THE HISTORY OF THE INTERNATIONAL HYDROGRAPHIC BUREAU

BY
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This work was awarded the Albert 1st Medal for Hydrography – 2002
THE HISTORY OF
THE INTERNATIONAL HYDROGRAPHIC BUREAU

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 was 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 Ier, 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, wrote this “History of the International Hydrographic Bureau”, which was published as a special issue of the International Hydrographic Review and presented to H.S.H. Prince Rainier III, in occasion of the XVth Conference in 1997.

In 2002, this work was awarded the “Albert I Medal” to the best paper published in the period 1997-2002

The IHB presents now an updated re-edition of this publication

The beginning: the first International Hydrographic Conference

After the First World War, many nations begun 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 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.

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.

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.
Ingénieur hydrographe M.J. Renaud
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 former building of the IHB, at n° 3, avenue du Port

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.

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 first Directing Committee and the Secretary General. From left to right: Cdr. SPICER-SIMPSON, RAdm. PHAFF, VAdm. PARRY and Capt. MULLER

The IHB staff in 1925
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 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. It is to be noted that, almost 80 years later, the number of the IHB members is only slightly superior, 19 persons.

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. 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:

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<th>CANDIDATES ELECTED</th>
<th>NOT ELECTED</th>
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<tr>
<td>NIBLACK (USA)</td>
<td>BJÖRSET (Norway)</td>
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<tr>
<td>DE VANSSAY (France)</td>
<td>HOUSEMAN (Germany)</td>
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<td>TONTA (Italy)</td>
<td>CHRYSSANTHIS (Greece)</td>
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**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.

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 VANSSAY 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 VANSSAY 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..

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 Héréditaire
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 construction of the new building

The building finished in January 1930
Inauguration of the IHB. Prince LOUIS II and the Hereditary Princess

Lying of the marble tablet
The IHB in the thirties

The First 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
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 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:

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<th>CANDIDATES ELECTED</th>
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<td>NARES (UK)</td>
<td>TONTA (Italy)</td>
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<td>DE VANSSAY (France)</td>
<td>SPIESS (Germany)</td>
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<td>LONG (USA)</td>
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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 3rd I.H. Conference (1932) held in the IHBS Chart room
"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 KRUMMEL, 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:

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<td>Nares (UK)</td>
<td>None</td>
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<td>Crosley (USA)</td>
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<td>De Vanssay (France)</td>
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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 Pavilion 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 CROSLEY, 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 CROSLEY 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 CROSLEY 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 VANNSSAY, 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 VANNSSAY 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 5th 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 VANNSSAY 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 supressing 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 NAfES 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 coordinate the activities of the IHB with any future World Organization for Safety at Sea, to avoid duplication of effort.

**The important 5th 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 VANSSAY, 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
Opening of the 5th I.H. Conference, 1947
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.
5. Information of Dangers discovered in foreign waters.
6. Progress of Coastal Surveys.
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)
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.
20. Terminology of the Submarine Relief and the Coastal Contours.
21. List of Unmarked Dangers

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.
26. List of Life Saving and Refuge Stations. (Special Publication No. 18).
27. Limits of Oceans and Seas. (Special Publication No. 23)

III. NOTICES TO MARINERS

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.
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

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

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.


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.

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 4th and 5th Meetings of the ICAO, at the 8th and 9th General Assembly of the International Union of Geodesy and Geophysics, the 4th 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 13th 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.
1951. The IHB Directing Committee and staff

The IHB Chartroom in the fifties
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 7th 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 6th and 7th International Hydrographic Conferences (1952 and 1957)**

The 6th 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:

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<tr>
<th>CANDIDATES ELECTED</th>
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<tr>
<td>NICHOLS (USA)</td>
<td>KJAER (Norway)</td>
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<tr>
<td>NARES (UK)</td>
<td>DAMIANI (France)</td>
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<td>VIGLIERI (Italy)</td>
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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:

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<tr>
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<td>LOWEY (UK)</td>
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<td>DAMIANI (France)</td>
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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 4th 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 5th 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 7th 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 8th Conference, taking into account the experience of the next period 1957-1962.
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 7th 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 was in agreement as regards the declaration or convention in question, the letter would be submitted to duly authorized representatives for signature.

VAdm A. VIGLIERI (Italy), RAdm R.W. KNOX (USA) and Ing. Hydro. Général L. DAMIANI (France)
Directing Committee from 1957 to 1962
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 8th 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 7th 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 8th 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 9th 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 9th 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. 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)


2nd Section
(1 Cat A staff member, 2 Cat B)


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)

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 to 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 9th 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 8th and 9th Conferences of 1962 and 1967. The results are given below:

8th Conference (1962)

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<tr>
<th>CANDIDATES ELECTED</th>
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<tr>
<td>PIERCE (USA)</td>
<td>SCHNIDT (Denmark)</td>
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<tr>
<td>VIGLIERI (Italy)</td>
<td>DAMIANI (France)</td>
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<td>SANTOS FRANCO (Brazil)</td>
<td>TANCRE (Australia)</td>
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9th Conference (1967)

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<tr>
<td>CHATEL (France)</td>
<td>DI PAOLA (Italy)</td>
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<tr>
<td>MOITORET (USA)</td>
<td>SANTOS FRANCO (Brazil)</td>
</tr>
<tr>
<td>TEGNER (Denmark)</td>
<td>BENHAM (Iran)</td>
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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.

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 9th I.H. Conference, held at the « Centre des Rencontres Internationales » in Monaco
The Directing Committee 1962-1967. From left to right: VAdm. VIGLIERI (Italy), Radm. PIERCE (USA) and Vadm. FRANCO (Brazil)

The Directing Committee 1967-1972. From left to right: Capt. MOITORET (USA), Ing. Général CHATEL (France) and Capt. TEGNER (Denmark)
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 10th 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 11th 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/IHO International Advisory Board on Standards of Competence for Hydrographic Surveyors**

The 11th 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 45 certificates of recognition to educational institutions throughout the world.

**World Wide Navigational Warning System**

The establishment of the system was decided by the 11th 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.
1972. The IHB staff's welcome ceremony to the new Directing Committee

Retirement of Ms. Elena SERRA, after 51 years of work at the IHB
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

\[
\text{Lat} = 43^\circ\ 44'\ 13''.62\ N; \ \text{Lon} = 7^\circ\ 25'\ 25''.55\ E
\]

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:

<table>
<thead>
<tr>
<th>Argentina</th>
<th>France</th>
<th>Netherlands</th>
<th>Spain</th>
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<td>Australia</td>
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<td>Iran</td>
<td>Poland</td>
<td>USA</td>
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<tr>
<td>Dominican Rep.</td>
<td>Italy</td>
<td>Portugal</td>
<td>Uruguay</td>
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<td>Ecuador</td>
<td>Japan</td>
<td>Rep. of Korea</td>
<td>Venezuela</td>
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<td>Egypt</td>
<td>Malaysia</td>
<td>Rep. S.Africa</td>
<td>Yugoslavia</td>
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<tr>
<td>Finland</td>
<td>Monaco</td>
<td>Singapore</td>
<td>Zaire</td>
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Following a series of meetings with representatives of the Government of the Principality of Monaco to negotiate modifications proposed by the 11th 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.
« OPEN DAY » 1974. THS Prince RAINIER III and Princess GRACE visit the Bureau

50th Anniversary of the lying 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:

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<th>CANDIDATES ELECTED</th>
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<td>RITCHIE (UK)</td>
<td>PAVENTI (Italy)</td>
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<td>KAPOOR (India)</td>
<td>FAGERHOLM (Sweden)</td>
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<td>TISON (USA)</td>
<td>HERRERA (Chile)</td>
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The following decisions of the Conference resulting from the Proposals made should be mentioned:
Opening Ceremony of the 10th I.H. Conference. HSH Prince Rainier III and the Directing Committee

The UK survey ships HSM "Fawn" and "Fox"
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 11th International Hydrographic Conference

The 11th 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.

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

11th I.H. Conference. US KANE and URSS BELLINGHAUSEN in the harbour of Monaco
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:

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<td>BARAHONA (Portugal)</td>
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<td>AYRES (USA)</td>
<td>PALMA (Philippines)</td>
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<td>HERRERA (Chile)</td>
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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 XIIIITH 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
First Meeting of the Mediterranean and Black Sea Hydrographic Commission.
Palazzo San Giorgio, Genoa

10th Meeting of the GEBCO Joint Guiding Committee
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
1982. The IHB staff and the Directing Committee: RAdm. RITCHIE (UK), RAdm. KAPOOR (India) and Capt. AYRES (USA)

1983. The Directing Committee and the staff go for a picnic
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 computerisation 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 12th 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:

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<th>CANDIDATES ELECTED</th>
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<td>FRASER (India)</td>
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<td>AYRES (USA)</td>
<td>DEMERLIA (France)</td>
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<td>AFFONSO (Brazil)</td>
<td>SHOJI (Japan)</td>
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<td>HUSAIN (Pakistan)</td>
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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.

The Spanish survey ship "Tofiño", present at the 12th I.H. Conference
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 13th 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 12th 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 Sub-Committee was submitted to the 13th Conference and discussed. One of the changes agreed was for Directors and Professional Assistants to receive the annual bonus equal to one month’s salary, a benefit that had been previously paid to the non-professional staff only.

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 13th 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.

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:

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<tr>
<th>CANDIDATES ELECTED</th>
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<tr>
<td>HASLAM (UK)</td>
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<td>CIVETTA (Italy)</td>
<td>NYGREEN (USA)</td>
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<td>KATOPPO (Indonesia)</td>
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</table>
The Directing Committee elected in 1987. From left to right: Mr. A. KERR (Canada), RAdm D. HASLAM (UK) and RAdm. A. CIVETTA (Italy)

HMS « ROEBUCK » in the port of Monaco during the 14th I.H. Conference
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.
HSH Prince Albert with the IHB Directing Committee during the « IHO Open Day » (1989)

The IHB staff and Directing Committee in 1988
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.

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

**Miscellaneous Publication**
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. 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 14th International Hydrographic Conference

The 14th 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.

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 an IHO Copyright Working Group.
14th IH Conference. The newly elected and the former Directing Committees with the Conference President. From left to right: RAdm. CIVETTA (Italy), Mr. KERR (Canada), RAdm. HASLAM (UK), Cdre. HALLBJÖRNER (Sweden), RAdm. ANDREASEN (USA) and RAdm. ANGRISANO (Italy)

Opening of the 14th IH Conference
At the Conference, a Finance Committee Working Group on the Terms and Conditions of the Directors and staff 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 was the alignment of salaries for Category A with those of UN, providing an adequate increase. The Sub-Committee also concluded that salaries for the Directing Committee should not be changed and those of Category B should remain aligned with comparable civil servants in the Monaco Civil Service. However, in the following years, this alignment was not maintained by the successive Directing Committees and it was necessary to wait until 2003, when a new Working Group again recommended an alignment, including the Directing Committee, what was approved by the IHO Member States.

The election of the Directing Committee was then as follows:

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<td>KERR (CANADA)</td>
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<td>BONNOT (FRANCE)</td>
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The relocation of the IHB

The major event of the year 1996 was the relocation of the International Hydrographic Bureau from 7 avenue President J.F. Kennedy, where the Bureau had been located since 1930, to 4 Quai Antoine 1er, which is on the opposite side of the harbour of Monaco. This was the culmination of an announcement made by H.S.H. Prince RAINIER III during the opening address at the 14th IH Conference in 1992 wherein for its 75th Anniversary the Principality of Monaco would provide new headquarters for the IH Bureau.

The ceremony was held on 14 April 1997, before the Opening Ceremony of the 15th Conference, in the presence of the heads of delegations of the IHO Member States.

The commemorative plate was placed in the entrance hall of the new offices.

Twelve years of development (1992-2004)

In the following years, the significant progress made in two areas, ECDIS and 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 was decisive for the advancements made in the overall project, although there is still much work to be done before the definitive implementation of ECDIS.

In 1995 the IHO Member States agreed to a change of currency from the SDR (Special Drawing Rights) multicurrency to the French franc, which would simplify financial matters within the Organization. Later on, in 2002, the French Franc was replaced by the Euro, following the European Union decision.
February 1996. Works in the new building of Quai Antoine 1er

HSH Prince Rainier III inaugurates the new premises of the IHB, 4 Quai Antoine 1er, 14 April 1997
Specific improvements were made in the following areas:

- Systematic exploration of sea depths and sea movements.
- Standardization of sea measures, hydrographic terminology, marine cartographic products as well as geographical information systems for maritime navigation. In particular, progress has been made in the field of standardization in electronic navigational charts, even though the production and distribution of these charts has not yet achieved the desired results.
- The efficiency of the rapid dissemination of information on safety at sea.
- Training of hydrographers and nautical cartographers.
- Production of bathymetric charts for scientific use and management of marine resources.

Perhaps the most important event of the year 2000 was the approval by the IMO Maritime Safety Committee of the revised Chapter 5 of the SOLAS Convention. This revision contains a new regulation [Reg 9] which requires contracting governments to provide hydrographic services. Another regulation provides the first definition of a nautical chart. This new regulation gave a renewed impetus to the IHO Capacity Building programme. On the 1st July 2002 the new Chapter V of the SOLAS Convention entered into force.

It was preceded by the UN Resolution 53/32 (1998), and it was the first time that the importance of hydrographic work was recognised in an International Convention, except the Convention on the IHO. This was re-inforced by the adoption in 2003 of the United Nations General Assembly Resolution 58/240 that welcomed the work of the IHO and its fourteen Regional Hydrographic Commissions and encouraged 1) increased membership in the IHO, 2) transition to Electronic Navigational Charts, 3) increased coverage of hydrographic information and 4) intensified efforts to build capacity to improve hydrographic services and the production of nautical charts.

Cooperation with the United Nations, in the implementation of the Convention on the Law of the Sea, increased with the participation of IHO in the UN consultative meetings on oceanographic matters, whilst the representatives of the United Nations Division of Law of the Sea participated in conferences on technical aspects of the law of the sea, organized by the IHB in Monaco. Furthermore, IHO cooperated with specialized UN agencies which are working notably in the maritime field and in particular:

- The International Maritime Organization concerning standardization of navigation systems and safety at sea, such as electronic charts, technical cooperation for the benefit of developing countries, the creation of Marine Electronic Highways, the improvement of symbols for navigational charts in order to better protect the marine environment and the implementation of GMDSS.
- The World Meteorological Organization for improved dissemination of weather broadcasts to mariners.
- The Intergovernmental Oceanographic Commission of UNESCO, for the production of bathymetric charts and the preparation of ceremonies celebrating the GEBCO Centenary which will take place in Monaco in April 2003.
- The International Sea Bed Authority and the Food and Agriculture Organization (FAO), who wish to have adequate bathymetric data.
Special mention should be made of cooperation with the following international organizations:

- International Association for Aids to Navigation and Lighthouse Authorities (IALA) on the theme of standardization of charts and on technical cooperation projects, notably in Africa;

- The International Federation of Surveyors (FIG) as regards standards for hydrographers;

- The International Cartographic Association (ICA) as regards standards for cartographers and standardization of geospatial data. The development of standards of competence for nautical cartographers were developed and completed in 2003.

- The International Commission for the Scientific Exploration of the Mediterranean (ICSEM) concerning investigation of physical parameters of the water column; and

- The RAMOGE project for the preparation of a geographical information system; and also not forgetting

- The IEC (International Electrotechnical Commission) and the CIRM (Comité international de l’électrotechnique maritime).

With the kind assistance of EPSHOM, the French Hydrographic Office at Brest, France, an IHO Web Site was set up. This has proven to be a most useful outlet for IHO/IHB information services.

This period saw the introduction of the first operational ENC service, offered by the North European RENC. The service covers most of northern and western Europe, and also provides ENCs for some other parts of the world. The introduction of this service is an important milestone in the history of hydrography and navigation.

The IHB worked to reinforce links with industry involved in the production of acquisition systems and development data and in the presentation of cartographic data, as well as with universities. They all showed an interest in contributing to the establishment of standards guaranteeing uniform quality in sea research and nautical charts. Special mention should be made of the commitment to technical cooperation with countries that either lack hydrographic services or have an inadequate service. In the field of training, where help from IHO is very important, many Member States (such as Spain, Italy, France, India, Chile, Japan, Portugal, Greece, Canada, the United States, etc.) as well as the International Maritime Academy (in Trieste, Italy) offer hydrographic and nautical cartography courses. Bilateral agreements between States permitted a more complete assistance by way of joint hydrographic surveys of the sea and the supply of hydrographic and cartographic systems. IHO also intervened in the establishment of regional development plans, for example the MEDA Project. Also to be noted are a Central American development project, coverage of electronic charts in the Caribbean, the Gulf of Mexico and the Malacca Straits, a development project in Lake Victoria and many others.

Another important event was the establishment of the Capacity Building Committee to provide the necessary link in establishing new hydrographic services, and to support the improvement of the capacities of developing hydrographic services, and the updating of Publication S-55 “Status of Hydrographic Surveying and Nautical Cartography Worldwide”. This publication will be a very useful document to the IHO efforts in Capacity Building.
The IHB staff with the Directing Committee and the IHO Finance Committee in 1991

1994. Visit of the IHB to the Italian "Istituto Idrografico" in Genoa
Membership

Membership continued to grow, as indicated below:

<table>
<thead>
<tr>
<th>Year</th>
<th>New Member(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995-1996</td>
<td>Tonga, Croatia, Algeria</td>
</tr>
<tr>
<td>1997</td>
<td>Estonia and Tunisia</td>
</tr>
<tr>
<td>1998</td>
<td>Mozambique, Ukraine and Colombia</td>
</tr>
<tr>
<td>1999</td>
<td>Morocco</td>
</tr>
<tr>
<td>2000</td>
<td>Jamaica</td>
</tr>
<tr>
<td>2001</td>
<td>Bangladesh</td>
</tr>
<tr>
<td>2002</td>
<td>Mexico, Slovenia, Kuwait</td>
</tr>
<tr>
<td>2003</td>
<td>Myanmar</td>
</tr>
</tbody>
</table>

which brought the total IHO membership to 74 Member States.

The number of Regional Hydrographic Commissions also increased with the establishment of the South East Pacific Hydrographic Commission, the South West Pacific Hydrographic Commission, the Caribbean and Gulf of Mexico Hydrographic Commission, the South Africa and Islands Hydrographic Commission, the ROPME Sea Area Hydrographic Commission and the Hydrographic Committee on Antarctica.

Commemorations

On 21 June 1996, the Organization celebrated its 75th Anniversary. Throughout its entire history, from its formation in 1921, as a result of the kind invitation of H.S.H. Prince Albert I, the Organization’s Headquarters were located in the Principality of Monaco. To commemorate this occasion, the Bureau published a documented 75-year history in a special commemorative volume of IHO’s biannual journal, the International Hydrographic Review. H.S.H. Prince Rainier III, was presented with French and English copies of this commemorative volume. This volume written by Captain Federico Bermejo, IHB Professional Assistant, was awarded the “Prince Albert Medal” in 2002 and as is now updated and re-printed in three languages and in a different format.

While 1996 marked the 75th Anniversary of the IHO as an Organization, 1997 commemorated a very special occasion within the Principality, the 700th Anniversary of the Grimaldi family’s reign in Monaco.

GEBCO

A major event of the year 2003 was the Centenary Commemoration of GEBCO, jointly organized by the IHO and the IOC with the outstanding contribution from the Government of Monaco, which was held in Monaco on 14-16 April 2003.

The main component of this event was the Conference “Charting the Secret World of the Ocean Floor. The GEBCO Project 1903-2003”, which was opened by H.S.H. Prince Albert II of Monaco who paid tribute to all those who have worked on the GEBCO Project so efficiently for the benefit of mankind. The Conference brought together a selection of very interesting papers on subjects ranging from the early years to the future of GEBCO, with special emphasis on Ocean Mapping in the 21st Century. The Conference was attended by more than 150 specialists who were impressed by the high quality of the presentations, including 3-D dynamic pictures of the seabed and other state-of-the-art developments in digital
bathymetry. Two publications were issued on that occasion, “The History of GEBCO, 1903-2003” and the Centenary Edition of the “GEBCO Digital Atlas”.

H.S.H. Prince ALBERT of Monaco unveiled a commemorative plaque during the Opening Ceremony.

The Strategic Planning Working Group

In 1997, a Strategic Planning Working Group was formed by the 16th IH Conference to develop a Strategic Plan and Work Programme for the Organization. The work of that Working Group was pursued in 1998 and 1999 and was submitted to a special Conference, the Second Extraordinary International Hydrographic Conference, which approved both documents, among other decisions related to strategic issues.

In April 2002, the XVIth Conference resolved that there should be a thorough review of the Basic Documents of the IHO and of its structure and procedures, in order to determine whether a more flexible, efficient Organization could be constructed.

It tasked the SPWG to undertake this review and to make appropriate recommendations to an Extraordinary Conference in April 2005. The SPWG was also tasked with addressing a number of proposals deferred from the Conference, which were seen as being complementary to the main review. The XVIth Conference encouraged each Regional Hydrographic Commission to select a representative for the SPWG. It elected a Chairman Mr. Frode Klepsvik (Norway) and two Vice-Chairmen, Dr. Wyn Williams (UK) and Mr. Hideo Nishida (Japan) for the SPWG, and asked the IHB President to represent the Bureau and to provide a secretary (Capt. Bermejo). The SPWG met in full plenary sessions on five occasions to address this task; all the RHCs and several individual Member States contributed strongly to the debates.

A holistic approach to the task was adopted to ensure a structured, logical and rigorous review. The SPWG established an image of the future IHO defined through statements of its Vision, Mission and Objectives. It determined, through a review of past documents and a survey of Member States’ opinions, what strengths and weaknesses the IHO currently possessed which would help or hinder it from achieving the Vision, Mission & Objectives. After assessing and debating many potential candidates for an IHO structure, the SPWG proposed a structure and set of operational procedures which it believed were best suited to maintain the strengths, overcome the weaknesses and achieve the Mission, Vision and Objectives. It took into account the needs to show increased effectiveness and cost-effectiveness and to maintain the IHO’s status as a competent international organization.

The three Conferences of the period

The 15th IH Conference (1997)

The 15th Conference was honoured by the presence of His Serene Highness Prince Rainier III of Monaco, who opened the Conference in the afternoon of the 14 April after having inaugurated and visited the new premises of the IHB in the morning, in the presence of the heads of delegations of the IHO Member States; and by the presence of HSH Prince Albert who opened the commercial exhibition on 21 April. The exhibition was also held at the CCAM.
Unveiling of a plaque by H.S.H. Prince Albert during the Opening Ceremony of the Centenary Commemoration of GEBCO

4th SPGW Meeting, held in Singapore
The Conference was attended by 242 delegates from 52 Member States (IHO Membership at the time of the Conference was 63 Member States) and 56 official observers. During the Conference, 20 papers were presented. Eight hydrographic vessels from 6 IHO Member States visited the port of Monaco during the Conference.

Dr. P. EHLERS (Germany), was elected President of the 15th IH Conference and Rear Admiral A. MARATOS (Greece) was elected as the Vice-President.

During the Conference, 46 Proposals were considered by the various Committees, whose reports were then considered in Plenary sessions, resulting in 62 Decisions. In accordance with these decisions, a Strategic Planning Working Group was formed, a Hydrographic Committee for Antarctica was established, the IHO Committees, Commissions and Working Groups were reorganized, and an additional post for a Professional Assistant was approved.

The Albert 1st Medal to the best paper published in the 5-year period was awarded to Mrs Barbara BOND (UK) for her article “Strategic Considerations for International Hydrography in the 21st Century”.

The election of the Directing Committee gave the following results:

<table>
<thead>
<tr>
<th>CANDIDATES ELECTED</th>
<th>NOT ELECTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANGRISANO (Italy)</td>
<td>YUNG (Argentina)</td>
</tr>
<tr>
<td>GUY (South Africa)</td>
<td>GORZIGLIA (Chile)</td>
</tr>
<tr>
<td>LEECH (Australia)</td>
<td>MILARD (France)</td>
</tr>
<tr>
<td></td>
<td>KUMAR (India)</td>
</tr>
</tbody>
</table>

Commodore LEECH (Australia) resigned in January 2001.

The 2nd Extraordinary International Hydrographic Conference (2000)

The Second Extraordinary International Hydrographic Conference was held from 19 to 24 March 2000 at the Centre de Congrès-Auditorium de Monaco (CCAM).

This Conference was held mid-way between two ordinary International Hydrographic Conferences and this is the reason why it has an “extraordinary” character. The 1st EIHC was held in 1929 and dealt with technical issues to be resolved by the relatively young Organization before the subsequent ordinary conference. On that occasion Prince Louis II of Monaco laid the first stone of the new premises of the International Hydrographic Bureau. During this second Extraordinary Conference, those same premises (vacated by the IHB in 1996) were under demolition to make place for a new four-star hotel.

The 2nd EIHC was convened to approve the new Strategic Plan (SP) of the IHO and its associated Work Programme. Other issues of a strategic nature and importance to the IHO were also discussed.

First Admiral Mohd RASIP BIN HASSAN (Malaysia) was elected President of the Conference and Captain H. GORZIGLIA (Chile) was elected Vice-President. A total of 150 delegates and 13 official observers from 54 countries registered at the Conference which was also attended by delegates from the United Nations, the Intergovernmental Oceanographic Commission (IOC), International Maritime Academy (IMA), International Association of Lighthouse and Aids to Navigation Authorities (IALA).
The Directing Committee elected by the 15th Conference. From left to right: Cdre. GUY (South Africa), RAdm. ANGRISANO (Italy) and Cdre. LEECH (Australia)

Chart Exhibition during the 15th Conference
The Conference was opened by HSH Prince ALBERT in the morning of 20 March. In his Opening Speech, the President of the IHB Directing Committee, Rear Admiral ANGRISANO, stressed the importance of the Strategic Plan and the necessary attention that Governments and International Organizations have to give to Hydrography. He also referred to co-operation of the Government of Monaco, notably within the framework of the United Nations. In particular, he thanked Prince ALBERT for having personally contributed to publicizing Hydrography during his official state visits.

A total of 11 proposals were considered by the Conference, among which the adoption of a new IHO Strategic Plan and Work Programme. The main issues included in the Strategic Plan are:

- Transition to the digital era (provision of digital services, including production, distribution and updating).
- Global hydrographic data coverage;
- Response to external environment (i.e. to developments in Government policy, technology, distribution, etc);
- Adequate funding for provision of required services;
- Building up of effective national organizations, with appropriate numbers of skilled staff and equipment;
- Provision of services other than for navigation (e.g. for scientists, administrators and other institutions with an interest in marine issues).

Other Conference decisions included the approval of:

2. The holding of Extraordinary I.H. Conferences between two ordinary Conferences, thus increasing the periodicity of conferences to 2 ½ years.
3. The continuation of further studies on structural changes to the Organization.
4. Tasking the Strategic Planning Working Group to continue the study of some specific topics identified by the Conference.

The visit of the Russian Hydrographic Vessel “SIBIRYAKOV”, which was open to visitors during its stay in the port, contributed to the social programme, with a splendid reception on board.

The 16th International Hydrographic Conference (2002)

The 16th International Hydrographic Conference was held from 14 to 19 April 2002 at the Grimaldi Forum in Monte-Carlo. A meeting of the Finance Committee, held on 13th April preceded the business sessions which occupied the period 14-18 April and ended with the election of the new Directing Committee for the next 5 years. Two Exhibitions, one of IHO Member States charts and a Commercial Exhibition ran from 14 to 17 April.

Mr. Frode Klepsvik (Norway) was elected President of the Conference and Dr. Wynford Williams (UK) was elected Vice-President.
Opening Ceremony of the 16th Conference. Opening Speech of RAdm Angirisano

The Directing Committee elected by the 16th Conference. From left to right: RAdm. BARBOR (USA), RAdm. MARATOS (Greece) and Capt. GORZIGLIA (Chile)
The Conference was opened on Monday 15 April by H.S.H. Prince Rainier III, who also presented the Prince Albert I Medal on Hydrography to Captain Federico Bermejo (Spain/IHB) for his article “The History of the IHB” and the International Cartographic Association Prize (ICA) 2001, awarded to China. During the Opening Ceremony, the last two members having joined the Organization, Bangladesh and Mexico, presented their flags to the IHB.

After the Opening Ceremony, H.S.H. Prince Albert opened the Cartographic Exhibition and visited the Commercial Exhibition.

A total of 25 Proposals were considered by the Conference, covering a wide range of activities from administrative to technical. Among them the following should be highlighted:

- IHO Organization : Convention and Regulations
- Terms of Reference for IHO Committees and Working Groups
- IHO Conferences and Meetings
- Eligibility criteria for IHB Directors
- Geodetic and Cartographic items
- Finance matters and budget for the next period
- IHO Statement to the World Summit on Sustainable Development
- Establishment of an International Hydrographers’ Day.

There was a new Directing Committee elected as shown below:

<table>
<thead>
<tr>
<th>CANDIDATES ELECTED</th>
<th>NOT ELECTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARATOS (Greece)</td>
<td>HERDA (Algeria)</td>
</tr>
<tr>
<td>GORZIGLIA (Chile)</td>
<td>WARD (Australia)</td>
</tr>
<tr>
<td>BARBOR (USA)</td>
<td>O’CONNOR (Canada)</td>
</tr>
<tr>
<td></td>
<td>CAILLIAU (France)</td>
</tr>
<tr>
<td></td>
<td>KUMAR (India)</td>
</tr>
<tr>
<td></td>
<td>VAN AALST (Netherlands)</td>
</tr>
<tr>
<td></td>
<td>ABULU (Nigeria)</td>
</tr>
</tbody>
</table>

During the Conference, the President of the IHB Directing Committee had the pleasure to announce the membership of the 72nd IHO Member State : Slovenia. Most of these Member States were represented. There were also many observers from non-Member States and from associated international and national organizations.

The Conference considered various reports on the work carried out by the Organization during the past 5 years, in accordance with the present established Work Programmes.

The Reports highlighted the progress made in improving the various IHO Standards and the significant role of hydrography in the provision of maritime safety information. For the first time the undertaking of hydrography and the provision of charts are requirements for Contracting Governments to the SOLAS Convention.

These reports were endorsed by the Conference and resulted in a number of decisions. Mention must also be made of the visit of three hydrographic vessels from India, USA and Italy.

One of the most important items of the Conference was the approval of new Terms of Reference for the already existing Strategic Planning Working Group as mentioned above.
H.S.H. Prince Albert opens the Cartographic Exhibition at the 16th Conference

Award of the Medal « Albert 1st » for Hydrography to Captain BERMEJO (Spain), During the 16th I.H. Conference
## APPENDIX 1

### LIST OF DIRECTORS AND PERSONNEL OF THE IHB 1921 - 2003

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>DIRECTORS</th>
<th>COUNTRY</th>
<th>YEARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1921</td>
<td>MÜLLER, S., Captain</td>
<td>Norway</td>
<td>2</td>
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<tr>
<td>1921</td>
<td>PHAFF, J.M., Rear Admiral</td>
<td>Netherlands</td>
<td>6</td>
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<tr>
<td>1921</td>
<td>PARRY, J., Vice Admiral</td>
<td>UK</td>
<td>5</td>
</tr>
<tr>
<td>1924</td>
<td>NIBLACK, A., Rear Admiral</td>
<td>USA</td>
<td>5</td>
</tr>
<tr>
<td>1927</td>
<td>de VANSSAY de BLAVOUS, P., Ing. Gén.</td>
<td>France</td>
<td>20</td>
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<tr>
<td>1927</td>
<td>TONTA, L., Captain</td>
<td>Italy</td>
<td>5</td>
</tr>
<tr>
<td>1930</td>
<td>LONG, A., Rear Admiral</td>
<td>USA</td>
<td>7</td>
</tr>
<tr>
<td>1932</td>
<td>NARES, J.D., Vice Admiral</td>
<td>UK</td>
<td>25</td>
</tr>
<tr>
<td>1937</td>
<td>CROSLER, W. S., Rear-Admiral</td>
<td>USA</td>
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<tr>
<td>1939</td>
<td>LEAHY, L., Rear Admiral</td>
<td>USA</td>
<td>8</td>
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<tr>
<td>1947</td>
<td>NICHOLS, C.L., Rear Admiral</td>
<td>USA</td>
<td>10</td>
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<tr>
<td>1952</td>
<td>VIGLIERI, A., Vice-Admiral</td>
<td>Italy</td>
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<td>1957</td>
<td>KNOX, R., Rear Admiral</td>
<td>USA</td>
<td>5</td>
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<tr>
<td>1962</td>
<td>DAMIANI, L., Ing. Général</td>
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<tr>
<td>1962</td>
<td>PIERCE, C., Rear Admiral</td>
<td>USA</td>
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<tr>
<td>1962</td>
<td>dos SANTOS FRANCO, A., Vice-Admiral</td>
<td>Brazil</td>
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<tr>
<td>1967</td>
<td>TEGNER, I., Captain</td>
<td>Denmark</td>
<td>5</td>
</tr>
<tr>
<td>1967</td>
<td>MOITORET, V., Captain</td>
<td>USA</td>
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<tr>
<td>1967</td>
<td>CHATEL, G., Ing. Général</td>
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<tr>
<td>1972</td>
<td>KAPOOR, D., Commodore</td>
<td>India</td>
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<tr>
<td>1972</td>
<td>TISON, J.C., Rear Admiral</td>
<td>USA</td>
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<tr>
<td>1972</td>
<td>RITCHIE, G.S., Rear Admiral</td>
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<td></td>
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<tr>
<td>1977</td>
<td>AYRES, J., Captain</td>
<td>USA</td>
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<tr>
<td>1982</td>
<td>FRASER, F., Rear Admiral</td>
<td>India</td>
<td>5</td>
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<tr>
<td>1982</td>
<td>AFFONSO, O. A., Vice Admiral</td>
<td>Brazil</td>
<td>5</td>
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<tr>
<td>Period</td>
<td></td>
<td>Directors</td>
<td>Country</td>
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<tr>
<td>--------</td>
<td>----------------</td>
<td>------------</td>
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<tr>
<td>1987</td>
<td>1992</td>
<td>CIVETTA A., Rear Admiral</td>
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<tr>
<td>1987</td>
<td>1992</td>
<td>HASLAM, D., Rear Admiral</td>
<td>UK</td>
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<tr>
<td>1987</td>
<td>1997</td>
<td>KERR, A.J.</td>
<td>Canada</td>
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<tr>
<td>1992</td>
<td>1997</td>
<td>ANDREASEN, C., Rear Admiral</td>
<td>USA</td>
</tr>
<tr>
<td>1992</td>
<td>2002</td>
<td>ANGRISANO, G., Rear Admiral</td>
<td>Italy</td>
</tr>
<tr>
<td>2002</td>
<td>--</td>
<td>MARATOS, A., Vice Admiral</td>
<td>Greece</td>
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<tr>
<td>2002</td>
<td>--</td>
<td>GORIZGLIA, H., Captain</td>
<td>Chile</td>
</tr>
<tr>
<td>2002</td>
<td>--</td>
<td>BARBOR, K. Rear Admiral</td>
<td>USA</td>
</tr>
<tr>
<td>PERIOD</td>
<td>HYDROGRAPHIC STAFF</td>
<td>COUNTRY</td>
<td>YEARS</td>
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<tr>
<td>--------</td>
<td>-------------------</td>
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<td>1923</td>
<td>ALBERT, G., Lieutenant</td>
<td>France</td>
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<td>1925</td>
<td>DENISON, C.C., Commander</td>
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<tr>
<td>1928</td>
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<td>UK</td>
<td>&lt; 1</td>
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<tr>
<td>1929</td>
<td>BOWLES, J.G., Commander</td>
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<td>&lt; 1</td>
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<tr>
<td>1932</td>
<td>GERARD, W.G., Lt. Commander</td>
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<td>1948</td>
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<td>1960</td>
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<td>WORM-LEONHARD, H., Captain</td>
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<td>1971</td>
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<td>1973</td>
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<td>1979</td>
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<td>1987</td>
<td>TORRES, E., Lt. Commander</td>
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<td>1989</td>
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<td>PERIOD</td>
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<td>France</td>
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APPENDIX 2

LIST OF ALL THE PUBLICATIONS PUBLISHED BY THE IHB

(* means in force)

PERIODICAL PUBLICATIONS

1. International Hydrographic Review
2. Index to the International Hydrographic Review
3. International Hydrographic Bulletin
4. (*) Catalogue of IHO Publications
5. (*) IHO Yearbook
6. (*) Reports of Proceedings of International Hydrographic Conferences
7. (*) IHO Annual Report

MISCELLANEOUS PUBLICATIONS

The IHO and its activities
1. (*) Basic Documents of the International Hydrographic Organization
2. (*) National Maritime Policies and Hydrographic Services
3. (*) Resolutions of the IHO
4. (*) Chart Specifications of the IHO and Regulations of the IHO for International (INT) Charts
5. (*) Standards of Competence for Hydrographic Surveyors
6. (*) Reference Texts and Journals for Training in Hydrography
7. (*) Staff Regulations of the IHB
8. Catalogue of International (INT) Charts at small scale
9. (*) Catalogue of International (INT) Charts and Guidance for Regional coordinators of INT Chart Schemes
10. (*) List of Lights
11. (*) The liability in delict of the state of hydrographer

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
52- (*) Specifications for Chart Content and Display Aspects of ECDIS
(*) Appendix 1 Guidance on Updating the ENC
(*) Appendix 2 Colour & Symbols Specifications for ECDIS
(*) Appendix 3 Glossary of ECDIS - related Terms
53- (*) World-Wide Navigational Warnings Service - Guidance Document
54- (*) Status of Hydrographic Surveying and Nautical Charting Worldwide
55- (*) IHO Transfer Standard for Digital Hydrographic Data
56- (*) Status of Hydrographic Surveying and Nautical Charting in Antarctica
57- (*) User’s Handbook on Datum Transformations involving WGS-84
59- (*) User Agency Codes for S-57
60- (*) IHO Data Protection Scheme
61- (*) IHO Test Data Sets for ECDIS
62- (*) IHO Test Data Sets for ECDIS

BATHYMETRIC PUBLICATIONS

1. (*) General Bathymetric Chart of the Oceans (GEBCO), Fifth Edition
2. Catalogue of IHO Bathymetric Plotting Sheets
3. Annex to Catalogue of IHO Bathymetric Plotting Sheets
4. (*) Information Concerning Recent Bathymetric Data
5. Chart Indicating the Adequacy of Available Bathymetry for Determining Seafloor Topography
6. (*) Standardization of Undersea Feature Names (Guidelines, Proposal Form, Terminology)
7. (*) GEBCO Guidelines
8. (*) Gazetteer of Geographical Names of Undersea Features

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## APPENDIX 3

### IHO MEMBERSHIP (In September 2003)

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<tr>
<td>Poland</td>
<td>26.VII.26 onwards</td>
</tr>
<tr>
<td>* Portugal</td>
<td>Continuous</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>1.I.57 onwards</td>
</tr>
<tr>
<td>Republic of South Africa</td>
<td>24.VIII.51 onwards</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>18.II.77 onwards</td>
</tr>
<tr>
<td>Serbia &amp; Montenegro (before Yugoslavia)</td>
<td>6.XI.50 onwards</td>
</tr>
<tr>
<td>Singapore</td>
<td>5.VII.72 onwards</td>
</tr>
<tr>
<td>Slovenia</td>
<td>15.IV.02 onwards</td>
</tr>
<tr>
<td>* Spain</td>
<td>Continuous</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>11.VII.83 onwards</td>
</tr>
<tr>
<td>Suriname</td>
<td>21.XI.85 onwards</td>
</tr>
<tr>
<td>* Sweden</td>
<td>Continuous</td>
</tr>
<tr>
<td>Syrian Arab Republic</td>
<td>16.IX.75 onwards</td>
</tr>
<tr>
<td>* Thailand</td>
<td>Continuous</td>
</tr>
<tr>
<td>Tonga</td>
<td>24.I.95 onwards</td>
</tr>
<tr>
<td>Trinidad and Tobago</td>
<td>1.V.80 onwards</td>
</tr>
<tr>
<td>Tunisia</td>
<td>31.VII.97 onwards</td>
</tr>
<tr>
<td>Turkey</td>
<td>2.III.50 onwards</td>
</tr>
<tr>
<td>Ukraine</td>
<td>20.V.98 onwards</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>2.III.92 onwards</td>
</tr>
<tr>
<td>* United Kingdom</td>
<td>Continuous</td>
</tr>
<tr>
<td>United States of America</td>
<td>20.VI.22 onwards</td>
</tr>
<tr>
<td>Uruguay</td>
<td>11.II.36-1.I.64 + 22.IX.81 onwards</td>
</tr>
<tr>
<td>Venezuela</td>
<td>1.I.61 onwards</td>
</tr>
</tbody>
</table>

(*) Original Members at creation of the IHB in June 1921.

(**) At the creation of the IHB, Australia was included with the United Kingdom under the title "British Empire"; New Zealand was similarly included from 1947.
APPENDIX 4

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. CROSLEY, USN (U.S.A.)

1st Supplementary I.H. Conference - 1929
Pres: Rear Admiral W.S. CROSLEY, 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
Vice-Pres: Ingénieur hydrographe général D. COT (France)

5th I.H. Conference -- 1947
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. KIÆR (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
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)

15th I.H. Conference - 1997
Pres: Dr. P. EHLERS (Germany)
Vice-Pres: Rear Admiral A. MARATOS (Greece)

2nd Extraordinary I.H. Conference - 2000
Pres: Rear Admiral M. Bin RASIP (Malaysia)
Vice-Pres: Captain H. GORZIGLIA (Chile)

16th I.H. Conference - 2002
Pres: Mr. F. KLEPSVIK (Norway)
Vice-Pres: Dr. W. WILLIAMS (UK)
APPENDIX 5

PRINCE ALBERT I AND COMMODORE COOPER AWARDS

WINNERS OF MEDALS

ALBERT I

1992  The Technology Of Interactive Compilation (Timothy EVANGELATOS, Canada).

1997  Strategic Considerations for International Hydrography in the 21st Century (Barbara BOND, UK).

2002  The History of the IHB (Federico BERMEJO, Spain, IHB).

COMMODORE COOPER


1989  The Technology of Interactive Compilation (T. EVANGELATOS).


1991  Assessing the Precision of Depth data (M. JOSEPH).


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).


1999  “Automatic detection of Punctual Errors in Multibeam Data Using a Robust Estimator” by N. DEBESE and H. BISQUAY.

2000  “The Modern Management of an Hydrographic Service” by Captain Hugo GORZIGLIA (Chile).

2001  Discontinued.
APPENDIX 6

OFFICIAL PHOTOGRAPHS OF THE 18 INTERNATIONAL HYDROGRAPHIC CONFERENCES
(1919 – 2002)
2\textsuperscript{nd} International Hydrographic Conference
Monaco, 1926
5th International Hydrographic Conference
Monaco, 1947
8th International Hydrographic Conference
Monaco, 1962
9th International Hydrographic Conference
Monaco, 1967
10th International Hydrographic Conference
Monaco, 1972
11th International Hydrographic Conference
Monaco, 1977
14th International Hydrographic Conference
Monaco, 1992
2nd Extraordinary International Hydrographic Conference
Monaco, 2000