

**CHRONOLOGY OF THE MAIN EVENTS
RELATED TO THE ORIGINS, AND THE FIRST AND SECOND EDITIONS OF
LA CARTE GENERALE BATHYMETRIQUE DES OCEANS**

By Jacqueline CARPINE-LANCRE

Soundings and contour lines appear in the European charts during the 16th century. After the publication of a chart of the North Atlantic by M.F. MAURY (1853), bathymetric charts become more frequent, particularly in the oceanographic expeditions reports. Due to the lack of an international agreement, nomenclature and terminology are anarchic. Consequently, the 7th International Geographic Congress (Berlin, 1899) nominates a Commission on sub-oceanic nomenclature, also responsible for the publication of a general bathymetric chart. It convenes in Wiesbaden (April 15-16, 1903), Prince ALBERT I of Monaco in the chair, and adopts the characteristics defined in a memorandum by J. THOULET. The 24 sheets of *Carte générale bathymétrique des océans*, printed in Paris in 1905, hastily prepared, are harshly criticised by E. de MARGERIE. Immediately Prince ALBERT decides that a new edition will be made for which a second commission convenes in Monaco (1910). The second edition is printed from 1912 to 1931 with contour lines of the terrestrial relief and a revised nomenclature. The use of sonic and ultrasonic devices increases tremendously the amount of data. The responsibility of the Chart is then transferred to an international organisation : the International Hydrographic Bureau.

Last Decades of the Sixteenth Century

The soundings appear in European charts.

1584

The Dutch surveyor Pieter BRUINSZ draws an isobath (contour line) in his chart of the river Spaarne.

1725

The book *Histoire physique de la mer* by Luigi Ferdinando MARSIGLI is printed in Amsterdam; it includes a « Carte du golfe de Lion » with isobaths.

1737

Philippe BUACHE, *premier géographe du Roi* [de France], draw a bathymetric chart of the English Channel and another one of the area around Fernando de Noronha Island, both with a spacing of ten fathoms.

1799

Charles-Pierre Claret de FLEURIEU, a French hydrographer-geographer, publishes *Observations sur la division hydrographique du globe, et changements proposés dans la Nomenclature générale et particulière de l'hydrographie*. He proposes names and limits for the divisions of the World Ocean and establishes the principle that the names given by the first discoverer must be respected; he gives a definition for the words to be used to designate the various forms of coastal relief.

1845

= January 27

A committee appointed by the Royal Geographical Society of London to examine the nomenclature relating to the oceans convenes under the chairmanship of Roderick I. Murchison.

1853

The fifth edition of *Explanations and Sailing Directions to accompany the Wind and Current Charts* by Matthew Fontaine MAURY is printed. Plate 14, drawn by William Flye professor of mathematics of the United States Navy, represents the *Basin of the North Atlantic Ocean*. The areas between the shore line and the isobaths of 1000, 2000, 3000, and 4000 fathoms are differentiated by increasingly lighter shades of grey as the depth increased.

1854 - 1858

This plate 14, redrawn and improved, is printed in the sixth, seventh, eighth (and last) editions of *Explanations and Sailing Directions*.

1855

The first edition of *The Physical Geography of the Sea* by M.F. MAURY includes this bathymetric chart of the North Atlantic.

1870 - 1895

Bathymetric data appear gradually in all categories of cartographic material : charts, charts in relief, atlases, globes such as the huge terrestrial globe at a scale of one-to-one million, displayed at the Paris Universal Exhibition of 1889. Geographical treatises, textbooks and serials, then publications for a wider audience begin to include bathymetric charts.

1877--

Bathymetric charts become a regular feature in the oceanographic expeditions reports (*Challenger, Vøringen, Travailleur and Talisman, Blake, Wild Duck, Washington, Pola, Albatross ...*).

1882, 1891, 1896

The *Deutsche Seewarte* publishes atlases devoted to the three Oceans : Atlantic, Indian, and Pacific, each with a bathymetric chart.

1888

= January

John MURRAY publishes a paper entitled "On the height of the land and the depth of the ocean" in the *Scottish Geographical Magazine* with a map "The World showing height of land and depth of sea on Lamberts equal area projection by J.G. BARTHOLOMEW 1887".

1891

= August 10-14

The Fifth International Geographical Congress is held in Bern. Albrecht PENCK puts forward a project for an International Map of the World on the millionth scale.

1893

The *Reichs-Marine Amt* publishes the three sheets of a "Weltkarte zur Übersicht der Meerestiefen".

1895

The last volume, by John Murray, of the *Report on the scientific results of the voyage of H.M.S. Challenger during the years 1872-76*, "A summary of the scientific results" is printed. It includes a bathymetric chart for each of the three Oceans.

= July 26 - August 3

The Sixth International Geographical Congress is held in London. For the first time, one sectional meeting is devoted to oceanography and another one to oceanography and limnology. Papers are given by John Young BUCHANAN, Julien THOULET, a professor at the University of Nancy, the Swede Otto PETERSSON and Prince ALBERT I of Monaco.

1898-1899

Hugh Robert MILL, librarian of the Royal Geographical Society, and Otto KRÜMMEL, a professor at Kiel, establish a list of proposed terms to describe the forms of submarine relief. They consult the best qualified specialists : Admiral Sir William WHARTON, Sir John MURRAY, Prince Albert I of Monaco, Admiral Stepan Ossipovitch MAKAROFF, and Professor THOULET.

1899

= Second half-year

A Carte bathymétrique des îles Açores by J. THOULET is printed.

= August

Alexander SUPAN, a professor at Gotha, publishes a paper "Die Bodenformen des Weltmeeres" with a *Tiefenkarte des Weltmeeres* (scale 1 : 80 000 000) in the *Dr. A. Petermanns Mitteilungen* of which he is the very influential director.

= September 14

Sir John MURRAY delivers the presidential address to the Section E Geography during the 69th meeting of the British Association for the Advancement of Science held at Dover. His address is published in October by *the Scottish Geographical Magazine* and *the Geographical Journal*, with a *Bathymetrical chart of the oceans showing the "deeps"* (scale 1 : 108 000 000).

= September 28 - October 4

The Seventh International Geographical Congress is held in Berlin, Ferdinand von RICHTHOFEN being the president.

– *September 29*

During the plenary session assigned to the drafting of resolutions, Hermann WAGNER, a professor at Göttingen, and Otto KRÜMMEL propose that an international commission should be formed for the study of sub-oceanic nomenclature.

– *September 30*

The first of the three sessions devoted to oceanology is held under the chairmanship of O. PETERSSON. Talks are delivered by WAGNER, O. KRÜMMEL and H.R. MILL, on the adoption of a systematic nomenclature for basins and oceanic depths. A very animated discussion ensues, Sir John MURRAY being unrelentingly opposed against the efforts for strict principles to be applied to submarine nomenclature and terminology. Nevertheless the decision of creating a commission prevails; eight members are chosen at once : Prince ALBERT I of Monaco, O. KRÜMMEL, H.R. MILL, Sir John MURRAY, A. SUPAN, J. THOULET, Otto IRMINGER, Secretary of the Royal Danish Geographical Society, and Josef Luksch, Professor at the Naval Academy of Fiume.

– October 4

During the closing plenary session this resolution is adopted: “Terminology and nomenclature of sub-oceanic Relief. The Congress nominates an international committee on the nomenclature of sub-oceanic relief, charged with instigating the preparation and publication of a bathymetrical map of the oceans before the time of the meeting of the next Congress”.

1899-1902

The 22 sheets of the *Carte lithologique sous-marine des côtes de France* by J. THOULET are printed.

1901

= First Quarter

In the *Bulletin trimestriel de la Société de géographie de l'Est*, J. THOULET publishes a detailed paper entitled “Projet d'une carte générale des grandes profondeurs océaniques”. Proposals are given for the main characteristics : the scale (one-to-ten-million) ; the projection (Mercator between 72°N and 72°S, this area being divided into 24 rectangular sheets, gnomonic for the earth's caps between 72° latitude and the poles, with 4 quadrantal sheets for each pole); the Greenwich meridian chosen as the zero degree meridian; a spacing of the isobaths of two hundred meters; the creation of a card index to identify the origin of the soundings selected for the chart; frequent reprintings of the chart to keep it up to date; only bathymetrical data without any lithological details.

1902

= January

In the *Memoirs of the Museum of Comparative Zoölogy* Alexander **Agassiz** publishes a “Preliminary report and list of stations” of the expedition of the *Albatross* (1899-1900) in the tropical Pacific together “with remarks on the deep-sea deposits by Sir John Murray”. The volume includes a bathymetrical chart of the Central Pacific Ocean and relevant comments on the submarine nomenclature, obviously contrary to the German principles.

= October 23

F. von RICHTHOFEN sends a letter to the members of the Commission; he recalls that the bathymetric chart had to be prepared before the next Congress. He proposes to held a meeting, in Brussels or Wiesbaden, next April, to define the principles of sub-oceanic nomenclature, to share out the work among the members, to establish a future programme of work and to take the necessary steps to produce and publish the chart.

= November

J. THOULET revises his memorandum published the year before. The main addition deals with the system of notation of the sheets which are to be designated by capital letters and Roman numerals at the one-to-ten-million scale : A I, B IV ...

1903

A revised edition of the *Carte bathymétrique des Açores* by J. THOULET is prepared at a scale of one-to-one-million, and printed. J. Thoulet intends to prove that a general one-to-ten-million chart would be capable of generating charts of a larger scale with extreme facility, thanks to the system of tenfold scale increase. Furthermore, this chart of the Azores would constitute the first step, for an oceanic area, towards the production of the International Map of the World on the millionth scale.

= April 15-16

The meeting organised by RICHTHOFEN is held in Wiesbaden. Five members of the Commission of sub-oceanic nomenclature nominated in Berlin attend the meeting: Prince ALBERT, O. KRÜMMEL, H.R. MILL, A. SUPAN and J. THOULET. Sir John MURRAY apologised for not being able to participate in the work. Among the three new members chosen to replace J. LUKSCH, dead in 1901, and O. IRMINGER who resigned for reasons of ill health: S.O. MAKAROFF, Fridtjof NANSEN and O. PETTERSSON, only the latter was present in Wiesbaden.

Charles SAUERWEIN, Prince Albert's "officier d'ordonnance" carries out the function of session rapporteur. Having elected the Prince as Chairman of the Commission, the members listened to J. THOULET's account of his proposals, supported by his charts: the A.I sheet of the Atlantic Ocean at a scale of one-to-ten-million, the chart of the Azores at a scale of one-to-one-million, corrected and updated, and a diagram showing the relative positions of all the charts. A long discussion ensues and deals mostly with questions of scale and projection. The number of sheets on Mercator's projection will be reduced from 24 to 16. The depths indicated by the isobaths are to be: 200, 500, 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000, and 9000 metres. The areas between isobaths are to be coloured in blue, increasing in intensity with increasing depth. The zero degree meridian is to be Greenwich.

The Berlin Congress had not made any financial provisions for the production of the Chart and the Executive Committee, chaired by Richthofen, is not in a position to pay for a publication of this size. Prince ALBERT proposes that he should take on the cost of producing the Chart.

The Commission then tackles questions of nomenclature and terminology. As regards to nomenclature, it is decided that it should respect the principles adopted for the general chart published by A. SUPAN in 1899 and that the rule of priority should be followed. As to the naming of forms of submarine relief, the German members are asked to choose about fifteen terms to designate the most important forms and to give them a precise and succinct definition. These terms and their definitions would then be translated into various languages, starting with English and French.

The last session is devoted to an examination of the proposal made the day before by Prince Albert. A motion prepared by H.R. MILL is unanimously adopted: the responsibility for producing the Chart is to be handed over to the Prince, to whom the members of the Commission express their deep gratitude.

= May - December

Under the supervision of C. SAUERWEIN appointed as *Chef du Service de la Carte générale des océans*, Alphonse TOLLEMER collects the bathymetric data available from the hydrographic offices, cable-laying companies and oceanographic expeditions reports. Assisted by six draughtsmen he prepares the preliminary drafts of the 24 sheets with data updated to July 1903.

= July 27

In the *Dr. A. Petermanns Mitteilungen* A. Supan publishes the list of terms for the first order forms of submarine relief with their definitions: "Terminologie der wichtigsten unterseeischen Bodenformen".

= August

The English translation done by H.R. MILL is published in *the Geographical Journal*: "The terminology and nomenclature of the forms of sub-oceanic relief".

= Fourth Quarter

The French translation is prepared by J. THOULET with the assistance of his colleague in Nancy, Bertrand AUERBACH, and published in the *Bulletin trimestriel de la Société de géographie de l'Est*.

1904

= January 11

During the weekly session of the *Académie des sciences de Paris* Prince ALBERT comments a short note by J. Thoulet and C. Sauerwein "Sur la carte générale bathymétrique des océans" and presents the whole set of the drafts.

= January - August

The draughtsmen work to produce the definitive minutes, the new data obtained up to 1 July 1904 continues to be integrated.

= September 8 - 22

The roving Eighth International Geographic Congress is held in the United States (Washington, Philadelphia, New York, Niagara Falls, Chicago and St. Louis).

– September 13

In New York J. THOULET presents an account of the "*Carte bathymétrique générale des océans*". The same evening a session is set aside for the examination of the report written by Richthofen on behalf of the Executive Committee elected at the Berlin Congress. The passage relating to the resolution which has been adopted for sub-oceanic nomenclature ends with a *satisfecit*: the Commission formed in Berlin had carried out the task with which it had been entrusted. In spite of the violent opposition of Sir John Murray against the use of the meter instead of the fathom, the Congress approves this resolution: "The Eighth International Geographic Congress expresses its thanks to His Serene Highness the Prince of Monaco for having executed the map of the ocean, the preparation of which was desired by the congress of Berlin, and expresses especially its agreement with the scale and projection chosen, with the adoption of the initial meridian of Greenwich, with the adoption of the meter for indication of the depths, and with the system of international submarine terminology used."

= October

After requesting a quotation for the printing of the chart from several French and foreign firms, the *Établissement géographique Erhard frères*, in Paris, is selected. The sum of 27,635 francs will cover the stone engraving, the supply of stone and paper, the supply of proofs and the printing of 500 "black and white" copies and 500 copies "in colour".

= December

A "prospectus" including a "*Bulletin de souscription*" is prepared by C. SAUERWEIN.

= December 25

An introduction to the Chart by J. THOULET with a diagram showing the relative positions of the sheets is published in the *Bulletin du Musée océanographique de Monaco*.

1905

= Mid-February - May 15

The title sheet, the assembly diagram and the 24 map sheets of the *Carte générale bathymétrique des océans* are printed.

= May 19

The first copy is handed to Prince ALBERT.

= May 20

Despatching begins: the Chart is sent to J. Thoulet and the other members of the Wiesbaden Commission, to Jules Richard, director of the Oceanographic Museum, to the people and organisations who had subscribed to it, to the persons in charge of the geographic bibliographies as well as to the *Bibliothèque nationale* in Paris, for the legal deposit.

= June 5

During their session Prince ALBERT honoured the *Académie des sciences de Paris* with a copy in colour, destined for the library of the *Institut de France*.

= June 7

Emmanuel de MARGERIE, a very influential geographer-geologist, sends a long list of the shortcomings and errors of the Chart in a letter to C. SAUERWEIN and to J. Thoulet.

= November 15

The review of the Chart by E. de MARGERIE is published in the *Annales de géographie*: "La Carte bathymétrique des océans et l'œuvre de la Commission internationale de Wiesbaden". E. de MARGERIE emphasises that the majority of the failings of the Chart are the result of insufficient rigour in the execution for which C. Sauerwein had assumed full responsibility. The most serious errors: faulty division of the sheets using Mercator projection and the presence of lithological markings are attributable to a disregard of J. Thoulet's memorandum. Throughout his analysis, E. de MARGERIE keeps referring to this memorandum which, as the fruit of the experience and considerations of a specialist, and approved by an International Commission, ought to have been followed in the minutest details. Finally, E. de MARGERIE deplores the approval given in Wiesbaden and underlines the extreme positions which A. SUPAN had taken with regard to the nomenclature and some of the terminology.

= December

O. KRÜMMEL, in the *Petermanns Mitteilungen*, and Gerhard SCHOTT of the *Deutsche Seewarte*, in the *Annalen der Hydrographie und maritimen Meteorologie*, give reports on errors and omissions of the Chart.

Prince ALBERT does not hesitate for one moment before starting to plan a new edition of the Chart. A. TOLLEMER continuously updates the Chart as J. THOULET recommended since the very beginning.

1906

= Mid-January

Charles Sauerwein resigns his commission.

= April 14

Prince ALBERT signs a legal document in Monaco by which he creates a private foundation, the *Institut océanographique*. The new organisation is to include an Institute in Paris, which would be its registered office and with which the *Musée océanographique* in Monaco, built and fitted out over the last eight years, would be associated.

= May 1

Henry BOURÉE replaces C. SAUERWEIN as Aide-de-Camp to the Prince.

1907

= February 19

A sovereign ordinance creates a '*Cabinet scientifique*' (Scientific Office), with J. Richard as Director, H. Bourée as Head and A. Tollemer as one of two Attachés.

= First Quarter

In the *Bulletin trimestriel de la Société de géographie de l'Est* J. THOULET publishes a further memorandum. In his opinion the "defects" of the first edition could easily be put right and without great expense. A general catalogue of the soundings and of other documents used would be prepared. The date of publication of each sheet, as well as that of previous editions, would be mentioned in the future. An international commission would examine the pending problems: nomenclature and terminology, the creation of bathymetric charts at one-to-one-million scale and the publication of specialised oceanographic charts, starting with temperature measurements.

1908-1910

A. TOLLEMER makes a summary of all the corrections and additions made to the Chart since its publication. Then he prepares a general list of the documents used.

1909

= November 16-22

The first International Conference of the International World Map is held in London.

1910

= January

H. BOURÉE sends a letter of invitation to the people who had been members of the former Commission, as well as to E. de MARGERIE and G. SCHOTT. On behalf of Prince ALBERT he asks them whether they agree to be a member of a new Commission which will examine under what conditions the second edition of the Chart should be produced.

= March

A volume prepared by A. TOLLEMER is printed including three lists: "*Liste des autorités consultées pour l'établissement de la première édition*", "*Liste des corrections à effectuer à la première édition*", "*Liste des nouveaux sondages communiqués par diverses autorités depuis l'établissement de la première édition*".

= March 29 – April 1

Ceremonies and working sessions are organised for the inauguration of the Oceanographic Museum of Monaco.

– April 1

The session of the new Commission for the Bathymetric chart is attended by O. KRÜMMEL, E. de MARGERIE, H.R. MILL, O. PETTERSSON, G. SCHOTT, A. SUPAN and J. THOULET ; Sir John MURRAY who will take part in a long cruise on the *Michael SARS* and F. NANSEN apologised for not coming.

Prince ALBERT is in the chair, H. BOURÉE acts as rapporteur, assisted by A. TOLLEMER.

Before the meeting, the Members had received a synthesis of the criticisms formulated by J. Thoulet, E. de MARGERIE, O. KRÜMMEL and G. SCHOTT. The agenda comprises 12 points, the most important being the "Addition of rudimentary hypsometry to the continents; addition of important rivers and lakes, as well as a few names as points of reference". This proposal was issued by E. de MARGERIE; J. THOULET, supported by A. SUPAN, was strongly opposed to the introduction of hypsometry, considering that it will greatly increase expenditure and diminish clarity.

The correction of the sheets prior to final printing would be entrusted to G. SCHOTT for bathymetry, to E. de MARGERIE for hypsometry and to A. SUPAN for nomenclature; other members would also be asked to help with the checking.

= April 27

A sub-commission "charged with revising the French language nomenclature of the ocean floor" meets in Paris. The questions discussed are really related to terminology; each term in German is examined, as well as the translations initially proposed by J. THOULET; the conditions for the use of these terms, or other terms if they seemed preferable, are defined. The subject of nomenclature only appears in the request which ends the sub-commission's report: "The systematic proscription in submarine nomenclature of the names of persons and vessels should be revoked".

= July 10

The Minutes of the meeting, approved by the members of the Commission after various amendments, the synthesis of the criticisms formulated before the meeting and a list of the points discussed are published in a *Bulletin de l'Institut océanographique*.

1911

= June 2

H. BOURÉE sends the proofs of the first two sheets, A I et A II to the members of the second Commission.

= November 18

The proofs of the sheets A III et A IV are sent. H. BOURÉE states that the nomenclature used is in accordance with the decisions of the sub-commission.

1912

= January 15

H. BOURÉE sends a first circular letter giving the details of the decisions taken by the sub-commission and asking for the opinion of the second Commission's members.

= April 8

In a second circular letter, H. BOURÉE summarised the answers received from all the members (except F. NANSEN). Apart from A. SUPAN, O. KRÜMMEL and, partly, G. SCHOTT, they support the decisions applied for the nomenclature of the new edition.

= April

A second brochure is printed, listing the authorities consulted for details of hypsometry and giving the newly adopted terminology.

= May

A. Supan informs Prince ALBERT that, being in the minority, his participation is no longer possible.

= June

Sheets A I et A II are printed.

= June 10

During this session of the *Académie des sciences de Paris*, Prince ALBERT comments on the new edition of the Chart and presents two copies of sheet A I, one in colour, and one in black and white "to serve as a working chart for those who wanted to add new information."

= December ?
Sheet A IV is printed.

1913

= First Quarter ?
Sheet A III is printed.

= July
Sheets A' I et A' II are printed.

= December
Sheets A' III et A' IV are printed.

= December 10-18

The Second International Conference of the International World Map is held in Paris. For the oceanic sheets (2/3 of the whole set), the principal arrangements made for the *Carte générale bathymétrique des océans* will be re-used: the choice of isobaths, with the addition of a contour for 100 meters, the choice of colours for the areas between isobaths. Prince ALBERT proposes to take on the responsibility for producing some the oceanic sheets of the *Carte du Monde au millionième*.

1914

= January ?
Sheet B' II in printed.

= March
The third volume of the sources is published.

= June or early July ?
Sheets B' III et B' IV are printed.

1914-1918

The first World War causes a total halt of the publication of the Chart.

1918

= July
When the second German offensive on the Marne seemed to be threatening Paris, the documentation relating to the *Carte générale bathymétrique des océans* is moved to a secure place in the country.

1919

= June 24 - July 16
The first International Hydrographic Conference is held in London.

= July 1
Alphonse TOLLEMER dies; his assistant, Jean MORELLI, takes over the responsibility for the cartographic work.

= October 15
J. THOULET publishes a study "Planimétrie de la Carte générale bathymétrique des océans" in the *Bulletin de l'Institut océanographique*.

1920

The fourth volume of the sources is printed.

1921

- = April 25
Prince ALBERT makes a speech before the National Academy of Sciences in Washington, which in some way is his scientific testament. He does not fail to include the *Carte générale bathymétrique des océans* in the summary of his oceanographic achievements.
- = July
The International Hydrographic Bureau starts working in Monaco.
- = October ?
Sheet B' I is printed.

1922

- = June 26
Prince Albert dies in Paris.
The '*Cabinet scientifique*' no longer exists, *de facto* if not *de jure*.
J. RICHARD is appointed as the first executor of the Prince's wills who specified "I give and bequeath to Dr. Jules RICHARD [...] the total sum of seven hundred thousand francs, of which [...] six hundred thousand francs are intended to complete the scientific and literary work which I leave unfinished, of which he will be the judge, including however the large scientific publication containing the results of my oceanographic cruises and the bathymetric chart of the oceans."

1923

- = July
Sheets B III and C III are printed.
- = August
Sheet B IV is printed.

1925

- = April 1 - 9
The Eleventh International Geographical Congress is held in Cairo. A proposal of E. de MARGERIE is approved for the integral publication of the lists of soundings on which is based the second edition of the Prince of Monaco's *Carte générale bathymétrique des océans*. This volume was never printed.
- = June or July
Sheets C' I, C' II et C' III are printed.

1926

- = June
Sheet B I is printed.

1927

- = Between July and November
Sheet B II is printed.

1928

- = January 6
J. Richard addresses a letter to Admiral Albert NIBLACK, President of the IHB, asking if the Bureau would agree to take on the responsibility of the Chart, once the second edition will be completed.

= December

Sheet C' IV is printed.

1929

= April 9 - 20

The First Supplementary International Hydrographic Conference is held in Monaco.

= April 26

J. RICHARD is officially informed that "The International Hydrographic Conference of Monaco has just authorised the International Hydrographic Bureau to keep the General Bathymetric Chart of the Oceans up to date in future, in place of the Scientific Office of Prince Albert of Monaco which has been in charge of this until now".

1931

= January

Sheets C I, C II et C IV and title sheet are printed. The second edition is then completed.

= April

G. Schott devotes a paper in the *Annalen der Hydrographie und maritimen Meteorologie* to the second edition of the Chart.

= June 29

E. de MARGERIE gives a note to the *Académie des sciences de Paris* "Les dernières feuilles de la Carte générale bathymétrique des océans (panneau du pôle Nord)".

This "Chronology" is based on my contribution for the commemorative volume of the GEBCO centenary. I would like to express again my deep gratitude to Maya Whitmarsh for her quite excellent translation of the contribution, and to thank Micheline Campos who revised the text of the Chronology.

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