

## THE INTERNATIONAL HYDROGRAPHIC BUREAU

By : Rear-Admiral C. L. NICHOLS, *U. S. Navy (Ret.)*

(Reproduced by kind permission of the U.S. Naval Institute Proceedings.  
(Vol. 77, July 1951, N° 7) and of the author.)

---

The Principality of Monaco, of which Monte-Carlo is a part, is inevitably associated in the public mind with the froth of life, as a place where it is better to be decorative than useful.

Yet, despite this almost universally accepted view of Monte-Carlo, serious, valuable work has been going on there for nearly 65 years, work which has saved an incalculable number of fine ships and brave seamen from Davy Jones' Locker. Because of this work the navigation of the seven seas and the approaches to ports the world over have become easier and safer.

It began with the great work of H.S.H. Prince Albert of Monaco who, financing his own voyages, made world-wide oceanographic investigations of the greatest scientific importance and constructed a monumental Oceanographic Museum in Monaco, where the results of his studies are viewed by thousands of tourists.

Prince Albert's concern with oceanography included an interest in the shape and formation of the ocean bottom, and again with his personal funds he accumulated a vast amount of data on the depths of the oceans and published the results in a World Bathymetric Chart.

When in 1919 an International Hydrographic Conference was organized, Prince Albert, universally recognized as one of the greatest living oceanographic scientists, was invited to attend. Shortly afterwards, interested in furthering the study of all matters concerning the sea, the Prince personally provided a building in Monaco, designed, constructed, and maintained for the particular use of the organization growing out of the Conference and designated as the International Hydrographic Bureau.

The science of hydrography is one which has never captured the headlines. Hydrographers for no known reason seem always to have been content to work in obscurity, and so we find even to-day that little is known about the International Hydrographic Bureau itself or the work that it does, and that many people confuse it with the far better known Oceanographic Museum and Aquarium.

It was not until the creation of the International Hydrographic Bureau that the hydrographers and cartographers of the world, or at least of the leading maritime nations, began to pool their knowledge, skill, and information in the interests of all, rather than their own nationals, although the need for such pooling and for some standardization of method was recognized by an international conference which took place in Washington as early as 1889, followed by a further conference in St. Petersburg in 1912.

To realize the urgent need existing in those days for some uniformity of charts, it must be remembered that maritime nations issued their own charts in their own languages, using symbols known only to their own nationals and containing only the limited information required by a mariner personally acquainted with the charts of that particular country. The language difficulties were not insuperable in the case of countries which used the Roman alphabet, but Japanese and Chinese ideographs, as well as the unfamiliar alphabets of Thailand, Turkey, and Greece, were completely beyond the capacity of the largely unlettered men who went down to the sea in ships. There was no place in the life of a New Bedford whaler, or a British trampskipper, for Japanese ideography.



*"Photo G. Detaille & Fils, Monte-Carlo".*

*Fig. 1. — MONTE-CARLO. — For sixty-five years a Hydrographic Center*

The center building facing the quay in the middle of the above picture houses the International Hydrographic Bureau, organized in 1921.



*Fig. 2.*— HOME OF THE INTERNATIONAL HYDROGRAPHIC BUREAU

Thirty of the world's leading maritime nations support the Bureau in its work of improving hydrographic procedures and obtaining uniformity in presentation of hydrographic data.

World War I crystallized the realization that some measure of cooperation between the world's hydrographic offices was imperative. There were more, larger, faster ships plying the world's trade routes. The tendency, too, was towards deeper draught, creating further problems. All these things meant greater risks for valuable ships and the men who manned them. In this atmosphere the International Hydrographic Bureau came into being in token of the recognition by the maritime nations of the world that co-operation was in the best interests of all who depended upon safe, seaborne commerce.

The fundamental problems then existing are illustrated by certain of the proposals made at that time to :

1. Adopt similar methods in the preparation, construction, and production of charts ;
2. Present the results so as to enable them to be easily used ;
3. Effect a system of prompt mutual exchange of hydrographic information.

The 1919 International Hydrographic Conference filled a definite need, and it was the opinion of the Delegates that « in order to fully attain the object of its assembly it seems necessary to form a permanent organization to ensure, firstly the carrying out of the decisions taken, and secondly, to maintain a close association amongst the various Hydrographic Offices. »

A proposal to this effect was unanimously endorsed, and a Committee composed of the Hydrographers of the United States, Great Britain, and France was appointed to form such an organization and draw up statutes for its operation.

The International Hydrographic Bureau was thus created and began its activities in 1921, with the following countries as members :

Argentina, Belgium, Brazil, British Empire (United Kingdom, Australia), Chile, China, Denmark, France, Greece, Japan, Monaco, Netherlands, Norway, Peru, Portugal, Siam, Spain, Sweden.

Shortly after the creation of the Bureau, the United States, Italy, and Egypt became members, followed in a few years by Uruguay, New Zealand, Poland, and Germany, and later by Ecuador, Turkey, Cuba and Canada, Indonesia, Union of South Africa and Yugoslavia.

The creation of the Bureau was opportunely timed, as it marked the beginning of an era when radical changes were to be made in the then existing methods of surveying and chart production.

Echo-sounding, photogrammetry, electronic positioning equipment, camera transits and recording fathometers fitted to small boats were to result in more rapid and efficient surveys. Colors on charts, increased use of depth curves to bring out bottom characteristics, permitting a more efficient use of fathometers for navigation, were to make charts clearer and more easily decipherable. Increased topography by use of photogrammetry as well as new types of charts were to facilitate navigation by means of radar ; radio-positioning and the use of hyperbolic lattice charts were to come into being. A lessening use of engraved copper plates and the increased use of cheaper yet highly efficient photographic methods and plastics was to revolutionize chart production in many hydrographic offices.

Among the duties of the International Hydrographic Bureau is the publicizing to the hydrographic world of every development in navigational procedures and methods and every advance in hydrographic science, including new materials, new instruments, new techniques, both in field work and in the preparation and printing of charts, thus insuring that progress in one hydrographic office will be fully known in all the other offices.

International cooperation is advanced by the regular International Conferences organized by the Bureau usually every five years, and at which delegations of the States Members, headed almost always by the hydrographer of each country, meet to increase the cooperation between the various offices.

The subjects proposed by the States Members for discussion are given wide publicity before each Conference so that each Delegation can carefully review its own position on each of the problems to be resolved.

Each problem on which agreement is reached is voted as a Resolution of the Conference. Although compliance with the Resolutions of the Conferences is not compulsory, there is a general acceptance of them by all countries, and States Members have complied with practically all of them.

As a result, the lack of uniformity which formerly made the reciprocal use of charts and hydrographic publications so difficult is now largely eliminated. The need for continuing coordination, however, is indicated by the Agenda of the 1947 Conference which considered fifty-six subjects presented for discussion and passed forty-five Resolutions directly related to hydrographic matters.

Complete agreement between hydrographic offices that would result in charts and publications being replicas, except for language differences, is probably impossible of attainment, and the types of difficulties that prevent this ideal goal from being reached are easy to understand.

When a resolution concerning charts is passed by a Conference that is contrary to the established procedure of the larger hydrographic offices, as many as six thousand basic charts may have to be corrected to put the resolution into effect. Offices may fully agree with the principle incorporated in the resolution and may have even voted for the latter, yet find it impossible to comply themselves.

There has been a universal adoption of those resolutions which definitely add to the safety of navigation, to the extent that now when a country fails to follow an existing I.H.B. Resolution it does so only after having carefully weighed the international disadvantages of non-compliance versus its national interests.

Present day users of charts little realize that such standardized practices as the use of Mercator scale charts containing information in the title as to units of measurements, scale used, the inclusion of the true and magnetic compass roses, the translation of titles, the common datum of soundings and/or heights, the method of showing depth contour lines, lines of equal magnetic variation and conventional symbols for indicating navigational hazards all result from agreements between hydrographers arrived at during the International Hydrographic Conferences organized by the Bureau.

Nor do mariners sailing the oceans and receiving a constant flow of vital hydrographic information usually realize that the sequence of the information received, either by radio or by Notices to Mariners, the type of information, the geographical divisions of the messages, even the method of expressing latitude and longitude and all other standardized details, result from agreements made and voted as resolutions at those Conferences.

These few simple and readily understood examples of agreements of advantage to navigators represent but a fraction of the successful collaboration between hydrographic offices. Over 300 resolutions have been adopted, defining a standard method of indicating information on charts and in publications, thus making their use by nationals of different countries increasingly simple.

The work of the Bureau is supervised by a Directing Committee consisting of three members of different nationalities. These Directors have been, almost without exception, officers who have served either as Hydrographer or Deputy Hydrographer of their countries, and are thus well qualified successfully to execute the work which is prescribed by the delegates at the International Hydrographic Conferences. They are aided in their task by a Secretary-General and an adequate technical and clerical staff.

The continuing work of the Bureau is publicized to its States Members in both the French and English languages by means of routine correspondence and :

A. The *International Hydrographic Review* issued twice a year, containing articles on Hydrography and closely related subjects ;

B. The *International Hydrographic Bulletin*, published monthly and containing information of current hydrographic interest including :

I. A world-wide list of new as well as proposed issues of hydrographic publications and charts ;

II. Details of surveys completed, underway, and contemplated throughout the world ;

III. A continuously corrected mailing list of the world ports where Notices to Mariners are available for reference, providing hydrographic offices with an up-to-date mailing list of all ports requiring these indispensable aids to navigation.

C. Circular-Letters on technical and administrative subjects ;

D. The Annual Report of the Bureau, describing continuing studies, progress made and subjects completed, and including a detailed business and financial report of the Bureau ;

E. Reports of the Proceedings of each Conference providing the States Members with a permanent record of the background on which each Resolution is founded ;

F. Special Publications, including :

I. Tidal data, Harmonic Constants, and tables which provide information enabling the publication of tidal predictions throughout the world by various countries ;

II. A Manual of Symbols and Glossary of Nautical Terms and Abbreviations, giving the details of the symbols used on their charts by twenty-two countries, as well as the corresponding terms and abbreviations used by these countries ;

III. A standard type of Symbols and Abbreviations Sheet used by States Members, permitting ready reference between Hydrographic Offices as to symbols and abbreviations used ;

IV. A catalogue of World Coastal Geographic positions, in 4 volumes ;

V. A publication indicating the « Limits of Oceans and Seas », to permit standardization between offices in publishing Light Lists, Coast Pilots and Notices to Mariners ;

VI. A Hydrographic Dictionary in twelve languages.

These together with many other Special Publications have publicized to all countries the important developments in the science of hydrography.

The expenses of the Bureau are met by contributions of the States Members, proportioned to the tonnage of those Members. These contributions vary between one thousand four hundred to ten thousand dollars a year.

The close association in the Bureau's activities by its States Members, which now number thirty of the leading maritime nations, as well as by many States who are not as yet members, is ample proof of the necessity of its services.

There is every reason to believe that the Vith International Hydrographic Conference, to be held commencing April 29, 1952, will be the most successful of all these conferences, and that there will be still further substantial progress on the part of all Maritime Nations in « rendering navigation easier and safer in all parts of the World. »

---