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SEA CURRENTS AND TIDAL STREAMS AT VARYING DEPTH OFF THE NORTHUMBERLAND COAST

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Studies of water movement a mile off the Northumberland coast using freely drifting drogues showed the mean set and drift of wind currents to be, at a depth of 2 fathoms, 114° and 2.60 miles a day; at 6 fathoms, 101° and 0.74 miles a day; and at 3 fathoms above the bottom, 040° and 0.25 miles a day. The mean wind during the observations blew towards 092° at 122 miles a day.

Tidal stream range (the distance between two successive slack waters with the wind current subtracted) varied from about 1.5 miles at neaps to about 4 miles at springs. It was 0.1 miles less at 6 fathoms than at 2 and 0.2 miles less again at 3 fathoms above the bottom.

Oceanic turbulence caused a pair of identical drogues riding at 6 fathoms gradually to separate. The rate of separation varied with the speed of water flow, the maximum observed being 800 feet in 2 hours in a 0.8 knot stream.

The results may be used to determine or, using a weather forecast, to predict the movement of plankton along the North-umberland coast for a few days together with an estimate of the probable error in the determination.