

The engines are single, horizontal variable cut-off, directly connected to the pump shafts. Cylinders are 21 in. diameter; stroke, 22 in.

The drainage and leakage are removed by a 10 in. Heald and Cisco centrifugal, driven by a pair of vertical engines directly connected.

The engine pit is enclosed by sheet piling. For a foundation round piles were driven $3\frac{1}{2}$ ft. apart, all soft material was excavated to a depth of 2 ft. below floor level, and a quantity of loose stone thrown in. The piles were capped, and concrete laid on the loose stone was rammed round them and brought up level with the caps. A double floor of caulked 3 in. spruce was then laid, and another thickness of concrete placed on it. The pumps and engines were bedded on this foundation in concrete faced with brick. The walls of the engine house start from the same platform, the space between walls and sheet piling being filled to the surface with concrete.

There are two boilers of the marine type built of Siemens-Marten steel. They are 12 ft. 9 in. diameter and 11 ft. 6 in. long. Each has three furnaces 3 ft. inside diameter, 8 ft. 3 in. long, each furnace opening into a separate combustion chamber.

The contract stipulated that there should be pumping capacity sufficient to empty the dock when occupied by a 2,000 ton ship in two hours and a half. At an official trial under direction of the writer, the dock was emptied without a ship in it in two hours and twenty minutes. At every six inches fall of the water observations were taken of the steam pressure in boilers, and speed of engines. The speed of the engines, though slightly increasing, was comparatively uniform. It so happened also that the depth of water was reduced at a uniform rate, that is to say, very nearly the same time elapsed between the observations, from which it will appear that the ship resulting from the increased depth of suction varies approximately as the contents of a layer or stratum of a given depth at varying depths in the dock.

On the south side of the dock is a wooden freight shed 400 ft. x 40 ft., conveniently situated for a storage of cargo, either from ships in the channel dredged directly alongside or from ships in the dock.

On the opposite or north side a brick building 400 ft. x 35 ft. affords ample space for convenient office accommodation, stores and work-shops. The shops are furnished with electric light plant, punch shears, rolls, and other machinery suitable for repairs of wood and iron ships and a stationary engine giving the necessary motive power.

Among the most prominent features in this dock are the entire absence on the working floor of discomfort or inconvenience from drainage; the abundance of light and ventilation for workmen, resulting from the great top width; the readiness with which shores may be adjusted, owing to the small and numerous altars; and the facilities for expedition construction.

The materials used were the very best of their respective kinds, and the workmanship most thorough throughout.

The only casualty that occurred during construction was a slight movement of the material on the south side of the entrance works, before the frames or concrete were put in. It was promptly stopped by a system of struts to the opposite side, and gave no further trouble.

The work of construction was commenced on 28th May, 1883, and was suspended for four months during the winter of 1883-4. On the 10th Dec., 1884, the dock was formally opened, and H. M. S. "Tenedos" was successfully docked.