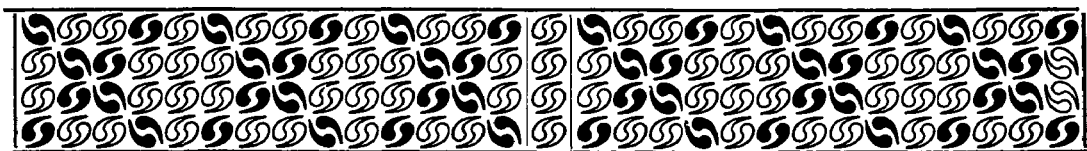


## FIFTY YEARS AGO...



In the domain of Oceanography the time would appear to be ripe for the adoption of terms, in each language, by means of which certain elementary features of Submarine Relief (or configuration of the bottom of the Ocean) may be characterised, on account of the great development and wide application of Sonic Depth-finding, and the consequent increase in data which eventually will be available to establish such configuration definitely.

Should agreement be reached with reference to a basis for the principal submarine forms, it would prove valuable as a foundation for a later agreement with reference to the other definitions.

These sage words, still pertinent today in view of the Undersea Feature Terminology List recently developed by the GEBCO Sub-Committee on Geographical Names, headed the lead article in the *Hydrographic Review* of November 1928, written by the President of the Directing Committee, Rear Admiral A.P. NIBLACK, U.S. Navy (Ret.). Admiral NIBLACK was reporting on the results of a Bureau enquiry into the Terminology of Submarine Relief started at the instigation of the Italian Hydrographic Institute, and his detailed paper included a table of terms in no less than 13 languages.

There followed full descriptions (with plans) of various new survey ships and craft, one of which — the *Hydrographer* — served the U.S. Coast and Geodetic Survey for 37 years — surely a testimonial to successful design and quality construction. The Bureau would like now to publish contributions on designs of ships and craft for the survey tasks of the '80s and '90s, aware that various countries are at present building ships and that others are certainly thinking of new procurements for the ever-increasing tasks ahead.

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The late 1920s were the pioneering years of aircraft for polar exploration and also for transoceanic flights. Both these new phenomena are reflected by navigational articles in this issue, notably by Captain SCHWEPPE of the German Navy who discusses the new navigational tools needed, including charts in special polar projections. It is appropriate here to commemorate the 50th Anniversary of the historic flight to the North Pole on 24 May 1928 of the Italian airship *Italia*, because her navigator was Lieutenant Alfredo VIGLIERI, later a Director of the IHB (1952-1967).

Vice Admiral VIGLIERI, President of the Directing Committee 1965-67 and still living in Monte-Carlo, did much to ensure the survival of the injured after the tragic crash of the *Italia* in an Arctic storm following the triumph of reaching the Pole.

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Another development of that period was the broadcast of radio time signals and their use in longitude determination ; the resulting increased accuracy in turn raised the still-present problem of adjustment of nautical charts :

### LONGITUDES IN HYDROGRAPHY

1. ADJUSTMENT OF MARINE CHARTS. Except for some particular points of the globe, amongst others the West Coast of Africa, some of the Pacific islands and various lands of the Arctic and Antarctic Oceans, the values now accepted for the longitudes are quite sufficiently accurate for the needs of navigation.

The problem, as regards marine cartography, is rather different. This sets out not only to give mariners documents suited to their needs, but also to provide as exact a representation as possible of the surface of the earth throughout the seas of the world.

But if the divergences of geographical positions which are most frequently met with seldom exceed 10 or 15'' and produce only graphically inappreciable errors on small scale charts, it is quite a different matter on those of large scale.

If charts of the same area, published at various dates, are compared, it will be seen that there are divergences between them which generally result in a translation of the graduation, since in many cases new determinations of geographical positions have been made in the interval between publications.

Moreover, in the case of charts based on the geodetic triangulations established by various countries, there may be fairly considerable distortions at the junction of these networks, due to the more or less imperfect agreement of the geographical positions of the original points, to the difference of the ellipsoids adopted for the determination of the positions of the various points, and lastly to the independent compensation of each network.

In short, in the present-day state of marine cartography, a certain point may have different geographical co-ordinates not only on the charts published by various nations, but also on those of the chart-sets published by a single country.

If it is not possible to alter the graduations and the meridians on the engraved plates as new values for longitudes are adopted, without causing too much damage, the first step towards uniformity in geographical positions might nevertheless be taken by publishing a catalogue of all those which affect hydrography, in accordance with the terms of the International Hydrographic Bureau's Circular-Letter N° 20-H dated 12th April, 1927.

This catalogue, which will condense in one volume the values and the discussions which are at present scattered throughout a considerable number of publications, will be of obvious benefit, both for the Hydrographic Surveyor who has to make new determinations, who will have at his disposal, without laborious research, the precise data which he requires for reference, and for the cartographer who will be able to compare rapidly the value of the various documents on which he relies for geographical position and to choose from amongst them the most recent and accurate.

This catalogue should contain the positions fixed during the 1926 operations, which will serve as base for future determinations. The values obtained, though not absolutely definite, constitute in reality, in the present state of technics, a maximum of precision which could be exceeded only after further theoretical and instrumental progress.

It would be an advantage if this catalogue were completed by adding a note on marine charts, indicating the reference meridian, the longitude adopted for this meridian with the date of the determination and, lastly, the quantity by which the longitudes of the chart must be corrected so that they will agree with this meridian.

This note, which it would be easy to keep up to date, would often obviate

a search through the catalogue and, in any case, would facilitate it, by at once indicating the point which serves as the base for the geographical positions of the chart.

The above extract is from a paper "The recent determination of a worldwide series of fundamental longitudes" by the brilliant French hydrographer and geodesist André GOUGENHEIM, who contributed many fine papers to the *Review* up to his death in 1975. 50 years after GOUGENHEIM wrote the penultimate paragraph, it has become vital that charts carry the type of note he there suggested concerning the adjustment of chart coordinates to reflect a common datum. Modern navigation systems such as Satnav and Differential Omega and the use of charts in offshore exploration both demand better information about the chart being used than in the days of the sextant-equipped navigator interested only in making his landfall.

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Finally, this was the period when many Hydrographic Offices were involved in the preparation of aeronautical charts, with their special requirements for symbolisation in view of the speed of aircraft, and we cannot do better than to finish by quoting Admiral NIBLACK on this subject (p. 187) :

Coastal charts for aviation are somewhat more complicated than those for the interior of a country owing to the numerous aids to navigation for surface craft which may also serve aviators when approaching land or in flying along coasts. Incidentally, there is no reason why the same symbols, signs, abbreviations, etc. should not be used on coastal aviation charts as those used on land aviation charts to represent exactly the same objects. Sign language preceded written language. The Tower of Babel had nothing to compare with the modern confusion which is caused through the innumerable words in the various languages which are used to explain on charts the nature of the objects required to be understood and recognised by navigators. Symbols obviate all this.

The speed of modern flying permits of little time for the reading of the explanations of the nature of prominent objects, even when the language is understood. As it would not be possible to equip air-craft with copies of all the dictionaries required to fly across Europe, the more simple solution might be to use universal signs and thus do away with most language difficulties. There would still remain enough. This sounds simple, but once a country has adopted its own particular symbols and signs for its charts, it usually favours international uniformity only in so far as its own signs and symbols are proposed for adoption for the purpose.

Some countries object to adopting signs which cannot be used on their own charts, because the symbolised object does not exist in their own particular country. For example, the International Meteorological Committee has proposed a set of international storm warning signals by day and by night to take the place of the twenty-six different systems which are now brutally inflicted upon seamen. Several countries have adopted this international system, but have refused to adopt the Hurricane (or storm of great violence) Signal on the ground that hurricanes do not occur in their countries, overlooking the fact that if their own seamen are not familiar with this signal, they will fail to recognise it when it is hoisted in other countries where hurricanes are prevalent. In the same way, aviators will not be familiar with the symbol when they see it on charts other than those which are produced by their own countries.

The adoption of the proposed internationally uniform symbols on aviation charts is a case of "now or never" because all countries are just at the critical period when it can be done with minimum inconvenience. Unfortunately, the countries which have been most progressive in publishing aviation charts of their own countries will be the most heavily penalised by having to change theirs, while those countries which have been backward in this respect, will suffer less inconvenience.