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EDITORIAL - The Commission of Oceanography, Part Two.

It is a custom that this editorial space is used to remind readers of significant events in the marine sciences that occurred exactly a century ago. Last year I broke that infant custom by discussing the affairs of the Commission of Oceanography, which, it seemed to me then, were in a potentially tricky state of flux. This year, with most of those problems resolved, I will present a hybrid - remarks on the marine sciences at the turn of the millenium past, near the end of the nineteenth century, and an update on the affairs of the Commission of Oceanography.

To anyone who thinks that Millenium Fever is new in 1998, the end of the nineteenth century is instructive. The term *fin de siecle*, if not new then, was widely applied to societies in Western Europe that appeared to be running out mental, moral and political energy by 1900. And yet in the sciences, despite the beliefs of a few physicists that all the major problems has been solved, at least in principle, there was tremendous vitality and change in the air. The marine sciences have never run along in tandem with any other branch of science, but there too much was happening in 1898 that, at least in retrospect, had great potential for the future.

Two great expeditions were underway, or got underway, in 1898, both directed south, and both with scientists aboard, or with scientific objectives. The Belgica expedition to the Bellingshausen Sea under Adrien de Gerlache, with the Romanian biologist Emil Racovitza aboard (see mention of him later in this Newsletter) left Europe in 1897 and was in the Southern Ocean in 1898. The German Deep -Sea Expedition to the Atlantic, Southern, and Indian Oceans departed Germany in 1898 under the direction of the Leipzig zoologist Carl Chun with the explicit aim of investigating the nature of life in the deep sea, especially the deep water column. Chun's findings of an abundant midwater zooplankton on that expedition and elsewhere were disputed by the American Alexander Agassiz, whose hauls showed exactly the reverse. And among Chun's scientific colleagues on Valdivia was a young oceanographer from the Deutsche Seewarte, Gerhard Schott, who, at the request of the Reichs-Marine-Amt in Berlin, accompanied the expedition to study oceanic circulation. Schott's early results, published in 1902, elaborated a deep Atlantic circulation symmetrical about the Equator, and provided the basis for one of the early twentieth century's great debates in physical oceanography, centered in Berlin. In exactly the same year, in Norway, Vilhelm Bjerknes quietly published his now famous circulation theorem, allowing the calculation of circulation in the atmosphere and ocean. And far to the north, a young zoologist, Bj rn Helland-Hansen, froze his fingers while on an aurora expedition. He had to have some amputated, which ruined his prospects of a medical career but soon resulted in his studies with Bjerknes on physical oceanography and the generalization of the circulation theorem by Helland-Hansen and Johan Sandstroem (a Swedish student of Bjerknes) for wide use in oceanography.

1898 was not over. The Aberdeen laboratory of the Fishery Board for Scotland opened then. In the United States, the Wisconsin limnologist E.A. Birge proposed the term "thermocline," replacing the awkward German

construction "Sprungschicht," at least in English-speaking usage. The Kiel zoologist Karl Brandt, on the threshold of presenting the first chemically-based theory of plankton dynamics, joined Albert, 1er, Prince de Monaco, and the Scottish polar explorer and oceanographer W.S. Bruce on the Prince's magnificent yacht Princesse Alice for a cruise to Spitsbergen.

After this James-Burkean ramble, I turn to the affairs of the Commission of Oceanography a century later. Important things have happened in one year, since my last editorial, notably the appointment of a new Secretary, Deborah Day of the Scripps Institution of Oceanography, as successor to Jacqueline Carpine-Lancre. And Mme Carpine-Lancre, happily, has not been lost to the Commission, for she is now one of our Vice-Presidents, replacing our friend and colleague Luiz Saldanha, who died in November 1997, and whom we will miss for his friendship, vitality, and knowledge. Mme Carpine-Lancre has been joined as a Vice-President by Walter Lenz of Hamburg, an active historian of oceanography and an organizer of ICHO-IV. A roster of national representatives has been started, to help in bringing together information on activities in local areas and nations, to forward information on publications for the bibliography, and serve as representatives of the Commission at meetings and symposia that I or the other officers cannot attend. I know that their role will be important and that the list of national representatives will increase. Currently, it includes colleagues from nine nations: Croatia (Dr Mirko Orlic), Denmark (Dr Torben Wolff), Germany (Professor Gerhard Kortum), Greece (Dr George Vlahakis), Italy (Dr Christiane Groeben), Romania (Dr Alexandru Bologa), South Africa (Professor Johann Lutjeharms), Sweden (Dr Artur Svansson) and the U.S.A. (Dr Helen Rozwadowski).

The section of this newsletter on bibliography and biography, so useful and so favorably commented upon last year, is in new hands, and as well as being a collaborative effort coordinated (and massively contributed to) by Deborah Day, will eventually appear on the World Wide Web as part of the Scripps Institution of Oceanography Library's page, along with the references included in the past issues. Thus we will soon have a bibliographic tool on the Web that is aimed directly at the historian of the marine sciences. This does not mean that the days of History of Oceanography are over - but it shows that we are trying to broaden the ways we can be useful to a world wide community of scholars and researchers.

History has been made in 1998 with the Sixth International Congress on History of Oceanography. For the first time an ICHO has been held in Asia, in Qingdao, China, from August 15-20. Walter Lenz's report on the Congress is printed later in this newsletter. Previous congresses were held in Europe or North America, beginning with the first in Monaco in December 1966. Six years later, in September 1972 the second took place in Edinburgh, Scotland. After a long delay, historians of oceanography met next in Woods Hole, Massachusetts, USA in September 1980. The next congress returned to Europe, being held in Hamburg, Germany in August 1987. Meeting for the first time on the shores of the North Pacific, ICHO-V met in La Jolla, California at the Scripps Institution of Oceanography in July 1993. Now, after Qingdao in 1998, it is time to begin planning a new one for 2003, on the present plan of a congress every five years.

Each congress has a special theme. In Monaco it was mainly European oceanography, in Edinburgh it was the centenary of the Challenger Expedition (1872-1876), and in Woods Hole it was oceanography in the United States. The Hamburg congress dealt mainly with German oceanography, and in La Jolla many papers were about marine sciences around the Pacific. This year in Qingdao one center of attention was ocean science in the Western Pacific and Indian Oceans. We can expect the theme of the next ICHO to match its location in some way, and, patterned on the others, to include a broad variety of other topics.

Finally, a consideration of the history of the Commission of Oceanography. The Commission is a part of the Division of the History of Science, which was founded in 1948 as a component of the International Union of the History and Philosophy of Science, itself founded under the great non-governmental international scientific body, the International Council of Scientific Unions. At the end of the Monaco congress, the creation of a Commission of Oceanography was discussed. It was proposed at the International Congress of the History of Science held in Paris in 1968 and adopted. The first president was the French historian of science and medicine Professor Jean Theodorides, now President Emeritus of this Commission. So not only is 1998 the year of the first Congress on the History of Oceanography held in Asia, it is also the thirtieth anniversary of the founding of the Commission of Oceanography. At the very least, we have celebrated by keeping busy and productive in the service of the history of the marine sciences.

Eric Mills

IN MEMORIAM - PROFESSOR LUIZ SALDANHA
1937-1967

Le 16 novembre dernier, Luiz SALDANHA nous quittait.

D'autres sauront - bien mieux que moi - évoquer le scientifique, l'enseignant, l'administrateur, le photographe, le plongeur, l'aquarelliste : l'homme aux multiples talents qui menait à bien ses entreprises avec une rigueur qui allait de pair avec l'élégance, une capacité de travail qui lui permettait, tout à la fois, de voyager dans le monde entier, sur et sous les mers comme à travers les déserts, et d'exécuter des travaux scientifiques de haut niveau et de grande envergure.

Les diverses facettes de sa riche personnalité, de son œuvre considérable, seront rappelées dans le volume d'hommage que préparent ses collègues et amis. Aussi, je me contenterai de rappeler ici ce que Luiz a apporté à l'histoire de l'océanographie.

Une immense culture, une curiosité toujours en éveil caractérisaient son esprit d'une exceptionnelle largeur de vues. Aussi avait-il, d'emblée, considéré que la meilleure façon de tirer parti du présent et de préparer l'avenir consistait à s'appuyer sur une connaissance solide du passé. Il reconnaissait volontiers que sa vocation d'océanographe était liée aux nombreuses visites qu'il avait faites, dès l'enfance, à l'Aquarium Vasco de Gama où sont conservées les reliques des campagnes scientifiques de D. Carlos de Braganca.

Ce Roi de Portugal, dont le souvenir était alors bien oublié (ou occulté?), a suscité son intérêt le plus vif. Tout naturellement, c'est au rôle de pionnier joué par D. Carlos que Luiz consacre la communication qu'il présente, en 1980, au Troisième Congrès international d'histoire de l'océanographie tenu à Woods Hole. Il reprend ce thème dans un article publié en portugais deux ans plus tard.

Pour le Quatrième Congrès international d'histoire de l'océanographie (Hambourg, 1987), Luiz rédige une étude sur le rôle joué par les zoologistes (et les pêcheurs) portugais dans la réfutation de la théorie de la zone azoïque développée par Forbes.

Durant les fréquents séjours qu'il effectuait à Monaco, Luiz témoigne d'une attention croissante aux liens qui ont existé entre D. Carlos et le Prince Albert Ier. La prédilection que le Prince a manifestée pour les Açores incite Luiz à organiser un colloque itinérant dans cinq des îles de l'archipel. Les participants à cette inoubliable réunion commémorent ainsi, en 1988, le centenaire de la dernière campagne océanographique du Prince Albert à bord de sa petite goélette Hironde. Les communications présentées sont regroupées dans un numéro spécial d'Acoreana dont Luiz assure l'édition avec deux de ses collègues.

C'est au cours de ce colloque que je propose à Luiz de partager avec moi la responsabilité d'éditer la correspondance que les deux souverains océanographes ont échangée. Un administrateur de la Fondation Gulbenkian, Monsieur Blanco, venait, au cours d'un bref séjour à Monaco, de m'offrir d'entreprendre cette publication, à la vue des documents conservés au Musée océanographique et dont il avait immédiatement discerné l'importance. La « petite plaquette », prévue à l'origine, devenait, au terme de quatre années de recherches, de réflexions, de discussions (parfois passionnées mais toujours amicales) un ouvrage de près de deux cents pages...

La contribution des deux souverains à la connaissance de la faune profonde de l'Atlantique est le thème choisi par Luiz pour sa communication au Cinquième Congrès international d'histoire de l'océanographie (La Jolla, 1993).

Le centenaire de la première campagne océanographique accomplie en 1896 par D. Carlos a été célébré au Portugal par l'émission d'un timbre-poste, une exposition et un congrès, célébrations qui, toutes, ont bénéficié de la compétence et du dynamisme de Luiz.

Le colloque de 1988 avait fourni a Luiz l'occasion d'evoker un autre personnage pour lequel il eprouvait une immense admiration, pleinement justifiee : le colonel Francisco Afonso Chaves. Cet officier acoreen - contemporain du Roi D. Carlos et du Prince Albert qui, l'un et l'autre, le tenaient en haute estime - presentait bien des caracteristiques que l'on retrouvait chez Luiz : puissance de travail, intelligence penetrante, remarquables aptitudes pour les sciences, interet pour les arts. L'expose presente aux Acores n'a ete qu'un bref resume de l'enorme documentation reunie par Luiz a propos de Chaves.

Pouvons-nous emettre le voeu qu'en souvenir de Luiz, les Acores mettent en oeuvre un programme de recherches et de publications qui assure a Chaves la notoriete qu'il merite ; ainsi serait realise un projet auquel Luiz tenait tant et qu'un sort injuste ne lui aura pas permis d'executer.

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Jacqueline Carpine-Lancre

BORNOE OCEANOGRAPHIC STATION

The Foundation of a Marine Station in Sweden

Swedish marine scientists lacked a permanent research institution for a long time. In 1877, the year of Fredrik L. Ekman's Baltic Sea expedition, Kristineberg's marine station on the outer part of the Gullmar Fjord was officially inaugurated, but research at Kristineberg was devoted solely to marine zoology. More than twenty years were allowed to pass between the Baltic Sea expedition, a hallmark in Swedish marine science, and the establishment of Borneo station in 1902.

Located on the island Greater Borneo in the Gullmar Fjord on the West Coast of Sweden, Borneo station

provided a milieu favorable to the advancement of marine science in Sweden for a long period. Considering the institutional development of marine science in Sweden, the foundation of Bornoe indicated that hydrography was placed on a firmer footing. Bornoe was the first oceanographic center in Sweden and offered generations of marine scientists an opportunity to advance their research.

The foundation of marine stations has attracted attention among historians of marine science heretofore. For instance, Margaret B. Deacon has provided an elaborate and substantial discussion of the foundation of marine stations in Britain in *Crisis and Compromise: The foundation of marine stations in Britain during the late 19th century* (*Earth Sciences History*, v. 12, no. 1, 1993, p.19-47). Compared to Deacon's discussion, the purpose of our paper is modest. The object is merely to lay open some of the aspects present when Bornoe station was founded. In addition, it offers a glimpse of the scientific and social milieu of this station.

Up to the time that Bornoe station was established, the analytic work of the Swedish Hydrographic Commission, administered mainly by Otto Pettersson (1848-1941) and Gustaf Ekman (1852-1930), had been spread between Gothenburg, Stockholm and Uppsala. Pettersson (see biography in *History of Oceanography*, no. 9, 1997) held the position of professor of chemistry at the newly founded (1878/79) Stockholm Polytechnic (Högskola) and undertook analytic work in Stockholm and Gothenburg. Pettersson is well known for having promoted ICES (the International Council for the Exploration of the Sea) and for his strong influence on its organization. Gustaf Ekman, a young relative of Fredrik L. Ekman and a close friend of Pettersson, took active part in the research in Gothenburg. He was, however, later constrained to administer the family enterprise, Carnegie & Co. (In 1900, when Carnegie & Co was incorporated into Svenska Sockerfabriks AB, Ekman became executive director of the company.) In Uppsala and Stockholm, the renowned diatom specialist Per T. Cleve (1840-1905) and the zoologist Carl Aurivillius (1854-1899) were making substantial contributions to contemporary plankton research. Aurivillius also spent a lot of time at Kristineberg. Most of the data were collected in the Skagerrak and Kattegat, west of Sweden. The hydrographic instruments and equipment were kept in a storehouse in Gothenburg, made available by Gustaf Ekman due to his position in Carnegie & Co. In short, the field was scattered. Additionally, and more decisively, the newly established co-operation within ICES made Swedish scientists conceive a research station as a prerequisite for fulfilling the obligation toward ICES assumed by King Oscar II and Sweden. At the turn of the century, the need for a permanent oceanographic station in Sweden seemed indisputable.

As elsewhere in Europe and America, the problem encountered when planning to set up a marine station was lack of money. From 1893 and onward, the Hydrographic Commission (1901, Swedish Hydrographic-Biological Commission) had been receiving government grants for hydrographic and plankton research in the Baltic Sea, Kattegat, Skagerrak, North Sea and the North Atlantic. The resources allocated to the Commission were modest, and to supplement them private means were necessary. As early as 1897, the Commission had made the Department of Interior aware of the lack of a permanent research station on the Swedish coast. (Department of Interior, vol. 3031, act. 14, no. 2357, Regarding co-operation between Sweden, Norway, Denmark and England of hydrographic investigations in the North Sea and Baltic Sea.) Thus, a marine station had been discussed for a couple of years, but it was not until 1901, when the Swedish Hydrographic-Biological Commission was founded that the wish could be complied with. The foundation of the Commission was a consequence of the Stockholm hydrographic-biological meeting in 1899, where the international community had recommended carrying out regular measurements at sea. It is noteworthy that the Swedish government did not wait for the final establishment of ICES in 1902 before establishing the Commission.

However, as it turned out, the foundation of Bornoe station was not financed by public funds. Instead, Otto Pettersson and Gustaf Ekman volunteered private means to construct the building. The newly established Hydrographic-Biological Commission, which took over the former Hydrographic Commission's tasks, then rented the station. The newly established Department of Agriculture made the rent available. (*Svenska hydrografisk-biologiska kommissionens skrifter*, 1903, vol. 1, pp. 11) This arrangement was retained until 1932 when Bornoe station was transferred to the hands of the government.

The island Greater Bornoe belonged to the Holma estate, purchased by Pettersson in 1892 and of ancient lineage. Unfortunately, Holma was destroyed in a fire in 1908. However uncertain, it is quite possible that Pettersson moved to Bornoe station during the reconstruction of Holma, at least it became his work place for the following year. In 1909, Pettersson resigned from his position as professor at the Stockholm Polytechnic and exclusively devoted himself to hydrographic research.

The geographical location of the station was a matter of discussion. Various places were reviewed. For instance, in 1896 Pettersson asked Aurivillius, who had first-hand experience from Kristineberg, to consider

Alsbaeck, located in the mid archipelago, as a feasible location. Aurivillius replayed in detail:

"You ask of Alsbaeck's fitness as physical biological station. When last autumn the site was discussed I suggested 1) Lysekil (Stangehuvud) or 2) Gasoe to be suitable at the outer archipelago. Considering, however, the possibility of accessing seawater in all seasons Alsbaeck has advantages. The fact that the guano factories pollute their nearest environment is realized at many places, also at Kristineberg in winter. For how long time Stangehuvud and Gasoe can avoid this pest is hard to predict. It is more probable, however, that such factories are built at these two mentioned sites than at the middle part of the Gullmar Fjord [Alsbaeck] Alsbaeck has now bad communications, but is situated at the same side as Lysekil and not very distant from it, there is hope for the future. Above all, this site is most favorable due to the great depth [120 m] with all the water types so close by." (Aurivillius to Pettersson, 22 March 1896.)

The various alternatives are discussed further in the correspondence between Pettersson and Gustaf Ekman. Alsbaeck, however, is not mentioned. Although Alsbaeck, situated in the middle of the archipelago, had been the best alternative, as it turned out Pettersson and Ekman chose Borneo, in the inner part of the archipelago, instead. Borneo had the less ideal qualities of a maximum water depth of only 50 m. Further, it was situated on a small island with only boat communications. However, it is not surprising that Pettersson chose a part of the Holma estate, his own land. Constructing the building at Alsbaeck undoubtedly would have turned out to be a considerably more expensive enterprise. The choice of Borneo as the location was later justified on strict scientific grounds in publications of the Swedish Hydrographic-Biological Commission (Svenska hydrografisk-biologiska kommissionens skrifter. 1903, vol. 1, pp. 14-18). In his autobiography, Pettersson later commented on the location of Borneo. "The station is located at a extraordinary favorable position - unparalleled in Europe - on a steep cliff at the waterfront of the wind and wave protected Gullmar Fjord, which forms a natural experimental basin of 3 miles [30 km] length for hydrographic and biological research-instruments." (Pettersson, 1938). However, as we have seen, from a strict scientific perspective Alsbaeck would have been more apt.

At its meeting on 24 March 1901, the new Commission accepted with pleasure the offer from Pettersson and Ekman to hire from them a house to be built according to plans and drawings shown at the meeting. The construction started immediately thereafter, in the spring of 1901. Most likely the construction was not finalized until 1902. The rent was set at 1200 kronor annually. Originally, however, the Commission had suggested to the Department of Agriculture that the rent should be paid on a five-year basis (6000 kronor). In addition, the Commission requested 8000 kronor for the reconstruction of a suitable building somewhere in the Bohus-archipelago. (Department of Agriculture, 26 Feb. 1901, No. 189. Swedish hydrographic-biological Commission concerning proposal for instructions.) However, as we have seen, instead of reconstructing an already existing building, Pettersson and Ekman chose to provide funds for the construction of a new building. The arrangement set up in 1901 remained until 1932, when the building and the hydrographic equipment were transferred to the Government. The payment was donated by the Wallenberg-foundation, which a few years earlier had financed the new Sea Fisheries laboratory at Lysekil. Part of the donation could be used for modernization. In 1933, Hans Pettersson, the first professor of oceanography in Sweden and son of Otto Pettersson, commented on the donation:

"A liberal allowance has provided the Station with central heating, sanitary installation, electric light, telephone [...] the old and rather primitive wooden observation pier at Borneo has been replaced by a powerful open-work iron construction, the top part of a large crane acquired from the Goeteborg Hamnstyrelse [Port authority of Gothenburg]."

At the turn of the century, however, the interior was far simpler in the two-floored stone house in the Gullmar Fjord. Nevertheless, even then Borneo was equipped with state of the art instruments and a research library. A contemporary writer, A. Pettersson, probably Anna Pettersson, daughter of Otto Pettersson, provided an account of the milieu at Borneo:

"The basement of the station contains two aquariums immured in the rock. Using a steam boiler these can be up-heated to the temperature necessary for various experiments. A large storage room is located in the ground floor. Trawl equipment and other fishing gear are kept in the storage room. A workshop and two fully

equipped laboratories, one chemical and one biological, are also accommodated there. On the second floor are furnished rooms, simple but comfortable, available to scientists who undisturbedly examine the mysteries of the Ocean. In addition, the second floor contains a library and two rooms designed for microscopic work. [...] Four solid iron girders, passed through the outer wall of the ground floor, hold a wooden landing stage equipped with a hatch, which is used when aquariums, oyster cages or other apparatus are descended into or ascended up of water." (A. Pettersson. 1904. Ymer, pp. 40-41.)

The description above communicates the atmosphere of scientific youthfulness, a prevalent feature in natural science at the turn of the century. It almost breathes the same confident air as a character in a novel by Jules Verne. A spiral staircase led to the second floor. In 1962, an ordinary staircase replaced it. The library was the sanctum of Borneo station. The architect Y. Rasmussen, Gothenburg, designed its suite of furniture especially for the room. The library has been piously kept unchanged. It is art-nouveau style, just like the interior of the dining room and the two bedrooms.

Borneo station is well documented in photographs. A contemporary photographer and mechanic/developer of hydrographic instruments, L. A. Persson (also known as "Tenn-Lars" from Dalecarlia), took more than 50 photographs of the instruments used at Borneo station and the surroundings of the station. For instance, there are photographs documenting the famous "Pettersson-Nansen water sampler" (developed by Pettersson and used during the voyage of Fram by Fridtjof Nansen, who later modified it) as well as Pettersson's current-meter with automatically recording gear. (The latter, including "Tenn-Lars" contributions, is described in Svansson, 1994/1995.)

The consequences of the foundation of Borneo station were substantial considering the institutionalization of marine science in Sweden. A permanent research station was now made available at Borneo, and research could be coordinated in a concrete manner. The individual efforts of Pettersson and Ekman were considerable in establishing the station at Borneo. Nevertheless, it is most likely that a station would have been founded in any event, perhaps at Alsbaeck farther out the archipelago. The character of the research favored by the Commission played a significant role in promoting the long survival of Borneo station. Additionally, the dynamic and headstrong mind of Pettersson was probably significant. However, the Commission's devotion to research related to fishery and other practical kinds of research were the decisive factor in determining the fate of Borneo.

Notwithstanding, research at Borneo gradually became more exclusively directed towards hydrography over the years. The character of the work first changed in 1914 when the biological research was moved to Kristineberg station. Until the death of Filip Trybom in 1913, a reputable inspector of fisheries and active within the Commission, hydrographers and biologists had been able to cooperate successfully at Borneo, just as Pettersson wanted it. However, when fisheries biologist K. A. Andersson became an influential member of the Hydrographic-Biological Commission he, in effect, required that the fisheries assistant at Borneo station should join him at Kristineberg station. Hence, the biological research was moved to Kristineberg. When the Sea Fisheries Laboratory was established at Lysekil in 1929, research at Borneo became solely devoted to hydrography. When the Oceanographic Institute at the University of Gothenburg was inaugurated in 1939, the decline of Borneo was furthered. After the end of the Swedish Hydrographic-Biological Commission in 1948, Borneo station was designated a field station. However, in 1998 it still serves the purpose of an oceanographic field station.

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A CENTURY OF MARINE SCIENCE IN SOUTH AFRICA

Few nations in the world can fix the start of the marine science endeavour in their countries accurately. In this respect, South Africa is an exception. Although the waters around southern Africa had much attention since the seventeenth century, none of this had its origin in South Africa itself. In fact, it could well be argued that by 1832 the Agulhas Current was better described and understood than the Gulf Stream. This was due to the work of James Rennell, the pre-eminent British geographer of the time.

Scientific studies of the sea started in South Africa itself in exactly 1886 when, at the invitation of the Department of Agriculture of the then Cape Colony, John D.F. Gilchrist came to South Africa from Scotland. His charge was to explore the adjacent seas for possible unknown fish stocks. In this he had immediate success, to the delight of his political sponsors. He went on to found what is now the Sea Fisheries Research Institute in Cape Town, the ocean interest at the South African Museum, and the enduring marine research at the University of Cape Town, where he occupied the chair of zoology for many years.

To commemorate this important centenary, a number of functions were held in South Africa in 1996. Perhaps the most important was a special Gilchrist Plenary Session that formed part of the 9th National Marine Science Symposium held in Cape Town in November 1996. A book of 252 pages with articles based on the talks held at the Gilchrist session has been published. Called *A century of marine science in South Africa*, it has been edited by Dr Andy Payne and Professor Johann Lutjeharms (a full reference is given in the Bibliography section of *History of Oceanography*). It covers various aspects of the development and history of marine science in South Africa [and is an essential reference for historical work on the marine sciences in this area - Ed.]

Copies of this book are available gratis from: The Director, Sea Fisheries Research Institute, Private Bag X2, 8012 Roggebaai, South Africa.

Johann Lutjeharms, Department of Oceanography, University of Cape Town, 7700 Rondebosch, South Africa. E-mail: johann@physicist.uct.ac.za.

THE NORTH ATLANTIC FISHERIES HISTORY ASSOCIATION (NAFHA)

NAFHA was founded by historians from Iceland, Norway, the Faeroe Islands, Sweden, Denmark, the United Kingdom and the Netherlands at a conference in the Westmann Islands, Iceland in 1995. Since then, historians from Canada, Greenland and Spain have joined the Association, and students researchers from other countries have also participated in its activities.

The aims of the Association are to encourage the study of the history of the North Atlantic fisheries and other resources, and to write the history of North Atlantic fisheries ca. 1100 to 1976. NAFHA has already sponsored three conferences on North Atlantic fisheries: in the Westmann Islands (1995); in the Faeroe Islands (1996); and in Tromsø, Norway (1997). The association publishes the series *Studia Atlantica*, which contains conference papers and also intended as a venue for monographs and other research results in the field of North

Atlantic fisheries history. To date, one volume has been published containing papers from the conference in the Westmann Islands. Volumes 2-4 are due to be published within the next six months.

NAFHA is run by a Steering Committee of 10 (one representative from each participating country), which elects a board of officers, editorial committee for the History of North Atlantic Fisheries, and editors of *Studia Atlantica*. Currently, the Steering Committee consists of Bertil Andersson (Sweden), Jaap R. Bruijn (Netherlands), James E. Candow (Canada), Poul Holm (Denmark), Joan P. Joensen (Faeroe Islands), Alf R. Nielssen (Norway), Natividad de la Puerta Rueda (Spain), David J. Starkey (United Kingdom), J. Th. Thor (Iceland), and Daniel Thorleifsen (Greenland). The board of officers consists of J. Th. Thor (president), Alf R. Nielssen (secretary), and Bertil Andersson (treasurer). The editors of *Studia Atlantica* are Poul Holm and David J. Starkey

For further information on the NAFHA please contact:

J. Th. Thor, Icelandic Centre for Fisheries History Research, Haffrannsóknastofnunin P.O.1390, Skulagoetu 4, 121 Reykjavik, Iceland tel. +354 552 0240; fax +354 562 3790 E-mail: jonthor@hafro.is

Alf R. Nielssen, Universitet i Tromsø, Breiviklia 15, 9037 Tromsø, Norway tel. +47 776 45799; fax +47 776 45790 E-mail: alfrn@isv.uit.no

Bertil Andersson, Goteborgs Universitet, Ekonomisk-historiska institutionen, Skanstorget 18, 411 22 Goeteborg, Sweden. tel. +46 31 773 4750; fax +46 31 773 4739 E-mail: Bertil.Andersson@econohist.gu.se
An updated NAFHA web-site will be available by early May 1998.

Coming events:

The Fourth NAFHA conference to be held at the University of Akureyri, Iceland, 16-19 September 1998. The theme is "Life and labour in the North Atlantic fisheries, and

A conference on coastal whaling, sealing, fowling, aboriginal fisheries, and the utilization of driftwood and seaweed, scheduled for Thorshavn, Faeroe Islands, in early June 1999.

Jon Th. Thor, Icelandic Centre for Fisheries History Research, Haffrannsóknastofnunin P.O. 1390, Skulagoetu 4, 121 Reykjavik, Iceland

A REPORT ON THE SIXTH INTERNATIONAL CONGRESS ON HISTORY OF OCEANOGRAPHY

The VIth International Congress on History of Oceanography took place in Qingdao, China from Aug. 15 to 20, 1998. The international Huanghai Hotel was chosen as venue, where at least all participants from abroad (50 registered, but not all appeared) were accommodated. The attendance was less than in previous congresses - about 100 during the opening ceremony and 50 during the Congress. This certainly was a result of the late announcement of the Congress without detailed information on the programme. The organizers - as we learned on the spot - were in a difficult position, because the director of the First Institute of Oceanography, SOA, who had applied in 1993 to host the Congress, fell ill afterwards and died last year without delegating its organization. Therefore, the organizers were faced with the problem not having the time necessary for proper preparation of this kind of meeting. Despite this, they did a marvellous job of organization and in fulfilling all the requests during the congress - especially in filling the gaps in programme left by speakers who did not appear. Thanks are due to Profs. Mingyuan Zhu and Emei Zou as well to the others behind the scenes.

The opening ceremony included welcoming remarks by a representative of the State Oceanic Administration (SOA), the Deputy Major of Qingdao, me on behalf of the Commission of Oceanography (reading a text prepared by Eric Mills) and Selim Morcos for the International Oceanographic Commission. A special attraction was the show of T-shirts handpainted by school children addressing The Year of the Ocean and selected from a nation wide competition.

The programme was a mixture of historical and contemporary topics filling 13 half-day sessions. The contemporary contributions - mostly by Chinese speakers - served on one hand to fill a four day programme, but on the other hand were intended to demonstrate the Chinese approach to ocean science and management into the next century, of which the Qingdao region is eager to become the national centre. The closing ceremony was addressed by the Major of Qingdao.

Besides the official programme, a group discussed the problem that the proceedings of ICHO V have still

not been published and where the proceedings of ICHO-VI should be published. The organizers have already contacted the publisher for the Academia Sinica, which would ensure a world wide distribution at least to important libraries. Furthermore, thoughts were expressed about the place of ICHO-VII: Naples, Lisbon, Halifax, Kaliningrad, Netherlands, Baltimore, Bordeaux, and Boston, according to a priority list.

Walter Lenz, Zentrum fuer Meeres- und Klimaforschung, Bundesstr. 55, D-20146 Hamburg, Germany e-mail: walter.lenz@dkrz.de

CHOOSING THE SITE OF ICHO-VII

One of the major responsibilities of the Commission of Oceanography is to choose the sites of the International Congresses on History of Oceanography, which are now held every five years. Thus the next Congress, ICHO-VII, will be held in the year 2003.

The Commission would like to receive proposals for the site of ICHO-VII, which should be sent to Eric Mills, as President of the Commission, by the end of this year. These proposals need not be in final form, but should include information on:

- the location
- the theme of the Congress
- organization and financing

We hope that the choice of a site for ICHO-VII may be made early in 1999.

ICES HISTORY SYMPOSIUM - "100 YEARS OF SCIENCE UNDER ICES"

The International Council for the Exploration of the Sea (ICES), the world's oldest intergovernmental marine science organization, will celebrate its centenary in 2002. One of several major events commissioned by the Council to mark this historic occasion will be a historical symposium slated for 1-3 August 2000 in Helsinki, Finland. It will focus on the key role that ICES has played during the past century in major developments in the fields of marine fisheries, hydrography, and environmental quality.

Invited keynote speakers will introduce 12 main developments, while contributed papers and posters will focus on particular subjects such as principal advances in knowledge, chief investigators and human dynamics, noteworthy events or incidents, scientific and political controversies, multi-disciplinary interactions, socio-political contexts, and linkage with other international organizations. The topical areas for which contributed papers or posters are solicited include:

1) Scientific and political precursors of the late 19th century and subsequent events that influenced the founding and evolution of ICES. (Contributed papers featuring national or regional aspects of these topics would be appreciated.)

2) Field studies in hydrography

3) Growth of the theory of plankton production and links to fish recruitment

4) Contaminants in the marine environment: ICES's role in developing methods and coordinating scientifically-based advice

5) Variability at all scales and its effect on the ecosystem

6) The notion that fish form stocks

7) Ocean travellers: trans-ocean fisheries and migrations

8) Rearing and release

9) Realizing the basis of overfishing and quantifying fish population dynamics

10) ICES as a fishery advisory body.

11) Major scientific contributions by ICES

12) Grand challenges for ICES. (This session will be featured at the Symposium dinner and will not include contributed papers.)

This Symposium is open to all scientists, historians, students, and others, who have an interest in the historical development of the marine sciences, particularly those involving ICES.

Contributors must submit titles with 200-300 word abstracts to the Convenor by 31 August 1999.

Contributions will be published, following peer review, in a special issue of the ICES Journal of Marine Science.

A registration fee of US\$ 125 (US\$ 75 for students), due by 1 July 2000, will cover costs of coffee, tea, the Symposium dinner, and a copy of the published proceedings.

To receive a more detailed announcement, contact the Symposium Convenor, Dr Emory D. Anderson, NOAA/NMFS, Northeast Fisheries Science Center, Woods Hole, MA 02543, U.S.A. Tel: +1 508 495 2317; fax: +1 508 495 2393; e-mail: emory.anderson@noaa.gov.

FROM THE ARCHIVES: PAPERS OF KEITH RUNCORN, FRS

The papers of the late Professor Keith Runcorn, FRS, a notable figure in the plate tectonics revolution, are to be catalogued by the National Cataloguing Unit for the Archives of Contemporary Scientists at the University of Bath, UK, for eventual deposit in the Archives of Imperial College, London. Dr T.E Powell, Senior Assistant Archivist at the Bath Centre, has examined the collection in the home of Mr Neil Molyneux of Jersey, Channel Islands, UK. The excerpts following are from his report.

"18 large grocery boxes plus 10 box files, ca 57 shelf feet....Off-prints and some personal material has already been discarded, reducing the bulk considerably. What remains appears a full and comprehensive collection covering Runcorn's whole career from school to death..." Contents include " 1. Visits to US, Committee on Space Research (COSPAR), Royal Society (RS), visits and conferences, correspondence, references, Royal Astronomical Society (RAS). 2.Establishment of University of Newcastle, European Union of Geophysics, correspondence. 3.Research, visits and conferences, lecture draft. 4.Publications, visits and conferences, British Association. 5.Visits and conferences, IUCM (re the Moon), RS committee, RAS. 6. Undergraduate notes (?some of Sir Ronald Fisher), correspondence, Joint Working Group on Planetary Exploration, RAS meetings, European Science Foundation, Mars. 7.RS discussion meeting, research, lectures on operational calculus and other undergraduate notes. 8.Research, Advisory Committee on Scientific Research and Technical Development, correspondence, RS. 9.Research, Chadwick centenary, drafts, university notes. 10.Correspondence, COSPAR, visits and conferences. 11.University of Newcastle, visits and conferences NATO Advanced Study Institute, American Geophysical Union, RS committees, International Council of Scientific Unions, National Science Foundation. 12.RS committees, RS discussion meeting, EGS, Pacific cable. 13.International Astronomical Union, publications, Super Heavy elements, COSPAR, correspondence. 14.Publications, COSPAR, visits and conferences. 15.Bruce Babbitt file (Babbitt was a friend of SKR), RS Club, research, magnetism of the Moon, editorship of journal, Pacific cables. 16.Research, Pacific cable, publications. 17.Early correspondence, undergraduate work, Pacific cable, publications, University prize. 18. School and university notebooks, pocket diaries. 10 boxfiles of RS committee papers. Assessment: this voluminous collection is of potentially international importance."

For information, contact Peter Harper, Director, National Cataloguing Unit for the Archives of Contemporary Scientists, University Library, University of Bath, Claverton Down, Bath, Somerset BA2 7AY, United Kingdom. Tel: +44 1225 826826 x5241.

SCIENTISTS AND THE SEA - A REVIEW

Deacon, Margaret. *Scientists and the Sea 1650-1900. A Study of Marine Science*. 2nd Edition. (Aldershot, England & Brookfield, Vermont, USA: Ashgate, 1997), xl + 459pp. US\$ 85.95.

Since its publication in 1971, Margaret Deacon's *Scientists and the Sea* has remained the most frequently-cited work on the history of the marine sciences. My copy is battered and stained from constant use and the copies in the libraries I have frequented over the years show signs of frequent use. But the original edition has been out of print for many years and has been difficult to obtain on the used market. Now Ashgate has provided us with a new edition, reprinting the original text, but with a new introduction, the addition of a comprehensive bibliography covering 1971 to the 1990s, and correction of misprints and errors. The result is a must-have volume even for those lucky enough to have a copy of the first edition. Perhaps the only drawback is that the significant cost of this volume makes it too expensive for purchase by students - a sizeable market that the publisher apparently ignored.

In a foreword to the second edition, I wrote that "Scientists and the Sea was a pioneering work, unequalled since in its depth and breadth of coverage. It remains invaluable to anyone wanting to understand the origins of marine science in Antiquity, the Middle Ages, during the period of the Scientific Revolution, the great seventeenth- and eighteenth-century explorations, and during the nineteenth century when the early work was transmuted into a modern science of the oceans." It is remarkable - and a tribute to the quality and depth of Margaret Deacon's scholarship - that this can be said of a work more than a quarter century old. Scientists and the Sea is as vital and important now as it was during the formative stages of our discipline and it has been complemented by the new material added in the second edition. No one interested in the history of the marine sciences should be without it.

For information on Scientists and the Sea, Second Edition, contact the publisher: Ashgate Publishing Ltd, Gower House, Croft Road, Aldershot, Hampshire GU11 3HR, UK or Ashgate Publishing Company, Old Post Road, Brookfield, Vermont 05036-9704, USA.

Eric Mills

CATALOGUE OF THE ARCHIVES OF THE MARINE BIOLOGICAL ASSOCIATION A REVIEW

Varley, Allen (compiler & editor). "Catalogue of the Archives of the Marine Biological Association." Occasional Publication, Marine Biological Association No.5 (1997), 1-64. ISSN 0260-2784.

Since its founding in 1884, the Marine Biological Association of the United Kingdom has been a mainstay of marine research in the United Kingdom, especially through the work in its laboratory at Plymouth, which opened in 1888. Its library and archives are prime resources for research in the history of the marine sciences. Quoting from the introduction to Allen Varley's indispensable catalogue of the Archives of the MBA, "the archives collection includes documents and records relating to the early history and development of the Association and its Laboratory, the research programmes, staff, visiting workers and membership, the buildings, ships, library, aquarium, Journal, finance and administration, together with personal and scientific papers, letters, notebooks and documents, illustrations and photographs. The material in the Collection reflects the history not only of the MBA, but also the origins and early history of British marine science."

This catalogue is a printed version of a computerized database available in Plymouth and is divided into three sections: institutional papers, personal papers of MBA scientists, and the correspondence of E.T. Browne (1866-1937), a marine biologist and patron of the MBA. As Allen Varley reminds users of this catalogue, historical information on the MBA, useful in conjunction with the Catalogue is available in Southward, A.J. & E.K. Roberts. "One hundred years of marine research at Plymouth." *Journal of the Marine Biological Association of the United Kingdom* 67 (1987): 465-506.

A little browsing in the Catalogue reveals the riches of the MBA Archives: early correspondence of E. Ray Lankester concerning the Association; correspondence and papers about the MBA's involvement in the early activities of ICES; letters and personal correspondence of many distinguished scientists; lengthy (and untapped) files of records from the directorship of E.J. Allen, 1994-1936, when the laboratory first expanded physically and scientifically; records of the *Journal of the Marine Biological Association of the United Kingdom*; and scientific papers of important marine scientists including E.J. Allen, G.P. Bidder, E.T. Browne, L.H. N. Cooper, Walter Garstang, Sir Sidney Harmer, H.W. Harvey, E.W.L. Holt, Sir Frederick Russell, T.A. Stephenson, Douglas P. Wilson and William Yarrell.

All historians of the marine sciences will find the Catalogue of the MBA Archives, and its associated database, invaluable tools in research and stimulating sources of new ideas. It is available from the Marine Biological Association, Citadel Hill, Plymouth PL1 2PB, United Kingdom.

Eric Mills

NEWS AND EVENTS

PROCEEDINGS OF ICHO-V. The proceedings of ICHO-V, held in La Jolla, California, USA, in 1993 are in the final editorial process with the University of Washington Press in Seattle, Washington, U.S.A. Publication is

expected in late 1998 or early in 1999.

HISTORISCH-MEERESKUNDLICHES JAHRBUCH. The fourth volume of this new journal on history of marine sciences was published in 1997, containing papers commemorating the Berlin Institut and Museum fuer Meereskunde presented during a symposium held in Berlin in September 1996. The fifth volume is in preparation, containing papers on the history of oceanography presented during the Commission of Oceanography's symposium at the XXth International Congress of History of Science, held in Liege, Belgium, in July 1997. The publisher is the Deutsches Museum fuer Meereskunde und Fischerei, Katharinenberg 14-20, D-18439 Stralsund, Germany.

BELGICA CRUISE AND ROMANIA. Part of a television programme, "Marine Horizons," on the Constanta station "MTC" on 4 September 1997 commemorated the centenary of Belgica's Antarctic cruise, in which the Romanian biologist Emil Racovitza participated. Among the contributors to the show was Dr Alexandru Bologa, Scientific Director of the Romanian Marine Research Institute and a national representative of the Commission of Oceanography in Romania.

INAUGURATION OF THE BIOHISTORICUM. On 11 September 1998, the inauguration of the Biohistoricum. Museum und Forschungsarchiv fuer die Geschichte der Biologie was celebrated at Neuburg an der Donau (Germany) with an exhibit which remains open until November 1. The new museum is in a beautifully restored Renaissance building. It is actively collecting papers and publications related to the biological sciences. Research facilities (library, archive) will be available as soon as the museums' holdings are processed and adequately housed. Information: Biohistoricum Neuburg an der Donau, Amalienstr. A33, 86633 Neuburg an der Donau, Germany; telephone +49 8431 60 54 30 or 60 54 31; fax +49 8431 60 54 32.

"POLAR SEA OF DISCORD AND COLLABORATION: SCIENCE AND POLITICS IN OCEANOGRAPHY AND ARCTIC EXPLORATION." A meeting to examine history and politics of research on the Arctic Ocean from the 19th century to the present is being organized for February 1999 in St Petersburg, Russia. Among its aims is an attempt to foster collaboration among scholars from around the northern hemisphere. For information, contact Dr Daniel Alexandrov, Institute of the History of Science and Technology, Russian Academy of Science s, St Petersburg 199034, Russia.

HISTORY IN ASLO. The American Society of Limnology and Oceanography, at its annual meeting in Santa Fe, New Mexico, USA in February 1999, proposes to hold a historical symposium and poster session on the history of the aquatic sciences. A Historical Gala titled "50 Years of Aquatic Sciences: Historical Perspectives" will take place on Wednesday, February 3, followed by an Evening Historical Gala and reception the same day. Speakers and other features are still being arranged. For information, contact Dr John Downing at <downing@iastate.edu>.

HISTORY OF NSF'S CONTRIBUTION TO OCEANOGRAPHY. A symposium "Fifty Years of Ocean Discovery," a contribution of the U.S. National Science Foundation to the International Year of the Ocean, is being planned for October 28-30, 1998 in Washington, D.C. For information, see <<http://www2.nas.edu/osb/2326.htm>> or contact Dr Ed Urban at <eurban@nas.edu>.

DHS/IUHPS WEB SITE. The parent body of the Commission of Oceanography, the Division of History of Science, International Union of the History and Philosophy of Science, publishes a newsletter useful to historians of science. It can now be found on the WWW at <<http://www.cilea.it/history/DHS>>, along with other information about the DHS.

TEA-COM. The Division of History of Science, International Union of History of History and Philosophy of Science, includes a Commission for Teaching the History of Science and Technology (TEA-COM). Its aims are to study and solve problems of teaching the history of science and technology, especially in the education of scientists. TEA-COM is actively soliciting members. Please contact Dr Jaroslav Folta, TEA-COM, Dept of the History of Technology, National Technical Museum, Kosteln 42, CZ 170 78 Praha 7, Czech Republic.

MORE ON FINDING OUT-OF-PRINT BOOKS. In addition to the WWW resources of <<http://www.bibliofind.com>>, mentioned in the last issue of History of Oceanography, out of print books in all fields, including the marine sciences, may sometimes be located at these sites: <<http://www.abebooks.com>> and <<http://www.interloc.com>>. MEETINGS AND CONFERENCES (For meetings still being organized as of September 1998, see News and Events, above)

27-27 NOVEMBER 1998. THE STAZIONE ZOOLOGICA ANTON DOHRN: 125 YEARS, A Symposium to Honor the Memory of Prof. Gaetano Salvatore, in The Castel del'Ovo, Naples. Contributions from R.D. Keynes, Francois Jacob, L. Cavalli Sforza, Renato Dulbecco, Emile Zuckerkandl, Francisco Ayala, Victor Smetacek and Benno Mueller Hill among others. Information: Stazione Zoologica Anton Dohrn, " Villa Comunale, I-80121 Naples; phone 81 5833 111; fax 81 764 1355.

14-17 APRIL 1999. DRAWING FROM NATURE: ART AND ILLUSTRATION IN THE NATURAL HISTORY SCIENCES, the 12th International Conference of the Society for the History of Natural History, at the Natural History Museum, London. Contact Paul Cooper, Zoology Library, Natural History Museum, London SW7 5BD, UK (p.cooper@nhm.ac.uk).

JULY 1999. LONG AND SHORT TERM VARIABILITY IN SUN'S HISTORY AND GLOBAL CHANGE, a symposium of the International Association of Geomagnetism and Aeronomy, in Birmingham, UK. Topics from history, archaeology, solar physics, astrophysics, etc. Details and offers of papers by 15 January 1999 to Dr Wilfried Schroeder, Hechelstrasse 8, D-28777 Bremen-Roenebeck, Germany.

11-16 JULY 1999. THE CARTOGRAPHY OF THE MEDITERRANEAN WORLD, the 18th International Conference on the History of Cartography, in Athens. Information and offers of papers: Dr George Tolia, the National Hellenic Research Foundation, 48 Vassileos Konstantinou Ave., GR-116 35, Athens, Greece; e-mail: gtolia@eie.gr.

9-12 AUGUST 1999. ECLIPSE 99: NAVIGATIONAL STIMULUS TO THE HISTORY OF SCIENCE, at the University of Plymouth. Explores the impact of navigation on the history of science. Offers of papers and information: P.A.H. Seymour, Institute of Marine Studies, University of Plymouth, Drake Circus, Plymouth PL4 8AA, UK.

8-14 AUGUST 1999. MERCHANTS & MARINERS: MARITIME HISTORY CONFERENCE, in Corner Brook, Newfoundland. A joint meeting of the Association for the History of Northern Seas and Canadian Nautical Research Society. Information: Dr Olaf Janzen, Division of Arts, Sir Wilfred Grenfell College, Corner Brook, Nfld A2H 6P9, Canada. Tel: (709)637-6282; fax: (709)637-6159; e-mail: olaf@beothuk.swgc.mun.ca.

CURRENT BIBLIOGRAPHY OF THE HISTORY OF OCEANOGRAPHY (1997-1998, with additions from earlier years)

Deborah Day

A note to users of the Bibliography and Biography sections. These sections pass into new hands this year and into a new kind of organization. Jacqueline Carpine-Lancre's enormous contribution ended formally with her retirement from the Musee oceanographique de Monaco. Since then, Deborah Day has taken over coordination of the bibliography/bibliographies and the compilation of those from the past on the Scripps Institution of Oceanography Library's Web page (not yet available; more news of this in the near future). The sources of information for this year's contribution are searches by Deborah Day, and information from Pauline Simpson,

Librarian of the Southampton Oceanography Centre and Barbara Schmidt, librarian of the Institut fuer Meereskunde, Kiel.

We are also grateful to Mirko Orlic, Helen Rozwadowski and Christiane Groeben for their contributions. The databases used included ASFA (Aquatic Sciences & Fisheries Abstracts), HSCI (History of Science Citation Index), Arctic & Antarctic Regions Database, GEOREF, Marine, Oceanic & Freshwater Resources, the Zoological Record, University Microfilms International (UMI), the University of California's catalog Melvyl, the American Institute of Physics's International Catalog of Sources, and the Isis Cumulative Index for 1997. We would be grateful for suggestions for future bibliographies, including new sources to search, and contributions of references that might be missed in regular searching of the kind described, especially those of a regional nature or in European or non-European languages apart from English. Our aim is to make the annual Bibliography and Biography sections as broadly-based and as useful as possible to historians of the marine sciences. - Eric Mills

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