

Unfortunately the topography of the submarine depths is still far from being well enough known to serve as a definite basis for delimiting the oceans. The method of sounding by echo, by rendering the study of it so much easier, unfolds to us daily an unexpected complexity in these depths and leads us to conclude that their true topographical representation will be obtainable only by ships specially fitted out and entrusted with the minute examination of relatively restricted areas.

It is this type of contribution which will enable a bathymetric chart to be established of the same value as those we possess for the emergent relief. A chart of this kind is the indispensable basis for all oceanographical studies. The INTERNATIONAL HYDROGRAPHIC BUREAU hopes to produce shortly a new edition of the sheet covering the North Atlantic in the GENERAL BATHYMETRIC CHART OF THE OCEANS; this edition will include the result of all surveys carried out. But the resources of the Bureau have been sorely attenuated and it is to be feared that the new editions of the other sheets will be subject to vexations delays unless those oceanographical institutions specially interested in this work come to the rescue with the necessary assistance of liberal subsidies.

P. V.

ANAIIS HIDROGRAPHICOS

TOMO I.

Rio de Janeiro, 1933.

The DIRETORIA DE NAVEGAÇÃO of the Brazilian Navy has recently issued the first number of the Brazilian Hydrographic Record (*Anais Hidrográficos*). The Director of Navigation, Vice Admiral H. DA GRAÇA ARANHA, in an introductory note, states very truly that publications of this type are of interest in that they contain notes on hydrographic work undertaken and a succession of useful, timely and informative articles. He adds that the fact that the Brazilian Navy has recently inaugurated courses in hydrography, thus standardising and giving proper direction to this work, fully justifies the decision to publish these *Anais* which show how real and ardent is the desire of all under his direction to forward the practical development of such an important and quite indispensable Service.

The first chapter in the *Anais* is devoted to a short biography of Commander Manoel Antonio VITAL DE OLIVEIRA, who is described in the Introduction as the "pattern of a true hydrographic officer" and, at the close of the article, as "the greatest Brazilian Hydrographic surveyor of his time".

The next article deals with the charts of Brazil with some historical notes in connection with the preparation thereof. It contains index charts showing (1) the numbers of the charts of the Brazilian coast published by the Brazilian Division of Hydrography, (2) those of similar charts published by various other Hydrographic Offices (mostly French) and (3) the scheme of charting the coast which the Brazilian Division of Hydrography proposes to carry out.

Next comes a short chapter showing the number of Lights, Beacons, Buoys etc. maintained by the Division of Lights, and a report on the work done during 1933 and to be done during 1934 by that Division.

It is interesting to note that the first radio-beacon in Brazil was established at São Tomé during 1933 and that it is proposed to erect two others, one on the Abrolhos and the other at Boi Point, during the present year.

A short report follows on the survey of Ilha Grande Bay. This survey included the measurement of a base, a triangulation, observations for geographical position, azimuth and magnetic elements, the establishment of a CASSELLA self-recording tide gauge (from the graphs of which over a period 30 days, the harmonic constants were calculated by the LIVERPOOL TIDAL INSTITUTE) and the observation of surface currents. As the bay had already been well sounded previously a comparatively few check soundings only were taken, mostly with the hand lead, but a WARLUZEL sounder was used also. In addition many areas within the bay were examined with a sweep and several new dangers were located.

The construction and mechanism of the radio-beacon of São Tomé is fully described in the next article which closes with a statement that the DIRETORIA DE NAVEGAÇÃO will continue to carry out, during 1934, the plan for the erection of radio-beacons on and off the coast of Brazil. A chart showing this plan is attached.

The following chapter deals with Visibility at Sea when making a landfall. After a brief statement of (I) Geographical conditions, (II) Physical conditions and (III) conditions dependent on the physiological state of the observer, the distribution and differentiation of lights and beacons on a coast is examined. A study of the following subjects is then made:-

- Sources of light;
- Objects served by the marks;
- Classification of marks;
- Establishment of leading lights and clearing transits;
- Distribution of lights, beacons and buoys;
- Fog signals.

In the next article descriptions of the theory, construction and practical use of the Prismatic Astrolabe are given, as also are several examples of observations actually made with this instrument.

The chapter following consists of an exposition of the theory and a practical example of the rigorous compensation of equal altitude observations for the determination of Latitude and Time.

This interesting and valuable publication closes with the details of the curriculum of the courses in hydrography and the regulations for the DIRETORIA DE NAVEGAÇÃO, which latter differ but slightly from those published in *Hydrographic Review*, Vol. X, No 2, November 1933.

G. S. S.

SIMPLIFICATION OF NAUTICAL ASTRONOMY COMPUTATIONS AT SEA

An article by Herr W. FELDHUSEN of Altona appears under the above title in *Der Seewart*, Heft 4, Hamburg, 1933, which is worthy of mention here.

It is well known that at dawn and twilight there is a brief period, perhaps a quarter of an hour, during which the sea horizon is perfectly visible while the naked eye can already distinguish the stars in the sky. These favourable circumstances enable the position to be determined by three altitudes under conditions which are often much better than noon observations of the sun. To reduce the time that elapses between the end of the observations and the moment when the navigator has finally plotted the position on the chart, an interval must be dealt with of 15 to 20 minutes, normally necessary for working out the results, and Herr FELDHUSEN has gone into the question whether it be not possible to escape from this delay, the extent of which constitutes an appreciable loss of time, especially in the case of fast vessels. With this object, Herr FELDHUSEN recommends working out beforehand the estimated altitude of the stars that it is proposed to use, by means of modern navigation tables such as Dr. SOEKEN'S altitude tables, for pre-arranged times selected to be near the time of observation; and to draw a graph with Cartesian co-ordinates, on which the altitudes of the stars will be taken as ordinates and their hour angles or, better, the local time, as abscissae. The preparation of this species of nomogram does not require much more time than the other methods of calculation and is found to be very convenient in practice.

When actually taking the observations an assistant with a chronometer gives the observer, who holds the sextant, the approximate altitude of the star, and warns him in good time to observe the altitudes at a "stop" signal which he gives at an even minute corresponding to the calculations.

This method reduces the computation after the observation to nothing, and the author remarks that when the ship is steering steadily East or West, one day's calculations can readily be made use of for the following day.