

## THE BLISH DISTANCE-FINDER.

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This simple and admirable little instrument was devised by John B. Blish, lieutenant, United States Navy. It has been used to advantage on board this vessel for about two years, and we have found it particularly valuable at night and in stormy weather.

With the course and distance and two bearings of a point of land, without computation or reference to books or charts, the instrument will give the distance of the point at the time of the first and second bearings, the distance to be run from second bearing to bring it abeam; also the distance at which it will be passed if the course is maintained. Repeated observations will show whether the vessel is actually making her course.

Referring to the sketch, Fig. I is a plan view, full size, and Fig. II a sectional view.

Scales of degrees and points are marked on the arc, and there is a scale of equal parts on CD, CE, and CF, which may be used as miles or fractions of a mile. A and B are silk threads pivoted at C and drawn under an elastic band which rests snugly in a groove surrounding the instrument, as shown in Fig. II. The band permits free movement of the arms, yet holds them in place when set. The vessel is supposed to be heading at all times from C to E, hence all bearings are plotted from E.

To use the distance finder, take a bearing of a point, note the number of degrees or points it bears from the ship's head, note the reading of the log, and set the arm A, counting the degrees from E; steer the same course until the bearing is sufficiently changed to make a good angle, then take another bearing, note distance run between first and second bearings, and set arm B on the number of degrees or points the object bears from the ship's head, counting from E as before. Then find the distance by log, GH, parallel with CE and between the arms A and B.

To find the distance of the point when the first bearing was taken, measure the interval CG on the scale CE or CD.

To find the distance of the point when the second bearing was taken, measure CH on CE or CD.

To find the distance to be run from the second bearing to bring the point abeam, read the interval HI on CE.

To find the distance the point will be when abeam, read CI on the scale CD, which is equal to the interval between CE and GHI, and may be read anywhere between those lines.



If the point is to be passed at a distance of 5 miles or less, it may be found convenient to have the lines on the scale represent half miles instead of miles. In reading the scale, fractions of a mile are estimated to tenths to correspond with the divisions of the patent log.

## EXAMPLE.

First bearing,  $30^\circ$  from ship's head (or E).

Second bearing,  $65^\circ$  from ship's head (or E).

Distance by log between first and second bearings, 8 miles. Set arm A on  $30^\circ$  for first bearing, and arm B on  $65^\circ$  for the second bearing.

Then, 8 miles, the distance run, equals GH between the arms A and B.

CG measured on CE or CD equals 12.6 miles, distance of point at first bearing.

CH measured on CE or CD equals 7 miles, distance of the point at second bearing.

HI measured on CE or CD equals 3 miles, distance to be run from second bearing to bring the point abeam.

CI measured on CD equals 6.3 miles, distance the point will be from the vessel when it is abeam.

The distances CI and HI are those mostly used in practice, but if the distances CG or CH are required, grasp the arm A at G, or arm B at H, and swing them to CE or CD and read off the distance from the scale.

The distance finder in use on board the *Albatross* was improvised by Ensign Henry B. Wilson, United States Navy. The scales were marked in India ink on Irish linen writing paper, which was then glued to a wooden frame, and finally given several coats of shellac varnish. Sewing silk was used for the arms, which were held in place by an ordinary elastic band resting in the groove, and a small nail constituted the pivot.

It will be observed that the left quadrant of the semicircle is used in the description and the example; the right one may be used in like manner by assuming that the ship's head is at F. The instrument is used as though the vessel was at C, steering to E, on the line CE, but in reality she was at G when the first bearing was taken, at H at the time of the second bearing, steering for I, on the line GHI, and the pivot C is the point on which both bearings were taken.

The distance finder and Table 5A of the new Bowditch Navigator are constructed on the same principle.