

ANNAES HYDROGRAPHICOS

TOMO III.

Published by the Brazilian Hydrographic Service, Rio de Janeiro, 1935.

The third volume of the *Annaes Hydrographicos* under review contains an analytical account of the hydrographic work carried out in Brazil during 1935 and the programme drawn up for the year 1936. It gives the results of tidal observations for 1935 in the São Sebastião Canal, at Paraty and at Itacurussa.

There follows a report by Captain Alberto J. CARVALHAL on the determination of the geographical coordinates and magnetic data for the Brazilian Coast between Santo Agostinho and Aracajú. An appended chart shows the divergence between the new tracing and the former contour line on now disused charts.

The *Annaes Hydrographicos* further contain a report by Captain F. FROTA on the use of a 45° astrolabe by the Brazilian Surveying Party to determine the position of the Abrolhos Lighthouse. The result is as follows:

$$\varphi = 17^{\circ} 57' 47'',22 \text{ S. } \pm 0.11''$$

$$\lambda = 38^{\circ} 41' 46'',08 \text{ W. } \pm 0.37''$$

Captain FROTA's report is followed by an article describing the stereograph used by the Army Geographical Division for the examination of aerial photographs, with a theory concerning the method of using it in tracing depth contours.

An article by Lieut.-Commander G. B. PEREIRA DAS NEVES on the compensation of ships' direction finders and radio-compasses appears on page 75.

Lieutenant Ary RONGEL contributes a series of interesting notes on the datum of reduction of soundings to be selected for Brazilian coastal charts. At the end of this volume of the *Annaes Hydrographicos* some information is given concerning new Brazilian charts published since 1932 based on recent surveys by the Hydrographic Service.

With reference to the classification of charts and documents, the Brazilian coasts are divided into three parts:— from Orange Cape to Cape Calcanhar (North coast); from Cape Calcanhar to Cape Frio (East Coast); from Cape Frio to Chuy Deep (South Coast). The same geographical order will be used hereafter by the Hydrographic Service for Sailing Directions, Light Lists and Notices to Mariners.

A chart index shows the new plan for numbering charts according to scale. These scales have been standardised. Charts are constructed to rounded-off natural scale; for those of the North Coast the basic parallel of $\varphi = 0^{\circ}$ has been selected; for those of the East Coast $\varphi = 17^{\circ} 56'$; for those of the South Coast $\varphi = 31^{\circ} 43'$.

A Portuguese-English vocabulary is annexed so as to facilitate the use of English and American charts by Portuguese-speaking seamen.

H. B.

WORLD LONGITUDE 1933.

by

J. P. LUSHENE

(Reproduced from *Geodetic Letter* No 6, June 21, 1934, published by
U. S. Coast and Geodetic Survey).

One who examines a map showing the opposite coasts of the South Atlantic Ocean will notice the striking similarity of the shape of the coast lines. Each major indentation on the east coast of South America has a somewhat corresponding protuberance on the

African west coast, and vice versa. If one were to take dividers and make measurements on a globe it would be found that dimensions agree closely.

A realization of this phenomenon brought about a new conception of the nature of the earth's crust and movements or drifts of land masses. A new theory was evolved, called the Theory of Displacement of Continents, sometimes referred to as the displacement theory. One great advantage of this theory over many scientific theories is that its immediate solution is possible by accurate astronomical determinations.

To test the theory, a world-wide network of longitude stations, the differences of longitudes of which were to be determined simultaneously, was laid out in 1926 by international agreement. The same net was reobserved in 1933. The main-scheme station of this net observed by the Coast and Geodetic Survey was station "Niu" located 7 miles south-east of Honolulu, Hawaii. The first set of observations at this station were made in October and November 1926, by Lieut. E. J. BROWN, and the second set in October and November, 1933, by Lieut. (j. g.) J. P. LUSHENE.

The results are as follows :

Longitude of "Niu" (west of Naval Observatory at Washington, D. C.).

5 hours 22 minutes 39.531 seconds (1926)
5 hours 22 minutes 39.538 seconds (1933).

The result shown for 1933 is a preliminary one and may be subject to a slight change when adjusted to the network of the world. The difference between the observations of 1926 and 1933 is only .007 second. Since the probable error of the observations is about .005 second it appears that there is no drift between the observatory at Honolulu and the Naval Observatory at Washington, D. C. The advocates of the displacement theory would expect a movement of perhaps 5 to 10 meters per year, but the results do not show this to be the case.

The observations were made with a BAMBERG broken telescope transit and with the quarter-meter, half-second gravity pendulum, which served as a precision timepiece. It is interesting to note the high accuracy that can be obtained with these instruments

COMMON ERRORS OF INEXPERIENCED PERSONNEL IN THE COMPILATION OF AIR PHOTOGRAPHS.

by

B. G. JONES, U. S. COAST AND GEODETIC SURVEY.

(Reproduced from *Field Engineers Bulletin*, No 9, Washington, December 1935).

Beginning in 1933, the compilation of large scale line maps from air photographs by the Coast and Geodetic Survey has been expanded to include surveys of the coast line and intra-coastal waterways of the greater part of the East Coast and extensive areas of the Gulf Coast and Pacific Coast. The surveys now planned include approximately 700 maps on a scale of 1:10,000 and 1:20,000 with a few 1:5000 compilations in the vicinity of New York City. The office reviews of about 250 of these maps have been completed to date.

It is my purpose to discuss the most common errors found in the office reviews of the compilations and the methods of instruction devised to avoid repetition of those errors.

These maps are compiled by the radial line method and, except for contours, practically all detail appearing on the photographs is shown.

The maps are designed to furnish the large scale topographic surveys necessary for use with the hydrographic surveys of the Bureau and for correction and construction of charts. An endeavor is made to maintain standards of accuracy such that these compilations will serve as base maps for future revision surveys. It is proposed to construct