# THE INTERNATIONAL HYDROGRAPHIC BUREAU : 50 YEARS OF PROGRESS

by Captain Victor A. MOITORET, U.S. Navy (Ret.)
Directing Committee, I.H.B.

## I. — PROLOGUE

The year is 1900, and a new century is about to begin. In 1900 :

— *In Norway* a 51-year old naval officer, Samuel Harris MÜLLER, was promoted to the rank of Captain, continuing in his duties as Chief of the Hydrographic Section of the Norwegian Survey Office.

— *In The Hague* a 43-year old Dutch naval officer named Johan Marie PHAFF completed his first full year as Assistant to the Chief of the Hydrographic Service.

— *In Chinese waters* Lieutenant Commander Albert Parker NIBLACK of the U.S. Navy, 41-years old and already twice the winner of the U.S. Naval Institute's annual prize essay contest, was seeing considerable excitement while serving during the Boxer campaign. In those same waters the cruiser USS *Vicksburg* was participating in the actions waged by the allied foreign powers against the Boxer uprising in northeast China, and serving aboard this ship was a 34-year old Lieutenant named Andrew Theodore LONG.

— *On the Australian station,* completing his first year in the rank of Commander, R.N., 37-year old John Franklin PARRY was in command of H.M.S. *Dart* doing important hydrographic surveys. This was his sixteenth year in H.M. Surveying Service, and he was now packing up to leave this command after five years aboard to return to England to become Chief Civil Assistant to the Hydrographer. Aboard another of Queen Victoria's survey ships in these same Australian waters, H.M.S. *Penguin,* a young Sub-Lieutenant named John D. NARES was enthusiastically learning what hydrography was by doing it all day, now in his second year in the surveying branch of the Royal Navy.

— *On the south coast of France,* one of the younger members of the elite "Corps des ingénieurs hydrographes" of the French Navy, completing his ninth year in this service, reflected on the long, hard, but satisfying work he had just helped to complete in accomplishing hydrographic surveys of the approaches to Nice, Villefranche, Beaulieu, Monaco, and

Menton. His name was Pierre de VANSSAY DE BLAVOUS, and he was just 31 years old.

— *In the Philippines,* the native Insurrection was being fought by United States military forces who had administered the islands since the Spanish defeat two years earlier. One of the naval officers involved in the fighting there was 29-year old Lieutenant (junior grade) Walter Selwyn CROSLEY.

— *At sea,* somewhere in the far-flung reaches of the British Empire of 1900, Lieutenant Geoffrey Basil SPICER-SIMSON, R.N., was doing hydrographic surveying, monotonously but thoroughly, as was his habit.

— *In Italy,* 26-year old Luigi TONTA from Torino, after two years of surveying on the coasts of his country in the *Scilla,* was promoted to the rank of Lieutenant. In the Italian household of the Viglieri family there was great joy on 2 July, for a healthy strong baby boy was born and was given the name Alfredo VIGLIERI.

— *In Annapolis, Maryland,* Midshipman Lamar R. LEAHY, 20 years old and from Buffalo, New York, completed the difficult first year of the disciplined life at the U.S. Naval Academy and went on his first summer training cruise.

— *In the U.S.A.* an eight-year old boy, Chester L. NICHOLS, got his knuckles down on the ground to shoot marbles, spun tops, and flew a kite. Too young yet to practice any of these boyhood occupations, a little boy named Robert W. KNOX had three candles on his birthday cake in October. And among the thousands of new babies born throughout the land in 1900, we can note the arrival of Charles PIERCE on 21 August.

— *In Bastia,* on the Mediterranean island of Corsica, a baby boy reached his first anniversary. Tiny Léon DAMIANI may have heard the word "mer" (for sea) but probably only considered it to be someone talking about his "mère" (mother).

Among these sixteen particular individuals, about half were already busily engaged in hydrographic work, but others had not yet ever heard the world "hydrography" spoken. Yet all sixteen were to spend important years of their lives in Monaco at the International Hydrographic Bureau...

## II. — THE PROCESS OF CREATION

One name is missing in the Prologue above. One man, who might be the closest to being called the "father" of the International Hydrographic Bureau, never was to come to Monaco to be an official part of it. Yet every navigator consulting a chart at sea today in any part of the world oceans, any marine cartographer constructing a chart in any of the world's hydrographic offices owes a very tremendous debt to the keen intelligence and the persistence of one Frenchman who saw perhaps sooner than others the real benefits to be derived from an international organization and kept up untiringly his efforts to see it brought into existence. This hydrographer

who is such an important part of the history of the IHB was Ingénieur Hydrographe M.J.A. RENAUD.

Monsieur RENAUD was familar with the resolution that had been passed at the International Congress of Navigation held at St. Petersburg (now Leningrad), 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 endeavor: bullets and shells would begin to fly internationally in 1914.

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, then, the French and British Hydrographers were ready, and in April 1919 the British Hydrographer submitted his official proposal to the Lords Commissioners of the Admiralty to hold the world's first International Hydrographic Conference in London. Formal invitations were soon on the way to the Foreign and Colonial Offices of all countries who appeared likely to be interested in the matter (*), accompanied by a list of subjects for discussion and a statement of the objects of the conference, with the date fixed for 24 June.

Twenty-four States participated in this first conference (plus Uruguay, whose representative could not arrive until the conference had adjourned, but who nevertheless brought assurance of the support of his own government). Complete details of this first conference can be read in the volume of the "Report of Proceedings" published by H.M.S.O. in 1920. Quite appropriately, after the First Sea Lord of the British Admiralty, Admiral Sir Rosslyn E. WEMYSS, had welcomed the delegates, he called upon the French Hydrographer, Monsieur RENAUD, to preside and to proceed to the election of a President. The delegates then chose Rear Admiral Sir John F. PARRY as President and named Monsieur RENAUD himself as Vice-President.

This first conference had a tremendous amount of work to do, and a matching enthusiasm for getting it done. Working in six committees, they discussed Charts; Sailing Directions; Lists of Lights; Notices to

(*) The only exceptions were the Central Powers (Germany and Austria); Russia, and Turkey, with whom diplomatic relations had not yet been resumed.

Mariners; Time Signals, Distance Tables, and other miscellaneous hydrographic publications; and Tide Tables. Other general subjects were left for the plenary sessions, including the most important tenth topic of "Establishment of an International Bureau", but also brief discussions of surveying instruments, time measuring instruments, and procedures for exchanging publications. The ten full Assemblies (or plenary sessions) and the sixteen committee meetings filled most of the time from 24 June through 16 July. Yet such was the importance of this conference that King George V, who often wore a naval uniform himself, received the delegates at Buckingham Palace. Opportunity was also taken by the delegates to profit from the arrangements made by their British hosts for visits to the Royal Naval College, Royal Observatory, Royal Dockyard and the surveying ship, H.M.S. *Kellett*, the Admiralty Compass Department, the Ordnance Survey, the Port of London Authority, the University of Oxford, and Trinity House (the lighthouse authority of Great Britain).

The all-important "Proposal No. X" was put forward by the French delegation, but Admiral PARRY has given full credit to Monsieur RENAUD himself as the real individual instigator of the idea (*). It was immediately and unanimously agreed at the Conference that *some* form of an International Hydrographic Bureau should be established; but it was obvious that the many details would require a longer period of work to develop than was available during the conference itself. Accordingly a special International Hydrographic Conference Committee (IHCC), composed of three members from among those present in London, was appointed and charged with taking all the necessary steps to attain the desired goal of creating an IHB. The three committee members chosen were RENAUD of France, PARRY of Great Britain, and Captain Edward SIMPSON, Jr., Hydrographer of the U.S.A. To give the committee a working base, the conference adopted a resolution stating that the "Preface and General Functions" of the recommendations which had been submitted by Admiral PARRY would be used, but all questions relating to personnel, finance, and administration were left to the competent hands of the committee to settle.

This IHCC had its work facilitated in several ways : one, by the fact that on 1 September of 1919 Rear Admiral PARRY retired from his post as Hydrographer of the Royal Navy, but was appointed by the British Admiralty to work full-time on the IHCC; two, by the fact that Commander G.B. SPICER-SIMSON, in the rank of Acting Captain, had been the Official Interpreter at the London Conference, and the Admiralty, after he had completed a commendable task of publishing the report of the conference, appointed him as Secretary to the IHCC; and finally, the provision by the Admiralty of both office space and clerical and material support for the work of the IHCC.

Monsieur RENAUD left his post as Hydrographer in September 1919 as well, and in December Captain SIMPSON, promoted to Rear Admiral, left his post as the U.S. Navy Hydrographer also. As 1920 started there were certainly difficulties in the road for the functioning of the IHCC. RENAUD had been called away for an important task determining harbor require-

(*) See *Hydrographic Review*, Vol. I, No. 1, March 1923, p. 13.

ments in Syria, now under French control; PARRY had a similar type duty thrust upon him for selection of a deep-water harbor in the Gold Coast, West Africa; and SIMPSON had gone to sea with the U.S. Atlantic Fleet in his flagship USS *Columbia* ! Monsieur ROLLET DE L'ISLE, the new French Hydrographer, substituted for RENAUD in his absence; Captain DOUGLAS, the British Assistant Hydrographer, stepped in temporarily for PARRY; and in October 1920, Rear Admiral Albert P. NIBLACK, the U.S. Naval Attaché in London, was named to replace SIMPSON, much facilitating meetings on the scene in London. In early 1921 NIBLACK was promoted to Vice Admiral and appointed in command of the U.S. Fleet in European waters, but he maintained his position on the IHCC.

The IHCC prepared and circulated to the prospective member States monthly progress reports on their work, and by 17 July 1920 the first draft Statutes were issued for consideration, incorporating a proposed set of provisional arrangements as well which would permit the organization to commence operations.

Much discussion by correspondence ensued, but by April 1921 the final approval from those States which appeared most likely to join the IHB at its initiation had been obtained. Only Italy and the U.S.A. found it impossible to give a positive reply, the former because of a technical difficulty with the anticipated relationships with the League of Nations, the latter because there appeared to be lacking a formal signed agreement, although there were solid implications that the U.S.A. would eventually be able to join.

It remained, then, to carry out an election in order to give the IHB the proposed three Directors and a Secretary-General (the election involved choosing three candidates for the latter post, with the choice among them to be made by the Directors). Instructions for the mail ballot went out on 16 May 1921 and 20 June was fixed as the deadline for receipt of votes. The five candidates for Director were :

Monsieur F. URBAIN (Belgium)
Monsieur J. RENAUD (France)
Vice Admiral Sir John PARRY (Great Britain)
Captain J.M. PHAFF (Netherlands)
Captain S. MÜLLER (Norway).

But on the day after the election instructions were mailed, the IHCC received a letter from the French Hydrographer reporting that Monsieur RENAUD, the "father of the IHB", had died on 13 May. The French were immediately asked to suggest a substitute candidate, but delays ensued and the election could not be held up further in the views of the IHCC.

Thus it was that when Admiral PARRY arrived in Monaco on 5 July, to meet there with Captain PHAFF and the prospective Secretary-General, Commander SPICER-SIMSON, to await the early arrival of Captain MÜLLER from Norway, the one man who had originated the idea was not there to see his tree bear fruit. Of Monsieur RENAUD, Admiral PARRY was to write :

"By the death of Monsieur RENAUD the science of hydrography has undoubtedly lost one of its most brilliant exponents; his scientific attainments were of the highest order, his knowledge in many subjects allied to

hydrography was extraordinarily varied and extensive, and he had justly earned the reputation of being a hydrographer of world-wide renown: his loss to the IHB itself is irreparable, and his death on the very eve of the realisation of all his hopes in its establishment was specially tragic." (*)

## III. — THE BEGINNING

The process which was determined to create the IHB was the formal election procedure, held in the IHCC offices at 21 Carlton House Terrace, London, on 21 June 1921. Present were two of the members of the IHCC, Vice Admiral PARRY and Vice Admiral NIBLACK, the Secretary of the IHCC, Commander SPICER-SIMSON, and representatives of Belgium, Brazil, Great Britain, Chile, France, Japan, Norway, Peru, Spain, and Sweden. After the secret ballots were counted, the results were announced: Admiral PARRY, Captain PHAFF, and Captain MÜLLER were declared elected as the three Directors, and they would select as soon as possible the Secretary-General. It was then declared that the International Hydrographic Bureau was formally established and the IHCC dissolved. The first IHB official letter, dated 25 June 1921, disseminated this information to the "Associated States" as they were referred to at the time.

A headquarters site for the Bureau had already been decided upon: the kind and generous invitation of H.S.H. Prince Albert of Monaco to make the seat of the Bureau in his Principality had been accepted, and this location had been specified in the draft Statutes sent out the previous July.

It remained, then, to move to Monaco and "set up shop". One can well imagine, though, the multitude of tasks facing the elected Directors to put a new international organization into being and make its headquarters function. Possibly because they recognized that some of the member hydrographic offices had felt the two year delay following the 1919 decision to establish such an organization was too long, but more probably because they themselves were anxious at last to roll up their sleeves and get down to the real work before them, they lost little time.

Admiral PARRY arrived in Monaco on 5 July with Commander SPICER-SIMSON; Captain PHAFF was there already. So on 6 July the first official meeting of the Directing Committee took place in a temporary office established in the Hotel de la Paix, with minutes properly kept, typed in bi-lingual versions, and signed, though the two Directors took the precaution not to take any major decisions until the third member, Captain MÜLLER, could arrive from Norway. On the first day of business in Monaco, though, much was actually accomplished: decision to arrange for a three-year lease on a building in the Rue du Port; approval of draft reply to a letter from the Secretary-General of the League of Nations; decision to

(*) *Hydrographic Review*, Vol. I, No. 1, March 1923, p. 19.

open the first bank account with the Credit Lyonnais, transferring some funds already on hand with the IHCC; decision to start salaries as of 21 June; choice of an official telegraphic address : BURHYDINT; *that* has remained unchanged for the full 50 years ! Official designation of a President and confirmation of selection of the Secretary-General were deferred.

The second officially recorded meeting took place the very next day, and two more the following week, then on 25 July at the 5th meeting, with Captain MÜLLER on hand for the first time, it was confirmed that Admiral PARRY was to be President of the Committee.

During those first six months the pace continued; a total of 31 meetings were held and a host of minor and major internal and local administrative problems were discussed and settled. Meanwhile, though, work went ahead in the main arena — carrying forward the technical work begun at the 1919 Conference. There remained, too, many questions on the revision of the original draft Statutes to consider in discussion with representatives of member governments by correspondence. There was a need to establish a library and start to fill its shelves, but first shelves had to be ordered. There was a need to let other international organizations know that this new one had been born in their midst, to establish contact with them, to find out which of them would require a degree of cooperation or collaboration where subjects fell partly in their areas of interest. There were problem areas with the French customs service (which controlled entry of all shipments into Monaco as well); as, for example when Admiral PARRY learned that he would have need in Monaco, after all, of a dress uniform for certain ceremonial occasions, so he ordered one from London, but found it held up in the French customs because it did not qualify as "scientific documents" of course. Again, as early as December 1921 a shipment of charts to the Bureau from the Netherlands was held up for the payment of customs fees. The Bureau decided to pay the fees under written protest, and eventually, working through the good offices of the French Hydrographer to the Ministry of Finance, obtained a ruling to permit the recovery of customs fees paid on charts, nautical publications, and instruments, when these were shipped to the Bureau from member nations' offices.

One key piece of business to be handled was to clarify the relationships between the IHB and the League of Nations, a point which had caused some doubts and much discussion among delegates at the 1919 conference. The first step was taken at the very first Directing Committee meeting on 5 July 1921, as noted above, in sending a letter to the Secretary-General of the League in Geneva. The first year's Annual Report gives three full pages to a detailed account of the succeeding steps. The key point was that the Council of the League on 5 October 1921 unanimously adopted a resolution stating that :

"Whereas the Secretariat has received detailed information on the final constitution of the International Hydrographic Bureau, its public character and its international utility, the Council decides that this Bureau shall be placed under the direction of the League, in conformity with Article 24 of the Covenant."

A visit to Geneva on the part of Admiral PARRY had removed the last doubts about the extent of this "direction" and it developed that Italy's fears were overcome and she could participate in the IHB. In fact, it shortly proved to the advantage of the IHB to enjoy the close linkage with this supreme international organization of those days. This was brought out in two detailed explanatory articles on the relationship written by Admiral NIBLACK after he became first a Director and later President of the Directing Committee which appeared in the *Hydrographic Review* (*). It is of interest to note that the IHB was the *first* international bureau established subsequent to the founding of the League of Nations to be given this official status of affiliation.

## IV. — DIRECTION OF THE BUREAU

From its inception, the IHB has been administered by a Directing Committee, made up of three elected members each of whom must be of a different nationality, with general qualifications of "considerable sea experience" and "great knowledge of practical hydrography and navigation". The presence of three different nationalities has ensured a healthy mixture of experience and opinion; it has quite naturally led to occasional frictions as well.

Until 1962 there had been no limit on the number of times a Director could be re-elected; since that time only two five-year terms are permitted, and the second only if the Director will not reach the age of 70 during his mandate. Thus the record for longevity in office is undisputedly held for all time by Vice Admiral John D. Nares, D.S.O., of the United Kingdom, who served three terms of five years and one of ten for a total of 24½ years, dying in office just before completing his final term. At the other end of the spectrum was Rear Admiral Lamar LEAHY, U.S. Navy (Retired), who is shown on the roster for an eight-year period but who, because of World War II, only spent two brief periods in Monaco in the Bureau, just before and just after the war for an overall total of less than six months (**).

The spread of nationalities among the Directors during the first 50 years of the Bureau is shown in the following tabulation :

(*) *Hydrographic Review*, Vol. III, No. 2, July 1926, pp. 2-31; and *ibid*, Vol. VI, No. 1, May 1929, pp. 53-58.

(**) Admiral Leahy, however, rendered most valuable assistance to the Bureau during the war years while in the U.S.A. in receiving and handling funds sent to that country for deposit and in corresponding with countries who were cut off from communication with Monaco.

| | *Country* | *No. of Directors* | *Total Years of Service* |
|---|---|---|---|
| | United States of America | 8 | 44½ |
| | France | 3 | 30 |
| | United Kingdom | 2 | 29½ |
| | Italy | 2 | 20 |
| | Netherlands | 1 | 6 |
| | Brazil | 1 | 5 |
| | Denmark | 1 | 5 |
| | Norway | 1 | 2½ |
| Totals | 8 Countries | 19 Directors | 142½ Years of Service |

(It must be recognized that there were gaps following the death of a director in office, and during the 1947-52 period when, by Conference decision, only two Directors were elected, the third position being left vacant for five years as an economy measure; hence the total falls short of 150 years.)

A complete listing of all former Directing Committees is now published as one of the appendices of the *IHO Yearbook*.

From the origin, the Bureau had also had a Secretary-General. Commander SPICER-SIMSON, R.N. (Ret.), an accomplished hydrographer and linguist had initially held the post, as already mentioned, and he continued until 1937. When he left, however, the Directors felt the work could be distributed among the Directors and the two Technical Assistants, and proposed to the 4th I.H. Conference that the post be suppressed. Lacking enough votes present to modify the Statutes officially, however, that 1937 Conference chose to leave the post vacant, and it stayed unoccupied for ten years. The 6th Conference in 1947 elevated Captain H.L.G. BENCKER, who had for all the war years devotedly continued as senior Technical Assistant, to the post. Recognizing, though, that both cases were of a special nature involving particularly well-qualified individuals, the Directors suggested in 1955 (C.L. 24) that the post be suppressed or left vacant until a new Directing Committee could make new recommendations based on a further study. The 1957 Conference chose to leave the post vacant, the new Directing Committee executed the action for suppression by circular letter in 1960 (C.L. 8) and the final step of amending the Statutes accordingly followed routinely at the 1962 Conference.

## V. — LOCATION OF THE BUREAU

Visitors to the IHB still frequently ask, "But why are you in Monaco?" As mentioned previously, Prince Albert, in the process of creating a general oceanographic center through many of his related endeavors, had suggested Monaco as a possible seat for the Bureau. The French delegation at the 1919 Conference had proposed that the Bureau should be located in London, close to the most important (at that time) hydrographic office, with easy access to all of its information and resources, but a logical counter-argument that an *international* bureau, to retain complete freedom of action, should *not* be too close to or dependent upon any one nation's hydrographic office prevailed. Study of the question by the IHCC convinced them that Monaco not only offered a neutral hydrographic environment, but also qualified in that it had all the necessary accommodations for the Conferences, both for hotels and meeting places; that it was centrally located for the majority of the nations then members and convenient to the League of Nations headquarters in Geneva; and that it was on the sea.

Officially, of course, the IHB was first located in London from 21 June to 4 July 1921 (see Part III above). Then from 5 July 1921 the temporary office in the Hotel de la Paix in Monaco was used, this lasting until 12 September of the same year when enough remodelling had been accomplished on the second floor of the former hotel at 3 Rue du Port for those leased quarters to be occupied.

At the Second International Hydrographic Conference in November 1926, the Spanish government made a most generous offer, suggesting that the Bureau be re-located to Malaga, Spain, where a new building was to be built for the Institute of Oceanography and Marine Biology. This building would be modified to suit the Bureau's needs and provided without charge, no taxes or customs duty would apply to the Bureau or its personnel, and the Spanish later added the offer of free transport of the Bureau and its personnel from Monaco to Malaga. The IHB was directed to undertake a detailed study of the advantages and disadvantages of both Monaco and Malaga as sites. While this study was underway, on 17 September 1927, the government of Monaco proposed to the Directing Committee that it would erect a new building for the gratuitous use of the IHB, on the harbor, subject only to the condition that the Bureau remain in Monaco. A very comprehensive report on the entire question, including on-the-spot observations made by the Secretary-General during a week's visit to Malaga, discussions of printing costs, effects of relocation, etc., was sent out to all Member States (*) with a secret ballot. The result was a decision to remain in Monaco.

The new building was started on 20 April 1929, at a ceremony expressly scheduled during the First Supplementary Hydrographic Conference when

(*) " Report with reference to the seat of the Bureau ", March 1928, distributed with IHB Circular Letter No. 1-R, 1928.

the Foundation Stone was laid, and it was first occupied on 18 December 1930 (*). This building, on what was then known as the Quai de Plaisance, subsequently renamed the Quai des Etats-Unis, still houses the Bureau today, but the street alongside the Quai was given a separate name, so the Bureau's address became : 7, Avenue Président J.F. Kennedy.

In August and September of 1939 the Bureau was temporarily re-located to Sète on the Mediterranean coast of France near Montpellier as an emergency wartime measure, but returned to Monaco in September. In March 1944 the building was ordered to be evacuated by the German military authorities and the Bureau was re-located up the hill to the Princes Hotel, returning only after all bomb damage had been repaired on 7 August 1945.

## VI. — THE IHB SURVIVES A WAR

When the two Directors, NARES and DE VANSSAY, met for their IHB Directing Committee meeting on 2 May 1939 they had cause to be a bit worried about the dark war clouds over Europe. They decided to correspond further with the Minister of State of Monaco on the possibility of removing the seat of the Bureau in case of emergency and of other security measures that might be required by the government. On 2 August the three Directors (Rear Admiral Lamar LEAHY had joined them) took a further step and directed the purchase of gas masks for Bureau personnel, and on 22 August reached a decision to transfer six gold bars from a London bank vault to a safe in Lloyds Bank in Monte-Carlo and at the same time to initiate the packing of six boxes of irreplaceable records and archives for removal to storage and safekeeping in France in the event of emergency.

War moved closer at a quickening tempo, and on 27 August the meeting of the Directing Committee took place aboard the USS *Badger*, a destroyer of the American Task Force 40-T which was providing transport for the Bureau's personnel and equipment from Monaco to Sète, some 377 km further west along the coast (Monte-Carlo is only 8 miles from the Italian frontier.). Only one employee was left behind to answer the telephone and forward the mail. On 29 August the Directors sent Captain BENCKER, the senior Technical Assistant, to Vichy to discuss premises to be held there for the Bureau in case of transfer in the event of hostilities, and the next day Admiral LEAHY departed for the U.S.A., to be placed on leave without pay commencing 1 October.

When, in September, it seemed that Monaco remained secure enough, the Bureau's offices were shifted back there, but some archives were left in storage in Sète (which were not returned to Monaco until 1940). In mid-September a decision was taken that the Bureau would pay to any

(*) For a detailed account of the cornerstone laying, construction and dedication of the building by Prince Louis II, see the *Hydrographic Review*, Vol. VIII, No. 1, May 1931, pp. 7-13.

staff member called up for military service by his country the difference between his IHB salary and his military pay for at least three months.

But in spite of events elsewhere as Hitler's *Wehrmacht* swept into Poland, and Britain and France declared war, the routine work of the Bureau continued. In June of 1940 Vice Admiral NARES left for London to go to active service in the British Admiralty Hydrographic Department, drawing no further salary as President of the Directing Committee after 15 August. All employees were given six months' advance notice of termination of their appointments, though the Bureau told them it hoped to be able to continue functioning.

In 1941 only a single Director, Ingénieur Hydrographe Général Pierre de VANSSAY DE BLAVOUS remained to administer the Bureau, working hours were reduced, staff salaries were cut, and all staff except the concierge placed on a temporary hire basis, renewable monthly. Norway, Japan, Ecuador, and Chile dropped their membership. (Italy and Germany had already dropped out at the end of 1933 when they left the League of Nations.) Not only, then, did IHB membership reach the lowest point it had ever fallen to, with only 16 members, but many of them could not transmit funds.

Thus 1942 brought even further economy measures. De VANSSAY put himself on one-quarter pay, the two assistants worked only alternate days, and the five technical and clerical personnel, and the concierge, worked only one day in three. The *Hydrographic Review* appeared only once a year in reduced volumes, while the *Bulletin*, already only bi-monthly, had to be mimeographed and eventually produced only as carbon copies on a typewriter. But the Bureau carried on continuously.

The year 1943 brought the only war casualty to the staff. The 1942 Annual Report produced early in 1943 merely records that one of the technical assistants "died suddenly on 13 January 1943". In view of the occupation of Monaco by Italian forces, that is quite probably all it could say. What had happened was that one of the two Technical Assistants at the Bureau was Commander Weyman P. BEEHLER, U.S. Navy (Retired). Beehler had retired from the U.S. Navy in 1925. He was first hired by the IHB on 1 January 1929 as a temporary assistant to augment the staff until after the 1929 Conference, but he was subsequently transferred to the permanent staff, effective 1 October. He remained until 1 September 1931 when, his health failing, his appointment was terminated and he was given an indemnity in lieu of sick leave. He effected a recovery, however, and when a Technical Assistant was again needed to fill a vacancy at the end of 1935, Beehler was chosen from among the candidates, beginning work again on 17 February 1936. Thus he had some eight and a half years of Bureau employment behind him when, two days after Christmas in 1943 Commander Beehler was arrested at his home by the Italian military occupation authorities and emprisoned in a barracks in a military camp at Sospel, a town just over the first mountain range from the coast. There he died just 17 days later on 13 January. He was 55 years old. The Bureau was never informed of the reason for his arrest, and Director de Vanssay addressed a letter to the local Italian commander asking for Beehler's release, pointing out that his presence was important

to the Bureau's purely scientific work, but it was too late. Exposure to cold apparently was too much for his weakened lungs and hastened his death.

At one time Director de VANSSAY was called to Vichy and to Paris to confer with the French and German Hydrographers, but no action was taken to interfere at all with the work of the Bureau. But it became more and more difficult, as the number of countries which could be reached by mail dwindled. Nevertheless de VANSSAY all alone held formal "meetings" of the Directing Committee, had minutes recorded and signed by himself, kept accounts, produced the periodicals, worked on the GEBCO, and so maintained a continuity of functions. Completely out of touch, the other two Directors, LEAHY in New York and NARES in London, could, however, communicate with each other and with many of the Member States. Thus most payments were made to the Bureau's accounts in New York and London, and on 1 September 1943 LEAHY sent out from New York a Special Circular Letter to announce the decision he and NARES had reached to reduce all contributions starting with 1943 to the equivalent of $ 100 (U.S.) for each Member. The letter also provided a financial statement and the address in New York where Admiral LEAHY would maintain a temporary headquarters for the Bureau.

In Monaco, the IHB building itself did not escape unscathed. On 14 December 1943 a French ship, the *Providence*, which had been taken over by the Germans, lay alongside the quay in front of the Bureau. A British submarine fired a torpedo, scoring a direct hit, and the explosion shattered all the windows of the Bureau and even embedded parts of the ship in the interior walls of some of the offices. Fortunately this happened at four in the afternoon when no one was in the building, so there were no IHB casualities. But the building was temporarily out of commission and the Bureau closed down until 2 January for repairs to be made.

On the 9th of March 1944, however, a letter from the Minister of State of Monaco informed de VANSSAY that the German military authorities now requested the closing of the building occupied by the IHB, but did not oppose that the offices be transferred to some other building in the Principality. Agreement was reached with the German Consul General that the move would be made by 31 March, and the Minister of State requisitioned the second story of the Hotel des Princes at 1 Avenue de la Costa for the Bureau's use. The move was made on 25 March and two days later the last of 76 boxes of Bureau documents, instruments, and publications were shipped off to be given safe storage in facilities of the French Hydrographic Office in and near Lyon.

In August 1944 the U.S. and French forces landed on the south coast of France, but in the accompanying battles, aerial bombing of the shipping in Monaco's harbour resulted in bomb damage to the Bureau's building on the Quai de Plaisance on 27 and 28 August. Liberation came in early September, and Admiral NARES then succeeded in making a visit to Monaco from 13 to 16 November 1944, to compare notes with de VANSSAY and lay plans for the future.

Recovery began, then, in 1945. From 3 to 16 May Admiral LEAHY had been able to visit London, then Monaco, and London again for

additional Directing Committee conferences, but one decision reached was that, as a means of keeping expenses to a minimum, he would not resume his duties as a Director, but would remain on call in the U.S. until the next Conference. On 1 June faithful de Vanssay's salary could at last be restored to the statutory amount and staff salaries put back up to their 1 January 1940 levels at least. On 9 July Admiral NARES returned permanently to Monaco to resume his duties as President. The Principality having effected all the necessary repairs to the building, the offices could be re-occupied on 7 August, normal working hours were resumed on 1 October, and the final step of return to normalcy came on Christmas Day of 1945 when the documents that had been sent to safe storage in central France were all returned safely to the Bureau's premises.

The IHB had survived !

(The 1947 Conference subsequently voted to allow to Director de Vanssay and to the members of the staff who were present in Monaco during the period 1942-44 an exceptional bonus equal to a maximum of six months' present salary, in proportion to the time served during the period. Because of having been placed on a month-to-month temporary hire basis in 1941, however, all retirement fund benefits had been lost for the four year period involved.).

## VII. — ACCOMPLISHMENTS OF THE BUREAU

Quite possibly the greatest accomplishment of the IHB goes mostly unrecognized. For the Bureau would in truth almost completely have justified its existence if its only accomplishment had been the preparation for, carrying out, and producing the meticulous detailed records of the International Hydrographic Conferences. For it is the coming together of the world's Hydrographers, in person, for a period generally lasting two weeks, in Monaco once every five years, for extended debates, arguments, exchanges of views, lectures, demonstrations of equipment, and general building of lasting personal friendships that has really been the basic foundation for much of the resulting improved coordination, collaboration, and standardization in the field of hydrography for the benefit of the navigators of the world.

After that first Conference in London, the next one should have taken place in June 1926, five years after the founding of the Bureau, but it was recognized that this was not a fortuitous time of year for meeting in Monaco — it would be too warm. So the date for the Second Conference was set for 26 Ootcober. So much needed to be covered there that it was agreed not to wait the full five years again, but to hold a Supplementary Conference in two and a half years' time. Information on the entire series of Conferences to the present can be summarized in a table :

| *Year* | *Conference* | *Location* | *No. of Member States represented* |
|---|---|---|---|
| 1919 | First | London | (no members yet ; 24 States) |
| 1926 | Second | Oceanographic Museum, Monaco | 21 (42 Delegates) |
| 1929 | 1st Supplementary | Lecture Hall, Quai de Plaisance, Monaco | 19 (35 Delegates) |
| 1932 | Third | Chart Room, IHB Bldg. | 15 (28 Delegates) |
| 1937 | Fourth | Chart Room, IHB Bldg. | 12 (20 Delegates) |
| 1947 | Fifth | Chart Room, IHB Bldg. | 16 (40 Delegates) |
| 1952 | Sixth | Chart Room, IHB Bldg. | 26 (57 Delegates) |
| 1957 | Seventh | Chart Room, IHB Bldg. | 30 (73 Delegates) |
| 1962 | Eighth | Chart Room, IHB Bldg. (enlarged) | 35 (95 Delegates) |
| 1967 | Ninth | Palais des Congrès, Monaco | 36 (113 Delegates) |

The detailed records of the proceedings of these conferences, faithfully recording, in many cases completely verbatim, all of the statements and opinions of the delegates in the committee meetings as well as in the plenary sessions, provides for anyone interested in a hydrographic topic, a vast mine of information and an education that represents the distillation of the most knowledgeable opinions in the world over a period of 50 years, in both French and English versions.

But that is not by any means all that the Bureau has accomplished, of course. Between Conferences the Directors and staff of the Bureau have occupied themselves diligently over the years, first in undertaking the studies or developing the programs, plans, or actual publications which a Conference may direct be done. Also in initiating on their own studies in new areas that may arise for consideration. The hard work of proposing an acceptable compromise chart symbol that can be agreed to by a significant majority of 43 different Member States with all of their vast differences in customs and languages continues through the entire period between conferences. Circular letters go out with proposals, comments are received, and often some single hydrographer comes up with an idea which is obviously an improvement on what the Bureau or a whole group of other hydrographers may have suggested before, so a revised proposal is circulated. Eventually, when a majority can agree, the resolution is adopted and goes into the *Repertory of Technical Resolutions*, sometimes referred to as "the Bible" in hydrographic offices of Member States who seek to carry out those resolutions in the production of their charts and in the editing of their related navigational publications to the maximum degree possible. Again, it could almost be argued that the Bureau's

existence could be justified solely on the keeping up and extending of this one publication which plays such a vital role.

But the Bureau is charged with doing a great deal more yet. And of course one of the primary objects must always be to spread any new knowledge or information, no matter what its origin. This, then, involves the periodical publication of such information and its distribution to hydrographic offices of Member States, but also to all others who have hydrographic interests, insofar as they can be reached.

### A) **The International Hydrographic Review**

The concept of this periodical existed before the Bureau itself came into being, for the preliminary draft Statutes of 1920 specified in Article 20 that : "It (i.e. the IHB) will publish a periodical Review, in which shall be inserted notes on subjects of hydrographic interest and also reports concerning the Bureau...".

Publishing a professional journal of quality is not an overnight affair, of course, and so it was not until March of 1923 that the Volume I, No. 1 issue of *The Hydrographic Review* appeared. This first number was produced in bi-lingual form, with French and English on facing pages, and consisted of 236 pages, 118 in each language. Besides the substantial content of subject matter on a variety of topics, this initial issue very significantly for international hydrography included a fold-out graphic profile representation of the soundings taken by the USS *Stewart* during the historic trans-Atlantic passage from Newport, R.I., in the U.S.A. to Gibraltar, which had taken place 20-29 June, 1922, where the first full scale test was made of the newly developed echo sounding system, continuously giving depths ranging between 9 and 3 200 fathoms, every one or two minutes, at speeds never less than 15 knots. The real revolution in hydrographic surveying had begun.

With its second issue, the *Review* changed to separate English and French editions, with identical content. This No. 2 volume appeared in May 1924, and a twice-a-year schedule of May and November issues was then followed through the year 1941, with but one exception, in 1926, when the pressures of conducting a Conference eliminated the November issue that year. During the later years of World War II and immediately afterward, from 1942 through 1947, only a single number appeared each year, but it *did* appear. In 1948 the May and November datelines were resumed and continued through 1958. In 1959 only a single number was produced for July, as the new January and July sequence began which has continued for the balance of the half-century.

The six feet of shelf space for a collection of the complete 88 numbers of the *Review* produced during the IHB's first 50 years provide any hydrographic service, university department, or library with a truly encyclopaedic volume of information on hydrographic subjects. In the first 24 numbers,

for example, a total of 335 original articles, 129 extracts of material published elsewhere, and 68 reviews of other publications were included in the pages of the *Review*. While the Directors themselves contributed a significant number of items in all three categories, there were some 250 others authors involved from the entire worldwide hydrographic community. Thus, for example, as far back as 1932 V.W. EKMAN was writing on an improved type of current meter, from Copenhagen; Britain's J.N. CARRUTHERS in 1935 made his first original contribution on a suggested totalising anemometer for oceanographers; while France's A. GOUGENHEIM first appeared in these pages in 1928 with an original contribution on a determination of a world-wide series of Fundamental Longitudes.

Indexes to the contents of the *Review* were prepared to cover Nos. 1-24; 25-36; 37-46; 47-58; 59-67; and 68-77. These contained listings by both general subject headings and by author. For this 50th anniversary year, the Bureau has prepared a cumulative index for all the issues from 1942 through 1970, but by subject matter only.

The *Review* has won its own recognition. It is distributed still without charge to hydrographic offices of Member Governments, sent on subscription at reduced rates to individual naval and merchant officers of Member Governments, and subscribed to as well by a constantly growing number of academic and commercial organizations. At the end of 1970 the print order had reached 775 copies of the English version and 240 of the French. These figures may seem small, but in reality for a highly technical journal in a very restricted field at a not inexpensive price, they are truly impressive.

From the beginning, the *Review* was edited by Commander G.B. SPICER-SIMSON, D.S.O., R.N. (Ret.), in his capacity as Secretary-General, and this function continued during the tenure of his French successor, Captain H. BENCKER. The Directing Committee which took office in 1957, however, decided to put a technical assistant in full-time work editing the Bureau's periodicals and since 1958, therefore, the *Review* has been competently edited by Captain Georges LEMIERE, retired French hydrographic officer.

### B) International Hydrographic Bulletin

The idea for a publication to fill the long gap between the semi-annual issues of the *Hydrographic Review* germinated within the IHB itself. The Directing Committee, at a meeting on 14 September 1927, decided "to study the publication of a monthly bulletin giving current information on hydrography". Two weeks later the Secretary-General presented a draft Circular Letter with a formal proposal and on 3 October this was then dispatched (C.L. 40-H, 1927). Some of the Member States having misunderstood in part the objects of the Directing Committee, further discussion took place in October and Director de VANSSAY drafted a further Circular Letter (43-H, 1927) which went out on 5 November to amplify the intentions of the Bureau in publishing such a Bulletin and to invite regular contri-

butions. On 20 December the Directors reviewed the Table of Contents proposed for the first issue, and with the January 1928, No. 1 issue, the *Hydrographic Bulletin* was born. With some exceptions, it has appeared monthly ever since, bringing 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 mundane but most useful tabulations of lists of every new chart or new edition and every new publication received from the Hydrographic Offices. From nations who provide the relevant information, reports on hydrographic work carried out and that projected for the year to come are also regularly included.

For the first five years, through 1933, the *Bulletin* appeared monthly, in the same general format that it retains today, with French and English in parallel columns on the pages. As an economy measure, the content had to be reduced and publication compressed to bi-monthly issues from 1934 through 1941. Then, during the war years, 1942-45, it remained bi-monthly but it became impossible to have it printed, and copies were either mimeographed, hectographed, or just made on a typewriter with carbon paper, for the few examples needed for the Members who could still be reached by mail. But regular publication was never suspended. In 1946, the first six months saw monthly publication resumed, using mimeograph reproduction for separate English and French versions, but starting with July 1946 monthly printed editions again went forth. And more than one of the world's hydrographers has paid the ultimate compliment to this monthly compendium of hydrographic information by saying : "When the *I.H. Bulletin* arrives in my In-basket, everything else has to stop for a while until I have leafed through it and read the most interesting items".

### C) Yearbook

An Italian Director of the IHB, Captain Luigi TONTA, was the person who must be credited with this annual publication, taken very much for granted in so many offices where it is put to constant use today. At the 15 March 1927 meeting of the Directing Committee Captain TONTA broached his idea, gained the support of the other Directors, and proceeded to make it a reality. Data were gathered from all the hydrographic offices who would respond, and the first number was sent to the printer in December 1927 to carry 1928 as its identification. It incorporated a calendar, an astronomical calendar, a listing of countries using Zone Time, and a list of countries using other standard times, a brief description of the founding of the IHB and its activities, then data on the personnel of the Bureau and of the hydrographic services of 28 different countries plus a listing of the official holidays of each, where known.

Today the *Yearbook* continues with little change in basic format, but with considerably more detailed information presented about a great many more countries. From the 127 pages of the 1928 edition, the publication

has grown to 219 pages for 1971 — but each page has at least twice as much data as in the initial issue, and a total of 76 countries are now included.

### D) Special Publications

Over the years, one manner in which the Bureau could serve its basic function was by creating a publication which would contain on an international basis some data that would not otherwise be so universally available. These came to be known as IHB Special Publications and they have varied tremendously in size, scope, and importance. It must be recognized that when the International Hydrographic Bureau was founded in 1921, there was no such organization as the Intergovernmental Maritime Consultative Organization (IMCO), so the IHB did any work that was done relating to the safety of life at sea and in establishing recommended routes; there was no World Meteorological Organization (WMO), so the IHB compiled lists of stations along coasts which displayed storm warning signals and undertook a detailed study of the systems in use in various nations to describe the force of winds at sea, leading to standardization of the now well-known Beaufort scale. There was no Intergovernmental Oceanographic Commission (IOC), so any coordination on measuring tidal streams or ocean currents was done by the IHB. There was not, of course, even a United Nations.

The full scope of the Bureau's accomplishments can to some extent be exposed merely from scanning the following list of all the 52 Special Publications which have been created within or through the encouragement generated by the Bureau in the past 50 years. Among them we must distinguish between three different categories : those marked (A) are currently active publications, new editions being prepared as required to keep them completely up-to-date; those marked (P) are publications of permanent interest, but not requiring any revision, only needing to be reprinted when stocks are exhausted; and those marked (O) are those which outlived their usefulness and are obsolete, except that even these sometimes are found to have more than a little historical interest to hydrographers and other scientists of the sea.

## LIST OF THE IHB's SPECIAL PUBLICATIONS

| No. | Title | Latest Edition | Status |
|---|---|---|---|
| 1 | Echo Sounding | Dec. 1923 | (O) |
| 2 | Report on Observations of Lights made in the United Kingdom | Mar. 1924 | (O) |
| 3 | Echo Sounding | Oct. 1924 | (O) |
| 4 | Echo Sounding | Mar. 1925 | (O) |
| 5 | International Low Water | Mar. 1925 | (O) |

| No. | Title | Latest Edition | Status |
|---|---|---|---|
| 6 | Summary of Data on Uniformity in Buoyage and Buoy Lighting | Aug. 1925 | (O) |
| 6a | Further Summary of Data on Uniformity in Buoyage and Buoy Lighting | Oct. 1925 | (O) |
| 7 | Report on the Observations of Visibility of Lights | Aug. 1925 | (O) |
| 8 | Summary of Data on Uniformity in Storm Warning Signals | Dec. 1925 | (O) |
| 8a | Further Summary of Data on Uniformity in Storm Warning Signals | July 1926 | (O) |
| 9 | Uniformity of Buoyage | Jan. 1926 | (O) |
| 10 | International Low Water | Jan. 1926 | (O) |
| 11 | Summary of Data on Wind Force and the Beaufort Scale | April 1926 | (O) |
| 12 | Investigation of Harmonic Constants : Prediction of Tide and Current, and their description by means of these Constants | May 1926 | (O) |
| 12a | Tables for the Calculation of Tides by Means of Harmonic Constants | May 1926 | (O) |
| 13 | Tide Predicting Machines | July 1926 | (O) |
| 14 | Echo Sounding | Aug. 1926 | (O) |
| 15 | Summary of Data on Coastal Signals with Proposals for their Unification | Apr. 1926 | (O) |
| 16 | Summary of Data on Port Signals | July 1926 | (O) |
| 17 | Summary of Data on Safety of Life at Sea | Jan. 1927 | (O) |
| 18 | List of Life-Saving Stations | Apr. 1940 | (O) |
| 19 | Ocean Currents in relation to Oceanography, Marine Biology, Meteorology and Hydrography | Mar 1927 | (O) |
| 20 | General List, arranged by Oceans, and Historical Cards of Shoals of Doubtful Existence and of Shoals the Positions of which are Doubtful or Approximate (Later changed to new title : Doubtful Hydrographic Data) | Jan. 1967 to July 1968 Supplements in 1969 & 1971 | (A) |
| 21 | Tables of Meridional Parts | Dec. 1928 | (P) |
| 22 | Glossary of Cartographic Terms and Manual of Symbols and Abbreviations | Nov. 1951 | (O) |
| 22a | Tabulation of the Principal Characteristics of Lights. | Sept. 1937 | (O) |
| 22b | Tabulation of the Beaufort Scale | Dec. 1931 | (O) |
| 22c | Tabulation of the Terminology of Submarine Relief | Jan. 1932 | (O) |
| 23 | Limits of Oceans and Seas | Mar. 1953 | (P) |
| 24 | Geographical Positions | 1929-1959 | (O) |
| 25 | Catalogue of Original Charts | Part I : Jan. 1939<br>Part II : May 1931<br>Part III : May 1935 | (O)<br>(O)<br>(O) |
| 26 | Harmonic Constants | 1931-1969 | (A) |
| 27 | General Repertory of Original Documents issued by Hydrographic Offices | Parts A-E : Jan.-Oct. 1931 | (O) |
| 28 | Vocabulary Concerning Tides | Mar. 1932 | (P) |
| 28a | Vocabulary Concerning Tides | Oct. 1934 | (P) |
| 29 | Vocabulary Concerning Fog Signals | Nov. 1933 | (P) |
| 30 | General Bathymetric Chart of the Oceans | 24 sheets : various dates | (A) |
| 31 | General List of Tidal Authorities and Tidal Records. | Dec. 1935 | (O) |
| 32 | Hydrographic Dictionary | English 1970<br>Multi-lingual 1951 | (A) |
| 33 | A summary of Echo-Sounding Apparatus | Aug. 1939 | (O) |
| 34 | Vocabulary of the Most Usual Terms occurring in W/T Notices to Mariners | Nov. 1939 | (O) |
| 35 | Nomenclature and Vocabulary Concerning Lights | Jan. 1946 | (A) |
| 36 | The Analysis of High and Low Waters | May 1951 | (P) |

| No. | Title | Latest Edition | Status |
|---|---|---|---|
| 37 | The Evolution of Photogrammetric Instruments .... | May 1952 | (O) |
| 38 | Systems of Maritime Buoyage and Beaconage adopted by Various Countries ..... | Feb. 1956 | (A) |
| 39 | Radio Aids to Maritime Navigation and Hydrography. | 1965 | (A) |
| 40 | Standard Development of Tide-Generating Potential . | Apr. 1954 | (P) |
| 41 | The Analysis and Prediction of Tides in Shallow Water ..... | Apr. 1957 | (P) |
| 42 | Standard Hydrographic Publications ..... | June 1956 | (O) |
| 43 | Recommendations for Operation of Tide Gauges and Reduction of Tidal Records ..... | Jan.1961 | (P) |
| 44 | Accuracy Standards Recommended for Hydrographic Surveys ..... | Jan. 1968 | (P) |
| 45 | Digital Deep-sea Sounding Library ..... | Mar. 1969 | (P) |

### E) General Bathymetric Chart of the Oceans

Certainly one of the most encouraging examples of international cooperation to accomplish what would be beyond the real practical possibility of any single nation is the program for production of the General Bathymetric Chart of the Oceans (GEBCO). First suggested by Monaco's own Prince Albert I at the 7th International Geographical Congress in Berlin in 1899, it became a reality when this ocean-going Prince assembled a small group of scientists into a special Cabinet to go to work on the first edition in 1903. At that time, of course, deep ocean soundings were of almost no interest to hydrographers, who must concentrate on coastal waters where the dangers to navigation exist and must be accurately known and charted. Moreover, the only way to measure a deep ocean depth in 1903 was by stopping a ship and paying out a weighted wire, watching for it to go slack, and assuming that was the depth. But such measurements as had been made were diligently sought out by Prince Albert's scientists for this ambitious project of 24 large sheets to cover the world at a scale of 1/10 000 000. More than 18 400 individual depths appeared on these charts. A second edition was brought out by the Scientific Cabinet between 1912 and 1927, but, by 1927, of course, the revolution had occurred, with echo-sounding apparatus capable of recording the deepest ocean depths continuously without stopping the ship and the amount of information flowing in turned into a flood, beyond the capabilities of this small group to handle. The Prince accordingly asked the IHB to take over the program. Between 1932 and 1955, then, the IHB produced the 3rd edition, this time having to deal with almost 370 000 different soundings plotted on 1 001 plotting sheets at a scale of 1/1 000 000, for the 18 sheets which were brought up to date. Some of the polar regions were omitted in this revision.

The flood of data constantly increasing, it became evident that the limited facilities of the IHB could not handle it either, so the program went to its next phase. Today the soundings are collected on the master plotting sheets by the hydrographic offices of 17 different countries who have voluntarily taken on some portion of the world ocean areas for this purpose. The IHB acts as coordinator, taking every possible action to see that any known new bathymetric measurements get funneled to the proper office which is responsible for that piece of the work. The plotting sheets, when

updated for a single sheet of the finished chart, are submitted to the French Hydrographic Office for technical supervision of the actual production and printing work done for the IHB by the French Institut Géographique National.

In continuation of the tradition of the founding of this extensive program by Prince Albert I, the present Government of Prince Rainier III of Monaco has been granting an annual subvention of 25 000 French francs to the IHB for this GEBCO program since 1968.

The Bureau has successfully encouraged most of the participating nations to make available and list in their chart catalogs reproductions of the original plotting sheets at the 1/1 000 000 scale which, though intended originally only as a by-product of the production scheme, now turn out to have great interest for oceanographers making detailed studies of the ocean bottoms

## VIII. — NEW NAME — OLD AIM

For many years there was evidence that in some ways the International Hydrographic Bureau lacked the proper legal foundation to have a juridical personality. This never bothered the Hydrographers themselves in their increasingly close cooperation, but it was a matter that had to be faced eventually. Thus one of the major achievements of the most recent International Hydrographic Conference in 1967 was the drafting of a formal " Convention on the International Hydrographic Organization ". This document was then signed by 39 of the Member States of the IHB during 1967 and subsequently ratified by the required minimum number (two-thirds, or 28) of the IHB Member Governments by 22 June 1970. Thus 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 IHO rather than the IHB, but the Bureau remains in existence, now limited in meaning to the headquarters of the organization in Monaco.

The change in name has little real effect, for the drafters of the Convention and its associated General Regulations and Financial Regulations made sure that the methods of conducting the business, the basic objects, goals, and functions, of an organization that had been so eminently successful for such a long period should not be modified.

## IX. — EPILOGUE

This brief historical account has already noted how the establishment of the International Hydrographic Bureau in 1921 came just one year ahead of the great revolution in hydrographic surveying capability brought about

by the introduction of the echo-sounder for measuring water depths. Now the organization enters its second half-century with a prospect equally as thrilling to hydrographers, for the very first steps have now already been taken toward the creation of an *international* series of charts. Jointly proposed by the representatives of France and the Netherlands at the 9th I.H. Conference, a study commission under the chairmanship of the British Hydrographer, Rear Admiral G.S. RITCHIE, has since conducted three detailed meetings to hammer out proposals for both the specifications and coverage diagrams for nautical charts to cover the world at two small scales : one series at 1/3 500 000 scale (with a few exceptions at slightly larger or smaller scales to adapt to geographical needs), the other series at a scale of 1/10 000 000 (at the Equator). The Study Commission's report has been submitted to the Bureau and has been circulated to the 43 Member States for comments, along with the proposed specifications and suggested list of producer nations.

The goal would be, simply stated with a single example, to have one nation be responsible for producing, to these agreed specifications, a chart of the Mediterranean and then providing the necessary reproduction material to all other IHO Member States who might wish to print a chart to cover this sea area. Then all would be essentially identical (although each nation printing the chart might wish to add certain annotations in its own national language and change the title block where necessary). Hydrographers have been quick to realize what an improvement and saving of labor that would be over the present system, whereby five nations today all have had the separate expense of compiling and publishing their own charts to cover the Mediterranean (*).

Of course, these small scale charts were chosen only as a first step, and the future goal, which will require even greater international coordination and discussion, would be the international designation for charts at all scales required for ordinary navigation, and the elimination of all of the costly re-drafting of charts from those produced by other nations.

It must never be thought that the International Hydrographic Bureau has aimed, or aims now, to achieve one hundred per cent standardization of all nautical charts and documents in the world — such an event would be nothing short of a miracle. And it must be emphasized that the IHB has never had any executive authority whatsoever to *compel* any standardization. The Bureau may suggest, promote, encourage, study, and present recommendations and arguments, but it is only by the *voluntary* cooperation and agreement of the hydrographic services of the Member Governments that standardization takes place. And yet, when the Bureau had been in existence for 30 years so much had already been accomplished that Rear Admiral C.L. NICHOLS, one of the Directors at the time, could write :

" The very high percentage of compliance with the Resolutions of the Conference by the States Members demonstrates the great progress that has been made toward effective cooperation. That non-Member States

(*) For a more detailed account see " Progress in achieving an International Set of Charts " by Captain V.A. MOITORET, in *The International Hydrographic Review*, Vol. XLVI, No. 2, July 1969, pp. 17-25.

are also effectively influenced by the work of the IHB is clearly illustrated by the extent of their compliance. Correspondence in the Bureau further indicates that in the many non-Member States, where Hydrographic Offices are in a formative stage, it is the announced intention of these countries to comply with I.H. Conference resolutions as they commence their work" (*).

Those words apply today and will undoubtedly still be true after another twenty years ... and probably even in 2021 when the IHO will mark its 100th Anniversary.

(*) *I.H. Review*, Vol. XXVIII, No. 1, May 1951, p. 7.