

# THE HISTORY OF THE INTERNATIONAL HYDROGRAPHIC BUREAU

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## Preface

On 21 June 1996, the International Hydrographic Organization (IHO) became 75 years old. This Organization was formed in 1921 and was known as the International Hydrographic Bureau (IHB) until 1967, after which IHO has referred to the Organization of Member States and IHB to the Secretariat.

The International Hydrographic Bureau has been located in Monaco, since its creation, when, at the kind invitation of HSH Prince Albert I, the Principality agreed to host the Organization. From January 1931, it has been established at No. 7 of President J.F. Kennedy Avenue, in a building especially constructed to provide its offices. During the XIVth International Hydrographic Conference in 1992, HSH Prince Rainier III announced that new quarters would be constructed for the I.H. Bureau to mark its 75 anniversary. From late-1996, the Bureau has been relocated to the upper floor of 4 Quai Antoine I<sup>er</sup>, on the opposite side of the harbour within the port of Monaco.

The author, to commemorate the 75th anniversary of the establishment of the Organization has documented what are considered some of the more important events of the Bureau's history to the present date.

### **The beginning: the first International Hydrographic Conference**

After the First World War, many nations began to increase their interest in hydrography. New Hydrographic Offices were established and those already existing were developed. The Directors of the Hydrographic Offices of France and United Kingdom considered the possibility of holding an International Conference and the French director suggested that London would be the most adequate place to celebrate such a meeting. In June 1919, at the invitation of the British Admiralty, a hydrographic conference was convened in London, in which 24 nations participated. Questions of

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general or specific interest were discussed and important resolutions passed, notably that regarding the setting up of a permanent Body, in order to ensure effective and continuous cooperation between Hydrographic Offices. In particular, Proposal No. 10, put forward by the French delegation included "Establishment of an International Bureau". An important element in the formation of the IHO relates to the persistent efforts of an individual hydrographer, Ingénieur hydrographe M.J. RENAUD, who Captain V.A. MOITORET, (USA), former IHB Director, in his publication "THE INTERNATIONAL HYDROGRAPHIC BUREAU: 50 YEARS OF PROGRESS", 1971, cites as the man closest to being called the "father" of the International Hydrographic Bureau.

Monsieur RENAUD was familiar with the resolution that had been passed at the International Congress of Navigation held at St. Petersburg, Russia, in 1908, which stated that it would be advantageous if an International Conference of Seamen and Surveyors could be arranged with the object of introducing uniformity in conventional signs and abbreviations on charts, in drawing up Sailing Directions, Regulations for Navigation and the lighting and buoyage of coasts. He also recognized the weakness of a resolution that merely endorsed a broad general policy without proposing concrete means for reaching the desired goal.

Thus, when he attended the International Maritime Conference of 1912, also held in St. Petersburg, RENAUD spoke up strongly for the great advantages that common agreement on methods of production of charts and publications could bring to seamen, but it was apparent that the Maritime Conference was dealing with too many other subjects and that a special conference limited to hydrography might make much greater headway. But the period following 1912 was hardly an auspicious atmosphere for beginning any cooperative international endeavour, as the First World War was about to start. Nevertheless, RENAUD kept his idea alive and during the war engaged in frequent discussion and correspondence with his counterpart across the Channel in the British Hydrographic Office. (Great Britain had not participated in the 1912 Maritime Conference).

When peace was restored, the French and British Hydrographers were ready, and in April 1919 the British Hydrographer submitted his official proposal to hold the world's first International Hydrographic Conference in London to the Lords Commissioners of the Admiralty .

It was agreed at the Conference in London that some form of IHB should be established, and that a longer period of work was necessary to develop this project. To examine this question, a special committee, called the International Hydrographic Conference Committee, was appointed. This committee prepared the first draft Statutes and a set of provisional directions. Its work culminated in 1921, with the adoption of Statutes by the founding States Members, and the election of the first Directing Committee. This body was formed by Vice Admiral PARRY (U.K., 58 years old), Rear Admiral PHAFF (Netherlands, 64 years old) and Captain MÜLLER (Norway, 72 years old). Commander SPICER-SIMPSON (UK), who had been the Official Interpreter at the London Conference, was appointed as Secretary General, an important post, which existed until 1960, when it was abolished after having been left vacant for several years.

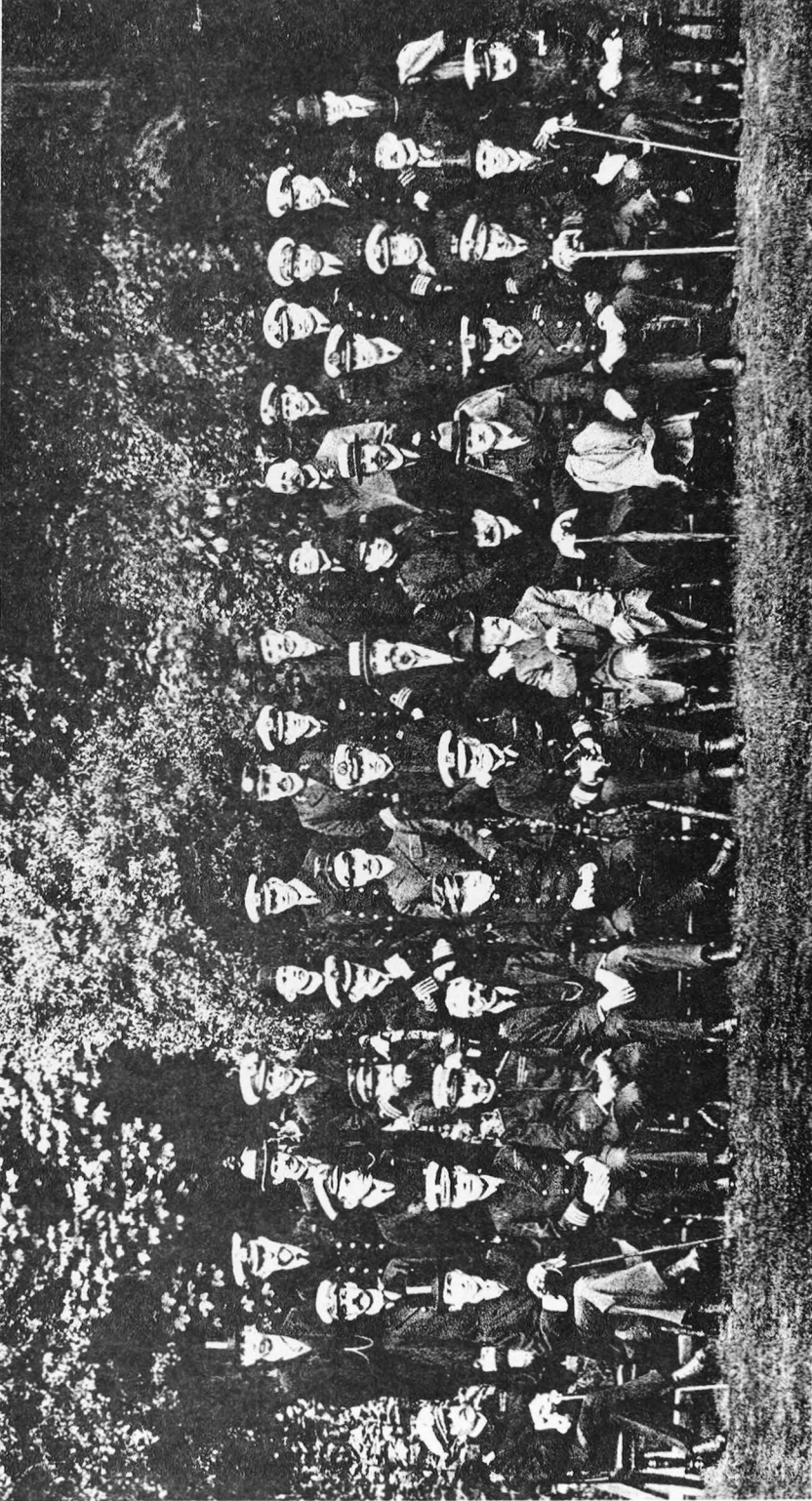


FIG. 1.- The 1st International Hydrographic Conference, London 1919.

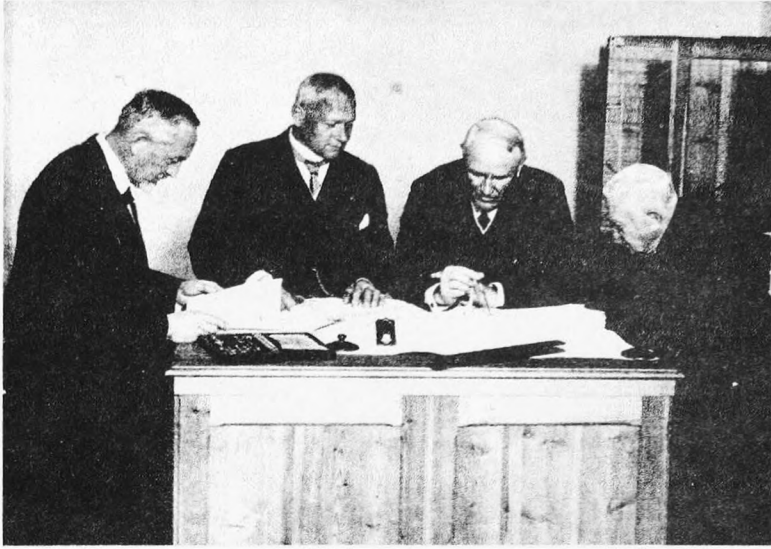


Fig 2.- The first Directing Committee and the Secretary General.  
From left to right Cdr. SPICER-SIMPSON, Radm. PHAFF, Vadm. PARRY and Capt. Müller

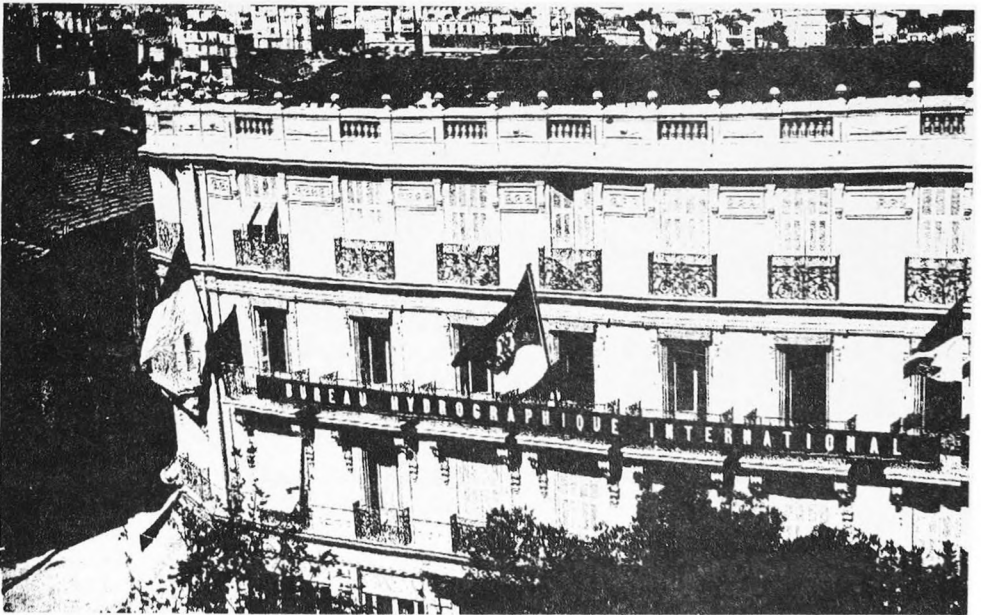


Fig 3.- The former building of the IHB, at n° 3, avenue du Port



Thus, on 21 June 1921, the International Hydrographic Bureau was formally founded and began its activities with 18 States Members.

These States were: Argentina, Belgium, Brazil, British Empire (UK and Australia), Chile, China, Denmark, France, Greece, Japan, Monaco, Netherlands, Norway, Peru, Portugal, Siam (Thailand), Spain and Sweden. Italy, Egypt and USA joined the IHB in early 1922, increasing the membership to 22 States. Others followed in the subsequent years.

The Statutes of the IHB as approved by the States Members included 49 articles and tried to address all technical and administrative aspects of the work of the Bureau. They are too long to be reproduced here and are beyond the scope of this paper. However, in the Statutes, the purposes of the Bureau were established as follows:

- *To establish a close association between Hydrographic Offices*
- *To encourage the adoption of the best methods for carrying out hydrographic surveys and coordinating hydrographic work, with a view to rendering navigation easier and safer throughout the world*
- *To obtain uniformity as far as possible in hydrographic documents, so that mariners may use publications issued by other countries.*

The Principality of Monaco was selected as the seat of the Bureau, partly for its central location, but largely because of the generous offer of Prince ALBERT I of Monaco to provide accommodation for this new Organization. This action was the result of the interest of Prince ALBERT I in the fields of hydrography and oceanography, being himself an eminent marine scientist and explorer. Prince ALBERT's support of ocean science is the reason why both the Oceanographic Museum and the IHB are located in Monaco.

### **The location and the staff**

The Bureau was first located on the second floor of a building situated at No. 3, avenue du Port, in Monaco. The space had been previously used as a hotel and it was rented initially for a period of 3 years. VAdm PARRY arrived in Monaco on 5 July 1921, with Cdr SPICER-SIMPSON. RAdm PHAFF was there already. The Directing Committee established a temporary office at the Hotel de la Paix. In this place, on 6 July, the first meeting of the Directing Committee was held, with only two of the three members, VAdm PARRY and RAdm PHAFF. The third member, Captain MÜLLER arrived in Monaco in late July. Vice Admiral PARRY was then elected President of the Directing Committee and the decision of renting the above mentioned space was also taken.

The lease included a large room to the right of the entrance and two large cellars, as well as the exclusive use of the lift. Provisional arrangements were also made to enable the Bureau to obtain a further portion of the premises, if subsequent extension was required. The rent paid for the offices was in 1921, 11,000 French francs.

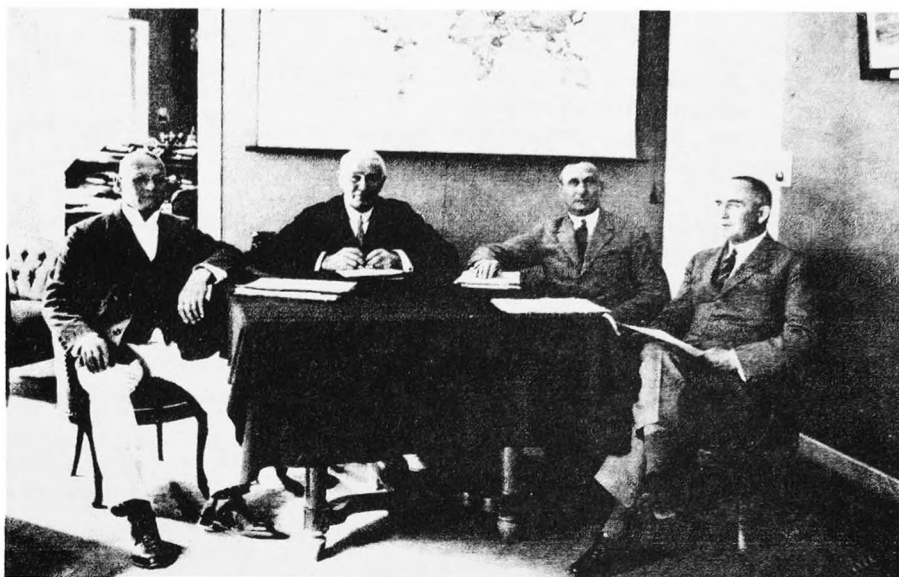


FIG. 4.- 1924. The Directing Committee and Secretary General. VAdm NIBLACK (USA) had replaced Capt. MÜLLER..

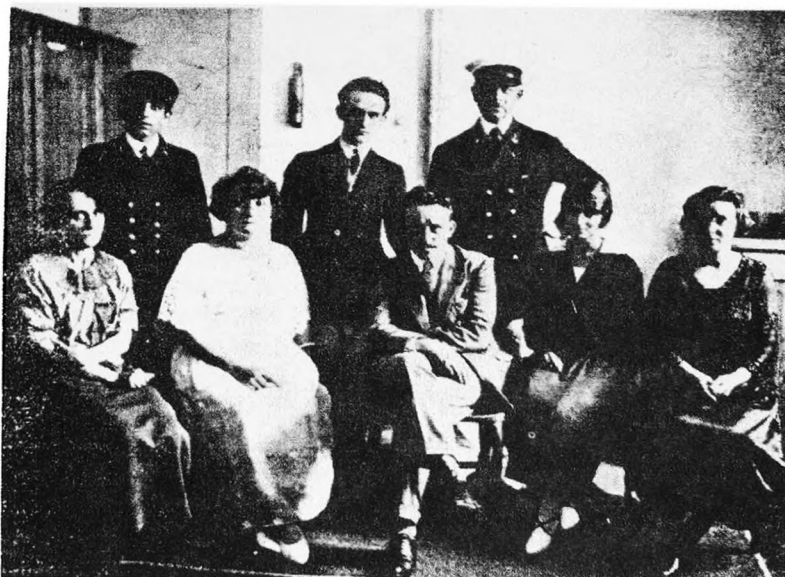


FIG. 5.- The IHB staff in 1925.

On 12 September 1921, the International Hydrographic Bureau began its work, with the following staff appointed:

- 1 Secretary General
- 2 Shorthand-typists
- 1 resident Concierge and
- 1 Boy-attendant.

The various branches of the work of the Bureau had been apportioned to the Directing Committee as follows:

President - Finance, Preparation of Reports, General Supervision

RAdm PHAFF - Charts and other publications, List of Hydrographic documents of historical interest.

Capt. MÜLLER - Library, Visibility of Lights

### **The League of Nations**

The International Hydrographic Conference Committee and the Secretariat of the League of Nations engaged in considerable correspondence on the subject of the establishment of the Bureau, particularly with respect to the position of the Bureau in relation to conditions under which the IHB would be taken under the direction of the League. This resulted in an agreement between both Organizations and, on 12 October 1921 a Resolution of the Council of the League of Nations resulted in the Bureau becoming a part of the League of Nations. The official languages of the Bureau were English and French, as these were the official languages of the League of Nations. The Treasury of the League provided audit of the Bureau's accounts. All the accounts were made in Swiss Francs until 1926, when the IInd Conference resolved to adopt the Gold Franc.

### **The work of the Bureau**

The general work of the Bureau consisted of solving the questions referred from the International Hydrographic Conferences or by National Hydrographic Offices, and maintaining an interface with the international institutions dealing with similar subjects. The IHB collected all information on surveys carried out by the various countries, and the annual progress of this work. It also studied the methods and processes to carry out surveys used by National Offices, and information on the history, organization and work of these Offices, with special emphasis on the description of vessels used, their equipment and the training of personnel. It was decided to publish this information in a publication issued by the Bureau under the name "International Hydrographic Review". The first issue of the Review was published in March 1922 and the second in March 1923. In 1924, it was agreed that the Review would be published twice per year, in March and November, thanks to the cooperation of Member Governments, who would supply the information to be published. It was sad that one of the first news items published in the Review was the death of HSH Prince Albert I, on 26 June 1922. Besides the Review, the Bureau started the production of

publications with the Annual Report of the year 1921. Annual Reports have been produced throughout the history of the IHB, except in war years.

The IHB also included studies related to navigation, lights, tides and magnetism in its work. Special attention was given to the study of cartographic information, such as the methods and processes used for compilation, updating and publication of charts and other nautical documents. An important decision was to establish the collection of charts and hydrographic publications of the IHB. This collection included all nautical charts and publications produced by States Members.

Administrative tasks were assigned to the Secretary General, who dealt with correspondence, finance, archives, general records, library, publications issued by the Bureau and translations. The Secretary General was also the Chief of Personnel and was in charge of the Secretariat.

Technical information was sent to States Members through a number of *Circular Letters*.

The IHB was financed by the contributions of its States Members. As an example of the amounts paid, the average contribution in 1921 was equivalent to about 20,000 French francs.

It was soon evident that more personnel were necessary for the efficient performance of the Bureau. Consequently, the staff was increased as the years passed by. Due to this increase, the Directing Committee rented a part of the third floor in the same building. In 1923, the staff included the Secretary General and eight Administrative Staff

On 1 October 1923, Capt. MÜLLER (74 years old) resigned, due to ill health. Action was taken to replace him, and following a vote by correspondence, Rear Admiral NIBLACK (USA) was elected on 29 February 1924.

### **The 2nd International Hydrographic Conference (1926)**

The Second International Hydrographic Conference was held from 25 October to 10 November, being the first organized by the IHB. The staff, which had continued to increase, then included 4 Professional members (Secretary General and 3 Assistants), and 9 Administrative members. With the three members of the Directing Committee, this made a total of 16 persons working at the Bureau.

All States Members of the Bureau, except Siam, were represented at the Conference. Poland and Germany had joined the IHB and Belgium had retired. The Conference organized six committees which dealt with all the items scheduled. It may be noted that this early division of committees remains practically unchanged to date. The committees were:

- I - Statutes
- II - Finance
- III - Work of the Bureau
- IV - Charts and Technical Documents
- V - Tides
- VI - Eligibility of candidates for Directors.

### Resolutions

A great part of the discussions held during this Conference were devoted to the amendment of the Statutes of the Bureau, and several administrative matters. Other discussions concerned technical resolutions, cartographic symbols, Notices to Mariners, Sailing Directions, Lights and Tides. It also was decided that a Supplementary Conference should take place in the Spring of 1929 to which would be referred the examination of all the questions the full discussion of which had not been possible and other questions which might arise in the interval.

### Election of the new Directors

The election was as follows:

#### CANDIDATES ELECTED

NIBLACK (USA)  
DE VANSSAY (France)  
TONTA (Italy)

#### NOT ELECTED

BJÖRSET (Norway)  
HOUSEMAN (Germany)  
CHRYSSANTHIS (Greece)

### The offer of the Spanish Government

At the Conference, Spain made a generous offer, suggesting that the Bureau be re-located to Malaga, Spain, in a new building which was to be built. The offer also included the free transport of the Bureau and its personnel from Monaco to Malaga. After the Conference, and while a study was being carried out to consider the Spanish offer, the Government of Monaco proposed to the Directing Committee that it would erect a new building in the port of Monaco for the gratuitous use of the IHB, subject to the condition that the Bureau remain in Monaco. This alternative offer from the Monegasque Government was put forward to the Member States by Circular Letter and, some time later, the Government of Spain responded, considering the obligation of all countries adhering to the International Hydrographic Conference of honouring the memory of HSH the Prince of Monaco, Spain withdrew its offer and agreed to accept the kind offer of the Government of Monaco.

### **The new building**

At the end of June 1928, the Government of Monaco was informed that its offer had been accepted, with gratitude, by States Members. The plans of the building were submitted to the Directing Committee for review, and were modified as suggested.



FIG. 6.- Vice-Admiral Albert NIBLACK (USA). He greatly contributed to the project of construction of a new building for the Bureau, but he passed away before having seen the project finalized.

Just before the meeting of the First Supplementary Hydrographic Conference, held in Monaco from 9 to 20 April 1929, HSH Prince LOUIS II signified his intention to lay the Foundation Stone of the building during the Conference. This ceremony took place on 20 April, in the presence of TSHs the Hereditary Princess and Prince Pierre of Monaco, the Delegates of the States Members who were attending the above mentioned Supplementary Conference and the Marquis PAULUCCI DI CALBOLI Barone, Under-Secretary-General of the League of Nations.

The address of the new building was "Quai de Plaisance" until 1949, when it was changed to "Quai des Etats-Unis". In 1964, the street alongside the Quai des Etats-Unis was given a separate name and the Bureau's address became: 7, Avenue du Président J.F. Kennedy", in memory of the President of the USA.

Following a common building construction practice in the Principality, the erection of the new offices entailed the removal, by blasting, of the rock below the Avenue de Monte-Carlo. This work was commenced soon after the laying of the Foundation stone, and was continued throughout the summer of 1929. Unfortunately, the President of the Directing Committee, Rear Admiral NIBLACK, US Navy, who had actively participated in the project, could not see the final step, as he passed away on 20 August 1929. Mr. de VANSAY DE BLAVOUS, France, assumed the post of President and, among the four candidates, States Members elected Rear Admiral LONG (USA) as a new Director. RADM LONG reported for duty on 19 May 1930.

On the 18 December 1930, construction work was completed and the Bureau was able to commence the transfer to the new building. HSH the Prince of Monaco expressed his intention to inaugurate the new offices in person, and this ceremony took place on 14 January 1931, the Directing Committee having invited the Secretary General of the League of Nations to send a representative to take part therein. At 14.30 p.m. on that date, HSH the Sovereign Prince, LOUIS II, accompanied by HSH the Hereditary Princess, arrived at the main entrance to the building, where he was received by the Minister of State, the President of the Directing Committee, Mr. P. de VANSAY DE BLAVOUS, the members of the Directing Committee and the staff. A representative of the League of the Nations and other personalities were also present. The Minister of State delivered a short speech stating that

*"... a second edifice devoted to the Sea has arisen in the Principality of Monaco, on the very edge of the waves as if to draw therefrom a closer and deeper inspiration."*

The President of the Directing Committee thanked the Prince, with similarly poetic speech, highlighting that

*"At the moment when my office as President of the Directing Committee of the International Hydrographic Bureau gives me the signal honour of greeting Your Serene Highnesses in the new building which you have caused to be erected in order to provide the IHB with a fixed home perfectly adapted to its needs, I feel that I must, first of all, express, in the name of the 22 States Members, our deep gratitude for this proof of the generous interest which Your Highness evinces in our work and for the desire thus so clearly shown to cause it to be continued on the shores of your beautiful Principality, in those quiet and peaceful surroundings which are so propitious for it..."*



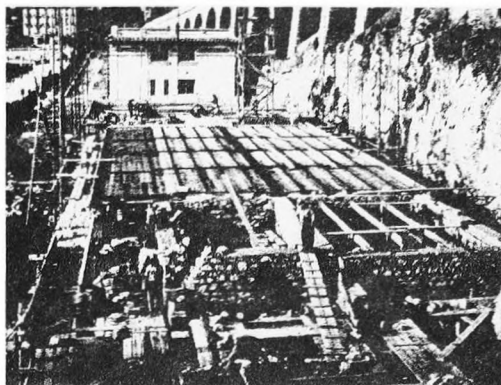


FIG. 7.- The construction of the new building.



FIG. 8.- The building finished in January 1930.



FIG 9.- The foundation stone laid by Prince Louis II of Monaco on 20 April 1929.



FIG. 10.- Inauguration of the IHB. Prince LOUIS II and the Hereditary Princess.

At the conclusion of the speeches, Their Serene Highnesses, accompanied by those who had received them, repaired to the Entrance Hall, where HSH the Hereditary Princess unveiled a marble tablet which bears the following inscription:

Cet Edifice  
 construit par le  
 Gouvernement Princier  
 et affecté au  
 Bureau Hydrographique International  
 a été inauguré par  
 S.A.S. le Prince LOUIS II  
 Prince Souverain de Monaco  
 en présence de  
 S.A.S. la Princesse Héritaire  
 le 14 Janvier 1931.

Work in the new building began in January 1930. In the following years, the building proved to be well conditioned for the tasks assigned to the IHB. Its position offered a splendid view over the port, and proved also to be a strategic site from which to watch the "Grand Prix", which was first held in 1929. The flags of Member States, which are flown on their respective national days, have added a note of colour to the amber facade of the building.

### **The IHB in the thirties**

The First (and Sole) Extraordinary International Conference was held from 9 to 20 April 1929, with the attendance of 19 States Members. As in 1926, it was opened by Prince PIERRE of Monaco and the sessions were held in the Conference Hall of the "Quai de Plaisance", rented for the occasion. No new election of Directors was carried out, as the term of five years was to be completed in 1932. The Resolutions adopted included several decisions on standardization of charts and symbols, nautical publications, soundings and lights. For the first time, the item Copyright of hydrographic publications was addressed. New amendments to the Bureau Statutes were made, and it was decided that the Government of Monaco, as host State Member providing facilities gratis, would not pay a contribution. The publication of the Hydrographic Bulletin, in replacement of the numerous Circular Letters of technical information and the Yearbook, which had begun in 1927, were also endorsed. However, the system of Circular Letters was continued to maintain contact with States Members. The number of publications produced by the Bureau had increased throughout the years. In 1929, the Review, the Bulletin, the Yearbook, the Annual Report and 19 Special Publications covering a number of technical subjects had been published.

These publications were:

- 1- Echo sounding
- 2- Report on Observations of Lights made in UK
- 3- Echo sounding
- 4- Echo sounding
- 5- International Low Water

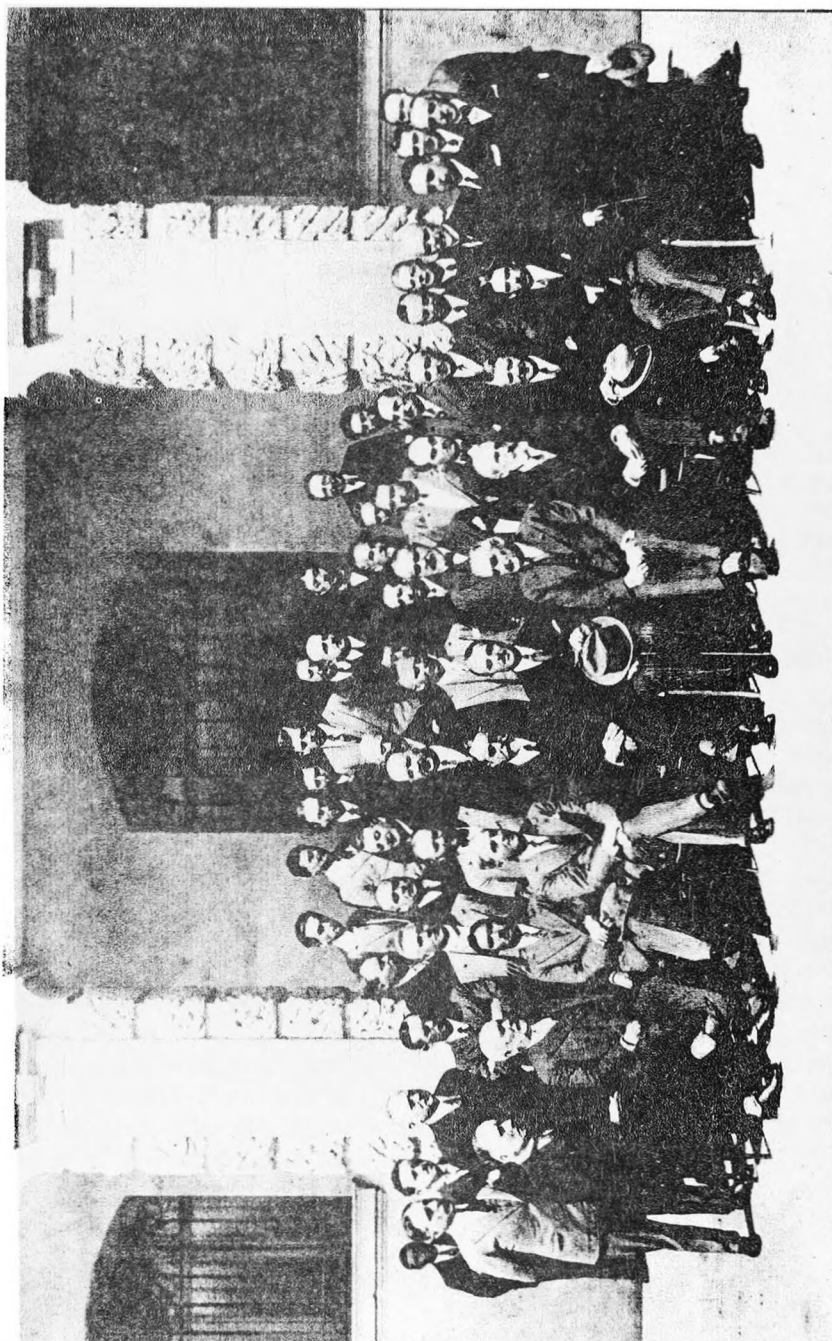


FIG. 11.- The 1st Extraordinary International Hydrographic Conference, Monaco 1929.

- 6- Summary of Data on Uniformity in Buoyage and Buoy Lighting
- 7- Report on the Observations of Visibility of Lights
- 8- Summary of Data on Uniformity in Storm Warning Signals
- 9- Uniformity of Buoyage
- 10- International Low Water
- 11- Summary of Data on Wind Force and the Beaufort Scale
- 12- Investigation of Harmonic Constants
- 12a- Tables for the Calculation of Tides by Means of Harmonic Constants
- 13- Tide Prediction Machines
- 14- Echo sounding
- 15- Summary of Data on Coastal Signals with Proposals for their Unification
- 16- Summary of Data on Port Signals
- 17- Summary of Data on Safety of Life at Sea
- 18- List of Life-Saving Stations
- 19- Ocean Currents

Publication of the International Hydrographic Review progressed well and had begun to be widely known in scientific circles. This biannual publication had only been interrupted in the year 1926, when due to the pressure of conducting a Conference, the November issue was eliminated. Authors from the worldwide hydrographic community had provided their esteemed collaboration, making the I.H. Review a scholarly publication.

The I.H. Bulletin, which was first published in January 1928, gave prompt notification of changes in Hydrographic Offices, work underway in the IHB, initial discussions of new subjects to be explored, accounts of surveys and expeditions and the list of charts published by the Hydrographic Offices of the States Members. Reports on hydrographic work carried out and projected for the year from various nations, were also normally included. An interesting section was "Notes and Queries and Letters to the Editor", providing for free and informal discussion of communications concerning hydrographic subjects. Unfortunately, in the following years, this section was not maintained. In 1934, due to a reduction of the IHB budget, the periodicity of the Bulletin was reduced to bi-monthly issues.

The number and professionalism of the staff continued to increase to meet the Organization's needs. Senior hydrographers were appointed to positions as "Technical Assistants". They formed, together with two translators, the Category A staff. The number of Administrative staff increased to 9 employees. Further increases, such as the appointment of a junior French naval officer to the post of Assistant to the Secretary General followed. The new building was able to accommodate all the new staff and also provided a large Chartroom and Library where meetings, including the International Hydrographic Conferences, could be held.

### **The 3rd International Hydrographic Conference (1932)**

The 3rd Conference was held from 12 to 23 April, in the Chartroom of the new Bureau, inaugurating a tradition which would last until 1962. Delegates from 15 of the 22 States Members attended the Conference. The Prince of Monaco presided



FIG. 12.- Ingénieur hydrographe général Pierre de VANS SAY de BLAVOUS.  
Thanks to him the Bureau could survive the war years.

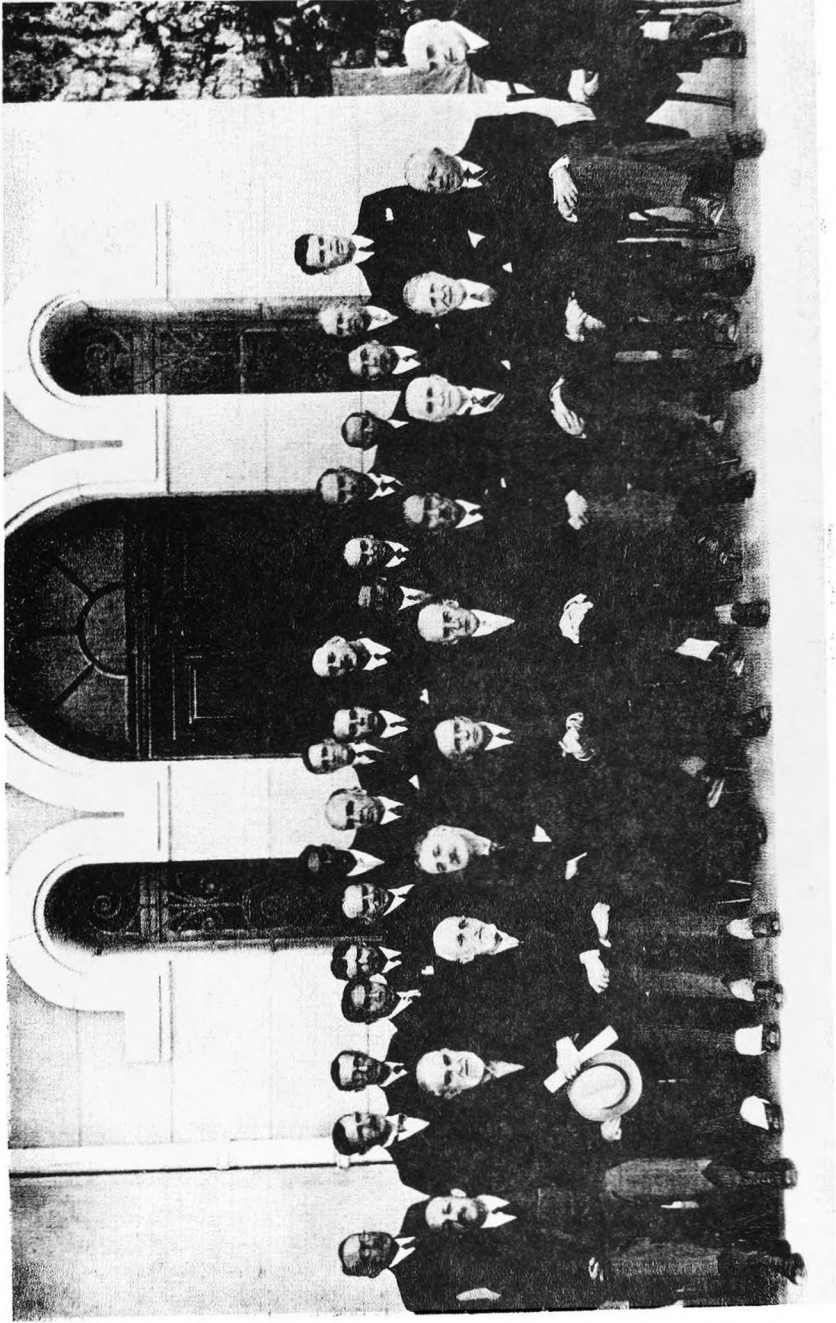


FIG. 13.- The 4th International Hydrographic Conference, Monaco 1937.



over the Opening Ceremony, at which a Representative of the League of Nations was also present. The Committees of the Conference were organized as follows:

- I - Charts
- II - Nautical Documents
- III - Tides
- IV - Work of the Bureau
- V - Statutes
- VI - Finance
- VII - Eligibility of candidates for Directors.

The Conference elected the new Directing Committee for the period 1932-1937:

CANDIDATES ELECTED	NOT ELECTED
NARES (UK)	TONTA (Italy)
DE VANSSAY (France)	SPIESS (Germany)
LONG (USA)	

VADM NARES (UK) replaced Ingénieur hydrographe général DE VANSSAY in the position of President, and the latter continued as Director.

The resolutions adopted included a decision to reduce the expenses of the Bureau, as a result of the presentation of a comprehensive proposal from the Dutch delegate, in which, in accordance with a table of 15 international Organizations, the expenses of the IHB were shown in the third position. Among other proposals, the Netherlands representative suggested a reduction in the number of Directors to two persons. It was the first, but not the last time that a reduction in the number of Directors would be proposed.

Other resolutions concerned chart symbols, Sailing Directions, Limits of Oceans and Seas, Geographical Names, Notices to Mariners, Tides, Nautical Publications and the IHB Statutes. It is noted that a proposal was made on the incorporation of a definition for "Hydrography" to the Bureau's Statutes. Hydrography would be:

*" the science by which data concerning the true configuration of the earth, as far as navigation demands, are determined and laid down in Charts, Sailing Directions and appertaining publications".*

The proposal of reducing expenses at the IHB was expressed in a Circular Letter to Member States requesting their comments. Several responses were received, proposing as the Netherlands, the reduction of Directors, members of the staff and other various suggestions. The withdrawal of Chile and Peru as members, due to the worldwide economic crisis, complicated this delicate matter. The withdrawal of the Netherlands as a member, caused by the disagreement of the Chief of the Hydrographic Office with the decisions and comments of the Bureau's Directing Committee, produced a 20% reduction of the contributions. As a result, salaries of Directors were reduced by 20% and those of the staff, 5%. Reductions also were made in the budget devoted to publications.

Ecuador joined in December 1933 and although Chile re-joined in 1935, further bad news were the retirement of Germany and Italy from the League of Nations and their subsequent withdrawal from the IHB. The Directing Committee expressed its profound regret but, nevertheless, decided that the work of the Bureau could be satisfactorily continued by making some reductions in the staff composition and the periodicity and layout of publications. Greece also withdrew in 1935.

### **The General Bathymetric Chart of the Oceans (GEBCO)**

The concept of GEBCO traces its origins to discussions at the Seventh International Geographical Congress held in Berlin in 1899. The Congress established a Commission to study the matter which was chaired by HSH Prince ALBERT I and included noted geographers and scientists of the day i.e. Baron Ferdinand VON RICHTHOFEN, Professor Otto KRÜMMEL, Admiral Stepan MAKAROV, Dr. Hugh Robert MILL, Sir John MURRAY, Mr. Fridtjof NANSEN, Professor Otto PETTERSSON, Professor Alexander SUPAN and Professor Julien THOULET.

Prince ALBERT I initiated the General Bathymetric Chart of the Oceans, by organizing and financing it, in 1903. His Cabinet Scientifique published the first edition. These charts were praised by the Académie des Sciences of Paris and by the VIIIth International Geographical Congress of 1904 in New York. The first edition consisted of 16 sheets drawn on the Mercator projection providing coverage of the entire globe between parallels 72 N and 72 S. Eight sheets were constructed on the gnomonic projection, covering the polar zones beyond the 72nd parallels. In 1910, the Cabinet Scientifique had commenced work on the second edition. However, World War I interrupted the work after only a part of the series had been printed. The Second edition, consisting of 24 sheets was completed in 1930, under the supervision of Dr. Jules RICHARD, Director of the Oceanographic Museum at Monaco, in conformity with wishes expressed in the will of Prince ALBERT. Following completion of the Second edition, the Government of Monaco invited the IHB to take over the GEBCO project. The International Hydrographic Conferences of 1929 and 1932 considered the matter and instructed the IHB to maintain the General Bathymetric Chart of the Oceans up to date in accordance with the specifications established by the Prince of Monaco. In 1932, the IHB commenced work on the third edition, which was completed in 1955. The sheets of the third edition were compiled from plotting sheets at a scale of 1/1 000 000 on the Mercator projection.

### **Publications**

New publications were added to those already existing, as a result of the work carried out by the IHB. These publications were:

- 20- Chart showing the positions of Doubtful dangers
- 21- Table of Latitudes
- 22- Manual of Symbols and Abbreviations
- 23- Limits of Oceans and Seas .
- 24- Geographical Positions
- 25- Catalogue of Original Charts
- 26- List of Harmonic Constants

- 27- Original Sailing Directions
- 28- Vocabulary concerning Tides (in English, French, Spanish, Dutch and German)
- 29- Vocabulary concerning Signals
- 30- GEBCO
- 31- List of Tidal Authorities and Tidal records

In 1935, the Bureau organized an Exhibition of Instruments, accessible to visitors, in the Library.

In September 1936, Cdr. SPICER-SIMPSON, the Secretary General, announced his retirement after the 4th International Hydrographic Conference. Cdr. SPICER-SIMPSON had spent 15 years at the IHB, from the time of its creation. The Conference decided that this post should be left temporarily vacant. This represented, in view of the reduction of expenses that the IHB had to consider, important savings for the budget.

However, finances became even more difficult. The uncertain conditions, both political and economic, existing all over the world, made estimation of the amounts of financing needed in many of the IHB budget categories difficult, particularly in view of the fluctuation in the value of the French Franc which impacted the cost of all tasks carried out by the Bureau. The fall in the gold value of the Franc also resulted in a direct loss of the capital held by the Bureau.

#### **The 4th International Hydrographic Conference (1937)**

Under these difficult circumstances, the 4th International Conference was held, from 13 to 22 April 1937. Official delegates from 12 Member States attended the Conference. Representatives of the League of Nations, the International Commission for Air Navigation and of the Consejo Oceanográfico Ibero-Americano were invited to be present at the deliberations of the Conference. All meetings were held in the Chartroom of the Bureau, especially arranged for the Plenary sessions. The Committees were unchanged with respect to previous Conferences. Some lectures were given during the course of the session. During the last plenary session, the new Directing Committee was elected as follows:

CANDIDATES ELECTED	NOT ELECTED
NARES (UK)	None
CROSLY (USA)	
DE VANSSAY (France)	

The Resolutions dealt with Symbols and Abbreviations, Notices to Mariners, Lists of Signals, the Statutes of the Bureau and its publications. Of particular mention is a decision to compile a comprehensive and standard Dictionary of Hydrographic Terms.

The IHB was represented at the International Exhibition in Paris, 1937, in the Pavillion of the Principality of Monaco, to which it contributed several copies of the General Bathymetric Chart of the Oceans and a selection of publications of the Bureau.

In June, one of the Directors recently appointed, RADM CROSLLEY, due to his ill health, was incapacitated for duty for six consecutive months during his mandate. In virtue of Art 22 of the Statutes, it was necessary for RADM CROSLLEY to retire from his position as a member of the Directing Committee. He was replaced, in April 1939, by Capt. LEAHY (USA), the only candidate applying for the post. Therefore, there was no vote, and Member States unanimously accepted Capt. LEAHY's nomination. RADM CROSLLEY died on 6 January 1939 in Baltimore, USA.

### **The war years**

Dark clouds menaced the European skies in 1939. The anxiety also reached the IHB. Member States, such as Norway, Japan, Ecuador and Chile, withdrew membership. The Directing Committee decided to speak to the Minister of State of Monaco about the possibility of removing the seat of the IHB in case of emergency and other security measures that might be required by the Government.

On 25 August, as the political situation had become very critical and as it appeared probable that, in the event of hostilities, the IHB would have to be moved from Monaco, the Directing Committee decided to accept an offer previously made by RADM LACKEY, Commanding the United States Naval Forces in Europe, to place one of the U.S. ships under his command at its disposal to transport the records and part of the personnel of the Bureau to Sète. Sète would be easier to reach than the town of Vichy, which the French Ministry of Foreign Affairs had proposed as the temporary seat of the Bureau.

The USS BADGER entered Monaco harbour on the morning of 27 August and, having embarked cases containing the most important of the Bureau's records and the personal effects of the Directing Committee and members of staff, sailed for Sète the following morning. Only the Signorina Elena SERRA, the senior secretary, remained in Monaco, in charge of the rest of the Bureau's holdings.

The members of the Bureau stayed at Sète until September, when the Directing Committee decided that the political situation enabled work to continue in Monaco. They and the members of the staff returned to the building at Quai de Plaisance, leaving some of the Bureau's records in safe storage at Sète. RADM LEAHY, who had not returned to Monaco, left Sète for the USA on 29 August on special leave. Other members of the staff were mobilised. The Bureau drew the attention of the States Members to certain publications which could prove to be useful in the current circumstances. They were "List of Life Saving Stations" and "Vocabulary of the most usual terms employed in Wireless Notices to Mariners". The Directing Committee studied the question of the best means of ensuring that those Wireless Notices to Mariners were brought to the knowledge of masters of ships on passage towards areas where mine fields existed.

In June 1940, VADM NARES returned to London and was appointed to active service in the British Admiralty Hydrographic Department. RADM LEAHY continued on indefinite leave in the USA and rendered valuable service to the IHB in connection with the funds of the Bureau in the United States, arranging for their conversion, deposit and licenses. Various members left the Bureau upon the expiration of their appointment. The rest of the appointments of the personnel were revoked and the members who

were retained were re-engaged on a temporary basis at a new rate of pay. This decision was taken in order that the Bureau might not incur obligations which might make it impossible to meet expenses in view of the possible failure to receive some of the contributions from States Members.

The Bureau prepared to face the difficulties of the war years with only one Director, M. de VANSSAY, then 71 years old, one Technical Assistant, Cdr. BENCKER and 4 members of the staff, who were employed on a basis of one working day in two. M. de VANSSAY had reduced his own salary to a 1/4 of that fixed in 1938. He had minutes recorded and signed by himself, kept accounts, produced the Circular Letters and the Bulletin, which was typewritten and included data on the Yearbook, the publication of which had been suspended. He also worked on GEBCO, and on the 1st edition of the Hydrographic Dictionary, which would contain the equivalents of the French and English terms in Danish, Dutch, German, Italian, Norwegian, Portuguese, Spanish and Swedish. He was, in a nutshell, the body and soul of the IHB. He even tried to announce the Vth International Hydrographic Conference, which should have been held in April 1942.

In October 1941, the Government of the UK dispatched a letter to all States Members of the Bureau in which it expressed the opinion that the Bureau at Monaco could not satisfactorily fulfill its functions and suggested that the activities of the Bureau should be suspended during the war period and no further contributions be paid until peace was restored. The response of the Bureau was very clear and firm. By Circular Letter, M. de VANSSAY answered that the Directing Committee could not share this opinion, and that during the period of more than two years that the war had existed in Europe, the Bureau had endeavoured to fulfill all the obligations required by the Statutes. He added that the Bureau, being established in a country which had not taken part in the war, had enjoyed complete freedom of action. The correspondence with the States Members and even with the non-members, and the dispatch of publications had continued, despite the inconveniences and the delays imposed by the war. He explained how salaries and general expenses had been reduced and ended the Circular Letter by stating that it was not possible to suspend all the activities without suppressing the Bureau, that the library, the collections and the archives were housed in a building which should be guarded by the concierge and that it would be very difficult to re-establish the functioning of the Bureau after the war if the personnel, who had been loyal and faithful were discharged and left without employment. Therefore, he requested States Members able to continue paying the contribution to do so to maintain the IHB.

In the following years, the contributions of only a few States Members were received. Thanks to them the IHB remained alive. They came from France, Great Britain, Spain, Sweden and USA.

In 1943, the military occupation of Monaco seriously affected the activities of the Bureau, with the interruption of postal and other means of communication. VADM NARES and RADM LEAHY took the decision of establishing a provisional IHB Headquarters for the duration of the emergency at 910 Park Avenue, New York in the USA. No rent expenses were to be charged to Member States, the contribution of which was reduced to \$ 100 US.

In December 1943 an explosion caused by a torpedo fired from a British submarine and directed at the French ship PROVIDENCE, caused great damage to the building of the Bureau, which then was closed until January 1944. Also in 1943, the Bureau staff had its only war casualty, Cdr. BEEHLER (USA) who died in a prison camp at Sospel.

On 9 March 1944, the military authorities decided to close the building of the IHB and the Government of Monaco arranged the transfer of the Bureau offices to the 2nd floor of the Hotel des Princes, at 1 Avenue de La Costa. The move was made on 25 March. Many boxes of documents, instruments and publications were dispatched to Paris and Lyon, as a safety measure.

### **The end of the war and resumption of Bureau activities**

In August 1944, the Allied Forces invaded the south of France, and on 3 September, Monaco was liberated by the U.S. Army, approaching from Cap d'Ail. The aerial bombing of the Monegasque harbour caused added damages to the already blemished building of the Quai de Plaisance. But by August 1945, the Principality had finished all the necessary repairs. The removal from the provisional offices to the former building was made on 7 August. Arrangements had been made for the return to the seat of the Bureau of the archives, documents and records which during the year had been placed in safe custody under the care of the French Hydrographic Office. These were received on 25 December 1945.

VAdm NARES ceased active service in the Hydrographic Department of the British Admiralty and returned to his duties as President of the Directing Committee in July 1945. He had met his colleague M. de VANSSAY in November 1944 and they had together prepared the plans for the future of the IHB. RADM LEAHY also joined the two other Directors in May 1945, but in order to reduce expenditure as much as possible, he would not resume his duties as Director until 1947.

The activities of the IHB began, with the existing members of the staff, on 7 August 1945. The staff was increased with a view to the preparation of the Vth International Hydrographic Conference, for which a Circular letter had been dispatched to States Members. The date originally proposed was June 1946, but, as a result of replies received from certain of the States Members, it was evident that the earliest date on which this could be held was not before the Spring of 1947. It was finally scheduled on 23 April 1947.

The following subjects, on which the Bureau had worked before the war, were given special attention:

- Conventional symbols and abbreviations. A new edition of the publication No. 22 was scheduled.
- Centralisation of Oceanic Soundings
- General Bathymetric Chart of the Oceans. Three new sheets were in preparation.

- New publications. No. 35 - Nomenclature and Vocabulary concerning Lights was issued in January, together with the 1st edition of the Hydrographic Dictionary, Special Publication No. 32, in 11 languages.

The Yearbook was published again and the Bulletin returned to a monthly edition, and from July, it was in printed form, but the Review would not recover its bi-annual production until 1949.

The Bureau also initiated its relations with other international Organizations. It was represented at the 1st International Conference on Radio Aids to Navigation, in May 1946, and at the 1st General meeting of the UNESCO, in Paris, in November. The Directing Committee also attended the Conference on Safety at Sea, held in USA, in order to co-ordinate the activities of the IHB with any future World Organization for Safety at Sea, to avoid duplication of effort.

### **The important Vth International Hydrographic Conference (1947)**

Member States were rejoining the Bureau. Norway in January 1947, was followed by Greece and New Zealand (as part of the British Empire, with UK and Australia). By the time of the Conference, Member States again totalled 15. Argentina, Brazil, British Empire, Denmark, China, France, Greece, Norway, Poland, Portugal, Siam, Spain, Sweden, Uruguay and USA.

The Conference was held in the chartroom of the IHB. Ten years had passed since the date of the last Conference and a deep emotion was felt among those who met again after the difficult and hazardous years of the war. Representatives of seven maritime States, currently non-members of the IHB but which had been members in previous years, were invited, together with delegates from the recently created United Nations, the UNESCO, the International Union of Geodesy and Geophysics, the International Council for the Exploration of the Sea and from two Organizations which had been close to the Bureau since its creation, and had attended the early International Hydrographic Conferences, i.e., the International Civil Aviation Organization and the Pan American Institute of Geography and History.

The inaugural meeting took place on Tuesday morning, 22 April, at which the Prince of Monaco presided. Princess GHISLAINE and Prince RAINIER were also present. Deeply moved, the President of the Directing Committee, Vice Admiral NARES made the opening speech, devoting a memory to those who passed away in the war years; Admirals PHAFF and LONG, former Directors, died in 1945 and 1946, Cdr. SPICER-SIMPSON, died in 1947, former Hydrographers, such as Admirals PUREY CUST and DOUGLAS (UK), GHERARDI (USA), CABALLERO (Peru), FICHOT (France), Captains LUYMES (Netherlands), and many others had also passed away. He continued remembering the circumstances lived through by the IHB since 1939 and thanked all those who had contributed to the survival of the Bureau. Special thanks were given to M. de VANSAY, who had made possible the functioning of the Bureau throughout the five years of war, and to the loyalty displayed by the staff, most of whom had continued to carry out their duties under very difficult and distressing conditions. He referred to the necessity of re-organizing the Bureau, which had been a topic prior to the war and he invited members to take part and discuss this, together with the future of the IHB, particularly the



amendment of its Statutes. Similar to previous Conferences, the work was divided into seven Committees

- I - Charts
- II - Nautical Documents
- III - Tides
- IV - Work of the Bureau
- V - Statutes
- VI - Finance
- VII - Eligibility of candidates for Directors.

The Conference considered a comprehensive report on the work of the Bureau, which was a summary of all the tasks carried out during the preceding years. The total list of subjects are listed below:

## I. CHARTS

1. Conventional Symbols and Abbreviations.
2. Catalogue of Original Charts (Special Publication No. 25).
3. List of Sales Agents for Charts.
4. General List of E.D., P.D. and P.A. Dangers.
5. Information of Dangers discovered in foreign waters.
6. Progress of Coastal Surveys.
7. Geographical Positions (Special Publication No. 24).
8. Soundings in Estuaries and Deltas.
9. Centralization of Oceanic Soundings.
10. New soundings - Special features of Submarine Relief.
11. General Bathymetric Chart of the Oceans.
12. Chart Projections.
13. Table of Meridional Parts. (Special Publication No; 21)
14. Magnetic Charts.
15. Method of showing areas of Magnetic Disturbance on Charts.
16. Proposed International Abbreviation to indicate Radio Telephone Stations on Charts.
17. Illustrations of Characteristics of Lights on Charts.
18. New Charts.
19. Transcription of Geographical Names.
20. Terminology of the Submarine Relief and the Coastal Contours.
21. List of Unmarked Dangers

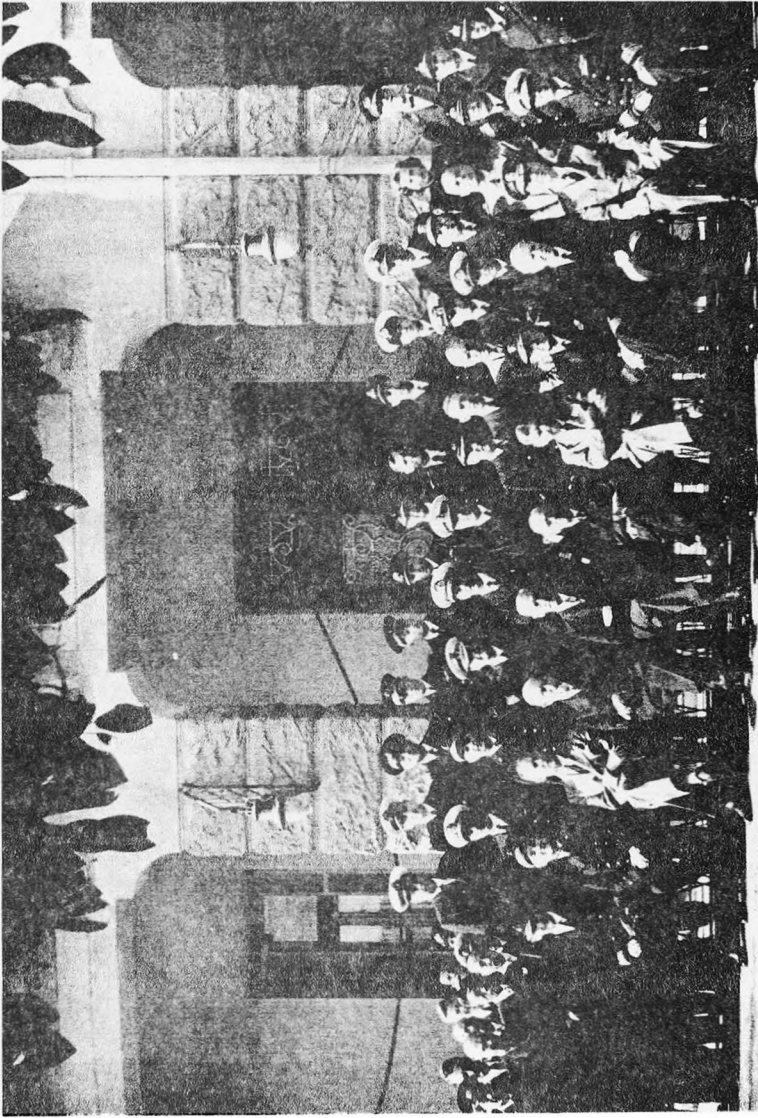


FIG. 14.- The 5th International Hydrographic Conference, Monaco 1947.

## **II. SAILING DIRECTIONS, LISTS OF LIGHTS, NAUTICAL DOCUMENTS CATALOGUES, ETC...**

22. General Repertory of Original Sailing Directions, etc., published by the Hydrographic Offices. (Special Publication No. 27)
23. New Nautical Documents and Catalogues.
24. Light Lists - Illustrations of Characteristics of Lights.
25. Light Lists - New Nomenclature of Maritime Lights.
26. List of Life Saving and Refuge Stations. (Special Publication No. 18).
27. Limits of Oceans and Seas. (Special Publication No. 23)
28. Criteria and nomenclature of the major Divisions of the Ocean Bottom, New Denominations of the Seas of the World.
29. Hydrographic Dictionary.

## **III. NOTICES TO MARINERS**

30. Urgent Notices to Mariners by W/T and by the International Code of Signals.
31. Vocabulary of the most usual Terms occurring in W/T Notices to Mariners. (Special Publication No. 34)
32. Translation in English and French of certain Notices to Mariners.
33. Centralization of Notices to Mariners in the Principal Ports.
34. List of Ports of Centralization of Notices to Mariners.
35. Receipt of Notices to Mariners.

## **IV. TIDES**

36. List of Harmonic Constants. (Special Publication No. 26)
37. Tide Tables.
38. Monthly and Yearly Means of Sea Level.
39. Mean Sea Level Abbreviation.
40. Currents.

## **V. METHODS AND INSTRUMENTS**

41. Echo Sounding
42. Velocity of Sound in Sea Water.
43. Sound Ranging.
44. Measurement of Depth by means of Protected and Unprotected Thermometers.
45. Insertion on Charts of Soundings taken from Original Foreign Charts.
46. Methods of Sweeping.
47. Use of Aircraft and Aerial Photography for Surveying.

48. Instruments.
49. Current Meters.
50. Magnetic Instruments.
51. Gravity Measurements.
52. Methods of Engraving. Printing and Reproduction of Charts.
53. Practical Hints to Hydrographic Surveyors.
54. New Methods of Navigation, New Nautical Tables, Nautical and Air Almanacs.

## **VI. WORK AND ORGANIZATION OF HYDROGRAPHIC OFFICES**

55. Organization of Hydrographic Offices - Yearbook.
56. Work Carried Out and Projected by Hydrographic Offices.
57. Hydrographic Surveying Vessels and Boats.
58. Method of Recruiting and Training Surveying Personnel.
59. Hydrographic, Oceanographic and Scientific Expeditions and Commissions.
60. Hydrographic Bibliography.
61. Historical, Personal and Obituary Notices.

## **VII. MISCELLANEOUS RESEARCHES AND QUESTIONS**

62. Unification of Buoyage.
63. Nomenclature of Maritime Lights.
64. Oceanography.
65. Criteria and Nomenclature of the Major Divisions of the Ocean Bottom.
66. Relations with other International Organizations.
67. Proposed Conference on Safety-at-Sea.

A re-organization of the International Hydrographic Bureau was put forward by the USA, by means of a comprehensive proposal which, among other items recommended:

- To review the present Statutes to update them in accordance with the changes originated in the post-war. (Such as the disestablishment of the League of Nations)
- To study the entrance of the IHB as an integral entity within the framework of the organization of the United Nations
- To hold Conferences every 4 years, in order that the Bureau may operate more effectively.
- To create "Regional Conferences" or "Meetings", to discuss matters of common regional interest.

- To change the structure of the IHB as follows, with a view to more efficient and positive administration:
  - (a) One Director - with overall authority
  - (b) One Assistant Director
  - (c) An Advisory Board of four members
- To increase the staff of technical and administrative employees in order to provide more effective operation, with resultant benefits to all members.

The Conference eventually decided not to change the organization, which would remain based on the system of three Directors and a Secretary General, in addition to the corresponding technical and administrative staff. However, as only two candidacies for the post of Director had been submitted, it was decided to make an appointment to the post of Secretary General, which had been left vacant following the retirement of Cdr. SPICER-SIMPSON in 1937. Capt. BENCKER, the senior Technical Assistant was nominated to the position. It is interesting to note that similar proposals for reduction in the number of Directors would be considered in the future years, all of which were rejected. The system of three Directors has been considered several times and retained as the best for the efficiency of the IHB. On the other hand, the post of Secretary General, considered at the Vth Conference as extremely necessary for the Bureau, was left vacant in 1957, and finally eliminated in 1960.

The recommendation of integrating the Bureau into the structure of the United Nations was not adopted and the IHO continues to this day as an intergovernmental organization which is not a part of the UN. The Conference expressed the will of having an independent organization, working in cooperation with the UN. An important proposal that was approved at the Conference was that the Bureau should enjoy Diplomatic Privileges and Immunities. These mainly concerned exemption of direct taxation, immunity from immigration restrictions and other privileges agreed to by the Government of Monaco, which are now a part of the Host Agreement between Monaco and the IHO.

A suggestion to increase the staff was well received and, in the following years, several new appointments of well qualified personnel were made.

Other administrative resolutions adopted by the Conference were to restore the contributions of States Members to their statutory amount, to suppress all reductions previously made in the salaries of the Directors and the staff and to grant the Director and members of the staff who were present in Monaco during the war period, an exceptional bonus equal to a maximum of six months of their salary, paid in proportion to the time of service given during that period.

The proposal of the Spanish delegation to consider Spanish as the third language to be used at Conferences was unanimously approved, in view of the number of Spanish-speaking countries attending Hydrographic Conferences. Some years later, the Russian was also approved as the fourth language for Conferences.

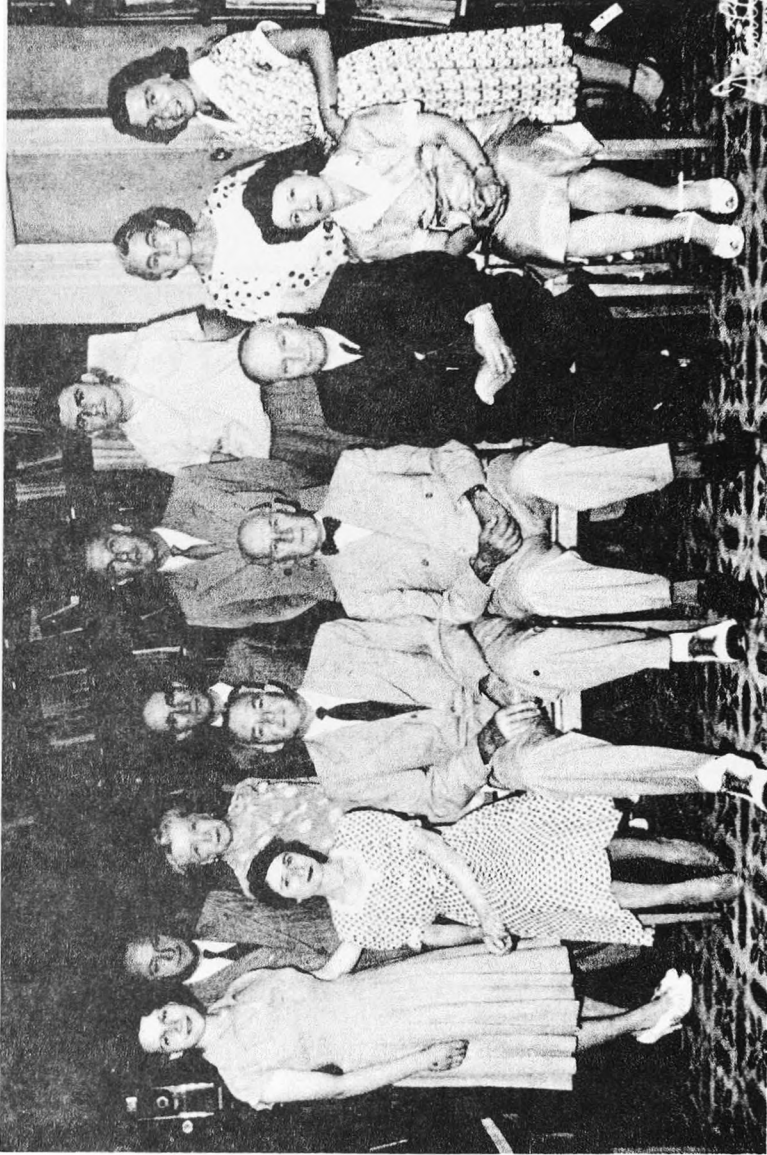


FIG. 15.- 30th Anniversary of the IHB. The Directing Committee and the staff. Seated from left to right: Miss SERRA, Radm. NICHOLS, Radm. NARES, Capt. BENCKER, Mrs. PAUL. Standing from left to right: Mrs. BRESSET, Cdr. LEMIERE, Miss BARCLAY, Cdr. ALBINI, Mr. ANTOGNINI, Mr. FERRERO, Mrs. PONS, Miss CADARS.

The two candidates for the posts of Directors were:

## CANDIDATES

NARES (UK)

NICHOLS (USA)

The work of the Bureau continued during those late years of the forties, improved after the Conference through the growth of the staff, which had increased from 10 members in 1949 (2 Cat A and 8 Cat B) to 13 in 1952 (5 Cat A and 8 Cat B).

The organization's membership was enlarged with Italy and Netherlands, joining in 1949, followed by Turkey, Cuba, Japan and Yugoslavia in 1950.

Relations with other international organizations also expanded, and the Directing Committee began to participate in Conferences and Meetings held abroad. From 1948 to 1952, the Bureau was represented at the IVth and Vth Meetings of the ICAO, at the VIIIth and IXth General Assembly of the International Union of Geodesy and Geophysics, the IVth Assembly of the Pan American Institute of Geography and History, the Meeting of Experts of the Economic and Social Council of the U.N. in the domain of Cartography, the Fourth Assembly of UNESCO, Paris, and the XIIIth Plenary Session of the International Committee for the Scientific Exploration of the Mediterranean Sea.

## The quiet fifties

On 21 June 1951, the IHB celebrated the Thirtieth Anniversary of its creation. To mark the occasion, a photograph of the personnel of the Bureau was taken and the President of the Directing Committee made a short speech to the assembled staff.

The period from 1950 to 1960 was a calm, stable period in the Bureau's history. In 1950, the Finance Report stated that the Bureau was financially able to fill the position of the third Director. However, the Directing Committee, although of the strongest conviction that a third Director was indispensable to the continued effective operation of the Bureau, recommended that the Bureau continue with only two Directors during the interval to the 1952 Conference. The contributions for 1950 totalled the amount of 230,000 gold francs, with a gold franc then representing 114.34 FF or \$ 0.33.

New members of the IHB were Chile, Canada, South Africa and Indonesia in 1951, Germany in 1952, Philippines in 1955, India and Burma in 1956. Finland, Republic of Korea, Pakistan, Iceland, Dominican Republic and Guatemala in 1957, Australia and New Zealand (independent from the British Empire) in 1958 and 1959, and Venezuela in 1960.

The principal areas of the work for the Bureau continued as:

Charts - Symbols and abbreviations, Geographical Positions, Centralization of Ocean Sounding, GEBCO, Limits of Oceans and Seas, New Charts and Magnetic Charts.



Nautical Documents - New Nautical Documents and Catalogues, Information on Sailing Directions, Aids to Navigation, Notices to Mariners.

Tides - Information on Tide Tables, List of Harmonic Constants, Mean sea level, World Networks of Tidal Observations.

Methods and Instruments - Navigation, Nautical tables, New techniques of Survey, Echo Sounding, Instruments.

Information received on the work carried out by Hydrographic Offices

Most of these subjects were reported in the Hydrographic Review, the IH Bulletin and in some Special Publications, of which new editions and amendments were issued. New publications were added to the List, such as Special Publication No. 36 "The Analysis of High and Low Waters", Special Publication No. 37 "The Evolution of Photogrammetric Instruments", Special Publication No. 38 "Systems of Maritime Buoyage and Beaconage". Financial support towards the publication of the fourth edition of GEBCO was received from other international organizations. The Bulletin started a new section in which announcement was made of the publication of new charts received or published by Hydrographic Offices.

In February 1959, the publication schedule of the Review was amended by decision of the Directing Committee. The Review was then issued in January and July of each year, instead of May and November. As a result of the change, only one issue of the Review was published in 1959, the July issue.

A revision in the scope of Special Publication N 39 "Radio Aids to Maritime Navigation and Hydrography was undertaken, as the subjects it covered had developed considerably since it was first published.

At the UN Regional Cartographic Conference for Asia and the Far East, in 1955, and later at the VIIth Cartographic Conference of the PAIGH, the IHB collaborated closely with those organizations in having a resolution passed which emphasized the urgent necessity for every maritime country to have a national organization charged with maintaining an effective system for notifying the world of navigational changes and dangers and with carrying out accurate hydrographic surveys. In further collaborations with these and other relevant organizations, the IHB endeavoured to bring that concern to the attention of governmental authorities.

The relations with other International Organizations continued to expand. The members of the Directing Committee and the Technical Assistants attended a few meetings held abroad. At many others, the Bureau was represented by relevant personnel of the Hydrographic Offices of States Members. Collaboration was established with the Cartographic Section of the UN and UNESCO for the development of scientific documentation, and terminology and the compilation of multi-lingual dictionaries.

Some of the international organizations with which the IHB then had established close relations were:

International Civil Aviation Organization (ICAO)  
 International Council of Scientific Unions (ICSU)  
 Permanent International Association of Navigation  
 International Association of Physical Oceanography (IAPO)  
 International Council for the Exploration of the Sea  
 Pan American Institute of Geography and History (PAIGH)  
 Navigational Institutes of London, U.S., Canada and Australia  
 International Joint Commission on Oceanography  
 International Union of Geodesy and Geophysics (IUGG)

### **The VIth and VIIth International Hydrographic Conferences (1952 and 1957)**

The VIth International Hydrographic Conference was held in Monaco from 29 April to 9 May 1952. Fifty-seven delegates representing 26 States Members were present; 2 non-member States, Belgium and Iceland, sent representatives as observers. In addition, 12 international and scientific Organizations were represented.

The election of the new Directing Committee was as follows:

CANDIDATES ELECTED	NOT ELECTED
NICHOLS (USA)	KJAER (Norway)
NARES (UK)	DAMIANI (France)
VIGLIERI (Italy)	

It is to be noted that Admirals NICHOLS and NARES changed posts, with NARES stepping down as President and that a third Director was appointed after the break of several years.

### Resolutions

The Resolutions of the 6th Conference affected the Statutes (Contributions, Shares and Staff Regulations), Finances (Contributions in arrears, Reserve Funds), Charts (Scales, Symbols, Echo sounding, Depth contours, Catalogues), nautical documents (Sailing Directions, Notices to mariners), Tides (Data, Constituents, Mean sea Level), Work of the Bureau (Resolutions of the Conference, Future Work of the Bureau, Membership). Many resolutions resulted in changes to the Repertory of Technical Resolutions.

During the period of the Conference, numerous delegates gave lectures on technical subjects, most of which were subsequently published in the IH Review. During the Conference, an Exhibition of instruments took place. It is to be noted that a new Committee was established: the Revision of Resolutions Committee.

The 7th International Hydrographic Conference was held in Monaco from 6 to 17 May 1957. Four months before the Conference, Vice Admiral NARES passed away after 25 years of service at the Bureau as Director.

Seventy-three delegates representing 30 of the 35 States Members were present and three non-member States sent representatives as observers. In addition, 15 international and scientific Organizations were represented. The total number of participants amounted to ninety-one. For the first time, simultaneous translation in English, French and Spanish was utilized.

The election of the new Directing Committee was as follows:

CANDIDATES ELECTED	NOT ELECTED
KNOX (USA)	KJAER (Norway)
VIGLIERI (Italy)	LOWEY (UK)
DAMIANI (France)	

In addition to the time devoted for discussion of the important item of the Legal Status of the Bureau, which is presented below, two important aspects of the organization of the Bureau were considered: the definition of length of service for the Directing Committee, a proposal presented by Denmark, Finland and Sweden to reduce the period of service of the Directing Committee to one period of five years, and a proposal from the Directing Committee itself about the suppression of the post of Secretary General of the IHB.

Some aspects of the election of Directors had already been considered at the IVth Conference, to which France had proposed that when the Directing Committee was renewed or when one of several members of the Directing Committee were replaced, at least one of them should belong to a State Member which was not represented during the preceding five years. A further proposal was made by Argentina at the Vth Conference, to specify that members of the Directing Committee should be eligible only once for re-election. The French proposal was withdrawn before being considered and that from Argentina was rejected by 6 votes to 4, although some years later was to be adopted.

The length of service proposal presented to the VIIth Conference was made bearing in mind regulations existing in other international organizations. After careful consideration, the Committee on Statutes rejected it.

The recommendation concerning the post of Secretary General had been made by the Directing Committee following the announced intention of the holder of the post, Capt. BENCKER, to retire after the Conference. The Committee on Statutes did not fully agree with the reasons stated to abolish the post, which had always been considered of high value. The post was left provisionally vacant and it was recommended that a further proposal on this subject should be made to the VIIIth Conference, taking into account the experience of the next period 1957-1962.

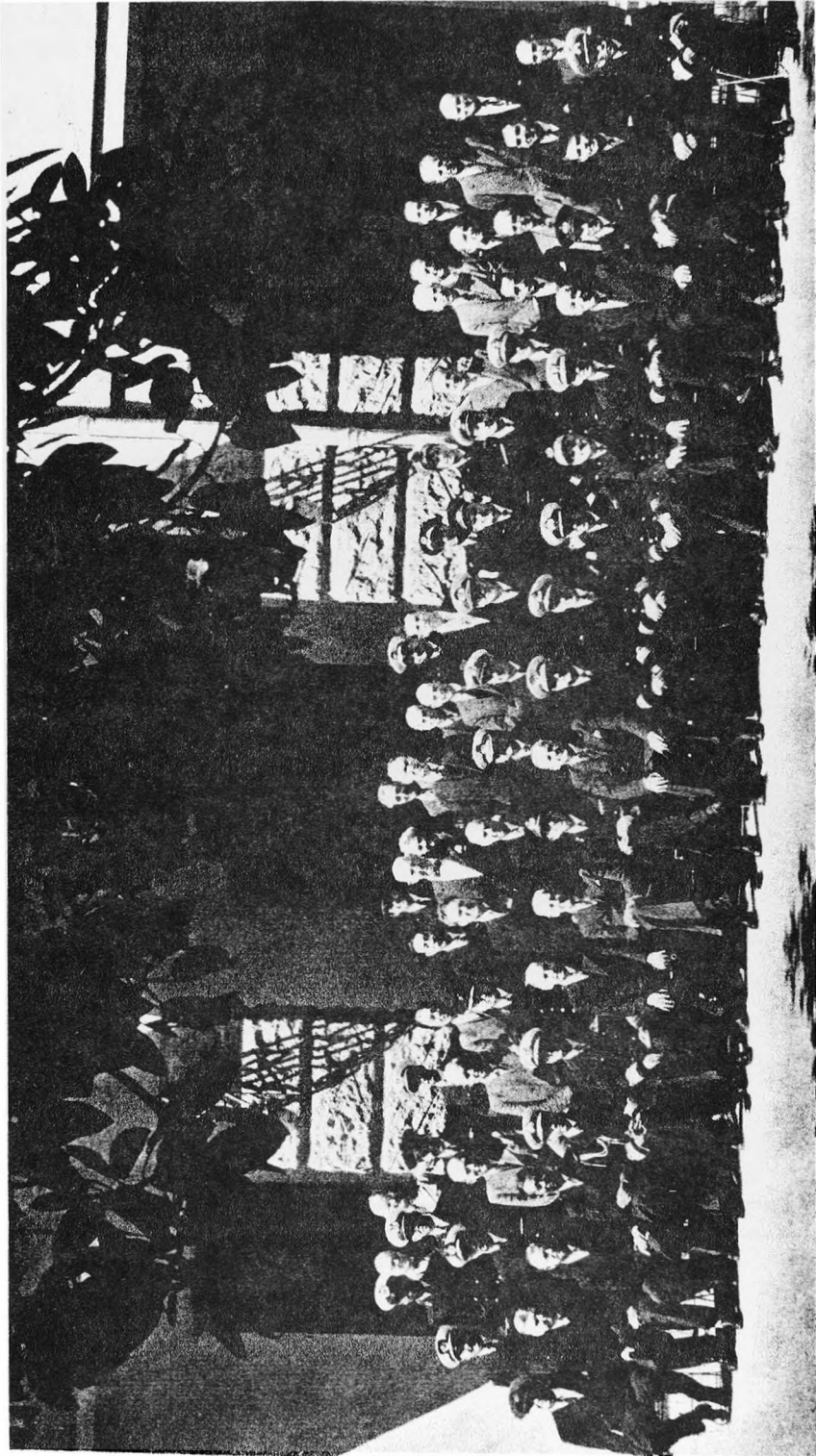


FIG. 16.- The 6th International Hydrographic Conference, Monaco 1952.

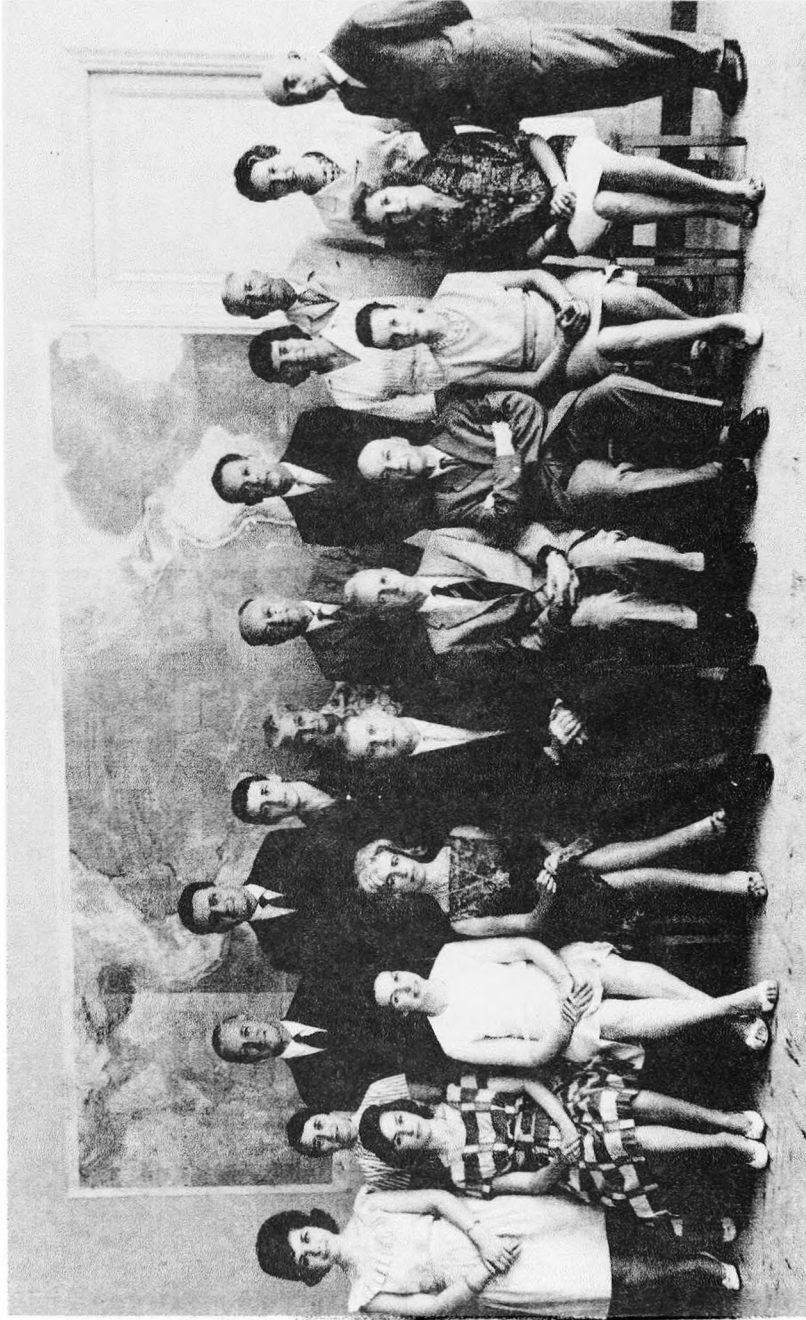


FIG. 17.1961. 40th Anniversary of the Bureau. The Directing Committee and Staff. Seated from left to right : Mrs. ALBERTI, Mrs. ORLANDI, Mrs. De VILLERS, Radm. VIGLIERI, Radm. KNOX, Ingénieur hydrographe général DAMIANI, Miss STEPHENS, Mrs. BRESSET. Standing from left to right : Miss PARSI, Miss SERRA, Mr. DEAN, Mr. FERRERO, Mr. DEL FA, Mrs. PONS, Mr. LEMIERE, Mr. ANTOGNINI, Miss CADARS, Cdr. BONNIN, Miss CAESAR, Capt. ALBINI.

### **The long way to the Convention. 1956 - 1970**

For many years there was indication that the IHB lacked the proper legal foundation to have a juridical personality. In 1956, the Directing Committee decided that some action should be taken in order that the legal status of the Bureau as a world-wide intergovernmental Organization be formally recognized by the appropriate Government authorities of the States Members and proposed that an additional covenant to the Statutes concerning the juridical personality and the privileges and immunities of the Bureau, should be approved by States Members, so that the Bureau's international standing should compare favourably with that of other similar international Organizations. It was decided that this important question should be examined at the VIth Conference and a proposal on the subject was presented by the IHB.

After lengthy discussion, the Conference rejected the original proposal of the Bureau, but approved another alternative proposal submitted by Chile and supported by Spain and Italy.

In accordance with this proposal, the Directing Committee was charged to submit to the States Members, within 90 days following the date of 1 June 1957, the text of a draft declaration or convention by which States Members would recognize the juridical personality of the Bureau and provide for privileges and immunities. Furthermore, a period of six months, dating from 1 September 1957 was granted to the States Members in order that they may pass judgment on the text submitted for approval, as well as the power to accept, amend or reject it. As soon as a majority of the States Members were in agreement as regards the declaration or convention in question, the letter would be submitted to duly authorized representatives for signature.

Following this Resolution of the Conference, a draft convention on the organization and legal status of the IHB was mailed to the States Members on 16 August 1957. A large majority of members agreed that the Convention should be accepted, or accepted with amendments. Following a study of all amendments, changes and suggestions offered, the Convention in final form was submitted for signature and copies were sent to States Members. By the end of the year one country, Portugal, had signed the Convention and another, the United States of America, had recognized the international character of the Bureau by an Executive Order designating the IHB a public international organization entitled to the benefits of the International Organizations Immunities Act of 29 December 1945.

During 1959, eight States Members signed the Convention. In 1963, only 17 States Members out of 41 had replied to the Circular letter of the IHB in which they were requested to give their opinion whether or not the draft Convention, then open for signature, should be maintained. Consequently, the Bureau proposed at the VIIIth Conference that this question be discussed and that a decision be taken on the procedure suggested of preparing a new convention and having it revised and approved by the representatives of States Members duly accredited for this purpose by their Ministry of Foreign Affairs, meeting together at a Special Conference to be held some months after the Regular Conference. The VIIth Conference approved this procedure and suggested that the experts nominated could be those serving in the States Members Paris Embassies which would be the logical site of the Special Conference.

In November 1962, the Directing Committee received from the Ambassador of Chile in Paris a draft convention on the juridical personality of the IHB which had been drawn up by his government and the Bureau brought this draft convention to the attention of its States Members. Other amendments to the draft convention examined at the VIIIth Conference were sent by Great Britain, Argentina and Germany and circulated to States Members in 1963. The IHB subsequently prepared a new improved text of the Convention, taking into consideration the suggestions of Chile, Great Britain, Argentina and Germany and the Conventions and similar documents of other international organizations. The IHB originally intended to complete the work by including a draft text of Regulations to be attached to the Convention when submitted for signature. However, in December 1963, at the suggestion of the Netherlands Hydrographer, it was decided that a small working group of diplomats and hydrographers should meet in Monaco in February of the following year to study the question of regulations. The IHB then decided to defer their compilation pending the outcome of this meeting, to which the improved Convention text was also submitted. The meeting of the working group took place from 4 to 6 February with delegates from France, Great Britain, Italy, Monaco, Netherlands and the IHB. The legal experts prepared two draft convention texts during the meeting, one of standard length and one short. The Bureau was asked to review the two drafts to make sure that the Statutes in force had not been contradicted, and to subsequently submit its comments to the five States Members who had taken part in the meeting. The conclusions of the Bureau were that the two drafts were well drawn and correct from a juridical standpoint, but they contained a clause which could be dangerous for the future of the Bureau. This clause stated that States which did not signed the Convention after a certain lapse of time would cease to be members of the IHB.

Considering this, the Directing Committee judged that it would be unwise to take an approach which could have an adverse effect on the constitution of the Bureau, and decided to suspend all action. Under the existing conditions, the Directing Committee could foresee only three possible solutions:

- 1) prepare and submit a draft convention similar to that of 1958, amended so that the imperfections were corrected.
- 2) re-consider the 1958 text itself, with all rights reserved for the proposal of certain corrections to it after it had come into effect, in accordance with the normal procedure for changes in ratified conventions. A reminder was made that 15 of the 38 States, who were members of the IHB at that time, had already signed the 1958 Convention.
- 3) adjourn the matter until the IXth Conference, referring it to that body for a decision as to whether or not a new convention should be considered which carried with it the risk of loss of membership. The Directing Committee believed that such a decision could be harmful and should only be made by a Conference, in plenary session, after a careful study of the question.

In December 1964, the British Hydrographer informed the Bureau that the question of the legal status of the IHB would be studied by the third Conference of the North Sea Hydrographic Commission (NSHC), which wished to re-consider the draft Convention of 1958. The conclusion of the NSHC study was a commitment for the Hydrographers of Great Britain and Netherlands to prepare two preliminary draft "General Regulations" to be attached to the "short" and "long" draft conventions

compiled by the working group in February 1964. The two conventions, with their respective regulations, would be submitted to the Foreign Ministries of Great Britain and the Netherlands for their views and comments. Subsequently, the British Hydrographer would ask his Government to submit the draft conventions and their regulations for the opinion of the governments of the other States Members of the NSHC.

The Bureau thanked the Commission for the action they proposed, but at the same time re-affirmed the IHB's viewpoint on the possible danger for the Bureau, already stated.

In March 1966, the Bureau received from the British Hydrographer, a letter to which were annexed a new draft Convention and a draft of "General Regulations". These documents, with the suggestions and amendments of the IHB and the other members of the NSHC were presented to the IXth Conference as a proposal signed by the States Members of six countries: Denmark, Germany, Great Britain, Netherlands, Norway and Sweden. Another draft text, presented by France also was submitted to the IXth Conference.

The Conference appointed a sub-committee which, on the basis of the drafts submitted, compiled three texts: the Convention, the General Regulations and the Financial Regulations. These three texts were discussed, amended, and finally approved by the Conference. They are the documents, which, together with the "Host Agreement", signed between the IHB and the Government of Monaco and ratified by the French Government, and which states the immunities and privileges of the Bureau's personnel and Directing Committee, form the publication "Basic Documents of the IHO".

On 3 May 1967, the original Convention document (with its two sets of annexed Regulations) was deposited with the Government of Monaco and opened for signature by Member States. The following 17 countries signed on 3 May, but most did so subject to approval or ratification: Argentina, Australia, Brazil, Canada, Chile, Denmark, Finland, Korea, Iceland, Italy, Monaco, Netherlands, Philippines, Portugal, Republic of South Africa, United Kingdom and Venezuela. The following 22 countries signed between 4 May and 31 December 1967: France, USA, UAR, Greece, F.R. of Germany, Dominican Republic, China, Japan, Cuba, Sweden, Yugoslavia, New Zealand, Norway, Guatemala, India, Indonesia, Iran, Pakistan, Paraguay, Poland, Spain and Turkey. Thirty-nine States Members had therefore signed the Convention by the end of 1967, but the subsequent ratification from the minimum number of countries required (28) would still take three years, and did not happen until 22 June 1970. The Convention automatically entered into force three months later, on 22 September 1970. On that date, the name of the worldwide Organization became known as the International Hydrographic Organization, rather than the International Hydrographic Bureau, but the name "Bureau" remained, meaning the Headquarters or Secretariat of the Organization, in Monaco.



## The growth of the sixties

More than in any previous decade, the sixties marked an era of transition, development, growth and progress. This was also true for the Organization, which saw its membership, its staff and its finances grow. It was a period in which the activities of the IHB transitioned to more "Active participation". The Bureau began to lead some initiatives and projects and increased its participation and attendance at international conferences and meetings. This trend continued to escalate through the seventies and eighties and, with the very important development of the Electronic Chart, resulted in interaction with many new organizations as well as with commercial firms involved with electronic chart systems.

With its increased activities and responsibilities, it was necessary to expand the staff in the 1960's to a level which has since been maintained unchanged throughout the 1970's, 1980's and 1990's. See Graphic in Appendix 3. The Bureau's work and personnel were distributed into six sections in the 1960's, with the following duties and responsibilities:

### 1st Section

(1 Cat A staff member, 2 Cat B)

Technical preparation of the Conference. Publication of Report of Proceedings of Conference and of Repertory of Technical Resolutions. Compilation and updating of Special Publications. Publication of the List of Publications.

### 2nd Section

(1 Cat A staff member, 2 Cat B)

Publication of the IH Review and Bulletin. Compilation and updating of Special Publication SP 26.

### 3rd Section

(1 Cat A staff member, 1 Cat B)

Publication of the Supplement to the IH Review (every 5 years). Publication and Updating of SP 20 and SP 39. Documentation service.

### 4th Section

(1 Cat A staff member, 1 Cat B)

Compilation of the Hydrographic Dictionary

### 5th Section

(2 Cat A staff members, 1 Cat B)

Coordination of work for GEBCO publication. Maintenance of the collection of charts and other Nautical documents.

6th Section  
(6 Cat B staff members)

Bureau's Secretariat. Archives. Accounting. Library. Storage and distribution of publications. Upkeep of premises.

The increase of membership necessitated the increase of personnel, and this was made possible thanks to a good financial administration. The staff included several highly qualified persons (among them an Italian Admiral, Head of Section 4) in the Category A staff, other senior hydrographers, and 13 competent administrative members in the Category B staff. This improved working conditions and provided for better service to Member States.

A determined effort was made to increase reader interest in the International Hydrographic Review. The majority of articles published were original, generally written at the suggestion of the Bureau. The payment of an honorarium for some articles proved to be an incentive to prospective authors, however the Bureau continued to depend primarily upon the cooperation of States Members.

Following the decisions of the Hydrographic Conferences, the Bureau continued to study a number of technical subjects, among which were: revision of Special Publication 39 "Radio Aids to Maritime Navigation and Hydrography", a new edition of parts of Special Publication 24 "Geographical Positions" and a new edition of the Repertory of Technical Resolutions. Special emphasis was devoted to compilation of the Hydrographic Dictionary, a long outstanding task. Realizing the importance and the difficulty involved in this compilation, the Bureau created a new Section and engaged an Italian Rear Admiral, a qualified hydrographer, to work exclusively on this task, with the support and collaboration of States Members. Another important publication issued in this period was a Manual on Tides, issued as a Special Publication.

Significant effort was focussed on the problem of elimination of doubtful dangers, a task which had been commenced in collaboration with the IOC and PAIGH. Hydrographic Offices were encouraged to cooperate in this subject of vital importance for world navigation.

The production of publications went on smoothly. The Review increased its circulation and new publications were issued, in addition of updated editions of former ones.

The organization of the work on the General Bathymetric Chart of the Oceans (GEBCO), carried out by the French "Institut Géographique National" and the Hydrographic Offices of 17 Member States, with the generous subvention accorded by the Government of Monaco in memory of Prince ALBERT I, progressed as a good example of international co-operation. The work on the 4th edition began in 1965 and continued until 1972, when the Institut Géographique National informed the Bureau that, owing to financial restrictions, the printing of GEBCO charts would have to be discontinued. The Bureau then had to take action to redirect this important effort.

The Directing Committees of the sixties adopted a general policy on direct representation in international assemblies and congresses and continued active liaison

with a number of international organizations, among which was the newly created IMCO (Inter-governmental Maritime Consultative Organization).

A great deal of time was spent on administrative matters in mid-1960's. This resulted from instructions given by the IXth Conference. New systems of salaries and retirement had to be established for the staff. The Convention and its annexed Regulations caused the obsolescence of the former Statutes of the IHB, and therefore, it became necessary to draft new Personnel Statutes and new Staff Regulations. Work on this was initiated through a study of texts and regulations pertaining to other international organizations.

The Bureau also had to draw up the Host Agreement as an essential accessory to the Convention, which was then submitted to the Government of Monaco and the French Ministry of Foreign Affairs. Although this text took a long time to be approved and signed (it was not done until 1978), the Monegasque authorities agreed to put into immediate application certain of the articles in the draft Host Agreement which only related to Monaco.

Two new Directing Committees were elected in the VIIIth and IXth Conferences of 1962 and 1967. The results are given below:

#### 8th Conference (1962)

##### CANDIDATES ELECTED

PIERCE (USA)  
VIGLIERI (Italy)  
SANTOS FRANCO (Brazil)

##### NOT ELECTED

SCHNIDT (Denmark)  
DAMIANI (France)  
TANCREC (Australia)

#### 9th Conference (1967)

##### CANDIDATES ELECTED

CHATEL (France)  
MOITORET (USA)  
TEGNER (Denmark)

##### NOT ELECTED

DI PAOLA (Italy)  
SANTOS FRANCO (Brazil)  
BENHAM (Iran)

A new system of election was implemented at the 1967 Conference, according to which an initial series of votes was carried out for selecting the 3 Directors, followed by a final vote to elect the President from among them. This resulted in the election of Ingénieur CHATEL (second highest in the initial votes, after Capt. MOITORET), as President of the Directing Committee.

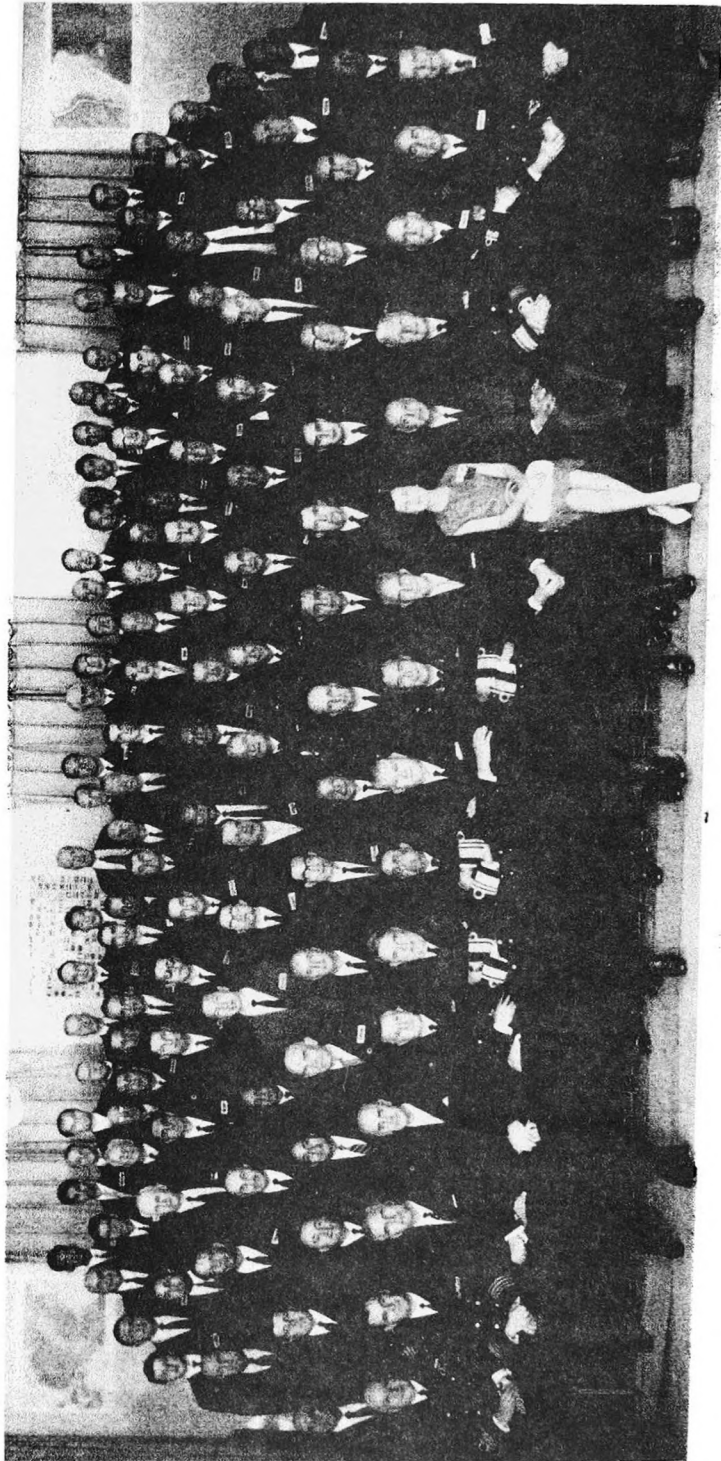


FIG. 18.- The 9th International Hydrographic Conference, Monaco 1967.



FIG. 19.- The Directing Committee elected in 1962. Vice Admiral VIGLIERI (Italy), Rear Admiral PIERCE (USA) and Vice Admiral dos SANTOS FRANCO (Brazil)..

### Resolutions

Resulting from a number of decisions of the Conferences of 1962 and 1967 referring to Symbols in Nautical Charts, Nautical Documents Oceanography and Tides, Aids to Navigation, IHO Publications and those related to the Draft Convention, which had been explained in the preceding paragraphs, the following technical and administrative decisions should be mentioned.

1) Establishment of Regional Hydrographic Commissions, formed by Member States having common regional problems of charting, research or data collecting, to cooperate in the solution of those problems and the undertaking of surveys and other projects. (1967)

2) Creation of a Commission to study the constitution of an international set of charts, confining the study initially to charts at small scale. (1967)

3) Establishment of a new Working Group charged with the task of drawing up specifications for hydrographic survey operations. (1962)

4) Formation of Working Groups formed by specialists in order to assist the IHB in the study of certain particular problems.(1962)

5) Action to be taken by the IHB to carry out a detailed study and compile an index of those areas of interest to navigation which had not been surveyed to a standard suitable for modern navigational requirements. The decision recommended to establish close cooperation with the UN and other interested agencies, in order to further the technical assistance activity in the field of hydrographic surveying. (1967)

6) Resolution about the need to rewrite the IHB Statutes after the drawing up of the Convention. (1962)

7) Resolution establishing the maximum length of service of Directors of IHB in two periods of 5 years each, permissible if the 70th year of life of the candidate was not exceeded during the second period. (1962)

### The IHB in the seventies

This period marked the beginning of a difficult period within the Bureau. A number of staff members had reached the age of retirement and, in view of an economic crisis which was already menacing the developed countries, the Directing Committee decided not to replace them and to implement a new organization. The six former sections were re-organized into three new ones:

Section I - Administration and International relations

Section II - Periodical Publications

Section III - Technical and Charting

Unfortunately, this retrenchment resulted in a loss of performance from the Bureau, as the President of the Directing Committee recognized in his Opening Speech at the Xth Conference:

*"... only one member of the Bureau staff had hydrographic experience. This resulted in an inability to cope with the increasing technical aspects of the task of the Bureau and the directors had, therefore to get right down to the technicalities and much of the drafting of correspondence themselves, leaving little time for joint discussion on general matters; thereby the Organization lost much of the value of employing three Directors of wide and differing experience."*

This problem was aggravated in the following years, due to a decision to establishing in-house printing and to the resignation of staff, whose posts were not filled. The staff diminished in 9 years, from 19 to 15 members. A new internal organization was implemented in 1978. Sections were discontinued and the Bureau was organized into nine compartments under the direct responsibility of the Directing Committee. The remaining members of the Cat A staff were re-named "Professional Assistants", and some tasks of the former Section I were shared by Directors and the Chief of the Secretariat. Although the old system of filing in three sections S1, S2 and S3 was maintained, all the IHB files except a few specific ones, were put under the centralized care of the Secretariat.

The lack of stability of Category A staff in the following years and the non-professional capabilities of some of them, in spite of the presence of Comdr. A. COOPER, a retired Hydrographer of Australia, led to a need for more professional recruitment. The improved financial situation of the Bureau in the eighties permitted to initiate a new policy of staff recruitment which was completed in the early nineties. Younger officers with a solid professional background were appointed. This permitted the IHB to partially cope with the workload increase of the following years.

In spite of the staff difficulties, the Bureau attained a number of major achievements in the seventies, which are listed below:

### **Establishment of the Chart Specifications Committee and International Charts**

The work on cartographic symbols had always been an important task for the IHB throughout its 50 years, but the work of the North Sea International Chart Commission during the years 1972-1977 demonstrated the necessity to develop a set of chart specifications. In accordance with the conclusions of this Commission, the XIth Conference established the "Chart Specifications Committee" to adapt and extend the specifications for INTERNATIONAL charts established by the Commission. The CSC made great progress and it resulted in the publication by the IHB of the "IHO Chart Specifications" and the "Regulations of the IHO for INT charts". A Catalogue of INT charts was subsequently issued by the IHB in 1981.



FIG. 20.- The IHB Staff and Directing Committee in 1971. 50th Anniversary of the IHB. Seated from left to right: Mr. LAHIRE, Radm. GUIDA, Capt. MOITORET, Ing. Général CHATEL, Capt. TEGNER, Cdr. CHARDIN, Mr. FERRERO. Standing up, from left to right: Mr. AUBERTIN, Miss SERRA, Mrs. WINTER, Mrs. ORLANDI, Mrs. RIBAUD, Miss CADARS, Mrs. BLOT, Miss CAMERON, Mrs. BRESSET, Miss COLOMB, Miss PARSY, Mr. DEL-FA.



### **FIG/IHO International Advisory Board on Standards of Competence for Hydrographic Surveyors**

The XIth Conference in 1977 directed the Bureau to approach FIG (International Federation of Surveyors) with the object of establishing an International Advisory Board composed of a small number of persons of known competence to draft and keep up to date the standards of competence for hydrographers, to encourage the implementation of education and training in hydrography and nautical cartography on a worldwide basis and to provide certificates of recognition to those educational establishments whose courses met the recommended standards. The Advisory Board held its first session in February 1978 and meets annually to review course submissions from educational institutions and to maintain updated the "Standards of Competence for Hydrographic Surveyors". To date, the Advisory Board has awarded 27 certificates of recognition to educational institutions throughout the world.

### **World Wide Navigational Warning System**

The establishment of the system was decided by the XIth Conference, following the proposal of the IHO Commission on the Promulgation of Radio Navigational Warnings, set up in 1973, to work in collaboration with the IMCO Sub-Committee on Radiocommunications. The plan was adopted by the Conference which resolved that the Commission should review and update the Plan in cooperation with IMCO, and that it should work to extend the plan. The work progressed well and at the beginning of the eighties, sixteen NAVAREAS were in operation. The World Wide Navigational Warnings Service fulfilled a major need of the international mariner.

Considerable effort also was put into the updating and publication of SP 39 "Precise Positioning Systems for Hydrographic Surveying", which included a number of sections, each covering a single system to assist hydrographers in the selection of systems suitable to their requirements. In subsequent years, the direct communication of manufacturers with the Hydrographic Offices, diminished the necessity of this as an IHO publication.

The review and updating of the publication SP 44, which was the result of a Working Group established in 1962 charged with the task of drawing up specifications for hydrographic surveys was another important task of this period, which resulted in publication of a new edition in 1985.

Effort also was made to revise the publication SP 23 "Limits of Oceans and Seas". A Working Group on this subject was created and action was initiated to progress the work on a regional basis. The work started in November 1979, but several complications arose and the draft text was not ready until 1986. The draft text was not accepted by the Member States and work continues on this important, often requested, publication.

A joint IOC/IHO GEBCO Guiding Committee, which was created in 1974 to provide the input of scientists for bathymetric interpretation, continued the GEBCO work making outstanding progress. The 5th edition of 18 1:1 million GEBCO charts was completed and represented a remarkable achievement, thanks to the contribution of

the Canadian Hydrographic Service, which assumed charge of the cartographic production.

Besides the Nordic Hydrographic Group, (existing since 1928 and later to become the Nordic Hydrographic Commission, and the North Sea Hydrographic Commission, (originated in 1963 under the name of North Sea International Chart Commission), three new Regional Hydrographic Commissions were established in this decade, the East Asia Hydrographic Commission in 1971, the U.S./Canada Hydrographic Commission in 1977 and the Mediterranean and Black Seas Hydrographic Commission in 1978.

An interesting detail of note during the period was that Miss Elena SERRA, who had joined the Bureau as a typist in 1921, retired in 1972 after 51 years' service!

On Saturday 14 September 1974, an "Open Day" was held at the Bureau to enable the public to visit. Member States supplied charts, documents and photographs which were displayed on stands in the chartroom. A reception was offered by the Directing Committee at the IHB, with the presence of TSH the Prince and Princess of Monaco and Ministers and Officials of the Monaco Government. The local press, radio and television gave full coverage during this "Open Day", which achieved its aim in explaining the activities of the IHO to the Authorities and population in the area.

In 1976, a brass bolt was placed on the south face of the southwestern pillar of the IHB to mark the position which was subsequently connected accurately to the triangulation of Monaco. The Public Works Department provided the WGS-72 co-ordinates of the bolt

Lat = 43° 44' 13".62 N; Lon = 7° 25' 25".55 E

The Membership of the IHO had increased significantly and, at the end of the period, the total number of Member States was forty eight. The complete list is given below:

Argentina	France	Netherlands	Spain
Australia	Germany,FR	New Zealand	Sweden
Brazil	Greece	Nigeria	Syria
Canada	Guatemala	Norway	Thailand
Chile	Iceland	Pakistan	Turkey
China	India	Peru	USSR
Cuba	Indonesia	Philippines	UK
Denmark	Iran	Poland	USA
Dominican Rep	Italy	Portugal	Uruguay
Ecuador	Japan	Rep. of Korea	Venezuela
Egypt	Malaysia	Rep. of S.Africa	Yugoslavia
Finland	Monaco	Singapore	Zaire

Following a series of meetings with representatives of the Government of the Principality of Monaco to negotiate modifications proposed by the XIth Conference to the draft Host Agreement, on 10 August 1978 the Host Agreement between the IHO and the Government of Monaco was signed. This Agreement granted to the IHO, free of charge for a period of 99 years, the Bureau building.



FIG. 21.- The IHB staff's welcome ceremony to the new Directing Committee.

*Seated from left to right: Mrs TEGNER, Ing. CHATEL, RAdm. TISON, RAdm. RITCHIE, RAdm. KAPOOR, Capt. TEGNER, Mrs. RITCHIE.*

*Standing up from left to right: Mr. AUBERTIN, Capt. WORM-LEONHARD, Ing. LEMIERE, Mrs. BENNATI, Miss CAMERON, Mr. FERRERO, Mrs. BLOT, Miss CADARS, Cdr. CHARDIN, RAdm. GUIDA, Miss SERRA, Mrs. ORLANDI, Mrs. WINTER, Mrs. RIBAUD, Mr. LAHIRE.*



FIG. 22.- Retirement of Miss Elena SERRA, after 51 years of work at the IHB.



FIG. 23.- "OPEN DAY", 1974. H.S. Prince RAINIER III and Princess GRACE visit the Bureau.



FIG. 24.- 50th anniversary of the laying of the foundation stone of the Bureau building.

On 20 April 1979, the fiftieth anniversary of the laying of the foundation stone of the Bureau building, HSH Prince Rainier III unveiled a commemorative plaque above the stone. To mark this anniversary, the government of Monaco issued a commemorative postage stamp, featuring the Bureau and a surveying ship moored at the quay

### **The 10th International Hydrographic Conference (1972)**

The 10th Conference was held from 10 to 22 April 1972. HSH Prince Rainier III presided over the Opening Meeting, which took place at the Gaumont Cinema. The Government of Monaco again put at the disposal of the Conference the "Centre des Rencontres Internationaux", formerly called "Palais des Congrès", where all meetings and the exhibition of instruments were held.

The background for the traditional photograph of Conference participants changed from the Bureau's facade to the Casino of Monte-Carlo.

Of the 43 Member Governments, 37 were represented; there were also representatives from 6 non-Member Governments, 10 scientific and maritime international Organizations and 14 scientific and maritime national Organizations. The total number of persons participating in the work of the Conference was 131.

As had been the practice with earlier Conferences, the different committees were organized as follows:

- I - Convention and Regulations
- II - Finance
- III - Charts
- IV - Nautical Documents
- V - Oceanography
- VI - Work of the Bureau
- VII - Eligibility of Candidates

At the Conference, 13 participants (delegates, observers and representatives) gave lectures and three films were shown. The IHB organized an exhibition of hydrographic, oceanographic and navigational instruments with participation of 18 exhibitors from eight countries.

Five hydrographic vessels visited the Principality in conjunction with the Conference.

The new Directing Committee elected for the period 1972-1977 was:

#### **CANDIDATES ELECTED**

RITCHIE (UK)  
KAPOOR (India)  
TISON (USA)

#### **NOT ELECTED**

PAVENTI (Italy)  
FAGERHOLM (Sweden)  
HERRERA (Chile)

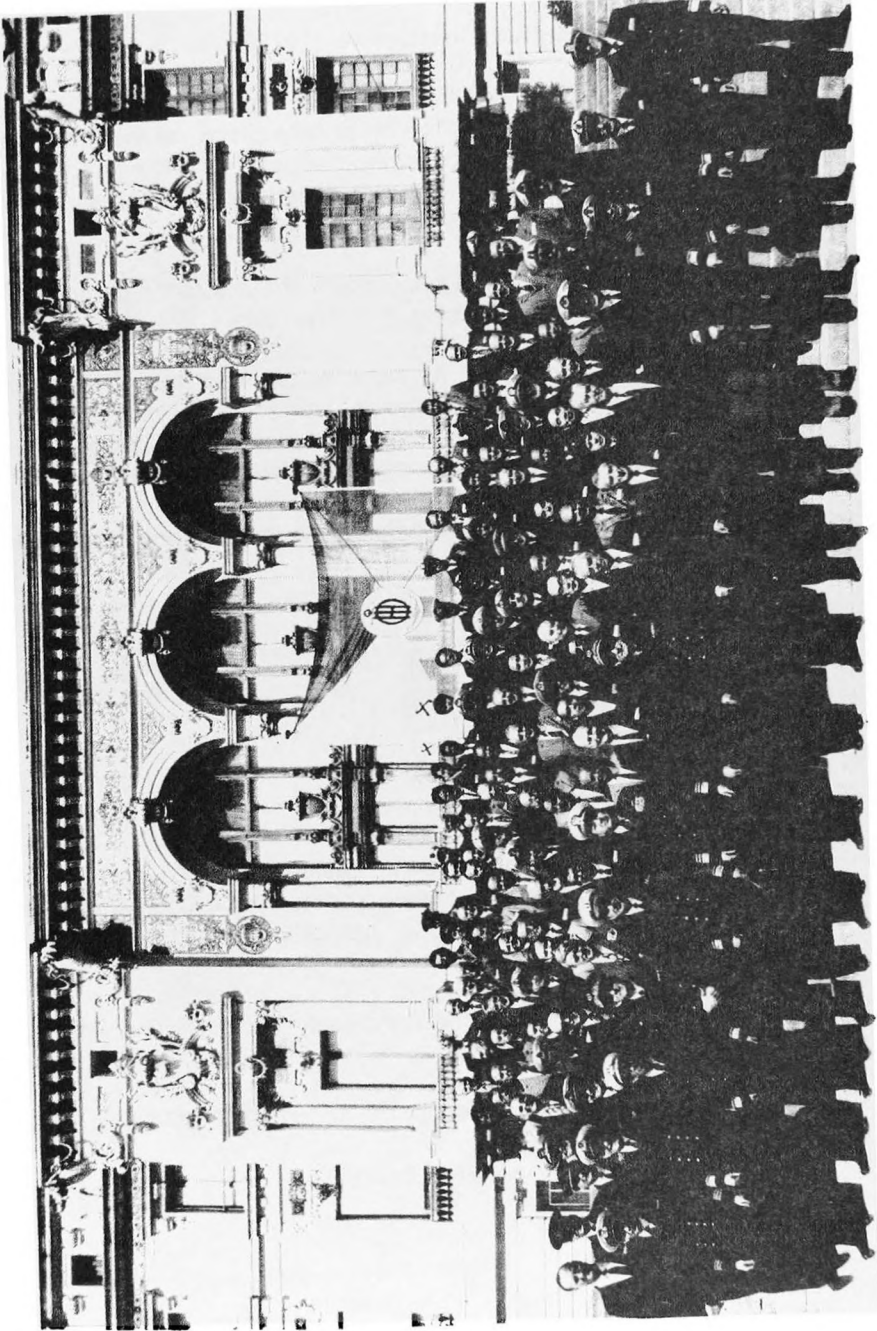


FIG. 25.- The 10th International Hydrographic Conference, Monaco 1972.



FIG. 26.- 10th I.H. Conference. HSH Prince RAINIER at the Opening Ceremony.

The following decisions of the Conference resulting from the Proposals made should be mentioned:

Proposals approved:

**1) International Charts at medium and large scales.** It was recommended that a Commission be constituted to study the problem of producing International charts at medium and large scales, aiming at the production of a set of charts suitable for the needs of international shipping

**2) Training of Hydrographers**

It was resolved that the IHB would undertake steps leading to the compilation of training courses in hydrography conducted by Member states. These curricula should be studied with the objective of developing a curriculum to reflect the basic standards of excellence which should be common to all hydrographic surveys.

**3) Work of the Bureau**

In accordance with the Convention, it was resolved that the IHB should serve as a source of technical advice and as a coordinating body for the promotion of measures aimed at establishing and/or strengthening the hydrographic capabilities of developing countries through cooperative programmes and other appropriate means, upon request by the recipient countries.

**4) Establishment of a coordinated efficient Global Radio Navigational Warning Service**

It was recommended that a joint IMCO/IHO Commission be established to study questions related to the promulgation of radio navigational warnings to shipping and to plan ways and means of improving existing methods of distribution of such warnings through international cooperation.

**5) Statutes for Directors and Staff**

The Finance Committee recommended that the new Directing Committee be tasked to study working hours of the Bureau staff with the aim of increasing them to about 37 1/2 hours a week, to study salary structures with a view to reducing the number of steps in the scales and to consider other suggestions made by the UNESCO representative. The study was to be made as soon as possible.

(It is to be noted here that, in spite of this recommendation, the new work schedule was only implemented 15 years after this Conference decision. The IHB began working 37 1/2 hours per week in late 1987).

Proposals rejected

Among the proposals rejected by the Conference, the following, most pertaining to administrative matters, are to be mentioned:



**1) Constitution of the IHB Directing Committee, and  
2) Replacement of the Directing Committee by a single Director**

These were two different proposals on the same subject, made respectively by UK and Yugoslavia, both aiming to replace the system of three Directors by a system of one Director. The UK proposal suggested a Director and a Deputy Director, whilst Yugoslavia simply proposed the replacement of the three Directors by one Director.

As previously mentioned, this proposal had been repeatedly made in the past. Once again it originated long discussion, with practically the same arguments that had been made in the past, both from the supporters and the opponents to the proposal. After intense discussion, the proposal was eventually rejected and the system of three Directors maintained..... to be discussed again in 1985 and again re-affirmed.

**3) Ordinary Conferences every three years**

This was proposed during the Conference, based on the need to address the changing technology and citing the example of other organizations with more frequent meetings. The Conference decided that the financial implications resulting from this proposal did not justify the need and therefore it was rejected.

There was finally a fundamental proposal from Yugoslavia in which each Member Government would have a single vote on all questions voted at the Conference, including the election of Directors and not a number of votes corresponding to the tonnage declared. This proposal also was refused.

**The XIth International Hydrographic Conference**

The XIth Conference was held from 18 to 29 April 1977. It was attended by 135 delegates and 41 observers.

The Conference was opened at the "Centre des Rencontres Internationales" by the Minister of State of Monaco. An exhibition of instruments and equipment was also held in this Centre, containing displays by several commercial firms, some of which demonstrated vessels in Monaco harbour.

Some important decisions of the Conference are listed below:

**1. Headquarters Agreement**

The Directing Committee was authorized to conclude the Host Agreement with the Government of Monaco and to report accordingly to all Member States.

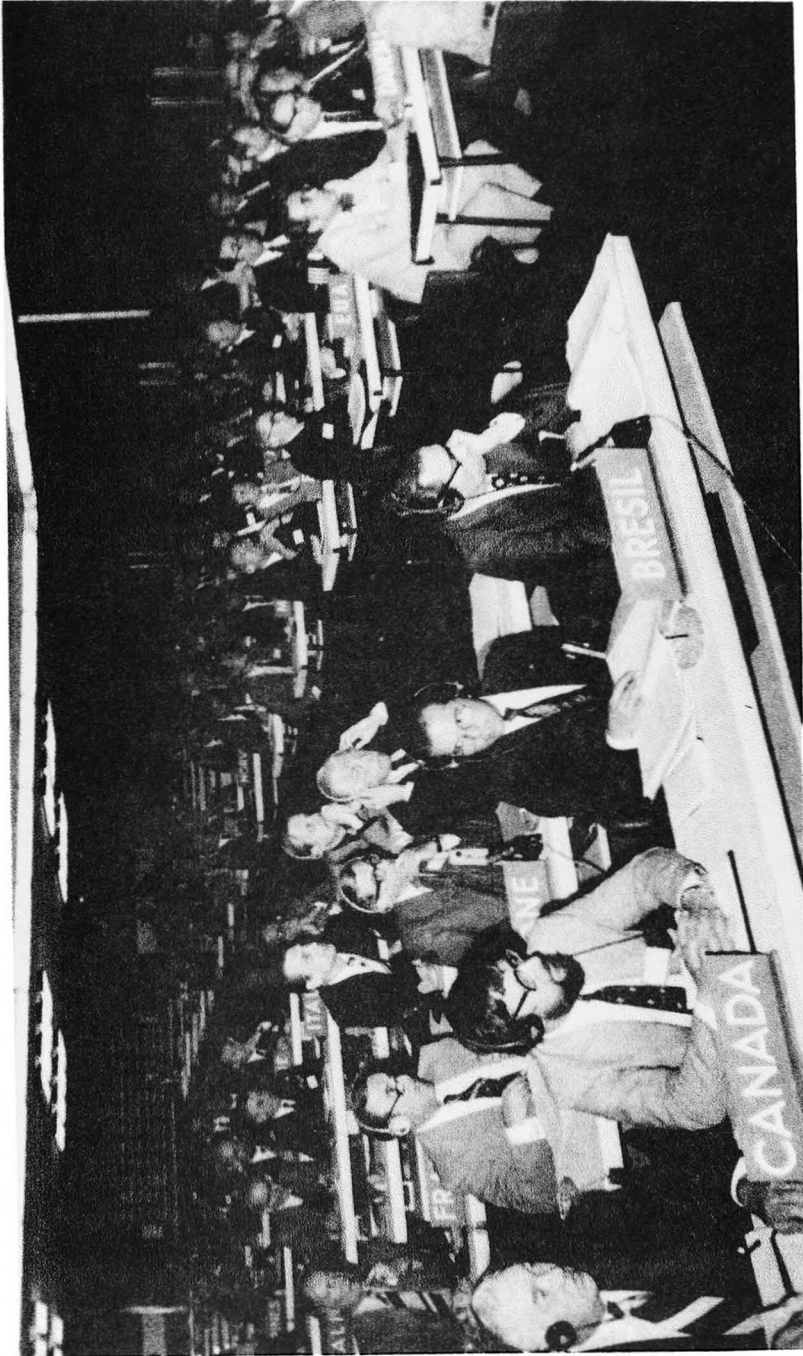


FIG. 27.- The 11th International Hydrographic Conference, Monaco 1977. The Conference Hall

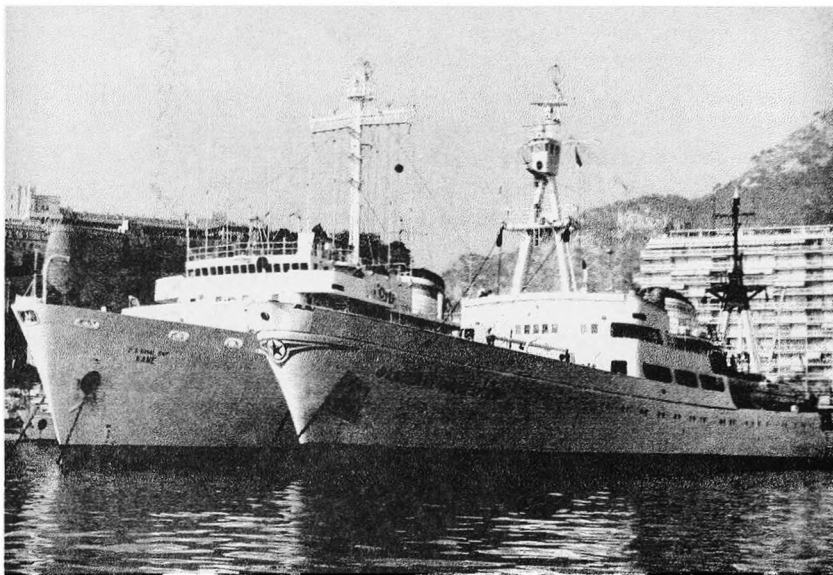


FIG. 28.- 11th I.H. Conference; US KANE and USSR BELLINGSHAUSEN in the harbour of Monaco.



FIG. 29.- 11th I.H. Conference. Opening address of the President of the Directing Committee, Rear Admiral RITCHIE (U.K.)

## **2. Working Languages of the Conference**

Russian was included as a working language of the Conference, together with English, French and Spanish.

## **3. Training of Hydrographers**

The Conference resolved to direct the IHB to approach FIG with the objective of establishing an International Advisory Board on Standards of Competence for Hydrographic Surveyors.

## **4. Collection and Publication of Tidal data**

The Conference resolved to establish an "IHO Tidal Constituent Bank" for the storage and retrieval of tidal data, in cooperation with the Canadian Hydrographic Service, which would operate the data base on behalf of the IHO.

## **5. Change of Monetary Unit**

The Conference decided that as from 1 January 1978, the monetary unit to be used for the establishment of the Budget would be the SDR (Special Drawing Rights) in lieu of the gold franc.

## **6. Establishment of a Chart Specifications Committee**

The Conference resolved that a Technical Committee should be constituted to examine the possibility of adopting and extending the specifications for International Charts to cover all navigational charts, in the interest of standardization.

As a result of Conference decisions, the following tasks had to be carried out:

1. The formation of the Advisory Board on hydrographic education and standards of competence.
2. The establishment of administrative arrangements with the Canadian H.S. for the formation and operation of the IHO Tidal Constituent Bank.
3. Publication in the I.H. Bulletin of information on computer programmes reported by Member States.
4. The formation of an "ad hoc" working group to review SP 23 "Limits of oceans and seas".
5. The maintenance of a repository of information on hydrographic training and technical assistance.
6. The adoption by IHO of WGS-72 as the international ellipsoid of reference.

## 7. The updating of the criteria for classification of deep ocean soundings.

The election of the new Directing Committee was as follows:

### CANDIDATES ELECTED

RITCHIE (UK)  
 KAPOOR (India)  
 AYRES (USA)

### NOT ELECTED

MACCHIAVELLI (Italy)  
 BARAHONA (Portugal)  
 PALMA (Philippines)  
 HERRERA (Chile)

### The eighties. A period of transition

The decade of the eighties began with a perturbing event, which had never happened in the past and has not since been repeated. On the night of 5 November 1980, thieves entered the Bureau building, forcing a window. They stole a small safe containing about 1 000 French francs and caused damages in the entrance hall. Particular attention was then given to the security of the building, providing necessary protection for the windows and shutters throughout the building.

The decade of the eighties was a period of continued progress with new and intensive activity in many fundamental areas. During this decade, technological advances in the hydrographic field forced the International Hydrographic Organization to take account of these technologies and adopt measures to cope with the impact they would have on the activities of Hydrographic Offices.

The small staff of the Bureau began to suffer an increased workload resulting from the rapidly changing technologies and therefore it was decided to rely on Working Groups composed of Member States representatives to address many major tasks. This approach proved to yield significant results and some of the most important projects of the period were developed through the IHO Working Groups and Regional Hydrographic Commissions for the benefit of the entire hydrographic community.

The Commissions and more important Working Groups were:

- The Hydrographic Regional Commissions (Nordic, North Sea, East Asia, Mediterranean and Black Seas and US/Canada, to which the Baltic Sea Hydrographic Commission and the Eastern Atlantic Hydrographic Commission joined in 1983 and 1984, respectively)
- IHO Commission on Promulgation of Radio Navigational Warnings
- FIG/IHO Advisory Board
- Joint IHO/IOC Guiding Committee for GEBCO
- GEBCO Sub-Committee on Geographical Names
- Chart Standardization Committee

- CSC Sub-Committee on Future Chart Design
- Committee on the Exchange of Digital data (CEDD)
- Working Group on the Technical Aspects of the Law of the Sea
- Working Group on the Hydrographic Dictionary
- Working Group on Electronic Chart Display Systems

### **The Electronic Chart project**

One of the clearest examples of international hydrographic cooperation fostered by the IHO has been the Electronic Chart project.

The XIIth Conference, in 1982, decided, based on a recommendation by Canada, to establish the Committee on the Exchange of Digital Data (CEDD). The aim of this Committee was to develop a standard format for the exchange of digital hydrographic and charting data between the Hydrographic Offices of Member States. The Committee developed a format, presented at the XIIIth Conference and was originally known as CEDD format, but later, as revisions were produced, became designated as the IHO DX 87 format and after a joint a meeting in Tokyo, in October 1989, the IHO DX 90 data exchange format, which ultimately became a part of the S-57 Standard for ECDIS (Electronic Chart Display and Information Systems)

While the CEDD Committee was engaged in the development of a standard exchange format, other technologies of similar importance began to evolve. This has been a characteristic of the so-called "Electronic Chart" during the latter half of the 1980's and throughout the 1990's.

The IHO's North Sea Hydrographic Commission (NSHC), at its XVth Conference in 1984, established a Working Group to study the effect of electronic chart development on the IHO and its MS and, in 1986, presented a report recommending the IHO to give great priority to studies on ECDIS, the abbreviated name under which the system would be known in the future. NSHC also recommended formation of a joint IMO/IHO Working Group. Accordingly, the IMO/IHO Harmonization Group on ECDIS was created.

The IHO also decided to form its own Committee on the Electronic Chart Display System (COE) to guide the overall IHO effort. This Committee began its work, setting up six Working Groups to carry out this important work. The result has been publication of various papers, reports and a series of IHO publications concerned with ECDIS. By 1990, the IHB had published Special Publication No. 52 "Draft Specifications for Electronic Chart Display and Information Systems" and the Appendix 1 to the above publication, "Updating the Electronic Chart".

## International Relations

Interaction between the IHO and other international Organizations grew stronger than ever. There was a greater understanding of IHO's role, functions and objectives among maritime countries of the world through the establishment of closer relations with these international Organization. In particular, the International Maritime Organization IMO (new name for the former IMCO) which provides for the regulatory carriage of nautical charts through its SOLAS Convention, demonstrated an appreciation of IHO in areas of technical cooperation such as the conduct of hydrographic surveys, dissemination of data and technical assistance to developing countries, radionavigational warnings and routeing measures. An agreement for IMO/IHO cooperation was signed in February 1983. A Technical Cooperation Agreement also was signed with IOC and relations with other organizations such as FIG, IALA, ITU, WMO and ICA were also strengthened.

## New Members of the IHO

Membership of the IHO increased from 47 Member States at the beginning of the decade to 57 in 1990. The new Member States joining the IHO were:

Belgium, Democratic People's Republic of Korea, Fiji, German Democratic Republic, Oman, Papua New Guinea, Sri Lanka, Suriname, Trinidad and Tobago and Uruguay.

## The publications of the IHO

The IHO Publications were divided into four categories:

- Periodical Publications, available through subscription or single issue purchase, with a periodicity of issue ranging from monthly to every five-years.
- Miscellaneous Publications, of an administrative, informational or technical nature.
- Special Publications, that address technical subjects, and

Bathymetric Publications, related to IHO activities concerned with bathymetry, particularly the General Bathymetric Chart of the Oceans (GEBCO) project.

New publications and new editions of already existing publications produced throughout the decade were:

- International Hydrographic Review
- Index to International Hydrographic Review
- International Hydrographic Bulletin
- List of IHO Publications
- IHO Yearbook
- Proceedings of the IH Conferences
- Staff Regulations

- Basic Documents of the IHO
- IHO Resolutions
- IHO Chart Specifications
- Standards of Competence for Hydrographic Surveyors



FIG. 30.- The IHB staff and the Directing Committee in 1982.  
 Seated from left to right : Comdr. COOPER, Radm. RITCHIE, Capt. AYRES, Cdr. SATHAYE,  
 Mr. FERRERO. Standing up from left to right : Mrs. ORLANDI, Mrs. RIBAUD, Miss WILLIAMS,  
 Miss PARSİ, Mr. LAHIRE, Mr. ROSSI, Mrs. RICOTTI, Mrs. BLOT, Miss CADARS,  
 Mr. VIAL, Mr. DEL-FA



FIG. 31.- The Directing Committee and staff go for a picnic (1980)



- **Reference Texts for Training of Hydrographic Surveyors**

- List of sheets of chart symbols and abbreviations published by various maritime countries
- Catalogue of Agents for sale of charts
- Catalogue of INT charts at small scales
- Limits of Oceans and Seas (draft 4th edition) \*
- Hydrographic Dictionary and Spanish and Italian supplements
- Precise Positioning Systems
- IHO Standards for Hydrographic Surveys
- Correction of Echo soundings
- Training Courses in Hydrography and Nautical Cartography
- Guidance for Regional Coordinators of INT Chart Schemes
- Recommendations Concerning Mariners' Routeing Guides
- IHO Tidal Constituent Bank- Station Catalogue
- Manual on Technical Aspects of the United Nations Convention on the Law of the Sea
- Specifications for Chart Content and Display Aspects of ECDIS and Appendix 1 Updating the Electronic Chart
- World- Wide Navigational Warnings Service
- Catalogue of IHO Bathymetric Plotting Sheets
- Annex to Catalogue of IHO Bathymetric Plotting Sheets
- Information Concerning Recent Bathymetric Data
- Chart Indicating the Adequacy of Available Bathymetry for Determining Seafloor Topography
- Standardization of Undersea Feature Names
- GEBCO Regulations
- List of Geographical Names of Undersea Features

\* The Working Group on SP23 - Limits of Oceans and Seas coordinated the information received from Hydrographic Offices situated in their respective areas of responsibility. The final draft of the 4th edition was circulated in February 1986. However, Member States' disagreement with the text prevented publication of this 4th edition and revision is still pending.

Informative notes on various important topics were also issued, under the name of IHO Information Papers.

During the latter part of this decade, the Directing Committee placed special emphasis on the publications programme of the IHB. Thanks to the progressive introduction of computerization and the acquisition of modern printing equipment, the production increased efficiently and, by the end of the decade, had tripled and even quadrupled. Also, the willing cooperation of Spanish-speaking Member States, especially Chile and Spain, aided the IHB in producing some major IHO publications in Spanish. This policy was continued in the nineties, to benefit as much as possible the Spanish-speaking Member States, as is done through the assistance of France and Canada for IHO publications in French.

### **The XIIth International Hydrographic Conference (1982)**

This Conference was held in the Convention Centre and Auditorium of Monaco (CCAM), from 20 to 30 April 1982. It was attended by 146 delegates from 47 Member States and 53 official observers. The Official Opening was honoured by the presence of HSH Prince ALBERT. The Conference and Exhibition were declared opened by the Minister of State of Monaco.

As in preceding Conferences, lectures and films began the morning proceedings, and two half-day symposia included 18 papers. Four hydrographic vessels, from Spain, USA, Federal Republic of Germany and France, visited the port of Monaco during the Conference.

The election of the Directing Committee results were as follows:

#### **CANDIDATES ELECTED**

FRASER (India)  
AYRES (USA)  
AFFONSO (Brazil)

#### **NOT ELECTED**

GANDARIAS (Spain)  
DEMERLIAC (France)  
SHOJI (Japan)  
HUSAIN (Pakistan)

It may be noted that India had representation as a member of the Directing Committee for 15 years, 1972-1987.

In addition to the Conference decisions which have already been discussed previously as a part of the Bureau in the eighties, the following items are highlighted:

- 1) Technical Assistance - Direction for a reinforced role of the IHB, to act as source of technical advice and as coordinating body for the promotion of measures aimed at establishing and strengthening the hydrographic capabilities of developing countries through cooperative programmes and other appropriate means was agreed.
- 2) Regional Chart Commissions - It was resolved that the IHB would initiate action to encourage the formation of regional commissions or geographical groups with a primary objective of developing integrated schemes of INT charts for the areas concerned.
- 3) World Wide and Regional Horizontal Datums - It was recommended to use the World Geodetic System (WGS) as a basic world wide reference system for nautical charts. However, internationally recognized regional or local datums would continue to be used for the graduation of charts in areas where they applied.
- 4) Future Chart Design Sub-committee - This sub-committee was created to examine the future design of the nautical chart, considering modern cartographic theory and practice of all kinds, including communication theory, and the relationship of charts to new technology, in respect both of data gathering and of user requirements.

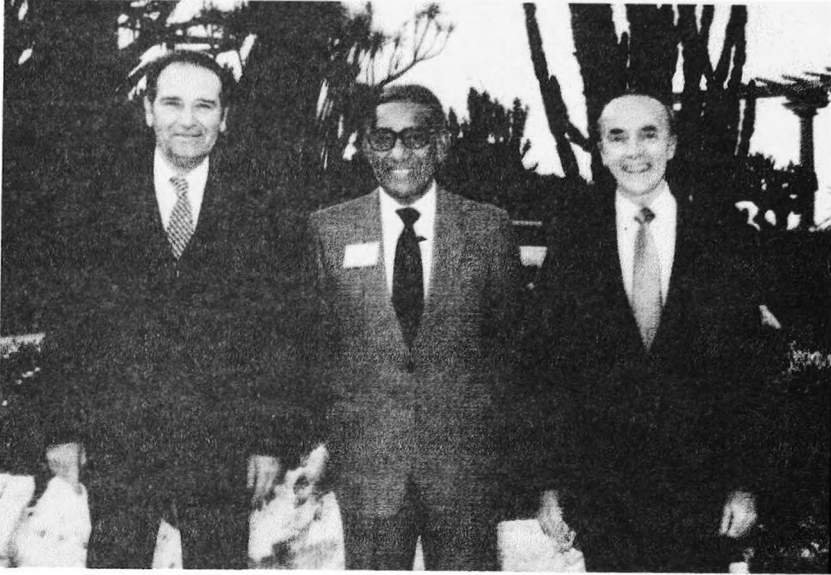


FIG. 32.- The Directing Committee elected by the 12th International Hydrographic Conference, Monaco 1982. From left to right : Vice Admiral AFFONSO (Brazil), Rear Admiral FRASER (India) and Captain AYRES (USA).



FIG. 33.- The Spanish hydrographic vessel "TOFIÑO", in the port of Monaco during the 12th Conference, 1982.

5) Publication of Nautical Documents by Private Publishers - This decision, regulating the reproduction of charts and nautical publications by private publishers led to intense discussion within IHO and eventually to the establishment of a Working Group on Copyright in 1992.

Two important Working Groups, established by the 1982 Conference for the study of the organization and conditions of service of the Bureau were the SEDAF Working Group and the Standing Finance Sub-Committee on the Pay and Conditions of Service of the Directors and the Staff

### **The SEDAF Working Group and its recommendations**

During the XIIth International Hydrographic Conference, following a proposal submitted by Australia, Canada and Malaysia, which again intended to change the system from three Directors to one consisting of a resident Director and two Visiting Directors residing in their own countries, it was decided that a working group would be established to investigate the System of Election of Directors and Functions (SEDAF) of the IHB. The objective was to determine the most appropriate structure for the direction of the Bureau's work and for undertaking its responsibilities, and would address the following major elements:

- (a) The structure of the IHB and whether to retain or modify the present three-Director system
- (b) The procedure for election of the Directors and the President
- (c) The functioning of the Directing Committee
- (d) A procedure for review of the terms and conditions of service of the IHB staff and Directors
- (e) Any amendments found necessary to the Convention, the General Regulations and other documentation.

The Working Group, formed by 16 members under the chairmanship of the *President of the Directing Committee* held two meetings in Monaco, after an intensive exchange of correspondence. During its meetings, the Group considered the views of the present Directors and former Directors as well as those of Professional Assistants.

The Group considered very carefully the subject of the three-Directors system and, although the majority of the Bureau members (Directors and staff) past and present favoured one of the alternative systems, either that with a single resident President and visiting co-directors or that with a President, Vice-president and a Council, it was decided that the existing system would work more efficiently. It was therefore unanimously and strongly recommended to maintain of the three-Directors system.

While this was the last attempt to cancel the three-Director system, it is questionable whether this subject is now definitely terminated or if it will continue to be raised as an issue.

Once it had been decided to maintain the existing system, considerable effort was made by the Group to propose an amendment to the election procedure of Directors. After lengthy discussion, it was decided to propose the amendment of Article X(2) of the Convention as follows:

*"The Directing Committee shall be composed of the President and two Directors, each of different nationality, elected by the Conference. The Conference shall elect first the President, and then the other two Directors".*

The suggested advantages of this proposal were that unsuccessful candidates for the Presidency would have a reasonable time in which to consider whether they wished to withdraw from the subsequent balloting for the other two members of the Directing Committee if they preferred not to serve with the newly elected President, and also that there would be more time for Member States to consider which candidates were best suited to form a representative harmonious team under the leadership of the new President.

But "... man proposes and God disposes", and, to date, almost 10 years after the decision of the XIIIth IH Conference approving this amendment to the Convention, so carefully considered by the Group and to which long consideration had been devoted, it has not yet been ratified by the requested majority of 2/3 votes of Member States.

#### **The Finance Sub-Committee on the Pay and Conditions of Service of the Directors and the Staff**

Decision No. 5 of the XIIth Conference in 1982, had invited the Finance Committee to establish the above mentioned Sub-committee with the aim of reviewing the terms and conditions of service of the IHB Directors and Staff, taking into account the terms and conditions of service of other comparable international Organizations and looking into the problems faced by Directors and the internationally recruited staff with regard to housing.

This Group met at the IHB in November 1985 and made several recommendations on the various topics considered. Among the conclusions of the Sub-committee were the recognition of the similarity of conditions for Directors and Category A personnel with other international Organizations, while the conditions of staff of Category B were rather compared with those offered by local employers. After examining certain documentation made available to the Sub-committee, it was decided that the levels of IHB remuneration were not seriously out of line with those of international Organizations. However, some specific benefits were proposed for the Bureau, such as Allowances, similar to those existing in the UN.

The report of this Subcommittee was submitted to the XIIIth Conference and discussed. One of the changes agreed was for Directors and Professional Assistance to receive the annual bonus equal to one month salary, a benefit that had been previously only be available to the non-professional staff. The proposal to make the Directing Committee members' salary equivalent to the UN DI level was not supported but the proposal to make the PA's salary equivalent to the UN P3 level was agreed.

The recommendations made resulted in a new amended version of the Staff Regulations which was published in 1988.

Two important decisions should be noted: the decision of increasing the working hours of the Bureau to 37.5 per week, which was supported by an increase of salary of 18.5% for the Category B staff, and the provision of personalized retirement plans for staff recruited after 1987, instead of having them contribute to the Bureau's Retirement Fund. This measure avoided the risk of failure of the Bureau's retirement system and provided for possible "portability".

### **The XIIIth International Hydrographic Conference (1987)**

This Conference was held in the "Centre de Rencontres Internationales", from 5 to 15 May 1987. It was attended by 161 delegates from 48 member States and 47 official observers. The Official Opening was honoured by the presence of HSH Prince RAINIER III, who declared the Conference open. An Exhibition of hydrographic instruments, equipment and services was held in the Centre de Congrès Auditorium de Monte-Carlo between 11-14 May, with 51 exhibitors from 11 different countries. There were four hydrographic vessels visiting the port of Monaco during the Conference.

An interesting situation concerning rules of procedure arose during this Conference. The SEDAF Group, whose proposed recommendation to change the system of election of the Directors was discussed earlier, had identified two separate amendments:

- (i) election of the President before the election of the other two Directors, a change which affected the Convention and thus, needed ratification by Member Governments through the proper diplomatic channels, following its approval by the Conference. The text of the Convention stated that "*The Directing Committee shall be composed by 3 members of different nationality, elected by the Conference, which shall further elect one of them to fill the office of President of the Committee*". The new text proposed that "*The Directing Committee shall be composed by 3 directors, one the President and two other directors, each of different nationality, elected by the Conference. The Conference shall first elect the President and then the two other directors.*"

and

- (ii) election of the three members by means of a system of three separate ballots, one for each of the three members of the Directing Committee. This affected articles 42 and 43 of General Regulations and Article 60 of the Rules of Procedure for Conferences, but not necessarily the Convention.

The two separate items were put together in the same Proposal to the Conference which was declared approved by the President of the Conference. Therefore, changes to Articles 42 and 43 of the General Regulations and 60 of the Rules of Procedures were immediately implemented and were applied to the election of the Directing Committee in the Conference.

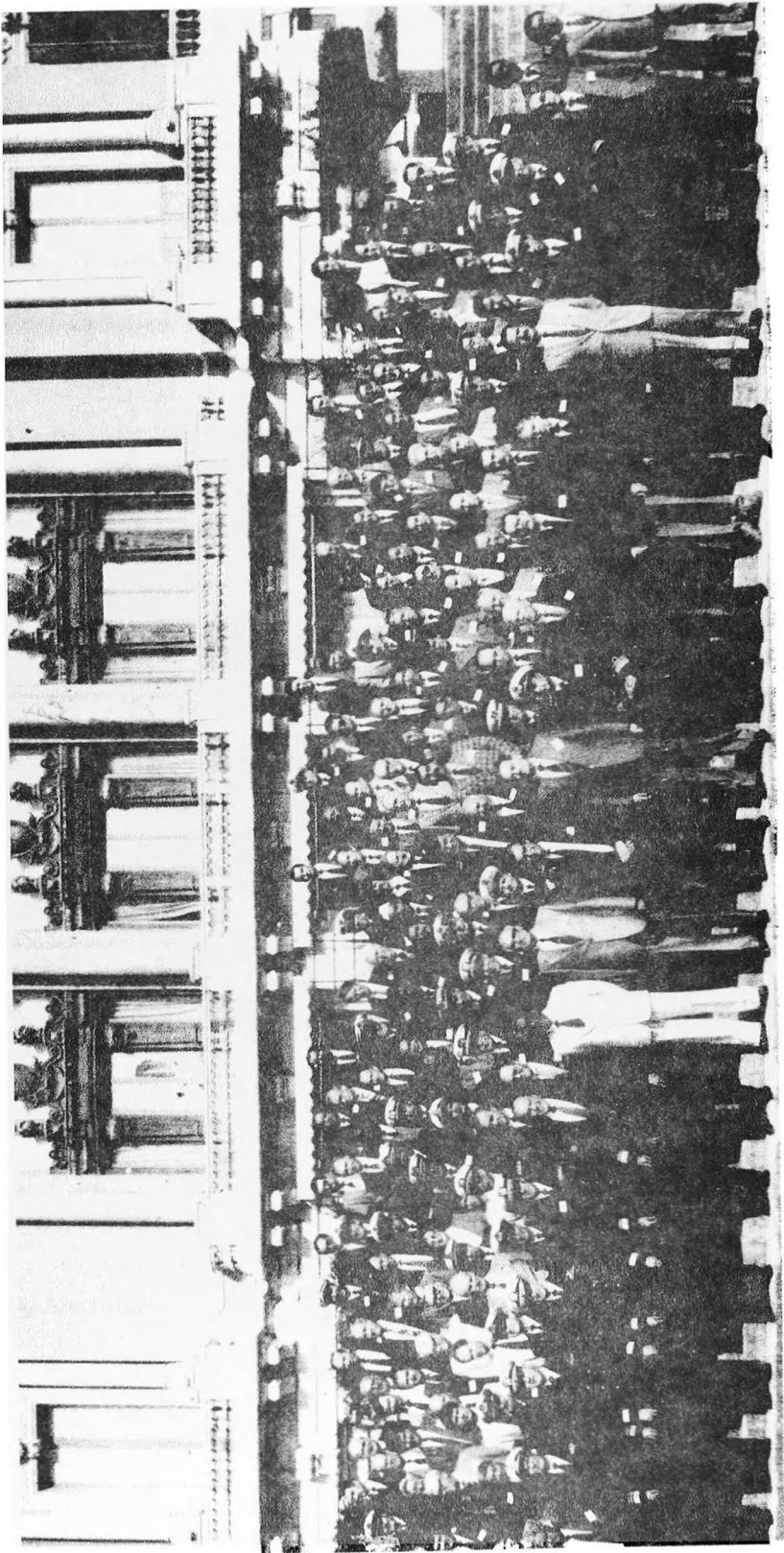


FIG. 34.- The 13th International Hydrographic Conference, Monaco 1987.

However, the proposal affecting the Convention needed to be ratified by the Governments and could not be implemented. The result was a longer system of election, in accordance with which, instead of having two ballots, as in preceding Conferences, or three, as proposed by the SEDAF Group, there were four. One ballot for each of the three directors and one further ballot to elect the President, following the existing text of the Convention. Due to the lack of approval by the required number of Member States of the amendment to the Convention in the following years, the four ballot system, which was carried out at the XIVth Conference, is the current in force.

The election of the Directing Committee was then as follows:

CANDIDATES ELECTED	NOT ELECTED
HASLAM (UK)	MARATOS (Greece)
CIVETTA (Italy)	NYGREEN (USA)
KERR (Canada)	JOVANOVIC (Yugoslavia)
	KATOPPO (Indonesia)

To note that, for the first time in the Bureau's history, since the ballot for the first Directing Committee, a representative of the USA was not elected to the Directing Committee.

The Committees of the Conference were reduced to five, as follows.

- I - Eligibility
- II - Charts
- III - Finance
- IV - Work of the Bureau
- V - Oceanography

The Conference considered and approved reports from the following Committees and Working Groups

- Chart Standardization Committee
- SEDAF Working Group
- Standing Sub-committee of the Finance Committee charged with the review of the Terms and Conditions of the D.C. and Staff
- Committee on Exchange of Digital Data
- Committee on ECDIS
- Working Group on Quality of Data
- FIG/IHO Advisory Board on Standards of Competence for Hydrographic Surveyors
- TALOS Working Group
- IHO Committee on Promulgation of Radio Navigational Warnings
- Ad Hoc Working Group on Special Publication SP 44
- Working group on the Hydrographic Dictionary
- GEBCO Guiding Committee
- Technical Assistance Committee.



### **Entering the nineties. Approach of the 75th anniversary of the IHO/IHB**

On 15 September 1989, the Bureau held an "Open Day" to celebrate "World Maritime Day" and to highlight the work of both IMO and IHO. The Bureau was honoured by the visit of HSH Prince ALBERT who toured the Bureau and viewed video films of hydrographic activities. Poster and chart displays were also organized, thanks to material provided by Member States.

An important aspect of international collaboration took place in support of the Bureau's work at the beginning of this period. It was a consequence of a Conference decision, according to which Member States would provide highly skilled personnel to the IHB on a temporary basis. Two experts from the USA and Norway worked at the Bureau for periods of less than one year and carried out specific tasks with great success. Unfortunately, this practice has not continued, probably due to the financial difficulties that Member States found in seconding members of their staff to an area of such high living cost. As a result of the compilation work of the USA expert, the Bureau succeeded in publishing IHO Publication S-55 "Status of Hydrographic Surveying and Nautical Charting Worldwide"

Two important projects were also devoted special attention. The development of standards for ECDIS, including the exchange of digital data, and the provision of technical assistance to developing countries.

The first project, ECDIS, became one of the major focuses of attention within the Organization and large resources were devoted to it. Several Commissions or Working Groups were created with voluntary Member States' representatives contributing a tremendous amount of work. They were:

- IHO Committee on ECDIS (COE), including the following Working Groups:

- Experts on Specifications
- Updating the Electronic Chart
- Data Base
- Colours and Symbols
- Glossary
- Data Quality

- Committee on Exchange of Digital data (CEDD), with two Working Groups:

- Feature Code Working Group
- Change Control Procedure Working Group

- IMO/IHO Harmonization Group on ECDIS

The hard work of these Committees and Working Groups led to the successful achievement of the precise standards and specifications required for the Electronic Chart Display and Information Systems (ECDIS). As a result of their work, international standards were developed and the Bureau was able to produce a particularly important publication - Special Publication No. 57 "IHO Digital Data Transfer Standard".

The cooperation with the International Maritime Organization (IMO) continued through the joint committee IMO/IHO Harmonization Group on ECDIS and the Performance Standards for ECDIS were approved by the IMO Maritime Safety Committee and submitted for approval to the 19th Assembly of the IMO in November 1995.

Another important subject addressed by the IHO has been the creation of data bases for the electronic charts by the national Hydrographic Offices. A Seminar was held in the Bureau in October 1991 to discuss proposals from Norway and Chile regarding a World Centre for Electronic Chart Data. The solution of a single worldwide data base continuously maintained up to date by the HOs through an IHO institution was proposed by the Norwegian Hydrographic Office but was not endorsed. Chile proposed a regional structure be adopted. Following recommendations made by the Seminar for a study of the need for a Worldwide Electronic Navigation Chart System, the matter was put to the XIVth Conference. From this arose the formation of the Special Committee on WEND. The IHO agreed to create Regional Electronic Navigational Chart Coordinating Centres, the first of which was established by Norway and later, in 1996, gained the participation of the UK Hydrographic Office. At the same time, many other IHO nations began to create individual electronic chart data bases by digitizing their paper charts.

In the early years of the decade, considerable effort and resources were devoted to a policy of Technical Assistance. Countries which had difficulty in visiting the Bureau were visited. Although the newly created joint FIG/IHO Technical Assistance Coordinating Committee was not particularly active, some progress was made with projects concerning regional technical assistance, particularly in Africa. The following countries were paid Technical Assistance visits by members of the Bureau: Tonga, Seychelles, Pakistan, Tanzania, Malawi, Kenya, Ghana and Cape Verde. In spite of the effort made, the result of this active policy was not particularly productive.

The Bureau's computerization, which had slowly begun in the mid eighties and was limited to basic word processing, advanced in the nineties to a high level of proficiency. All staff were provided with computers and word-processing was implemented throughout the Bureau. During the period 1993-1996, small peer to peer networks were installed, to link together certain posts within the Bureau. This was done as an inexpensive way to gain certain efficiencies, but most importantly familiarize the staff with network operation in advance of the move to the new Bureau facilities where full networking was installed.

IHO publications benefitted from the new technical capability, which included laser printers and new offset machines in the printing room, resulting in a more professional presentation. The IHB was tasked with an ambitious programme of publications, and a significant effort was focussed on this area. Since then, the Bureau has systematically maintained and updated the hardware and software, so essential to the publications programme, including scanners, high resolution printers, graphics software and CD-ROM capability.

A further step was to make publications available on floppy disk and to begin accepting credit card ordering of IHO publications. Thanks to the support of USA, a Bulletin Board System was installed in the Bureau, to permit Member States to download the IHO publications at their ease and to provide the various working groups

with quick and easy exchange of correspondence and working documents. The effort in having modern communications at the Bureau was continued in the mid-1990's with connexion to the world wide network system INTERNET.



FIG. 35.- OPEN DAY at the Bureau, September 1989.  
HSH Prince ALBERT WITH RAdm HASLAM, RAdm CIVETTA, and Mr. KERR



FIG. 36.- OPEN DAY, September 1989. The author with the Dean of the  
U.S University of Fontvieille..

The following publications, issued in this period, should be mentioned:

Miscellaneous Publications No. 11.- Catalogue of INT Charts and Guidance for Regional Coordinators of INT Chart Schemes

Special Publications No. 39.- Precise Positioning Systems for Hydrographic Surveying (Series 1990)

No. 51.- Manual on Technical Aspects of the United Nations Convention on the Law of the Sea

No. 52.- App. 2. Colour & Symbols Specifications for ECDIS

No. 52.- App 3. Glossary of ECDIS - related Terms

No. 55.- Status of Hydrographic Surveying and Nautical Charting Worldwide

No. 57.- IHO Transfer Standard for Digital Hydrographic Data

No. 59.- Status of Hydrographic Surveying and Nautical Charting in Antarctica

No. 60.- User's Handbook on Datum Transformations involving WGS-84

In January 1988, the Bureau proposed to award prizes or medals for the best articles published in the International Hydrographic Review in order to encourage authorship. Following the suggestions and comments from Member States, two medals were then created: the "Albert I Medal", offered by HSH Prince RAINIER of Monaco, to be awarded every five years and the "Commodore COOPER Medal" offered by the widow of the late Commodore COOPER, former Professional Assistant of the IHB, to be awarded annually. See Appendix listing the awards.

Official travel demands increased due to the added number of Regional Hydrographic Commissions and a wider array of Organizations to interact with, due to ECDIS and digital geographic standards activity to which the Directing Committee gave great importance. Thanks to the policy of the Directing Committees of attending the significant meetings of all the Commissions and Working Groups of the IHO, in addition to those of many other relevant national and international Organizations, relations were strengthened with organizations such as IMO, IALA, FIG, IEC, IOC and many others.

### **The XIVth International Hydrographic Conference**

The XIVth Conference was held in the Centre de Rencontres Internationales, from 4 to 14 May 1992 and was attended by 174 delegates from 50 Member States and 59 Official Observers. The Official Opening was presided over by HSH Prince Rainier III, who was accompanied by HSH Prince Albert, in the Centre de Congrès-Auditorium on Monday 4 May.

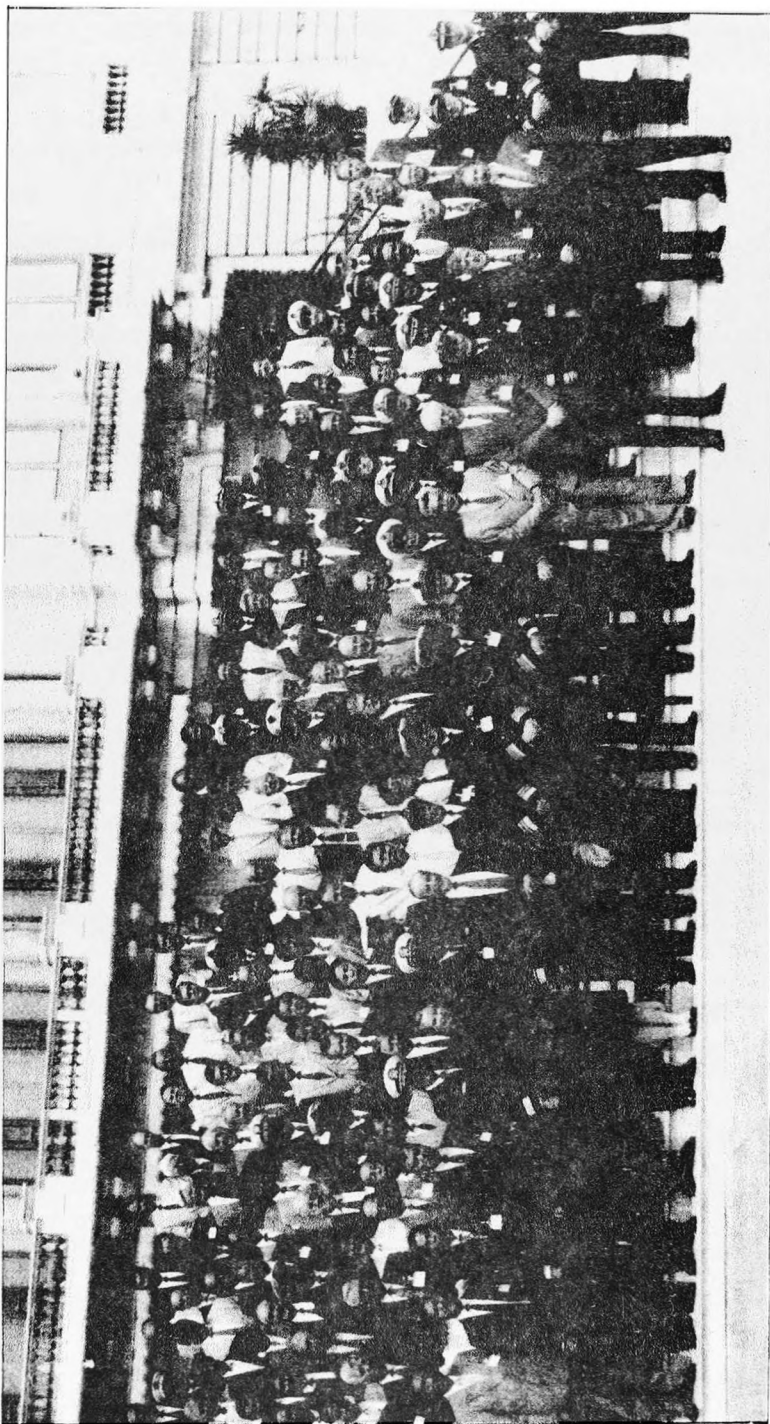


FIG. 37.- The 14th International Hydrographic Conference, Monaco 1992.

An Exhibition of hydrographic equipment and services, a display of charts from Member States and a special exhibition commemorate the discovery of North America by Christopher Columbus were held in the Centre de Congrès-Auditorium during the period from Monday 11 to Thursday 14 May. A Symposium including 21 papers was held on 11 and 12 May. Seven hydrographic vessels from various Member States visited the port of Monaco during the Conference.

Thirty-one proposals were made to the Conference, which were further complemented by 12 additional or revised proposals that were also made during the Conference.

Among the decisions resulting from the consideration of these proposals, the following should be emphasized:

- Establishment of a Special Committee to examine matters related to establishment of a Worldwide Electronic Chart Data Base.
- Use of the Spanish language at the Bureau for publication of certain periodical publications, circular letters and general correspondence .
- Revision of the work of the IHB by the Directing Committee and presentation of a 5-year work programme in advance of the XVth Conference.
- Establishment of a Permanent Working Group on Cooperation concerning Hydrographic Surveys and Charting in Antarctica.
- Establishment of a Legal Advisory Group to examine questions concerning legal matters.
- Establishment of a Working Group for the revision of Special Publication No. 44
- Formation of IHO/IAG Working Group on Hydrographic and Geodetic Aspects of the UN Law of the Sea
- Formation of an IHO Copyright Working Group.

The election of the Directing Committee was then as follows:

#### CANDIDATES ELECTED

ANDREASEN (USA)  
KERR (Canada )  
ANGRISANO (Italy)

#### NOT ELECTED

RASIP (Malaysia)  
MARATOS (Greece)  
SEDOV (Russia)  
SINGH (India)  
BONNOT (France)

### **Finance Committee Working Group on the Terms and Conditions of the Directors and staff**

Following the implementation of recommendations made in 1987 by this Sub-Committee, it was demonstrated that certain issues needed to be re-considered, as well as some new ones to provide for the staff of the IHB who were encountering specific difficulties, most resulting from the increased cost of living in Monaco.

The Directing Committee re-established the Sub-Committee, which included representatives from five countries, one other working by correspondence, and with the attendance of the Bureau's Director in charge of staff matters. The Sub-Committee considered the pay and conditions of service arrangements and their comparison with those existing in other international Organizations. Among the conclusions and recommendations of the Sub-Committee, were alignment of salaries for Category A with those of UN, providing an adequate increase. A further recommendation was the implementation of a set of allowances comparable with those existing in UN organizations, e.g. educational allowances. The Sub-Committee also concluded that salaries for category B should remain aligned with comparable civil servants in the Monaco Civil Service.

The Conference approved, with few exceptions, the Report submitted by this Working Group.

### **After the Conference**

In the years after the XIVth Conference, the significant progress made in two areas, ECDIS and the cooperation in Antarctica should be highlighted. Work on ECDIS progressed with the approval of the Performance Standards by IMO's Assembly in November 1995. The work of IHO Member States in the technical developments and testing has been decisive for the advancements made in the overall project, although there is still much work to be done before the definitive implementation of ECDIS. The cooperation of Member States in the progress of the adoption of a chart scheme within INT Chart Region M, Antarctica, including the commitment of "printer" nations, has been noteworthy.

Membership continued to grow, Member States No. 60-62, Tonga, Croatia and Algeria joining in 1995/1996. There are also a number of countries whose membership has been approved by the required majority and the deposit of their instrument of accession to the Convention is awaited. The number of Regional Hydrographic Commissions also increased with the establishment of the South East Pacific Hydrographic Commission in 1991, the South West Pacific Hydrographic Commission in 1993 and the Caribbean and Gulf of Mexico Hydrographic Commission in 1994.

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## EPILOGUE

**by Rear Admiral Christian ANDREASEN, President of the IHB Directing Committee**

Many years have passed since the arrival of Admiral PARRY in Monaco to set up the Bureau. The Organization has survived a number of crises and proven its mettle as an organization in support of safety of the mariner and protection of our ocean environment. Nearly 150 persons have served at the Bureau during its 75 year history.

As we begin the next 25 years leading to the IHO's centenary, the pace of technological change in the fields of hydrography and marine cartography is very rapid. The advent of accurate navigation on a global basis, provided by satellite technology, is making the historical surveys collected through less accurate methods obsolete. Simultaneously, the application of multibeam survey technology, laser methods of depth measurement from aircraft, improved side scan sonar and the great advances in data processing technology, with significant applications for cartography, are improving the tools available for the hydrographer and cartographer of the future. The application of modern "tools" for hydrography and cartography are making it possible for Hydrographic Offices to respond to the needs of the modern mariner and at the same time to broaden the possible applications of marine data by adoption of digital products.

Communications and the methods of exchanging data and supplying products are changing significantly. The IHO operates a Bulletin Board System, the Bureau is networked, IHB is on the Internet and IHO Member States are rapidly connecting to the Internet and some products are already being made available globally by electronic means. Systems are becoming obsolete in a very short time-frame and Hydrographic Offices are struggling to meet the challenges of transition from the manual production methods of the past to the digital methods of the present and future.

Increasingly, policy issues are becoming a concern. The advent of digital products and government emphasis on privatization have led to considerations of relations with commercial firms. The ease of reproduction and the greatly increased utility of digital data to support a wide range of user applications have led to copyright issues and consideration of the structure of the global chart dissemination system.

With the rapid pace of technological change, there is great need for training and transfer of technology between Member States. It must be remembered that to achieve the global benefit of a properly supported marine transportation system, there must be international cooperation and an efficient transfer of technology between "partner" Hydrographic Offices wherein the lesser developed HO's benefit from the advances of those more developed HO's and progress for the overall benefit of the mariner.



International cooperation appears to be one of the principal challenges for the IHO/IHB in the future. With the advent of accurate navigation by the mariner, the hydrographers and marine cartographers throughout the world are now facing the daunting task of increasing the quality of their products to meet the future needs of mariners of all types and many other users of marine geographic information.

Hydrographic Offices and the IHO can look forward to the future with pride knowing that hydrographers have a long history of cooperation which serves as a model for the accomplishments to be made in the future.



FIG. 38.- The Directing Committee and staff in 1994. Seated from left to right : Mrs RIBAUD, Rear Admiral ANGRISANO, Rear Admiral ANDREASEN, Mr. KERR, Mrs. CAUDOUX, Miss WILLIAMS. Standing up from left to right : Mr. VIAL, Mr. VELARD, Miss BOUZANQUET, Mr. MENINI, Mr. HUET, Mr. DEL-FA, Miss MURO, Cdr. BERMEJO, Mr. ROHDE, Miss MOLLET, Mr. SEMLALI, Mr. LAHIRE, Mr. ALBERTELLI.

## APPENDIX 1

## LIST OF DIRECTORS AND PERSONNEL OF THE IHB 1921 - 1996

PERIOD		DIRECTORS	COUNTRY	YEARS
1921	1923	MÜLLER, S., <i>Captain</i>	Norway	2
1921	1927	PHAFF, J.M., <i>Rear Admiral</i>	Netherlands	6
1921	1926	PARRY, J., <i>Vice Admiral</i>	UK	5
1924	1929	NIBLACK, A., <i>Rear Admiral</i>	USA	5
1927	1947	DE VANSSAY DE BLAVOUS, P., <i>Ing. Gén.</i>	France	20
1927	1932	TONTA, L., <i>Captain</i>	Italy	5
1930	1937	LONG, A., <i>Rear Admiral</i>	USA	7
1932	1957	NARES, J.D., <i>Vice Admiral</i>	UK	25
1937	1938	CROSLY, W. S., <i>Rear-Admiral</i>	USA	1
1939	1947	LEAHY, L., <i>Rear Admiral</i>	USA	8
1947	1957	NICHOLS, C.L., <i>Rear Admiral</i>	USA	10
1952	1967	VIGLIERI, A., <i>Vice-Admiral</i>	Italy	15
1957	1962	KNOX, R., <i>Rear Admiral</i>	USA	5
1957	1962	DAMIANI, L., <i>Ing. Général</i>	France	5
1962	1965	PIERCE, C., <i>Rear Admiral</i>	USA	3
1962	1967	DOS SANTOS FRANCO, A., <i>Vice-Admiral</i>	Brazil	5
1967	1972	TEGNER, I., <i>Captain</i>	Denmark	5
1967	1972	MOITORET, V., <i>Captain</i>	USA	5
1967	1972	CHATEL, G., <i>Ing. Général</i>	France	5
1972	1982	KAPOOR, D. <i>Commodore</i>	India	10
1972	1977	TISON, J.C., <i>Rear Admiral</i>	USA	5
1972	1982	RITCHIE, G.S., <i>Rear Admiral</i>	UK	10
1977	1987	AYRES, J., <i>Captain</i>	USA	10
1982	1987	FRASER, F., <i>Rear Admiral</i>	India	5
1982	1987	AFFONSO, O. A., <i>Vice Admiral</i>	Brazil	5
1987	1992	CIVETTA A., <i>Rear Admiral</i>	Italy	5
1987	1992	HASLAM, D., <i>Rear Admiral</i>	UK	5
1987	--	KERR, A.J.	Canada	
1992	--	ANDREASEN, C., <i>Rear Admiral</i>	USA	
1992	--	ANGRISANO, G., <i>Rear Admiral</i>	Italy	

PERIOD		HYDROGRAPHIC STAFF	COUNTRY	YEARS
1921	1937	SPICER-SIMSON, G. <i>Commander</i>	UK	16
1923	1934	ALBERT, G., <i>Lieutenant</i>	France	11
1924	1957	BENCKER, H.L., <i>Captain</i>	France	33
1925	1927	DENISON, C.C., <i>Commander</i>	UK	2
1928	1928	LUCAS, F.C., <i>Commander</i>	UK	< 1
1929	1931	BEEHLER, W.P., <i>Commander</i>	USA	7
1936	1943			
1929	1929	BOWLES, J.G., <i>Commander</i>	UK	< 1
1932	1935	GERARD, W.G., <i>Lt. Commander</i>	UK	3
1948	1971	ALBINI, C., <i>Captain</i>	Italy	23
1950	1973	LEMIÈRE, G., <i>Ing. en chef</i>	France	23
1960	1970	BONNIN, P., <i>Captain</i>	France	10
1964	1973	GUIDA, L., <i>Rear Admiral</i>	Italy	9
1970	1973	WORM-LEONHARD, H., <i>Captain</i>	Denmark	3
1971	1982	CHARDIN, P., <i>Commander</i>	France	11
1973	1983	COOPER, A., <i>Commodore</i>	Australia	10
1974	1978	HEALY, M.R., <i>Lt. Commander</i>	UK	4
1979	1986	SATHAYE, N., <i>Commander</i>	India	7
1987	1988	TORRES, E., <i>Lt. Commander</i>	Spain	1
1988	1991	ABBASI, I., <i>Captain</i>	Pakistan	3
1988	--	BERMEJO, F., <i>Commander</i>	Spain	
1989	--	HUET, M., <i>Ing. en chef</i>	France	
1992	--	ROHDE, H.P.	Germany	

PERIOD		TECHNICAL and ADMINISTRATIVE STAFF	COUNTRY	YEARS
1921	1972	SERRA, E.	Italy	51
1921	1926	DUJARRIC DE LAGARDE, H.	France	5
1921	1940	MASSA, A.	France	19
1921	1927	FILIPPI, R.	France	6
1922	1942	MARTIN, E.H.	France	20
1922	1922	CARDON, A.M.	France	< 1
1922	1924	KÄNZIG, M.	Switzerland	2
1923	1924	VENTON, E.	UK	< 2
1928	1928			
1924	1927	PELMEAR, B.	UK	3
1924	1924	CHENU, G.	France	< 1
1924	1925	RAINAUT, J.	France	1
1924	1925	MENTION, A.	France	1
1925	1933	HUET, Y.	France	8
1925	1927	BALLOT, M.	France	2
1925	1939	BARCLAY, E.	UK	20
1947	1953			
1926	1928	RICHARDS, H.	USA	2
1927	1940	BATTAGLINI, R.G.	France	13
1927	1928	SMITH, K.	UK	1
1927	1940	AUBERT, R.	UK	13
1927	1958	PAUL, P.	France	31
1927	1929	ROY, A.	France	2
1927	1929	GEREBZOW, M.	USSR	2
1928	1970	PONS (before GOSSELIN), A.	France	42
1929	1929	KENDALL, R.	UK	< 1
1929	1934	DEL CORSE, F.	Italy	5
1929	1930	MACHETTI, A.J.	France	1
1929	1930	D'OSMOND, O.	France	1
1929	1929	MORGAN, J.	UK	< 1
1930	1931	PARTRIDGE, L.	UK	1
1931	1934	BODILLY, L.A.	UK	3
1933	1951	ANTOGNINI, A.	Switzerland	18

PERIOD		TECHNICAL and ADMINISTRATIVE STAFF	COUNTRY	YEARS
1935	1937	MAYBURY, R.	UK	2.00
1939	1940	HUTCHISON, E.	UK	1.00
1940	1975	AUBERTIN, R.	France	35.00
1943	1945	BILLOT, A.	France	2.00
1947	1989	FERRERO-REGIS, A.	France	42.00
1949	1989	RICOTTI (before BENATTI and BRESSET), M.R.	Monaco	40.00
1949	1961	SQUIRE, J.P.	USA	12.00
1950	1992	CADARS, M.	France	42.00
1953	1962	STEPHENS, G.	UK	9.00
1953	1971	DE VILLERS, C.	France	18.00
1957	1957	DE PERINELLO, R.	France	< 1
1958	1958	DELLA PUPPA, A.M.	Italy	< 1
1958	1960	CUCCHI, L.	Italy	2.00
1958	1961	GABBAY, C.	France	3.00
1958	1959	TYLER, J.	UK	1.00
1958	1958	WYRTKI, K.	Germany	< 1
1959	1960	LIGHTFOOT, W.	UK	1.00
1960	1963	MILES, F.	UK	3.00
1960	1984	ORLANDI, S.	UK	24.00
1961	--	DEL-FA, R.	Italy	
1961	1963	DEAN, J.	UK	2.00
1961	1962	ALBERTI, M.	France	1.00
1962	--	PARSI, A.	France	
1962	1964	BILLOT, (before MIZRACHI) C.	France	2.00
1963	1980	CAMERON, M.	UK	17.00
1963	1965	CAESAR, M.	Canada	2.00
1964	1979	COLOMB, S.	France	15.00
1964	--	RIBAUD, S.	UK	
1965	1966	ASCHENBACH, A.	USA	1.00
1966	1968	COLLET, M.C.	UK	2.00
1967	1973	WINTER, G.	Tunisia	6.00
1968	--	LAHIRE, B.	France	
1969	1990	BLOT, L.	France	21

PERIOD		TECHNICAL and ADMINISTRATIVE STAFF	COUNTRY	YEARS
1973	1973	KANG, H.	China	< 1
1973	1978	MARMER, P.	USA	5
1974	1980	CODA, D.	France	6
1975	1978	DEMARIA, G.	France	3
1979	1981	LUZY, R.	France	2
1979	--	WILLIAMS, B.	UK	
1980	--	VIAL, R.	France	
1982	1982	ROSSI, M.	France	< 1
1982	1983	ZEILER, H.	Belgium	1
1983	--	ALBERTELLI, J.P.	France	
1983	--	MENINI, D.	France	
1983	1987	HASKINS, G.	UK	4
1984	1985	POLO, F.	France	1
1985	--	VELARD, C.	France	
1987	--	CAUDOUX, R.	Belgium	
1987	--	SEMLALI, R.	Morocco	
1989	--	BOUZANQUET, P.	France	
1990	1992	FERRY CHAPUIS, D.	France	2
1991	--	MOLLET, M.	France	
1992	--	MURO, M.P.	Spain	
1992	--	VANKRINKELLEN, (before Rossi), I.	France	
1996	--	SKINNER, M.	UK	

## APPENDIX 2

## LIST OF ALL THE PUBLICATIONS PUBLISHED BY THE IHB

(\* means in force)

PERIODICAL PUBLICATIONS

- No. 1. (\*) International Hydrographic Review
- No. 2. (\*) Index to the International Hydrographic Review
- No. 3. (\*) International Hydrographic Bulletin
- No. 4. (\*) Catalogue of IHO Publications
- No. 5. (\*) IHO Yearbook
- No. 6. (\*) Reports of Proceedings of International Hydrographic Conferences
- No. 7. (\*) IHO Annual Report

MISCELLANEOUS PUBLICATIONS

- (\*) The IHO and its activities
- No. 1. (\*) Basic Documents of the International Hydrographic Organization
- No. 2. Fifty years of progress
- No. 3. (\*) Resolutions of the IHO
- No. 4. (\*) Chart Specifications of the IHO and Regulations of the IHO for International (INT) Charts
- No. 5. (\*) Standards of Competence for Hydrographic Surveyors
- No. 6. (\*) Reference Texts and Journals for Training in Hydrography
- No. 7. (\*) Staff Regulations of the IHB
- No. 10. Catalogue of International (INT) Charts at small scale
- No. 11. (\*) Catalogue of International (INT) Charts and Guidance for Regional Coordinators of INT Chart Schemes

SPECIAL PUBLICATIONS

- 1- Echo sounding
- 2- Report on Observations of Lights made in U.K.
- 3- Echo sounding
- 4- Echo sounding
- 5- International Low Water
- 6- Summary of Data on Uniformity in Buoyage and Buoy Lighting
- 7- Report on the Observations of Visibility of Lights
- 8- Summary of Data on Uniformity in Storm Warning Signals
- 9- Uniformity of Buoyage
- 10- International Low Water
- 11- Summary of Data on Wind Force and the Beaufort Scale
- 12- Investigation of Harmonic Constants
- 12a- Tables for the Calculation of Tides by Means of Harmonic Constants
- 13- Tide Prediction Machines
- 14- Echo sounding
- 15- Summary of Data on Coastal Signals with Proposals for their Unification

- 16- Summary of Data on Port Signals
- 17- Summary of Data on Safety of Life at Sea
- 18- List of Life-Saving Stations
- 19- Ocean Currents
- 20- Chart showing the positions of Doubtful dangers
- 21- Table of Latitudes
- 22- Manual of Symbols and Abbreviations
- 23- (\*) Limits of Oceans and Seas
- 24- Geographical Positions
- 25- Catalogue of Original Charts
- 26- List of Harmonic Constants
- 27- Original Sailing Directions
- 28- Vocabulary concerning Tides (in English, French, Spanish, Dutch and German)
- 29- Vocabulary concerning Signals
- 30- GEBCO
- 31- List of Tidal Authorities and Tidal records
- 32- (\*) Hydrographic Dictionary
- 33- Echo sounding apparatus
- 34- Vocabulary of the Most Usual Terms occurring in W/T Notices to Mariners
- 35- Nomenclature and Vocabulary concerning Lights
- 36- The Analysis of High and Low Waters
- 37- The Evolution of Photogrammetric Instruments
- 38- Systems of Maritime Buoyage and Beaconage adopted by various countries
- 39- (\*) Precise Positioning Systems for Hydrographic Surveying (before Radio aids to Maritime Navigation and Hydrography)
- 40- Standard Development of Tide-Generating Potential
- 41- The Analysis and Prediction of Tide in Shallow Water
- 42- Standard Hydrographic Publications
- 43- Recommendations for Operation of Tide Gauges and Reduction of Tidal Records
- 44- (\*) Standards for Hydrographic Surveys
- 45- Digital Deep-sea Sounding Library
- 46- (\*) Correction of Echo soundings
- 47- (\*) Training Courses in Hydrography and Nautical Cartography
- 48- Guidance for Regional Coordinators of INT charts schemes-
- 49- (\*) Recommendations Concerning Mariners' Routeing Guides
- 50- (\*) IHO Tidal Constituent Bank-Station Catalogue
- 51- (\*) Manual on Technical Aspects of the United Nations Convention on the Law of the Sea
- 52- (\*) Specifications for Chart Content and Display Aspects of ECDIS
- 52- (\*) Appendix 1 Guidance on Updating the ENC
- 52- (\*) Appendix 2 Colour & Symbols Specifications for ECDIS
- 52- (\*) Appendix 3 Glossary of ECDIS - related Terms
- 53- (\*) World-Wide Navigational Warnings Service - Guidance Document
- 55- (\*) Status of Hydrographic Surveying and Nautical Charting Worldwide
- 57- (\*) IHO Transfer Standard for Digital Hydrographic Data
- 59- (\*) Status of Hydrographic Surveying and Nautical Charting in Antarctica
- 60- (\*) User's Handbook on Datum Transformations involving WGS-84



**BATHYMETRIC PUBLICATIONS**

- No. 1. (\*) General Bathymetric Chart of the Oceans (GEBCO), Fifth Edition
- No. 2. (\*) Catalogue of IHO Bathymetric Plotting Sheets
- No. 3. (\*) Annex to Catalogue of IHO Bathymetric Plotting Sheets
- No. 4. (\*) Information Concerning Recent Bathymetric Data
- No. 5. (\*) Chart Indicating the Adequacy of Available Bathymetry for Determining Seafloor Topography
- No. 6. (\*) Standardization of Undersea Feature Names (Guidelines, Proposal Form, Terminology)
- No. 7. (\*) GEBCO Guidelines
- No. 8. (\*) Gazetteer of Geographical Names of Undersea Features

## APPENDIX 3

**NATIONS REPRESENTED IN THE IHB DIRECTING COMMITTEE SINCE 1921**

Nation	Representation	N° years served
USA	11 Directors	64
U.K.	4 Directors	45
Italy	4 Directors	30
France	3 Directors	30
India	2 Directors	15
Brazil	2 Directors	10
Canada	1 Director	10
Netherlands	1 Director	6
Denmark	1 Director	5
Norway	1 Director	2

## APPENDIX 4

## IHO MEMBER STATES

COUNTRY	Year Membership	REMARKS
Algeria	1996	
Argentina	1921	
Australia	1958	From 1921 to 1958 within British Empire. In 1958 independent.
Bahrain	1992	
Belgium	1921	Withdrew from 1924 to 1981
Brazil	1921	
Burma	1956	Did not sign the Convention and withdrew in 1967.
Canada	1951	
Chile	1921	Withdrew from 1932 to 1935. Withdrew again from 1940 to 1951
China		
Colombia	1969	
Croatia	1996	
Cuba	1950	
Cyprus	1991	
Democratic Republic of Korea	1987	
Denmark	1921	
Dominican Republic	1957	
Ecuador	1934	Withdrew from 1940 to 1968.
Egypt	1922	
Fiji	1983	
Finland	1957	
France	1921	* Supported the IHB during the war years
Germany (F.R.)	1926	Withdrew from 1933 to 1952
Germany (D.R.)	1985	Until 1990
Greece	1921	Withdrew from 1936 to 1947
Guatemala	1957	
Iceland	1957	
India	1956	
Indonesia	1951	
Iran	1961	
Italy	1921	Withdrew from 1934 to 1949
Japan	1921	Withdrew from 1940 to 1950
Malaysia	1975	
Monaco	1921	

COUNTRY	Year Membership	REMARKS
Netherlands	1921	Withdrew 1934 to 1949
New Zealand	1921	From 1921 to 1959 within British Empire. In 1959 independent.
Nigeria	1976	
Norway	1921	Withdrew from 1938 to 1947.
Oman	1987	
Pakistan	1957	
Papua New Guinea	1987	
Paraguay	1967	Withdrew in 1969
Peru	1921	Withdrew from 1933 to 1979
Philippines	1955	
Poland	1926	
Portugal	1921	
Republic of Korea	1957	
Rep. of South Africa	1951	
Russia	1977 (as USSR)	
Singapore	1972	
Spain	1921	* Supported the IHB during the war years
Sri Lanka	1983	
Suriname	1985	
Sweden	1921	* Supported the IHB during the war years
Syria	1975	
Thailand	1921 (as Siam)	
Tonga	1995	
Trinidad & Tobago	1980	
Turkey	1950	
United Arab Emirates	1992	
United Kingdom	1921	* Supported the IHB during the war years
USA	1922	* Supported the IHB during the war years
Uruguay	1936	Withdrew from 1964 to 1981
Venezuela	1961	
Yugoslavia	1950	
Zaire	1970	

#### MEMBERSHIP OF IHO PENDING

BULGARIA, COLOMBIA, ESTONIA, JAMAICA, KUWAIT, MAURITANIA, MOROCCO, MOZAMBIQUE, QATAR, TUNISIA, UKRAINE.

## APPENDIX 5

**PRESIDENTS AND VICE PRESIDENTS OF THE I.H. CONFERENCES****1st I.H. Conference - 1919**

Pres: Rear Admiral Sir John PARRY, K.C.B. (U.K.)  
Vice-Pres: Ingénieur hydrographe général J. RENAUD (France)

**2nd I.H. Conference - 1926**

Pres: Rear Admiral J.M. PHAFF (Netherlands)  
Vice-Pres: Captain W.S. CROSLY, USN (U.S.A.)

**1st Supplementary I.H. Conference - 1929**

Pres: Rear Admiral W.S. CROSLY, USN (U.S.A.)  
Vice-Pres: Ingénieur hydrographe général E. FICHOT (France)

**3rd I.H. Conference - 1932**

Pres: Ingénieur hydrographe général E. FICHOT (France)  
Vice-Pres: Captain J. EDGELL, O.B.E. (U.K.)

**4th I.H. Conference - 1937**

Pres: Rear Admiral J. EDGELL, C.B., O.B.E. (U.K.)  
Vice-Pres: Ingénieur hydrographe général D. COT (France)

**5th I.H. Conference -- 1947**

Pres: Vice Admiral Sir John EDGELL, K.B.E. C.B., F.R.S. (U.K.)  
Vice-Pres: Kommandor P.C.S. JENSEN (Denmark)

**6th I.H. Conference - 1952**

Pres: Rear Admiral Baron Th. K. van ASBECK (Netherlands)  
Vice-Pres: Capitán de Fragata Don Fernando BALÉN GARCIA (Spain)

**7th I.H. Conference - 1957**

Pres: Dr. G. BÖHNECKE (Federal Republic of Germany)  
Vice-Pres: Capitán de Navío A. ANDRADE TARABA (Chile)

**8th I.H. Conference - 1962**

Pres: Ingénieur hydrographe général A. GOUGENHEIM (France)  
Vice-Pres: Commander R. KLÆR (Norway)

**9th I.H. Conference - 1967**

Pres: Rear Admiral Ir. W. LANGERAAR (Netherlands)  
Vice-Pres: Mr. Norman GRAY (Canada)

**10th I.H. Conference - 1972**

Pres: Professor H.U. ROLL (Federal Republic of Germany)  
Vice-Pres: Ingénieur général de 1re classe de l'armement (hydrographe)  
R. GROUSSON (France)

**11th I.H. Conference - 1977**

Pres: Rear Admiral H.H. van WEELDE (Netherlands)  
Vice-Pres: Vice Admiral S.D. CRAMER (U.S.A.)

**12th I.H. Conference - 1982**

Pres: Rear Admiral D.W. HASLAM, C.B., O.B.E., F.R.I.C.S. (U.K.)  
Vice-Pres: Mr. S.B. MacPHEE (Canada)

**13th I.H. Conference - 1987**

Pres: Prof. Dr. G. ZICKWOLFF (Federal Republic of Germany)  
Vice-Pres: Rear Admiral L.H. van OPSTAL (Netherlands)

**14th I.H. Conference - 1992**

Pres: Commodore F. HALLBJÖRNER (Sweden)  
Vice-Pres: Rear Admiral A. YUNG (Argentina)

**PRINCE ALBERT I AND COMMODORE COOPER AWARDS****WINNERS OF MEDALS ALBERT I and COOPER****Selections Albert I Medal**

- 1988 - Contour Processing and 3-D Image Processing of Sea Beam Bathymetric data (Akira ASADA)
- 1989 - The Technology of Interactive Compilation (T. EVANGELATOS)
- 1990 - A Data Structure for Spatio-Temporal Databases (H.P. VARMA, H. BOUDREAU, W. PRIME)
- 1991 - The History of Hydrography - An Enlightened European Era 1660-1800 (S. RITCHIE)

**WINNER THE TECHNOLOGY OF INTERACTIVE COMPILATION  
(T. EVANGELATOS, CANADA)**

- 1992 - BERING: A Pacific Columbus (B. IMBERT)
- 1993 - Computer assisted Cartography at the Hydrographic and Oceanographic Service of the Chilean Navy (H. GORZIGLIA,)
- 1994 - Towards a real-time tidal analysis and prediction (Tianhang HOU & P. VANICEK) and Conceptual model of a regionally integrated data base for ECDIS (A.J. KERR)
- 1995 - Time Varying Objects in ECDIS - Today, tomorrow and soon after (B. PILLICH).
- 1996 - Strategic Considerations for International Hydrography in the 21st Century (B. BOND).

**Commodore Cooper Winners**

- 1988 - Swath Mapping Data Management within the National Oceanic & Atmospheric Administration (D.R. KERLIHY, S.P. MATULA, C. ANDREASEN)
- 1989 - The Technology of Interactive Compilation (T.EVANGELATOS)
- 1990 - Programmable Scanner for Laser Bathymetry (R. AXELSSON, O. STEINWALL, P. SUNDBERG,)
- 1991 - Assessing the Precision of Depth data (M. JOSEPH)
- 1992 - Automated Cartographic Sounding Selection (S. ZORASTER and S. BAYER)
- 1993.- Some Observations on the use of GPS and Charts (D. SIMPSON)
- 1994 - Royal Australian Navy laser airborne depth sounder, the first year of operations (R. NAIRN)

- 1995 - Time Varying Objects in ECDIS - Today, tomorrow and soon after (B. PILLICH).
  - 1996 - "On the Estimation of Standard Deviations in Multibeam Soundings" by J. EEG (Denmark) and "Looking Forward to Better Feature detection" by C.K. ELLIS (Australia).
-