

## MANUAL OF THE CERTIFICATED HYDROGRAPHIC SURVEYOR

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The French Hydrographic Office has forwarded to the International Hydrographic Bureau a Manual of the certificated hydrographic surveyor, which is a provisional edition in 4 cyclostyled volumes compiled by Hydrographic Engineers Brunel, Vantroys and Damiani.

A manual of the assistant hydrographic surveyor had already been issued in 1919.

The present work does not duplicate with the preceding one, it is intended for certificated surveyors, is much more complete and takes into account all developments which science and experience have introduced in surveying methods. It consists of 4 volumes dealing with hydrography, geodesy, cartography, sounding and acoustic ranging.

Compiled solely for a practical purpose and without theoretical consideration, these volumes will be profitably read by all inexperienced beginners in hydrography who will find therein abundant and valuable suggestions.

A special chapter of the first volume is devoted to the use of aerial photographs which are so helpful in coastal and rocky plateau surveys and even for the detection of immersed rocks <sup>(1)</sup>.

There will be found also descriptions of current meters, temperature recording thermometers, bottles for the collection of sea water samples such as used by the French Hydrographic Office at various depths, also some information relating to methods of measurement of the density and chlorination of sea water, the description of several bottom samplers.

Volume II supplies excellent types of calculations for most geodetic problems, for the reduction of stations, the computation of geographical and rectangular co-ordinates and that of the skeleton or scale of a Mercator's chart.

Volume III is intended to keep certificated hydrographic surveyors informed of the work required for the following operations ; conversion of plotting sheets into charts, mode of selection of soundings, tracing of contour lines, inscriptions, graduations, conventional signs, abbreviations and titles. To this volume is annexed an addendum, compiled by hydrographic engineer DAMIANI, with reference to processes of drawings reproduction to the same or different scales in a more or less large number of copies. It also deals with reproduction in colours.

The IV volume, compiled in 1943, deals with soundings and acoustic ranging. It gives a detailed description of the audible sound contrivances especially designed by the Toulon Center of Studies and more particularly of the shot by shot sounding apparatus C.E.T. 1931 and the continuous sounding apparatus C.E.T. 1932-1938 together with their recording devices.

It also gives a description of various ultra-sonic piezo-electric sounders used on surveying vessels, combined with Marti recorder with horizontal axis or with the Langevin-Touly electrolytic recorder. We also find in this volume a description of the echoscope sounder S.C.A.M. for boats, which is of French make, as well as that of the Husun magneto-striction recording sounder, used by French hydrographic parties.

To this very detailed description of sounding machines are annexed valuable particulars as to the precautions to be taken in their use, the causes of damages, errors or defective working, as well as to the mode of calculation of the velocity of sound and the position of the surveying ship. A chapter is devoted to the plotting of acoustic soundings, to the analysis of recorded diagrams and their corrections.

The second part of the Manual deals with acoustic ranging, explosives, petards and primings used in submarine ranging together with the installation of listening-in stations with or without retransmission by transmitter (Model L. 1936) and short wave receiver O.C. 13-120 M.).

P. V.

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(1) See *Annales Hydrographiques* 1920, page 191; 1922, page 185.