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"FIFTY YEARS AGO"

Anxiety and concern about the accuracy of positions determined by celestial observations are evident in the following article which appeared in the *Hydrographic Review* in 1931 when hydrographers did not have electronic position fixing systems to facilitate offshore surveys.

"It is an incontestable truth that the quality of hydrographic charts depends, mainly, on the quality of the determinations of positions.

Also, if we consider the question solely from the practical point of view, it is evident that safety of navigation depends on the accurate representation of the dangers, the banks, etc., a large number of which are located far from the shore and the positions thereof can be determined astronomically only. *This fact is so self-evident that, in enunciating it, I fear that I may be accused of banality.* Nevertheless, in spite of this obviousness, it will be found that "*astronomical position at sea*" is a subject which is almost entirely neglected in hydrographic bibliography. Therein, the most scientific questions of geodesy are dealt with; there will even be passages on the deviation of the vertical, gravity measurements and on isostasy, but nowhere, or practically nowhere, will anything be found directly concerning our problem. At most, it may happen that a brief summary of the methods ordinarily employed in navigation will be found and often only a reference to works on astronomical navigation – *materia minor* – and if such treatise on navigation be opened we may almost always search *in vain* for the solution of the following problem : *What astronomical measurements are necessary to fix the position with the maximum of accuracy attainable by observations at sea ? What degree of accuracy is it possible to attain ?*

Some hydrographers of the United States Coast and Geodetic Survey have recently sought to answer these questions on the subject of the surveys made in the vicinity of the Hawaiian Islands and in connection with the hydrographic survey of Georges Bank (in the North Atlantic about 160 miles to the eastward of Nantucket). In the *Bulletin of the Association of Field Engineers for the month of December 1930 (see International Hydrographic Bulletin,* March 1931, p. 66), we find a series of articles devoted to this question (Star sight positions : G.D. COWIE and K.T. ADAMS). The question of multiple observations of stars is treated therein and reference is made to the method of altitude bisectors. In regard to this method, there is a truly fundamental work entitled : *Sulla teoria e pratica della nuova navigazione astronomica*, by Dr. A. ALESSIO, Lieutenant (now Admiral) R.I.N., which was published as a supplement to the July-August 1908 issue of the *Rivista Marittima*, Rome."

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The tremendous job satisfaction of the Commander of a USC & GS survey vessel in having accomplished "so much more hydrography than would have been possible without that apparatus" (fathometer) is highlighted in the following report of Commander W.E. PARKER, USC & GS which appeared in the *Hydrographic Review* in 1931.

"As a matter of interest in connection with the use of the Submarine Signal Corporation's Fathometer a statement, made by Commander W.E. PARKER of the U.S. Coast & Geodetic Survey, and which appeared in the January, 1928 edition of the review *Motorship*, is quoted, which illustrates the co-operation of the U.S. Coast and Geodetic Survey and the Submarine Signal Corporation :

> "The United States Coast and Geodetic Survey has been co-operating with the Submarine Signal Corporation during the last two years in improving this apparatus and testing it under all kinds of conditions that are encountered in hydrographic surveying. Three such machines are now installed on surveying vessels and in the near future all survey ships will be equipped with this apparatus. The machines were used continuously during the last surveying season with excellent results. The Commanding Officer on one of the ships of the Survey reported that with the aid of this echo sounding machine he accomplished so much more hydrography than would have been possible without that apparatus that the machine paid for itself the first season – about 4 months.
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> During the recent cruise by the writer through the uncharted waters west of the Hawaiian Islands the echo sounding machine was used continuously in navigating the ship among the shoals and reefs that abound in these waters. Soundings were taken at intervals of ten minutes in deep water and at more frequent intervals as the depths decreased; one minute soundings were taken over shallow banks.
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> By this means it was possible to cruise at full speed day and night through waters known to be dangerous but for which adequate charts are non-existent. The risk was small since we knew at all times exactly the depth under the ship and how rapidly the depth was changing. About three thousand soundings were taken and recorded along a track of approximately two thousand miles and all of these soundings were taken without slowing.
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> A merchant ship equipped with this apparatus should be able to make port during thick weather or avoid dangerous shoals, by sounding alone. Given an adequate chart, the master should be able to spot his position at any time by a comparison of a set of echo soundings with the charted depths and lay his course with at least as much confidence as from astronomic sights.
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> This development is one which should be watched closely."

At the time the above article was written in January, 1928, the U.S. Coast and Geodetic Survey had only three of their boats equipped with the Submarine Signal Corporation's Fathometer. At the present time they have 13 ships equipped and three additional boats are on order to be equipped, which will make a total of 16 of their boats equipped with Fathometers."

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That the IHB was active in the field of transcription of geographical names even before 1931 is borne out by the following report of the Japanese Hydrographic Office published in the *Hydrographic Review* in 1931.

"The International Hydrographic Bureau has, on several occasions, taken up the subject of the transcription into Roman characters of place-names in countries in which the native language does not make use of the Latin alphabet.

This question has been particularly discussed by the various International Hydrographic Conferences and the following resolution was adopted with regard to it :

27. TRANSCRIPTION OF GEOGRAPHICAL NAMES

I. Generally the literal transcription and not the phonetic should be adopted.

II. For countries and islands which have not an official method of transcription, the transcription as adopted by the controlling Power should be used.

The International Hydrographic Bureau therefore forwarded inquiries to the countries referred to with a view to ascertaining whether official methods of transcription and authorities to deal with the question existed.

The Japanese Hydrographic Office, in particular, has taken part in the ensuing correspondence and the Director of this Office has kindly communicated to the Bureau a list of Japanese place-names transcribed into Roman characters which had been prepared for insertion in the new edition of the *International Code of Signals*.

This list of Japanese place-names, arranged geographically around the coasts of Japan, is reproduced hereunder; the approximate geographical position of the place has been inserted opposite each name.

In this connection it may be pointed out that, since the end of 1925, the Japanese Hydrographic Office has inserted at the end of its volumes of Sailing Directions a list of the geographical names mentioned in the publication, transcribed according to the new official system of spelling.

These new editions of Japanese Sailing Directions will be completely revised towards the end of 1932; the documents thus drawn up will form an important contribution towards the solution of the various questions which arise when it is necessary, on a chart, to transcribe into Roman characters the place-names of this country."