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THIRTIETH ANNIVERSARY OF THE INTERNATIONAL HYDROGRAPHIC BUREAU

- - Its Creative Origins and its Creation - -

by HENRI BENCKER, Captain, Secretary-General of the I.H.B.

The origins of nautical charting go back to a period far removed from ours; they are anterior even to the great sea voyages of discovery and, if it is true that the Science of Pilotage (Science des Pilotes) remained for many years the jealously-guarded privilege of some private firm or of a few great commercial companies, the art of constructing charts soon had to be ceded, in order to ensure safety of navigation, to the direction of national officials.

In the International Hydrographic Bureau's Year-Book for the year 1951, it is stated that the most ancient official National Hydrographic Office was created on 19th November, 1720; on the following day, a Monday, the Chevalier de Luynes, furnished with an official title by the Government of King Louis XV, assumed supervision of the normal conservation of Charts, Plans, Log-books and Memoirs relating to Navigation (« *La garde du Dépôt des Cartes, plans, journaux et mémoires relatifs à la navigation...* »).

International co-operation concerning navigation is also of very ancient date if we trace it back to the operations of the combined fleet of the Crusades and the vessels commanded by Venetian and Genoese admirals. Even scientifically speaking its origin dates back to the age of the sailing-ship, since it was at the instigation of Lieutenant-Commander M. F. Maury (1806-1873), in charge of the Washington, U.S.A. Depot of Charts from 1842 to 1861, that in 1853 an International Conference held at Brussels assembled the representatives of 16 maritime states for the purpose of establishing « a common plan for the observation of Winds and Oceanic Currents » — the aim of which was to improve sailing-ship navigation; and since it is to this officer that we owe the first Bathymetric Chart of the North Atlantic Ocean, which was plotted in 1854 and included about 180 deep-sea soundings.

The necessity for cooperation asserted itself still further immediately after the sailing-ship began to be replaced by the steamship, with the new impetus created throughout the World by the laying of intercontinental telegraph cables and the era of great voyages of exploration, then beginning to be methodically conducted.

To-day, as we celebrate the Thirtieth Anniversary of the foundation of our International Hydrographic Bureau, few people, and few hydrographers, remember that the responsibility for this organization goes to an American cartographer, for in the year 1878 Mr. E. R. Knorr of Washington, D. C., chief draughtsman of the Lieutenant John Rodgers Hydrographic Expedition to the North Pacific in 1855, presented a paper entitled: « A Few Words of International Cooperation in Maritime Hydrography » proposing the creation of a *Permanent International Board* to serve as intermediary between the different Hydrographic Organizations with a *Permanent Bureau* and *Periodical Convention of the Chiefs of the several*

national hydrographic Institutes and their Assistants. Already the fundamental principles of the present Statutes of the I.H.B. are enumerated throughout his report, which he had printed in 1884 by Judd & Detweiler; the report stipulates the different points upon which such cooperation should bear: Astronomical Positions; Standardization of Charts and Symbols; Standardization of Buoyage; Communication of Work Carried Out and Projected; Authorization to Reproduce Charts: Projections; Absolute Dimensions of Chart Plates; Interchange of Electrotypes; Numbering, Transliteration of Geographical Names; Introduction of the Metric System; International Naming of Meridians; Cooperation of Navigators — Instructions to be given them concerning Dangers encountered, etc.

Being no amateur in the matter, Mr. Knorr knew what he had to say and nothing is lacking in his written proposal concerning the « Manner and Scope of International Cooperation »; but Mr. Knorr was also a philosopher — he knew the fate that is so often reserved for innovators, and he ended his « Memorandum » at the close of his life with the following statement: .

« I will close with but a few words regarding my immediate purposes in writing this paper. At an age, when I may be called away at any time, I thought it proper that I should preserve a few of the general results and inferences from a close and earnest devotion to hydrography for thirty-seven years for such consideration, now or at a future time, as they may be deemed worthy of. (Written at Washington on 25th November, 1884).

It is our duty to-day to treat these words with the reverence they deserve and, that they may not be forgotten, to record them in the archives of the International Hydrographic Bureau.

The International Maritime Conference held at Washington in 1889 rejected the formation of a « Permanent International Maritime Board » which in its attributions, moreover, would not necessarily have included a division dealing with Hydrography.

We may boast of the honour that here, in 1924, at the time when the French Navy had detached me for service in this Bureau, we received the visit of the executor of our actual founder's will in the person of General de Schokalsky of the Russian Imperial Navy, then over eighty years of age. As the General himself took pains to point out to us, it was he who at the XIth International Congress on Navigation at St. Petersburg in 1908 proposed the following resolution, which was adopted:

« Considering that it would be of the greatest interest to introduce uniformity in the compilation of books of Sailing Directions, in the Conventional Symbols used on Charts, in Navigational Rules and Regulations, in Coastal Buoyage and Lighting, the Congress recommends that the question be submitted, on the initiative of a government which might very suitably be the Russian Government, to an international conference consisting of seamen and engineers ».

In pursuance of this recommendation, the Russian Government invited all the nations which had taken part in the XIth Congress of Navigation, to send delegates to a conference which was held at St. Petersburg from 12/25 March to 18/31 March, 1912, and to which the following fifteen countries sent delegates: Belgium; Denmark; France; Germany; Greece; Italy; Japan; Principality of Monaco; Netherlands; Norway; Portugal; Spain; Sweden; Turkey; U.S.A.

Mr. J. Renaud, Ingénieur hydrographe en chef, wrote as follows concerning this conference in his small work entitled: *La Carte Marine Internationale* (S. H., Paris, July, 1914).

« In the spacious hall of the Admiralty, collections of charts from all countries had been displayed. Nothing was more instructive than to examine them in a group and to criticize them in the presence of the Hydrographic Office which had prepared them. All those present at these gatherings were deeply interested; all stated that they had greatly benefited by them; they carried away the impression that agreement could easily be reached on almost all points and that the work to be accomplished would be exceedingly fruitful. After this examination a certain number of delegates expressed the opinion that they were not sufficiently prepared to deal conclusively with such complicated questions, that on many points they wished to consult their respective offices, that this would be a long-term

work and that the solutions must not be improvised. They pointed out that in 1903 the American Hydrographic Office had published a work entitled « A Manual of Conventional Symbols and Abbreviations in use on the official charts of the principal maritime Nations », a very useful publication for anyone handling charts, and that it was necessary, in undertaking a comprehensive work, to rely on a complete documentation, which might be found in the form of a New Edition of the above volume drawn up in accordance with the most recent data ».

Acceding to this implied wish, the U.S.A. government in 1912 requested that there be communicated to the Washington H.O. a tabulation of the Conventional Symbols used in the respective countries, to be taken into account in preparing the basis of a study which was finally to lead to complete international agreement.

Each nation will be free to adopt the international conventions or to retain its own; but it seems more than likely that it will be in the interest of all maritime powers to employ the former only, and that in future the charts of the various countries will present a uniform aspect very nearly approaching that of the standard chart of the recommended type.

Standardization of Conventional Symbols makes the reading of charts, whatever their origin may be, easy for all seamen. By adopting such standardization, a large number of original foreign charts could be delivered directly to sea-going vessels; where translation was considered necessary it would be much simplified; the effort of the hydrographic offices could then be directed almost wholly towards production of original documents; the speeding-up of such work would be highly beneficial in helping to bring the science of hydrography to a state of completion throughout the World. It should be added that in the large Hydrographic Offices (i.e. in those possessing a General Hydrographic Department and publishing charts for the whole, or almost the whole, world) the work of compilation is greatly facilitated if all the original cartographic documents used proceed from the same fundamental basis as regards datum, units, conventional symbols, etc...

The First World War interrupted for a time this magnificent impulse towards cooperation — but the experience gained in the face of a danger « common to all the belligerents » strengthened the idea that such cooperation was necessary, and was responsible for the desire to call a new World Conference in this connection.

At the instigation of the Hydrographic Offices of Great Britain and France and of their eminent Directors, Admiral Sir John Franklin Parry and Ingénieur Hydrographe Général Renaud, the London 1919 (24th June - 16th July) International Hydrographic Conference was called; it brought together in the friendliest spirit 44 delegates representing the Hydrographic Offices of 24 States. Welcomed by the First Lord of the Admiralty, Admiral Sir Rosslyn E. Wemyss, this conference had fruitful results with regard to all the questions dealt with by the different sections: Charts, Sailing Directions, Notices to Mariners, Light Lists, Tide-Tables, etc...

The last, but by no means the least important question dealt with was that of the *Establishment of an International Hydrographic Bureau*, proposed by the French delegation. The idea originated with Ingénieur Hydrographe Général Renaud and, in principle, it was unanimously welcomed by the 24 delegations present at the Conference.

It was decided to adopt as a basis for the foundation of the Bureau the recommendations of the French proposal and of the English memorandum, accompanied by the remarks of the various delegations, the text of which is to be found on pages 192 - 225 of the Report of Proceedings of the London (1919) Conference.

The Special Committee appointed by the Conference for examination of this question of a Permanent Bureau sat from 1st September, 1919, to 21st June, 1921, first at British Admiralty headquarters, afterwards at 21 Carlton House Terrace, London.

Monthly reports were drawn up by this Committee from 1st November, 1919, to 1st May 1921, to keep the contracting States informed of all steps taken and progress made in connection with the establishment of the Bureau and its possible relations with the recently created League of Nations, with the choice of its location,

its constitution and the official languages to be used. The adhesion of 21 participating States was received by the Diplomatic Services of the Foreign Office (Foreign Secretary, Lord Curzon of Kedleston), by the Special Committee from 30th August 1919, to 5th March 1921, and communicated for record to the Secretariat of the League of Nations, with the express undertaking by the respective governments that they would contribute towards maintenance of the I.H.B. and formal adoption of the Statutes drawn up as of 17th July 1920. After discussion, the seat of the Bureau was definitely established in the Principality of Monaco, and on 21st June 1921, the first Directing Committee was elected at Carlton House Terrace, London.

Mr. Renaud did not live to see the fulfilment of the hopes he had cherished or the achievement of a scheme for which he and his collaborators had laboured so earnestly; his death occurred on 13th May, 1921.

Mr. Renaud had stated the principle of the International Bureau in the following terms:

« The I.H.B. fulfils an imperative need, assuring a close and permanent association between the National Hydrographic Offices which will permit co-ordination of their efforts to furnish navigators with more perfect and up-to-date nautical documents.

« Without limiting in any way the liberty and initiative which should be retained by the Offices of the associated Countries, the new organization will avoid unnecessary effort and wasteful expenditure; it will create amongst surveyors of different countries a fruitful rivalry and personal relations which are frequently of great value. We are convinced that its rôle will constantly increase as time passes, and that its establishment will tend greatly to advance the Science of Hydrography ».

Upheld in the same spirit at the London Conference by Captain E. Simpson, Hydrographer of the U.S.A., this general programme was warmly approved by all the other Delegations; and during the succeeding months Admiral Sir John F. Parry devoted himself to the careful working out of all the details such as they appear in the Statutes of the Bureau as of 17th July, 1920.

Apart from the duty incumbent upon it to see to the competence and scientific knowledge of its staff, the intention was that the International Bureau should be a purely advisory body and its principal task, to achieve the adoption by the National Offices of the Resolutions of International Hydrographic Conferences with a view to standardizing as far as possible hydrographic documents and methods. Finally, that by the publication of « Memorial » it should contribute to the advancement of the theory and practice of the Science of Hydrography.

Mr. Renaud had proposed that the I.H.B., exercising the functions of a Centralizing Bureau, be instructed to ensure the exchange and communication to the various Hydrographic Offices of newly issued publications, to ensure the distribution of Notices to Mariners, at the same time undertaking their translation; but it was immediately recognized that such a practice imposed too heavy a task compared with an identical result obtained by means of direct exchange.

It had also been proposed that the Bureau be instructed to keep up to date a complete collection of charts and works so that it might be in a position to provide any information requested and to point out where duplication existed; and:

- to construct charts of general interest on « dioptric sheets »;
- to serve as buying agency for charts foreign to any country;
- to centralize observations of Terrestrial Magnetism;
- to keep a Catalogue of Fundamental Meridians and Geographical Positions;
- to study the subject of tides and encourage the use of Tide-Predicting Machines;
- to collect photographs and notices concerning Instruments;
- to construct charts showing progress of surveying along the different coasts;
- to draw up a Catalogue of Old Maritime Charts and of the libraries where they are to be found.

It was also intended that the Bureau Staff should remain small, that the International Bureau should not itself undertake any work, whether of execution or of compilation, falling within the attributions of any Hydrographic Office, but must only try to provide for the necessary collaboration between the interested States in carrying out various works or in arranging in specified form hydrographic publications presenting an international character.

In 1912, a great step forward had already been made in the international field by the Standardization of Time and the international use as origin of the Meridian of Greenwich, which in reality amounted to standardization of the almanacs. The Petrograd Conference had also voiced the bold recommendation:

« ...That the problem of Standardization of Nautical Documents be solved by editing them in an international language, if it is recognized that such a language exists and lends itself to such application ».

It was agreed that it was necessary to have documents that could easily be read and could be used, especially where Charts were concerned, without translation; and that it was advisable to encourage the tendency to solve similar problems by similar means in all Offices.

The following shows the statistical position of Cartography on the eve of the First World War:

Great Britain	3,750	Charts including 2,250 originals	100 new Charts per ann.
France	3,000	1,200	30
U.S.A. C. & G.S.		650	
U.S.A. H.O.	1,800	(including 1,400 translated from foreign charts).	70
Spain	750	400	
Japan	700	250	
Russia		600	
Germany	400	150	40
Netherlands	300	100 + 200 Eastern Archipelago.	
Italy		160	
Norway		135	
Chile		100	
Denmark		80	
Portugal		20 + 25 Colonies.	
Austria-Hungary		60	
Sweden		50	
Brazil		50	
Argentina		30	
Greece - Roumania - Turkey			Various plans of ports.
Total approx.	12,500	6,500 of which were original.	

In 1874, at the time of the Expedition of H.M.S. *Challenger*, the British Collection already amounted to 2,500 charts with an annual production of 80.

In 1888, the French Collection consisted of 2,700 charts with annual production of 60.

In 1931, 34 Maritime States published 15,316 charts, 7,530 of which were original; and 398 volumes of Sailing Directions.

As of 1951, these figures have risen to 17,460 charts and 409 issues of Sailing Directions.

These figures and the subsequent statistics published by the International Hydrographic Bureau give an idea of the extent of the hydrographic surveys, etc., and of the immense work of maintenance and permanent revision of nautical documents coming within the scope of Hydrographic Offices, and warrant the following sally launched by Staff-Commander T. A. Hull, R.N., Superintendent of Charts, Admiralty, who had plotted a planisphere indicating the progress of hydrographic surveys throughout the World, accompanying it by appropriate notes and remarks such as the following in his monograph: *The Unsurveyed World - 1874*:

« A late celebrated Minister once remarked as a reason for reducing the surveying staff, that when he had last gone out of office, twenty years before, he had left an Officer surveying the mouth of the Thames; and on his return to Whitehall he found the same Officer employed upon the same duty ».

At the beginning of last century, the Tabulation of Conventional Symbols drawn up by James Horsburg, Hydrographer of the East India Company, carried 22 symbols. The first sheet of « Abbreviations adopted for Charts », published by the Admiralty in 1855, contained 35 symbols and a few abbreviations to indicate the nature of the sea-bottom, an Index of which, drawn up in 1852 by Captain B. Drury, was reproduced in Volume I of the *Hydrographic Review*.

The first Manual of Symbols and Abbreviations for charts was published in 1903 by the U.S.A. Hydrographic Office. I.H.B. Special Publication n° 22 (First Edition 1928) gives a list of 80 symbols and abbreviations in several languages. The Third (1951) Edition of the same publication contains 819.

Naturally, not all these symbols and abbreviations are met with on the same chart, but several of them are. From the above figures even the layman can realize what a great boon for navigation lies in the continuation of the effort towards international standardization along these lines.

Arriving in Monaco on 5th July 1921, the first Directing Committee held its first meeting on 6th July at its provisional headquarters at the Hôtel de la Paix (this hotel was razed to the ground by Allied bombardments at the time of the liberation from German occupation in August, 1944); the first plenary session of the Committee took place on 25th July. Finally, on 12th September, 1921, the International Bureau was installed at n° 3, avenue du Port, Monaco, in a rented building where it had its headquarters for 10 years; at the end of that period, on 1st January, 1931, the I.H.B. was permanently established in a building specially constructed for its use on the Quai des Etats-Unis, by the Princely Government.

The first Directing Committee, under the Presidency of Vice-Admiral Sir John F. Parry, had the heavy task of setting up the various Departments; they also had to see that the new international organization would run smoothly by efficiently distributing the work among the three Directors. The Committee was helped in the process of becoming organized by the great kindness of Prince Albert I of Monaco who, until his death one year after the foundation of the Bureau (26th June 1922), was unfailingly solicitous as to its welfare.

Admiral Parry died at his task on 21st April 1926, after having provided the International Hydrographic Bureau with a solid technical organization and assured its future vigour and success.

Since the creation of the Bureau, there have been eleven Directors of which 5 have been American; 2 British; 1 Norwegian; 1 Dutch; 1 French and 1 Italian. There have been two Secretaries-General: 1 English (for a period of 17 years) and 1 French. During thirty years it has employed 16 Assistants, 9 technical employees, 25 shorthand clerks, 5 messengers.

The States-Members have never ceased to support the Bureau in every way and to demonstrate their increasing interest during the five successive International Conferences which brought together at Monaco 220 Delegates specializing in Hydrography.

During this thirty-year period, the Bureau has endeavoured, so far as its means permitted, to meet the wishes of its founders. The results of its actions are stated in the Reports published on the occasion of the periodical Conferences: 11 volumes totalling 4,460 pages hold a record of the proceedings of the Bureau and of the Conferences of international character.

The « Memorial » of the Bureau consists of 97 volumes of the International Hydrographic Review totalling 19,765 pages of text with Recapitulatory Tabulations in which appear, as in an « Honours' List », the names of contributors to the progress of the science and practice of hydrography.

3,700 pages of monthly Bulletins. 35 Special Publications with Supplements and 18 Corrected Editions: 641 I.H.B. Circular-Letters have been distributed to States-Members and non-Members and the Secretariat has registered more than 56,257 letters since the foundation of the Bureau to maintain permanent contact between all the Hydrographic Offices and associated Services of the World.

The work of the I.H.B. has always been received by the competent organizations with the utmost courtesy and consideration, and the smaller Hydrographic Offices have warmly upheld it in many circumstances. The usefulness of an International Bureau, the theoretical and practical profit which may be drawn from it, remain, however, a more problematical concept for the larger Offices whose own perfected processes usually set the standard followed. Here again the Bureau has received vast co-operation so long as its sphere has been confined to the domain, properly speaking, of Hydrography.

During its thirty years of existence, the Bureau has nevertheless had to pass through two crises: one of a political order when some Members, leaving the League of Nations, deemed it their official duty to withdraw all financial support although their Hydrographic Offices continued their intensive technical collaboration with the Bureau.

Another, of an administrative order, occurred at a time when several Members were of the opinion that the Bureau's programme was too extensive and that the credits placed at its disposal were not obtaining a full return; and that, consequently, steps should be taken in the interest of economy.

A drastic experience in this sense occurred during four years of the Second World War during which the Bureau « carried on » absolutely without resources while maintaining the distribution of some of its publications; and the Vth (1947) International Hydrographic Conference settled this important question by the promulgation of new Statutes providing the I.H.B. with an administrative and financial system that is adequately adapted to the rôle assigned to the organization.

In thirty years the I.H.B. has cost its States-Members 5,644,278 Gold Francs distributed as follows:

	<i>Gold Francs</i>
Staff Expenditure	4,071,904, or 72 %
Technical Publications	702,783, or 12 %
Maintenance and Miscellaneous	401,677, or 7 %
Loss on Capital due to currency devaluations	303,208, or 5 %
Cost of Conferences	164,712, or 3 %

It follows that the founders of the Bureau had been right in fixing its annual Budget at about 200,000 francs for some twenty Members.

The following tabulation shows *pro memoria* the present (June 1951) yearly rates of contributions :

COUNTRY (1)	TONNAGE (2)	PROPORTIONAL TONNAGE 0/00 (3)	CONTRIBUTION gold francs (4)	PROPORTIO- NAL CONTRI- BUTION % (5)	VOTES (6)
1. British Empire	17.988.165	0,293	32.000	11,3	6
2. U.S. of America .	15.301.155	0,256	28.000	9,9	
3. France	3.528.799	0,048	18.000	6,3	
4. Norway	3.349.000	0,045	16.000	5,6	5
5. Italy	3.100.000	0,042	16.000		
6. Netherlands	2.913.490	0,039	16.000		
7. Canada	2.539.000	0,034	16.000		
8. Sweden	2.092.553	0,028	14.000		
9. Japan	1.812.983	0,024	14.000	4,9	4
10. Spain	1.300.000	0,018	12.000	4,2	
11. Denmark	1.166.400	0,016	12.000		
12. Brazil	937.121	0,013	10.000	3,5	
13. China	779.439	0,011	10.000		
14. Argentina	679.254	0,0092	10.000		
15. Greece	650.000	0,0088	10.000		
16. Turkey	526.838	0,007	10.000		
17. Portugal	441.154	0,006	8.000	2,8	3
18. Yugoslavia	232.691	0,003	8.000		
19. Poland	163.178	0,002	6.000	2,1	
20. Cuba	76.908	0,001	6.000		
21. Uruguay	67.923	0,0009	4.000		
22. Thailand	51.636	0,0007	4.000	1,4	2
23. Egypt	52.672	0,0001	4.000		
24. Monaco	2.012	0,00003	(—)		
	59.752.371		284.000		

While basically a variable figure, world maritime tonnage at present amounts (1951) to about 100 million tons. The International Hydrographic Bureau, if all the Maritime States, i.e. 47 Nations, belonged to it, could, under present regulations, figure on an annual income which would not exceed 360,000 Gold francs; and this rather modest amount, when compared with the cost of other productive international organizations, if not allowing of any appreciable reduction in the present annual contribution of each State-Member, would at least enable the Bureau to maintain its present activities and also to be represented more actively and efficaciously in international meetings, where questions involving the higher interests of navigation are dealt with, and where the consultative voice of hydrographic technicians has the professional duty to make itself heard.

Monaco, 21st June 1951.