The thrust at centre becomes $\frac{70.7}{12} = 5.9$ per sq. ft.

The thrust at skewback becomes $\frac{75}{8} = 9.4$ per sq. ft.

Taking the calculating d as ⅔ of thickness at centre, then thrust at centre becomes $\frac{70.7}{8} = 8.84$ per sq. ft., and

This is too small as a margin of safety.

The bottom at centre was next made 3 feet deeper, or 15 feet altogether, and then a line drawn 1 in 12, as shown, on either side until they cut the horizontal line first drawn. Also, the sides were benched in 1 ft. 3 in. and 2 ft. 6 in., as on diagram, and fresh calculations made, as per Fig. 3.

The section in Fig. 3 is practically the same as per alteration given above, and as shown in Fig. 4. The method of carrying these calculations out are similar to those in Fig. 4, with far better results for the pressures per square

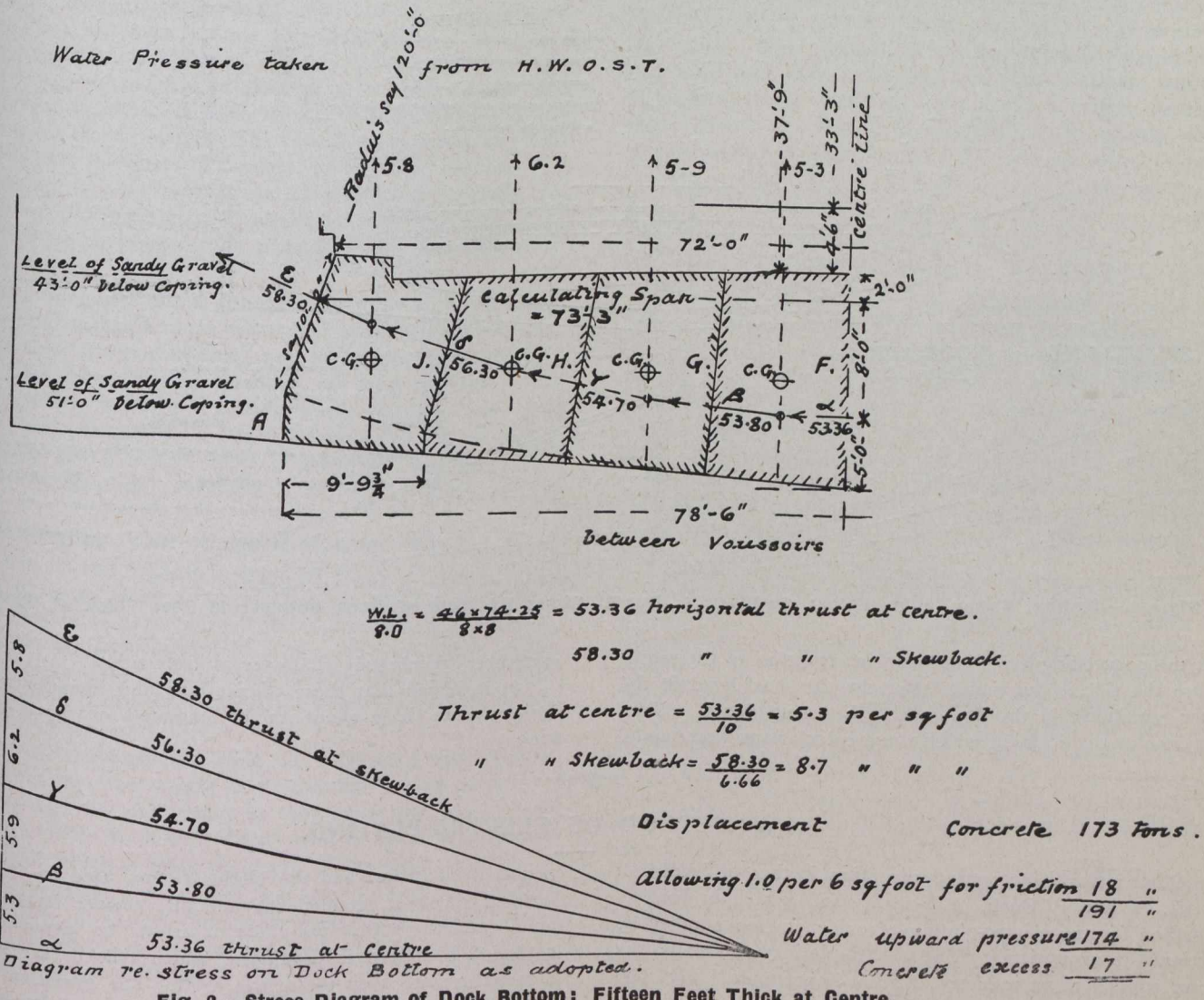

Fig. 3.—Stress Diagram of Dock Bottom; Fifteen Feet Thick at Centre.

thrust at skewback becomes $\frac{75}{5.3} = 14.0$ per sq. ft.

By the diagram for the side walls between B and C, it will be seen that the thrusts on the portions K and L of the wall become practically 75.0, and on the back of the wall 71 tons.

In respect to the upward pressure the difference between the concrete and water at section K is 0.5, and at section L is 17.5 for excess of concrete.

The total displacement is a follows:

Concrete and friction, as shown, equals	179 tons
Water, as shown, equals	174 tons
Difference equals	5 tons

foot, and in every way most satisfactory as regards displacement, which is of vital importance for the solidity and stability of the dock when completed. It may be mentioned that if a dock is too light when built in soft ground and wet, that it is liable to work upwards by hydrostatic pressure.

The construction of a dock must always be made of the very best material, and the ashlar well bonded and true in every respect, as much depends upon the workmanship.

For the purpose of affording access to the immersed parts of vessels, the ordinary graving dock, even at the present day, is the plan most commonly employed, and will continue to be preferred in places where there is a large rise and fall of tide, and where the ground is suitable for excavation.

In many parts of the world the rise and fall of the tide are sufficient to admit of a very large vessel being drawn