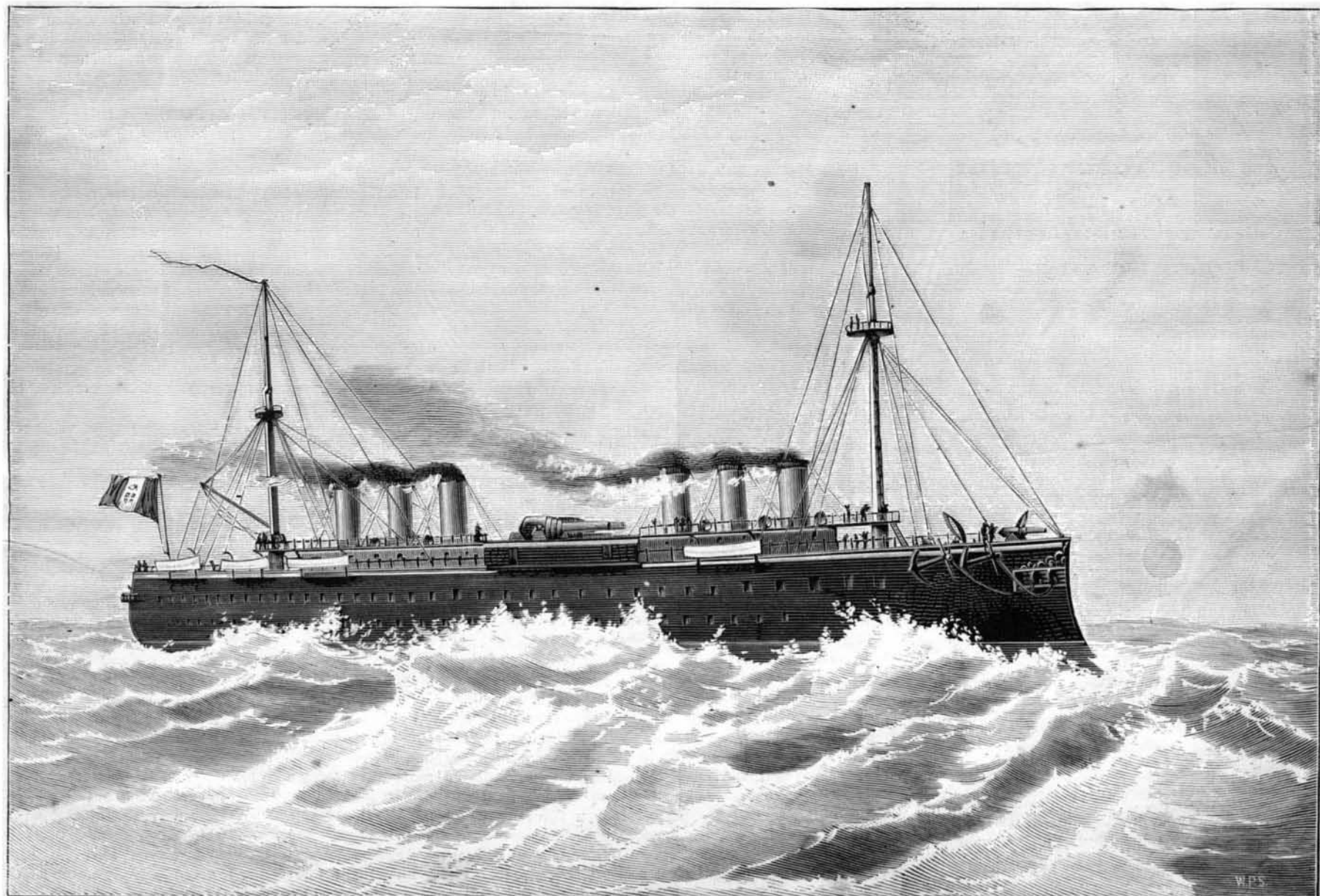
|  |              |
|--|--------------|
| Number of engines.....   | 4            |
| Number of cylinders.....   | 12           |
| Number of propellers.....  | 2            |
| Diameter of propellers.....  | 19 ft. 6 in. |
| Number of boilers .....  | 26           |
| Number of furnaces—three to each boiler.....                           | 78           |
| Length of ship for and aft occupied by engines, coal, and boilers..... | 250 ft.      |

The estimated weights of the hull, armor, etc., are approximately as follows:

|                             |             |
|-----------------------------|-------------|
| Hull .....                  | 5,000 tons. |
| Armor of armored deck.....  | 1,200 "     |
| Citadel.....                | 900 "       |
| Ammunition shafts.....      | 246 "       |
| Chimneys.....               | 552 "       |
| Total weight of armor ..... | 2,898 "     |
| Teak backing.....           | 114 "       |

The boilers were designed and made by Messrs. Penn. The engines are two sets of the three-cylinder vertical inverted type, on each of the two screw propeller shafts, making twelve cylinders in all. Twelve of the boilers will be located in three groups aft of the engines, and fourteen in the three groups forward of the engines. The after boilers are placed sufficiently high above the keel to admit of the passage of the screw shafts under them. The engines are of the same type as have been supplied by Messrs. Penn to the Northampton and Agamemnon, the cylinders being of equal diameters, applied to cranks set at equal angles. The steam and exhaust valves are so arranged as to allow the engines to be worked either on the compound or non-compound system, as desired. We are indebted to the *Engineer* for the foregoing particulars, and to *La Ilustracion*, of Madrid, for our sketch.

THE capacity of pipes is as the square of their diameters. If you double the diameter of a pipe, you increase its capacity four times.



THE NEW ITALIAN SHIP OF WAR LEPANTO.