



THE PORTUGUESE HYDROGRAPHIC SERVICE

BY THE PRESIDENT OF THE DIRECTING COMMITTEE.

After the Assembly of the International Union of Geodesy & Geophysics, which was held in Madrid, in 1924, and which the President of the Directing Committee attended, he proceeded to Lisbon with the object of visiting the Portuguese Hydrographic Service, and the description given below is the result of this visit.



THE Portuguese Hydrographic Service is established at Lisbon in the building of the Ministry of Marine, and is divided into two sections, one dealing with hydrographic work in general, including the engraving and production of charts, compilation of publications respecting tides, lights, buoys, etc., the other being concerned with the actual surveying work of the coast of Portugal carried out on board the surveying vessel and the resulting office work.

The Director of Hydrography, Rear-Admiral RAMOS DA COSTA, is under the immediate orders of Vice-Admiral A. NEUPARTH, the Director General of Marine, who is himself a hydrographic surveyor of the highest class; the Officer in charge of surveying afloat is Commander LOPES, the Director of Lighthouses being Commander NORTON, who appears to have his special subject at his finger ends. Six naval officers and two assistants are employed in connection with the drawing of charts, the preparation of Sailing Directions, Notices to Mariners, tidal calculations and other hydrographic publications, while seven naval officers are employed in surveying work afloat. The work of engraving and printing of all hydrographic charts is carried out by a private firms; copper plates are only used in very special cases. The issue of all charts and hydrographic publications to ships of the Navy and to vessels of the Mercantile Marine is carried out by the Hydrographic Service, while chronometers and compasses are issued to the Fleet by the Department of Navigation.

The surveying vessel the 5 *Outubro*, commanded by Commander LOPES, a photograph of which is here reproduced, is a fine type of ship of 1365 tons displacement and is specially fitted with surveying appli-

ances; she was originally the Royal yacht "*Margherita*", and, on the deposition of the King in 1910, was utilised to convey him to foreign territory. Admiral Neuparth kindly arranged for me to visit the 5 *Outubro*, which I found most interesting and I was much impressed with the methods employed generally in connection with the sounding work, the accuracy of which is such an important factor in practical surveying; the efficiency of the staff was most evident and shows clearly the excellent training they receive; the Ministry of Marine also possesses the "*Albacora*", a vessel of 145 tons displacement which was constructed recently in Norway specially for the execution of oceanographic and biological work, two branches of sciences in which Portugal is greatly interested.

At the Naval College all the students receive general instruction in hydrography, and in the examination for the rank of lieutenant this subject received special attention; surveying officers are selected from the first or second lieutenants, and they then carry out a special course of instruction at the Polytechnic, which includes Mechanics, Descriptive Geometry, Astronomy, Geodesy, Geology and Minerology; they also have to pass examinations in various other subjects at the War College; one year is then spent at the Astronomical and Meteorological Observatories, and a further year in practical surveying work afloat.

It is interesting to note that the Tidal Department has recently acquired a tide-predicting machine made by Messrs. Kelvin, Bottomley & Baird, which is capable of dealing with 16 components; the importance of the acquisition of such an up-to-date machine need not be emphasised.

Special mention must be made of the Nautical Meteorological Service, which is being rapidly developed under the able superintendence of Captain BRANDAO; owing to the extreme westerly situation of Lisbon on the coast of Europe the enormous importance of the development of this Service in improving the meteorological European forecasts can easily be seen.

In addition to Admiral Neuparth being in charge of the Hydrographic Service, and the Lighthouse and Nautical Meteorological Services, he is responsible for many other Departments, the principal in which this Bureau is interested being those of Navigation, the Mercantile Marine, Fisheries, Life-saving stations and the VASCO DA GAMA Aquarium, the latter being of great interest and most admirably organised; special arrangements are made for instruction in biology. This institution is, without doubt, in the front rank of the Aquariums of the world.

I feel it is due to Admiral Neuparth to say how deeply I was im-



Navire hydrographe Portugais " 5 OUTUBRO "

Portuguese Surveying Vessel " 5 OUTUBRO "

pressed with his intimate knowledge of the details of the work of the great variety of Departments of which he has control, and also by the marked ability of the various officers with whom I personally came in contact, all of whom are evidently most carefully selected for their special knowledge of the work on which they are employed.

In conclusion I wish especially to place on record my appreciation of the extreme cordiality shown to me as the representative of the International Hydrographic Bureau by the Director General of Marine, the staff of the Hydrographic Service and the Commander and Officers of the 5 *Outubro*.

J. P. F.

At the moment of going to press the Bureau learns with the greatest regret of the death of Vice Admiral NEUPARTH. Nautical science is the poorer for the loss of this eminent worker.

PORTUGUESE SURVEYING VESSEL "CINCO D'OUTUBRO".

Displacement : 1365 tons (metric)

Dimensions : Length 69,2 metres, Beam 8,8 metres, Draft aft. 4,6 metres

Maximum horse power : 1800.

Fuel capacity : 250 tons (coal)

Maximum speed : 14 knots

economical speed : 10 knots.

Special Personnel : 9 Naval Officers trained in Hydrographic duties

Petty Officers — nil

Draughtsmen — nil

Crew : 112.

Boats carried : 7 of various dimensions, 2 of which have petrol engines, these were not specially constructed for hydrography.

Special appliances : 2 Lucas sounding machines, electrically driven ; apparatuses for the Chemical analysis of Sea water (Knudsen's process), Lloyd Creagh apparatus for determining the magnetic elements.

