

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.