

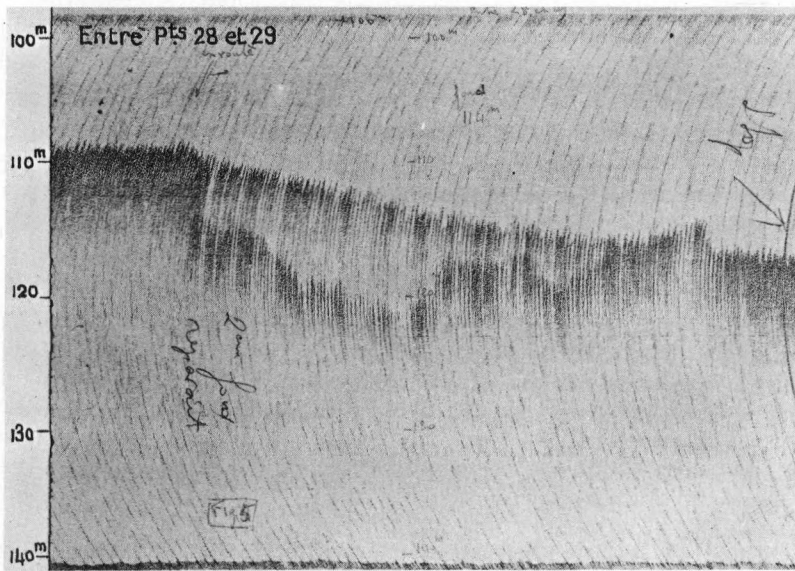
ARTICLES IN REVIEW

LEVÉ BATHYMÉTRIQUE DE LA CÔTE DU MAROC (Bathymetric survey of coast of Morocco)

by Ingénieur Hydrographe Général A. GOUGENHEIM

Reports of Proceedings of Academy of Sciences,
tome 249, pages 2599-2601. Session of 9 December 1959.
Gauthier-Villars, 55 quai des Grands-Augustins, Paris (6^e)

The subject article is a note on the bathymetric results obtained off the Atlantic coast of Morocco during ten consecutive seasons, from 1950 to 1959. The area under investigation, measuring 85 000 km², extends along 660 km of coastline, from Mehdia to a line south of Agadir, and about 130 km to seawards.



The distance between the sounding profiles, which were normal to the general direction of the isobaths, was from 100 to 200 m inshore, 500 m at the edge of the continental shelf, and a few kilometres at their seaward extremity. The absolute accuracy obtained in depth determinations was 0.20 m down to 20 m and 1 % beyond this figure down to 4 000 m and greater depths. Relative accuracy was 1/5 000, which was adequate for detailed knowledge of the bottom relief.

The numerous bottom samples obtained on the continental shelf showed

that the floor generally consists of strips of various types of sand, with occasional arenite shoals parallel to the shore, or separated in places by strips of mud overlaying a hard bottom.

By means of two successive echoes, it was possible to ascertain the precise thickness of the muddy layer. This process has been comprehensively described in an article by *Ingénieur hydrographe en chef* LACOMBE in the *Bulletin d'Information du C.O.E.C.*, February 1954, page 51. It is believed readers of the *Review* may be interested in the sounding record reproduced herewith, which was obtained in this area by a Hughes MSXXIG echo sounder and clearly shows the two echoes.

Positions were fixed up to about 20 km from the coast by conventional hydrographic methods. Out of sight of land use was made of a Decca chain in 1952, and from 1954 of a Rana system supplying three independent position lines for the sounding vessel. The size of the triangle formed by the three position lines showed that position ambiguity was less than 10 m up to 130 km offshore. For more ample information concerning the Rana system, the reader is referred to IHB Special Publication 39 and to the article entitled *Report on Rana Equipment of the French Hydrographic Office* appearing in the November 1960 supplement to the *Review* on page 47.

The bathymetric survey so undertaken supplied a detailed portrayal of the continental shelf and the slope connecting it with the deep-sea bottom. The total results are briefly illustrated in a diagram accompanying *Ingénieur Hydrographe Général* GOUGENHEIM's paper. For further indications, reference may be made to the survey plotting sheets at a minimum scale of 1/100 000, and to the 31 new charts of the Moroccan Atlantic coast at scales ranging from 1/10 000 to 1/800 000. The majority of these have already been issued by the French Hydrographic Office.

RESULTS OF CURRENT MEASUREMENTS BY TOWED ELECTRODES IN THE NORTHERN NORTH ATLANTIC DURING THE IGY

by Hartwig WEIDEMANN
German Hydrographic Institute

This paper was presented at the International Council for the Exploration of the Sea's Special IGY Meeting held in 1959.

The method and technique of measurement applied, through use of the GEK (Geomagnetic Electro-Kinetograph) instrument, are first briefly discussed. A summary account of measurements taken, principally by the *Anton Dohrn*, over a period of 89 days, follows, together with a reference to the detailed discussion appearing in a special IGY issue of the *Deutsche Hydrographische Zeitschrift*.

Results are divided into four groups, and show, according to wind force, the mean current velocity in cm/sec, current/wind ratios at the latitudes of observations, and current/wind ratios independently of latitude.

In mixing areas of polar and warm waters, intensive turbulence was observed and records were often magnetically disturbed. Results show deflections between 12° and 33° *cum sole* in relation to wind, and a current/wind ratio $\sqrt{\sin \varphi}$ of about 1.5 %, whereas these values in the case of stationary wind-driven currents are 45° and 1.26 % respectively, according to Ekman.

An article on the towed-electrode currentmeter, by *Ingénieur Hydrographe Général* A. GOUGENHEIM, appears in *Navigation*, a publication of the French Institute of Navigation, Vol. VI, No. 22, April 1958.

AUTOMATIC TYPE PLACEMENT

The Military Engineer, Washington, D. C., March-April 1960, Vol. 52, No. 346

This article describes an instrument known as the Staphograph, designed by the Army Map Service, for the automatic placement of map names. These are first composed photographically, using individual letters. The resulting films are used directly in the Staphograph for reproduction and automatic placement on the final chart drawing. A symbol plate has also been incorporated, enabling map symbols as well as names to be placed.

The saving in labor is about 15 % as compared with the old stick-up method, by which films were stuck on the manuscript, and the quality of the copy is far superior. The composing of certain map symbols by the Staphograph has resulted in savings as high as 50 %.

SATELLITES ET NAVIGATION **(Satellites and Navigation)**

by P. GAUDILLERE

Navigation, Revue Technique de Navigation Maritime, Aérienne et Spatiale, Paris, Vol. III, No. 30, April 1960, pp. 141-148

The possibility of using artificial satellites for fixing the position of ships and aircraft is discussed in this article, and the author indicates that present technical developments enable satellites to be designed for just this purpose.

Satellites appear to be well suited as passive or even active relay stations. It might be feasible, for instance, to replace with advantage a system of aids to air navigation, consisting of a vast number of metric or decimetric wave transmitters, by a small number of satellites covering a large global area.

The author moreover shows that by placing a limited number of satellites on a circular orbit in a plane with the equator, with a 24-hour cycle of revolution, it would be a simple matter to obtain a fix by two position lines or by the subtense method. Another possible method is use of the satellites as in hyperbolic navigation, that is, by measuring the difference in two-way travel time (or in phase) of a signal transmitted between a point on the earth's surface and two satellites of known position.