vantages. It is simple in operation, accurate in result and handy in size. The marine pattern packs into a box about 15 inches square and 1 inch deep.

The instrument consists of four principal parts. The first is a Base Plate, made of metal, on which is inscribed a circle graduated in degrees. It is numbered in two notations : the inner notation is from 360 to 719, and so conforms to the values of "m" given in *Admiralty Tide Tables,* Part II, while the outer notation is the usual 000 to 360. Both these notations go "clockwise" and the circle is known as the "m" Ring. Inside the "m" Ring is a Dial, free to rotate, marked in degrees, and numbered "*anti-clockwise*". Inside these graduations are the "Hourly Phase Change Intervals" of the nine constituents — which we will return to later. This Dial is called the "d and g" Dial. Concentric with these circles and riding over the d and g Dial is the H and g Pointer, which projects on to the "m" Ring. This Pointer has a radial edge marked off in feet from 0 to 10 and divided into .2 of a foot. Its lower edge is marked by symbols of the nine constituents. Finally, we have the T Square. This travels along either the upper or the lower edge of the Base Plate and carries a scale representing feet from 0 to 10, graduated above and below the horizontal middle line of the Dial. These feet are also divided into intervals of .2.

The use of the instrument is simplicity itself. The value of "d" on the Dial is put to the value of "m" in the Ring and the Pointer is put to the value of "g" on the Dial. The outer end of the Pointer will then indicate "$m + d - g$" on the Ring. But we do not necessarily require this information as we get our result direct. The T Square is moved along until it cuts the value of fH on the Pointer — and where the graduation on the T Square cuts this value on the Pointer is the height we want, namely $fH \cos (m + d - g)$. This, of course, is the value at 00 hours. If we require the value at any other hour, or hours, and we usually do, we simply keep the Pointer on its "m" Ring setting and bring 00 on the Dial to the Pointer. Then, keeping the Dial fixed, we move the Pointer until it is cutting the required hour of the constituent we are calculating. This is found in the "Hourly Phase Change" markings on the Dial which have already been mentioned. The results are read off by T-Square as before. The symbols of the constituents on the Pointer assists us in finding out the appropriate Ring of the constituent under consideration. In the line sketch, herewith, it will be noticed that "m" is 495°; "d" is 180°; "g" is 265°; "$m + d - g$" is 50° and if fH is 5,2 then $fH \cos (m + d - g)$ is + 3.3 feet.

DESCRIPTION OF TWO METHODS OF USING THE WOLLASTON CURRENT METER. *

(From information received from Messrs. Henry Hughes & Son, Ltd., London).

The accompanying diagrams show the devices applicable in the following cases :

1). *2-Buoy Station for Measurements down to 5 fathoms*

1. Boat anchors and attaches buoy (1) to cable.

2. 20 ft. iron tube passed onto extension of cable. Cable stopped at end of tube and 10 ft. length left over outside Stopping. Small buoy (2) just big enough to float tube attached.

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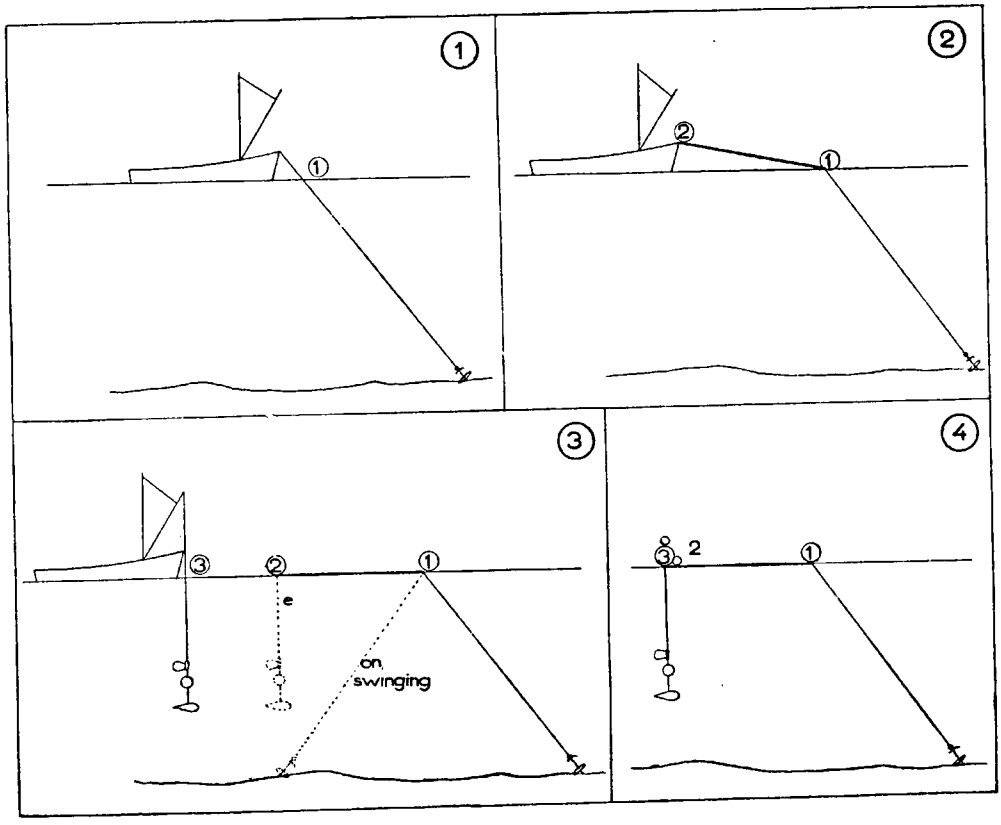
* *See description of this instrument, type* 1935, *page* 122 *of* Hydrographic Review, *Vol. XIII, N° 2, Monaco, November* 1936.

3. Boat lowers meter with supporting buoy (3) and makes (3) fast to end "e". Note that meter cannot touch cable where swinging.

4. Figure 4 represents the completed station.



2). *3-Buoy Station for Measurements below 5 fathoms*

1. Boat drops anchor and gets cable (a) taut at good steep angle (o).

2. Boat attaches buoy (1) and pays out line (l) with puddings or diamond knots (p).

3. Boat attaches buoy (2), measures out line (b) equal in length to (a) and attaches anchor to measured point.

4. Boat drops 2nd anchor.

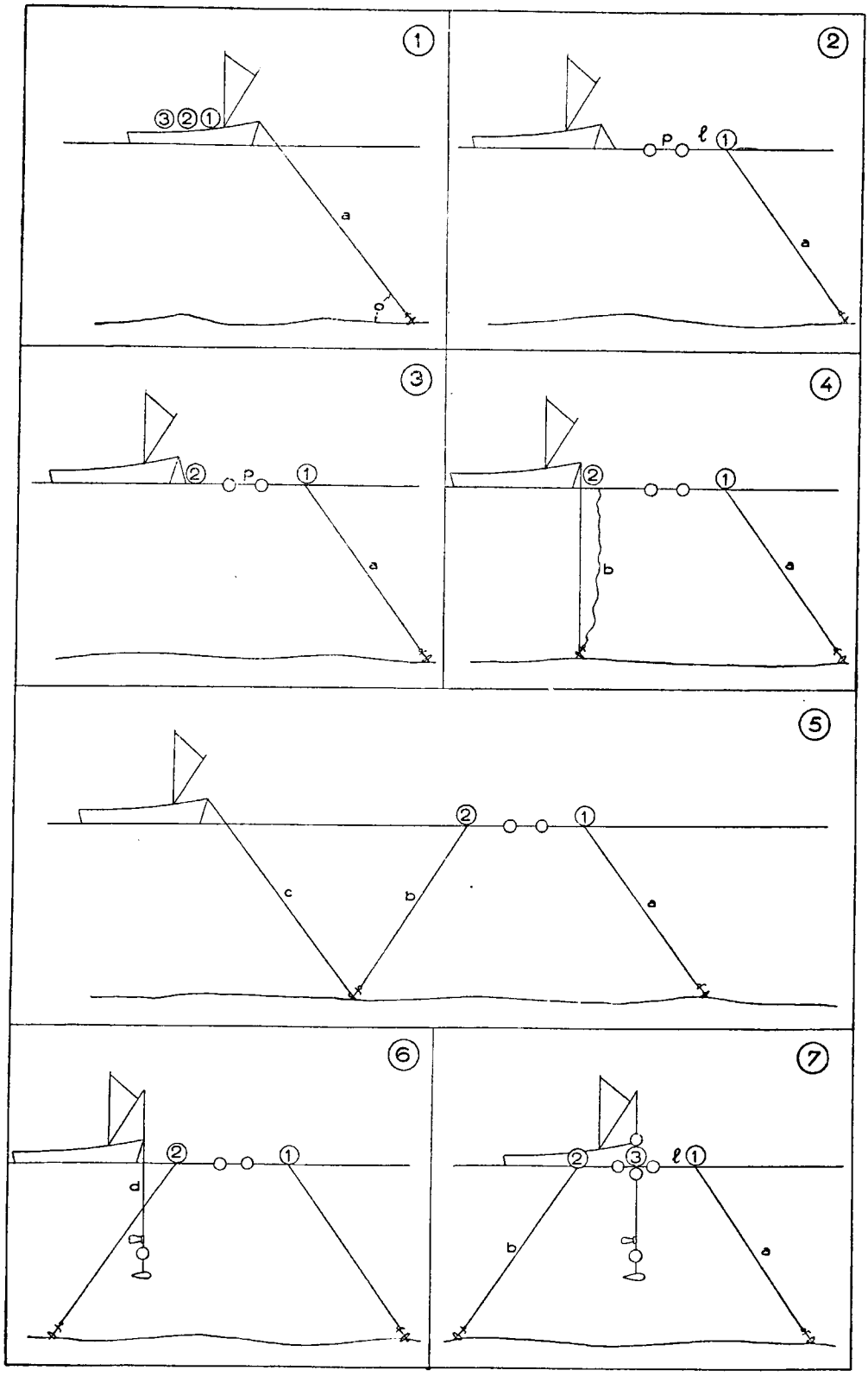
5. Boat hauls on anchor by means of wire (C) till (b) is taut, cuts (C) and lets end sink.

6. Boat lowers meter to desired depth.

7. Boat stops (d) to buoy, lowers buoy into water and makes fast end of line (d) between puddings on (l) above, completing station.

The Station may be left permanently in place, buoy (3) and (C) being cast off from (l) when required to haul meter. Buoy (3) should be capable of carrying the whole weight of meter without submerging in strongest tides observed. Buoys 1 and 2 may be smaller. One buoy should carry a light.

For a station to be left permanently over a long period, it would be better to moor buoys (1) and (2) by 3 point moorings and to heave them towards each other making 1 haul. Anchors most suitable, mushroom anchors.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