

MOORING OF SHIPS IN DEEP WATER FOR THE DIRECT MEASUREMENT OF CURRENTS

by

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(Complementary notes to be added to the article published in the Hydrographic Review, Vol. IX., N^o 1, May 1932, pp. 7-38).

1) With reference to current measurements carried out during tidal research work in the North Sea (p. 12), the following additional publication should be mentioned:—

THORDE, H. : *Gezeitenuntersuchungen in der Deutschen Bucht der Nordsee nach Beobachtungen an Bord des Vermessungsschiffes "Panther" im Juni 1924.* Extract from the *Archiv der Deutschen Seewarte* 45, Vol. III.

2) Referring to the mooring of *ships* in great depths in the Atlantic Ocean (p. 13), two interesting investigations by BRENNER are worth noting:— On two occasions during the *Deutschland* expedition of 1911, BRENNER anchored this ship's *tender* in order to carry out direct current measurements; once in a depth of 3.364 m. (1.840 fms.) in 7° 13' N., 36° 1' W., and again in a depth of 3.099 m. (1.695 fms), South of the Montague & Jaseur Bank. On the former occasion he used the geological percussion-tube with fixed lead as the anchor and, on the latter, a stake, in both cases with 4.000 m. (2.187 fms) of sounding wire 2 $\frac{m}{m}$ (1/12 in.) in diameter. Although the boat did not drift, the current measurements, lasting from 4 to 5 hours and made at depths of 600 and 800 m. (330 fms and 437 fms) respectively, did not give entirely satisfactory results, probably on account of the movements of the boat which could not be determined. BRENNER himself insists on the necessity for carrying out systematic current measurements lasting whole days and even whole weeks, down to the greatest depths, and also on the fact that the moorings of the tender here noted primarily represent methodical investigations.

For further details see : *Annalen der Hydrographie und Maritimen Meteorologie*, 1911, pp. 471 and 646; *idem*, 1915, page 61.

3) Concerning the transport of water by the great currents of the Atlantic Ocean (English text p. 16, French text p. 17), calculations were made for the first time by G. CASTENS. See :

CASTENS, G. — *Stromgeschwindigkeiten und Wasserumsätze in den Tiefen des Ozeans* — *Annalen der Hydrographie und Maritimen Meteorologie*, 1931, pp. 338 and 339.

