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CALCULATIONS FOR THE STABILITY AND DISPLACEMENT OF GRAVING DOCKS

By LEONARD GODDAY, C.E. and M.E.

Late of the British Admiralty.

In dock construction there are several important points to be carefully taken into account and calculated in determining the section of the walls and bottom, viz., the pressure of the ground according to its composition or water, as the case may be, against the walls, and also the upward pressure of water against the bottom.

There is also the displacement of the dock itself, which

The preliminary step is to decide upon the interior dimensions so that it will be large enough for the largest ship likely to be built in the future, such as length, breadth and depth.

Next, draw a section of the walls which are estimated with experience, to about the right section that will serve as a basis to start calculations, which will determine whether they

Strength necessary to resist Earth Pressure

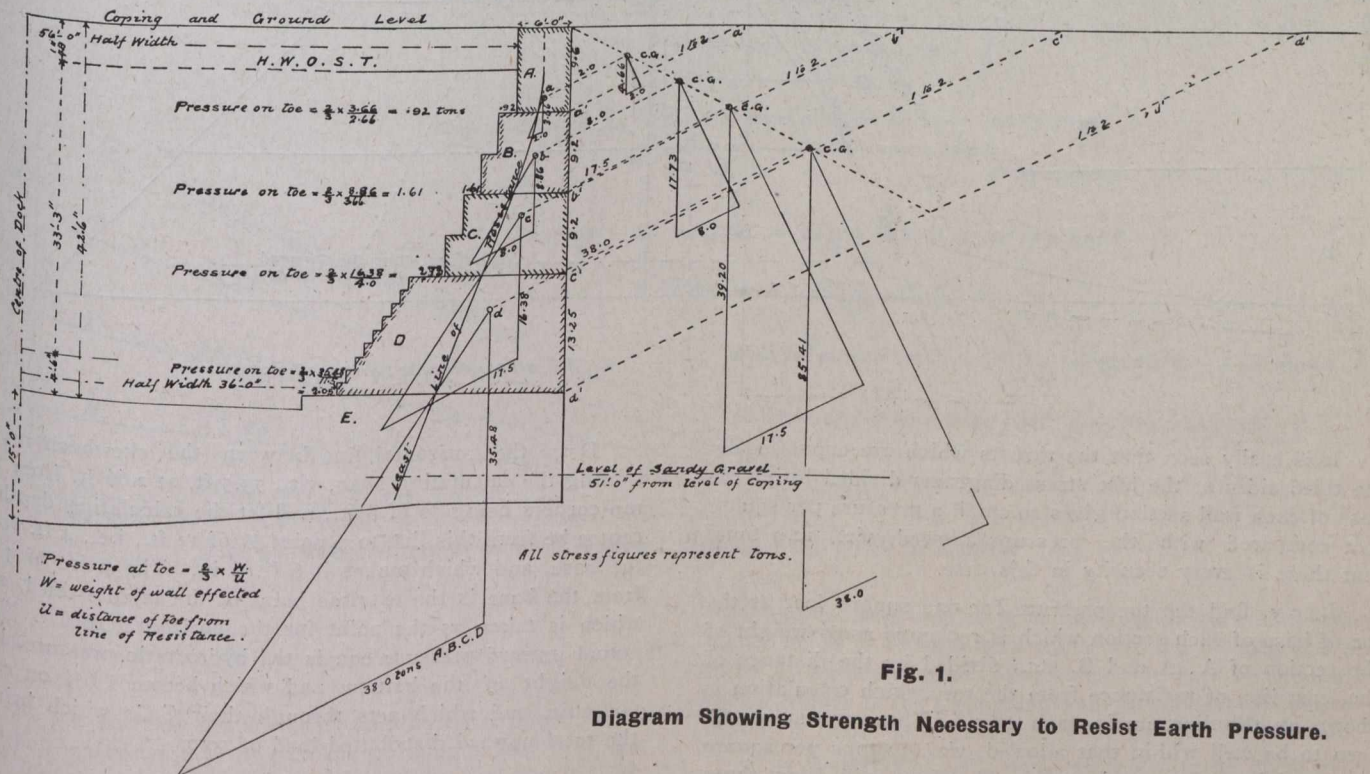


Fig. 1.

Diagram Showing Strength Necessary to Resist Earth Pressure.

is most essential to take into account when the sub-soil is saturated. This is nearly always the case when a dock is constructed at the entrance of a river, because the land is generally swampy and consequently filled up to the required level, and it follows that made-up ground has to be dealt with.

These methods of working were for a graving dock, carried out some years back in the old country, and the section had to be rather heavy on account of the soft nature of the ground to some depth.

can be lighter or heavier, as the case may be, and which is governed to a great extent by the displacement of the dock.

Starting with the diagram (Fig. 1) for earth pressure, the wall section was divided and lettered A, B, C, D, etc., as shown. The angle of rest was taken as 2 to 1 for earth. The sections calculated are always taken as 1 ft. wide for convenience, as any length required will always be a multiple of this. The weights given are always in tons.

To begin, find the weights of A, A and B, A, B and C, and A, B, C and D, and which are 3.66; 8.86; 16.38 and