THE FLOW OF WATER THROUGH THE STRAITS OF DOVER

as gauged by continuous Current-meter observations at the Varne Lightvessel (50°56' N., 1°17' E.)

PART II

SECOND REPORT ON THE RESULTS OBTAINED (*)

by

J. N. CARRUTHERS, D. Sc.

Dr. CARRUTHERS has recently published a second report on the results obtained from continuous current observations at the Varne Lightvessel, dealing with the conditions of water-flow in the Straits of Dover.

This second part, comprising Series II, Vol. XIV, No. 4, 1935, of the Fishery Investigations published by the British Ministry of Agriculture and Fisheries, gives the results of observations made from 1928 till April 1935 by means of instruments of the Drift-Indicator type.

The report also contains an analysis of all the previous observations made in the neighbourhood of the Varne Lightvessel from 1911 on.

Section IV of the report contains a comparison between the variations of seasonal strength of the Straits of Dover current compared with the changes in salinity through the year. It has been found that during the period in question the water-flow from the Channel towards the North Sea attains its maximum strength in the month of November and its minimum strength in February. The other months of the year may be classified in the following order of decreasing strength: January, August and October, December, July, May, March and April, June.

H. B.

DER HYDROGRAPHISCHE AUFBAU UND DIE DADURCH BEDINGTEN STRÖMUNGEN IM SKAGERRAK.

(THE HYDROGRAPHIC CONSTITUTION AND RESULTING CURRENTS OF THE SKAGERRAK.)

by

GERTRUD KOBE

published by MITTLER & Sohn, Berlin SW 68, Nov. 1934. 6 Rm.

The Institut für Meereskunde has issued a work by Gertrud KOBE on the Skagerrak based on observations made at 18 stations from 1902 to 1914 by Sweden and Germany. These observations were published in the hydrographic bulletins of the Conseil Permanent pour l'Exploration de la Mer.

The Skagerrak is the end of the Norwegian furrow, which there attains its greatest depth — 809 metres (442 fms.). It connects the North Sea with the Baltic; the movement of the waters there is very complicated and annual variations of period have been found both in the displacements of the water and in its nature. Attempts have subsequently been made to utilise this knowledge of the density distribution to calculate the convection currents by BJERKNES' theory. First, working charts were made, showing, by horizontal sections at a series of depths for each month, the distribution of the temperature and of the salinity. Vertical sections along profiles show the arrangement of the layers of various temperatures and of various salinities; they are used for the computation of components of velocity.

(*) See *The Hydrographic Review*, Vol. VI, No. 1, May 1929, p. 193.

From these sections may be deduced the principal peculiarities, of which we need only mention the following: The not very saline water of the upper 50 metres along the Swedish and Norwegian coasts is much heated in summer and much chilled in winter, with a minimum in February and a maximum in summer. The salinity of the upper layers is at its minimum in May; but the waters of low salinity only reach the coasts of Jutland in August. On the west coast of Jutland, the waters of the North Sea have a salinity of 34 to 35 °/₀₀. The penetration of the waters of the North Sea into the Kattegat is only appreciable, according to the means of the month of August, at a level of 50 metres (27 fms.), while according to those of other months (February, May and November), a current entering the Kattegat can be detected even at 20 metres (11 fms.). The water fills the greater depths with a salinity of about 35.1 °/₀₀ and a stable temperature. The computation of the components of the convection currents is based solely on the distribution of densities; it has been impossible to take into account the accidental effects of wind and atmospheric pressure. The results can correspond to mean conditions only; they are none the less extremely well shown in a series of charts, sections and tables.

P. V.

OCEANIC TRANSGRESSIONS.

by

ED. LE DANOIS

Revue des Travaux de l'Office des pêches maritimes. Imprimerie Nationale, Paris, December 1934.

DIE THEORIE DER TRANSGRESSIONEN VON LE DANOIS UND IHRE BEZIEHUNG ZUM GOLFSTROM-PROBLEM.

(LE DANOIS' THEORY OF TRANSGRESSIONS AND ITS BEARING ON THE PROBLEM OF THE GULF STREAM).

by

Dr. O. v. SCHUBERT

Annalen der Hydrographie, Heft IV, 1935. MITTLER & Sohn, Berlin.

More and more interest is being shown in research into the water movements of the Atlantic. M. LE DANOIS has recently published a compendium of the theories which, more than ten years ago, made him give the new name of "transgressions" to the movements of the waters in the north-easterly parts of the Atlantic. Dr. O. v. SCHUBERT, of the Institut für Meereskunde, has analysed and reviewed this book very completely in the *Annalen der Hydrographie.* One must agree with him in showing the liveliest appreciation of the persevering study which has been made of the variations in the state of these water masses; for they are of great importance to fisheries and in climatic phenomena. The aspect of these transgressive phenomena is described in great detail for the different zones in chapter III of M. LE DANOIS' book.

Chapter I deals with some general principles, viz. immiscibility of the waters, classification and distribution of the Atlantic waters. The author distinguishes between waters of tropical origin (equatorial and Atlantic) and the waters of polar origin which he classifies into continental waters, polar waters (Arctic and Antarctic), and abyssal waters of Arctic or Antarctic origin. Differences of salinity and temperature characterise the general distribution of these waters. Dr. O. v. SCHUBERT comments with reason that it is impossible to explain, as the author seems to do, the rapid heating and cooling of the continental waters by their low salinity, for their specific heat increases, on the contrary, when the salinity decreases.