

## DEFINITION OF THE WORDS "HYDROGRAPHER" AND "HYDROGRAPHY"

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Since the establishment of the INTERNATIONAL HYDROGRAPHIC BUREAU as a result of the London Conference of 1919, the question has often been discussed as to the correct definition of the word *Hydrography*, as on this depended to a certain extent the scope of work to be dealt with by the Bureau. The first President of the Directing Committee, Admiral Sir John PARRY, felt the necessity of clearly defining its meaning and to this end wrote an article in the first volume of the *Hydrographic Review* in which he tabulated the definitions of the words *Hydrographer* and *Hydrography* as given in some of the well-known dictionaries, and in the succeeding volume a letter from the Director of the Hydrographic Service of the French Navy was published in which he pointed out the confusion which existed on account of the different acceptations of the words. (See *Hydrographic Review*, Vol. I, No. 2, page 171). At the International Hydrographic Conference of 1926, the questions of the scope of the work of the Bureau and the advisability of incorporating a description thereof in the Statutes was fully discussed but the latter was not considered necessary.

The question was again raised at the 1932 Conference when the Netherlands Delegate put forward a proposed definition of *Hydrography* (see pp. 127 and 128 of Report of Proceedings); as a result of which the Bureau was instructed to examine the question of the definition of the words *Hydrographer* and *Hydrography*, to collate the opinions of the States Members and publish the results of its enquiry in the *Review* or *Bulletin* (See p. 420 of Report of Proceedings).

Circular Letter No. I-H of 1933 was issued accordingly and the replies received show, as was expected, that there is a considerable difference in the number of subjects with which the Hydrographic Offices of the different countries have to deal. Certain subjects, such as Marine Surveying, the Preparation and Issue of Charts, Sailing Directions etc., are of course common to all, but others such as the preparation of Air Maps, Meteorology, upkeep of Buoyage, etc. in some cases come directly under the Hydrographic Office whereas in others they are separate departments which, however, work in close touch with the Hydrographic Office. In the case of the U.S.A. Coast and Geodetic Survey, the *land* survey, with all its allied subjects such as Gravity observations etc., and the *marine* survey are under the same department and the officers may be transferred from one type of work to the other at the discretion of the Head of the Department.

Broadly speaking, Hydrography is a science particularly affecting the sea, but the carrying out of a Marine Survey entails a considerable amount of geodetic and topographic work ashore and it is therefore impossible to separate Hydrography from Geodesy; again, certain sections of Oceanography are

essential to Hydrography, for instance it is necessary to know the density of the water before accurate Echo Soundings can be placed on the chart, and again the ocean currents are influenced both by the density of the water and by the prevailing winds, which brings Meteorology into the picture. Air Navigation is closely allied to Sea Navigation (both surface and sub-surface) and Sea Navigation is dependent on Marine Surveying so that the development of one is of the utmost importance to the others.

It will thus be realised how difficult, and well nigh impossible, it is to lay down hard and fast rules as to what definitely constitutes Hydrography.

In summarising the replies to Circular Letter No. 1-H of 1933 as to what is considered to be work of the Hydrographic Services, the various subjects are grouped under three categories: (A) those common to all Services, (B) those common to the majority and (C) those to certain States only.

#### CATEGORY A.

Comprises —

(1) Marine Surveying, which entails Sounding, Triangulation, Tidal and Current Observations, Coastal Topography and Geographical Co-ordinates of coastal areas.

(2) Compilation and publication of Charts of the Ocean, Coasts, Harbours and Navigable Rivers.

(3) Compilation and publication of Sailing Directions, Light Lists and Tide Tables.

(4) Issue of Notices to Mariners.

(5) Magnetic Observations.

(6) Purchase and supply of Hydrographic Instruments and Surveying Equipment.

(7) Measured Distances.

#### CATEGORY B.

(1) Compilation and publication of Distance Tables and Lists of Wireless Signals.

(2) Meteorological Observations, including observations of Upper Air, Visibility of Lights, Fog etc.

(3) Compilation and publication of Pilot Charts, both Sea and Upper Air.

(4) Study of Oceanography, so far as it affects Marine Surveying (Temperatures, Densities etc. of Sea Water).

(5) Purchase and Supply of Chronometers.

#### CATEGORY C.

(1) Publication and issue of Nautical Tables, Navigation Manuals and Text Books..... { ITALY, JAPAN,  
U.S.A., CHINA.

(2) Publication and issue of Nautical Tables, Navigation Manuals and Text Books for Air Navigation..... { U.S.A., BRAZIL,  
JAPAN

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| (3) Compilation and publication of certain Air Maps.                             | { FRANCE, BRAZIL,<br>U.S.A., JAPAN   |
| (4) Compilation and issue of Notices to Airmen ...                               | { U.S.A., BRAZIL,<br>JAPAN           |
| (5) Publication of Lists of Buoys.....   | { DENMARK, U.S.A.                    |
| (6) Publication of information relating to Ice Move-<br>ments.....               | { U.S.A., CHINA                      |
| (7) Publication of Nautical Almanac.....   | { JAPAN, ITALY,<br>ARGENTINA, GREECE |
| (8) Purchase and supply of Navigational Instru-<br>ments.....                    | { ITALY                              |
| (9) Location of Leading Lines, Light Sectors and all<br>Aids to Navigation ..... | { NORWAY                             |
| (10) Publication of International Code of Signals....                            | { FRANCE, U.S.A.                     |

In addition, the Heads of the Hydrographic Services work in close collaboration with their Meteorological Offices, Lighthouse and Buoyage Authorities, Nautical Almanac Offices and National or State Observatories, even if those Offices do not actually come under their jurisdiction; they are also called upon to advise on Scientific Expeditions, Dredging questions, Jurisdiction and the improvement of Ports and of River Estuaries; in fact their duties may be said to include everything that tends to make Navigation easier and safer.

It is therefore considered that Hydrography *must* include all subjects listed under Categories *A* and *B*, and *may* include those under *C* also, and that so far as the work of the INTERNATIONAL HYDROGRAPHIC BUREAU is concerned it should include all the above subjects, the order of procedure in which it is taken up being that given under the above Categories.

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The terms Oceanography and Hydrography are both often used to designate the study of the Physical Properties of Sea Water, but it is considered that *Hydrography* should be confined solely to work in connection with the production and publication of Charts used for Navigation (with their complementary documents), thus keeping to the modern acceptance of the word *graph*; and that that section of oceanography which deals with the determination of the Temperature and Density of Sea Water should be termed *Hydrology*.

The following alternative definitions of the word *Hydrography*, based on the opinions expressed by the majority of the States Members, are therefore submitted for consideration:

(1) HYDROGRAPHY is that branch of Science which deals with the measurement and description of the physical features of that portion of the Earth's surface which embraces the Oceans, Seas, Lakes, Rivers and other

waters and their adjoining coastal areas, with special reference to their use for the purpose of Navigation.

It embraces the carrying out of Marine Surveys including Triangulation, Sounding, Magnetic and Astronomical work; the Study of Tides, Tidal Streams and Currents, also of Oceanography and Meteorology so far as they affect Navigation; the compilation and publication of Charts, Sailing Directions, Lists of Lights, Tide Tables, Lists of Wireless Signals, Notices to Mariners and other information useful to Navigators.

*Note.* — The term Navigation is specially meant to apply to the movement of a vessel on the surface or below the surface of the water, but may include that through the air also.

(2) HYDROGRAPHY is the science of measuring Oceans, Seas, Lakes, Rivers and other waters with their marginal land areas, inclusive of all the fundamental elements which have to be known for the safe Navigation of such areas, and the publication of such information in a suitable form for the use of Navigators.

(3) HYDROGRAPHY is the science by which data concerning the true configuration of the Earth, as far as useful to Navigation, are determined and published in a suitable form for the use of Mariners.

It embraces the Triangulation and Survey of Coasts; the Measurement of Oceans, Seas, Estuaries, Rivers and other navigable waters; the observation and study of Tides, Tidal Streams and Currents; Magnetic, Astronomic and Oceanographic work as far as is deemed useful for the Survey and for Navigation; the compilation and publication of Charts, Sailing Directions, Light Lists, Tide Tables, Lists of Wireless Signals, Notices to Mariners and other information referring to the above-mentioned task.

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As regards the definition of the word *Hydrographer*, opinions differ as to whether this refers only to the Head of the Hydrographic Service or to all those who have specialised in hydrography, but whereas a majority of the States Members appear to be in favour of the latter more embracing term it is interesting to note that the official title of the Heads of the Hydrographic Service of 6 States is "Hydrographer"; of 5, "Chief" of the Department; of 4, "Director"; and of 2, "Director General".

As it is obviously necessary to differentiate between the Head of the Service and the Officers serving under him, and as it seems desirable that the same title be used in all countries, it is suggested that the term *Hydrographer* be restricted to the Head of the Hydrographic Office only and that the officers working under him who have specialised in Hydrography should be termed *Marine Surveyors* or, alternatively, *Hydrographic Engineers*.

J. D. N.

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The Directing Committee will be glad to receive comments from the States Members on the above, and will publish these in the *Hydrographic Review* or the *International Hydrographic Bulletin*.

