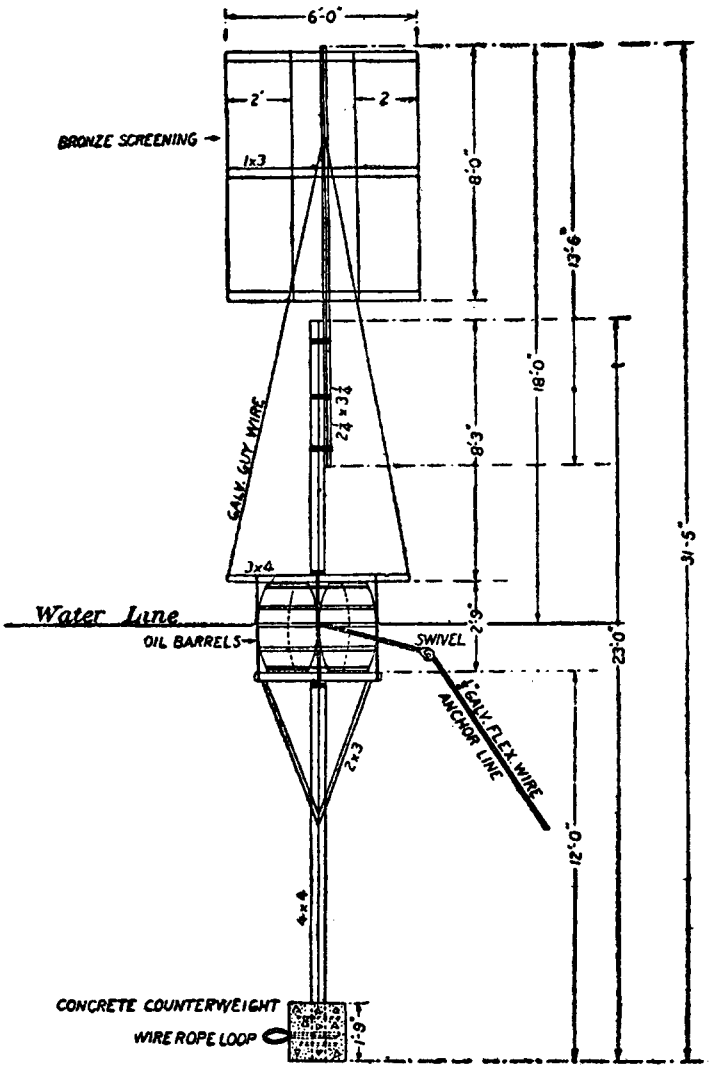
FLOATING HYDROGRAPHIC SIGNAL, THREE-BARREL BUOY. (*)

(Extract from U. S coast and Geodetic Survey Special Publication N° 93, *Reconnaissance and Signal Building*, by JASPER S. BILBY, Washington, 1923, pp. 72-75).

The following type of floating signal has been used with success by parties on the Atlantic coast : Three barrels, each of 50 gallons capacity, are fastened together, bilge to bilge. They float upright and support a center pole 4 inches square by 23 feet long. A concrete counterweight, weighing about 700 pounds, is cast on the bottom of the center pole to hold the signal upright. A target of two crossed banners of bronze screening, each 6 by 8 feet, is bolted to the center pole so as to make the top of the target about 16 feet above the top of the barrels. This target is guyed to the cross braces on the top of the barrels . A 1,500-pound concrete block is used as an anchor. The anchor line is 1/2 inch wire rope, except for an 18-foot section chain next to the anchor, and has a thimble spliced in the upper end for shackling to the buoy.



(*) *See also* : Hydrographic Review, *Vol. V*, N° 2, p. 101 ; *Vol. VI*, N° 1, p. 219 ; *Vol. VIII*, N° 1, p. 267 ; *Vol. IX*, N° 1, p. 164.

In constructing the buoy two of the barrels are laid side by side on their bilges and temporarily secured. The center pole is laid on top parallel with the barrels and with two of its faces tangent to their bilges. The center pole is notched slightly to receive the top barrel, which is placed on top of and parallel to the other two. This top barrel will naturally rest on one barrel and the center pole. Wooden wedges are used as necessary to fill in any space between the barrels. The three barrels are lashed together, using several turns of 1/8 inch galvanized wire at each end of the barrels just below the hoops. These two lashings are cross lashed and all are set taut with a Spanish windlass. Four cross pieces 3 by 4 inches notched to receive the chimes of the barrels are nailed to the center pole, two at each end of the barrels, and lashed together with 1/8 inch galvanized wire. These cross braces are to prevent any movement of the barrels along the center pole. The cross pieces at the top of the barrels extend about 6 inches beyond the barrels, and the guy wires from the target pole are secured to them and set taut with a Spanish windlass. Four diagonal braces 2 by 3 inches and 6 feet long are run from the bottom cross pieces to the lower extension of the center pole for additional stiffening.

The concrete counterweight should have suitable reinforcement to secure it to the center pole. It can be cast at the same time the other work is in progress. The bottom of the counterweight should be about 12 feet from the bottom of the barrel. A wire rope loop for tackle fastening is cast in the counterweight on the same side of the counterweight as the anchor line pendant mentioned in the next paragraph and in line with it. When handling the buoy, two tackles are used, one fastened to this loop and the other to the anchor pendant, and the buoy hoisted or lowered while horizontal.

An anchor pendant 3 feet long of 1/2 inch wire rope with a swivel on the free end is made fast to the buoy at the water line. The anchor line is shackled to this swivel. The target can be secured to the buoy just before lowering and can be removed immediately after hoisting. This permits two or three buoys to be nested on deck when necessary.

CURRENT DRAG

by J. Th. VERSTELLE,
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In the *Hydrographic Review*, Vol. IX, N° 2, November, 1932, Rear-Admiral J. D. Nares describes a current drag as used in H.M.S. *Merlin* carrying out current observations in 1920.

The D.E.I. Surveying Vessel *Orion* uses a current drag as shown in the attached drawing.

The drag consists of a thin iron plate *A* of the dimensions shown in the drawing. The plate is attached to the white or red painted bamboo float by the wires *a* and *b* (piano or other sounding wire). The current line is attached at *B* and *C* so that the plate is perpendicular to the line; it is a light rope with a "stray line" (to keep the drag free of the eddies astern of the anchored ship) of about 100 feet. The rest is divided like the ordinary hand log line in miles and quarters of a mile.

The drag is lowered into the water and the line payed out; when the mark indicating the end of the stray line passes the stern of the ship, a sand glass of 15 or 30 seconds is turned. At the moment the glass is empty the line is stopped and the mark on the stern read in 1/8 miles and noted in the logbook. Then we take a bearing of the float by a small compass at the stern of the ship. The observations are taken every hour day and night (for taking the bearing of the float at night we use a strong flashlight), 3 times one after another and the mean of it is taken as the true current. We use the drag at a depth of 3 to 4 ft. below the surface and measure currents from 1/4 to 5 miles an hour.