The Variorum Collected Studies Series provides two great services to scholars. First, it gathers in one place articles from many years of diverse periodicals by a single author. These articles often would be impossible to find in a single library. Secondly, the series offers the author a chance to place previously unpublished work (or work published originally in a different language) in the context of many years of scholarship.

The New Science of Geology assembles fourteen articles by noted historian of earth science Martin J.S. Rudwick between two covers. Of these, one appears for the first time, one for the first time in English, seven first appeared in edited books, and six in journals. All share a focus on the late eighteenth and early nineteenth centuries, on sciences related to geology, and all have “stood the test of time.”

A variorum edition provides Rudwick the opportunity to consider and emphasize the threads that have held his researches together. He divides the articles into three broad themes: Earth-history and the history of geology; Cuvier and earth-history; and geology in the age of Lyell. The first section considers “general issues and syntheses”: the historicizing of knowledge of the Earth (in three articles), relations between science and religion, and the “emergence of a visual language” for geology. In all of these, the author counters “modern mythmaking.” He argues that Bishop Ussher provides no pre-modern foil to geochronology but rather was part of the enterprise. He argues that the now commonly assumed divide between secular science and religious fundamentalism blinds us to understanding the varieties of relations between science and religion in earth-history.

The rest of the book allows Rudwick to delve deeply into the research practices of Cuvier, Lyell, and their contemporaries. Rudwick places Cuvier against the earlier efforts of Jean André de Luc to calibrate evidences of Earth’s history. He examines Cuvier and his collaborator Alexandre Brongniart’s reading of the stratigraphic “documents” of this history and on Cuvier’s cultivation of distant collaborators and his use of engravings of fossil bones as “proxies” in his publications.

The section “Age of Lyell” devotes more space to Lyell’s contexts than to his own researches. Without examining each of these in turn, suffice it to say that examined issues include: (1) how it became accepted in geology to employ artistic renderings of past life-forms, (2) field and institutional practices of geologists in the 1830s, and (3) how debates among geologists related to their field experiences and to the production of scientific knowledge.

Readers who have kept up with Martin Rudwick’s books since The Meaning of Fossils (1972) will certainly recognize the continuities of his themes in these articles with those explored at great depth in his books. We’ve all been challenged in these books to
re-examine our historiographic assumptions by his ways of approaching subjects we thought we understood. The articles in this book, which most of us have probably read in a scattered way, help us to refocus our appreciation of a most influential historian of science.

It is, however, absolutely incorrect to see this variorum edition as a swan song. Martin Rudwick has two more volumes immediately in the wings. So stay alert.

Gregory A. Good, Visiting Scholar, Department of History and Philosophy of Science, University of Cambridge, Cambridge, UK. Greg.good@mail.wvu.edu
Since the start of this journal, Founding Editor Gerald M. Friedman has prepared this column. Contributors wishing to list recent books and papers of interest to our membership are requested to send them to Professor Gerald M. Friedman, Northeastern Science Foundation, Rensselaer Center of Applied Geology, P.O. Box 746, Troy, NY 12181-0746, U.S.A.; Fax: 518-273-3249; E-mail: gmfriedman@juno.com


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ANTARCTIC RESEARCH: NO LONGER AN HISTORIC
MATTER IN THE SCIENCE COMMUNITY

ON THE ESTABLISHMENT OF AN NEW ACTION GROUP
AND ITS FIRST WORKSHOP

CORNELIA LÜDECKE

München, Germany
C. Luedecke@lrz.uni-muenchen.de

The 50th anniversary of the International Geophysical Year is in 2007–2008. On this occasion an Action Group on the “History of the institutionalisation of Antarctic Research within SCAR” was established under the Delegate Committee on Standing Committees and Outreach of the Scientific Committee of Antarctic Research (SCAR) during the SCAR XXXIII Delegates Meeting at Bremerhaven in October 2004. It is the first international and interdisciplinary group devoted to the history of polar research.

The aim of this working group is to obtain insight into the evolution of Antarctic research and the emergence and development of institutions to co-ordinate, what was first called the Special Committee, and then Scientific Committee on Antarctic Research. We plan to study to what degree research in the Antarctic has been driven by scientific criteria, and to what extent compromises were made in the light of political barriers, levels of technological development, logistical limitations, and physical hazards.

In historical perspective, a review will be made of essential background factors, both scientific and non-scientific, at work when nations were moved to participate in the International Geophysical Year (IGY, 1957–1958) at the time of the Cold War. Pertinent in this respect are the different roles played by non-governmental scientific organisations as distinct from intergovernmental organisations or modes of international organisation. Additional socio-cultural and political background factors will be considered with regard to major nations that chose not to contribute to the IGY.

Traditionally, field science practised in remote geographical regions was either a byproduct of exploration or an activity exploited by economical interests or territorial claimants. An important aspect of the early international polar year initiatives in the past has been the requirement that expeditions and projects be driven by scientific research instead of exploration. This principle was reiterated in Belgium since 1905 by a number of internationally minded scientists (Henryk Arctowski, William Speirs Bruce, Jean Charcot, Georges Lecointe, Otto Nordenskjöld, and others). This was, when efforts were afoot to establish an international polar commission, a hybrid combination of intergovernmental and non-governmental scientific and other organizations. Although such a commission was actually founded, it had a very marginal influence on events and was soon eclipsed by the First World War.

In the course of the workshops we want to investigate the engagement in Antarctic research. What motivated an individual person or a given country to engage in Antarctic research? Did the motivation differ during different historical time periods? Is it possible
to identify different types of role-figures? The next step refers to the realisation of Antarctic research. How were research agendas set up and implemented? What kind of arguments were used to promote Antarctic research? What sort of funding was available, and did different modes of funding affect the character of an expedition and the way it was conducted? Co-operation was also very important in the context. When did co-operation for research pertaining to Antarctica occur, and what was the general orientation and scope? What were some of the obstacles associated with multi-lateral or international co-operation? Finally there had been leading figures in the context of different national settings and perspectives. We want to know, who were the persons that came to be recognised as leading figures in Antarctic research, and for what reasons? To what extent did some scientists emerge as diplomats within science, or beyond it in the international political arena? How were they regarded by their scientific colleagues, by politicians, media, etc?

To answer these questions the 1st SCAR workshop on history of Antarctic Research took place at the Bavarian Academy of Science and Humanities in Munich on 2–3 June, 2005. The Commission for Glaciology of the Bavarian Academy with its first scientific leader Dr Oskar Reinwarth was involved in the preparatory phase of the construction of the Georg-von-Neumayer-Station and participated in many research projects funded by the Deutsche Forschungsgemeinschaft. On the occasion of the 25th anniversary of the establishment of this West German Antarctic station, a workshop on the history of Antarctic research was held under aegis of the SCAR Action Group and the Commission for Glaciology.

Participants came from Australia, Chile, England, Germany, Holland, Sweden and USA. On Thursday morning, Prof. Horst Hagedorn, chairman of the Commision of Glaciology, welcomed the participants on behalf of the Academy and gave a short introduction to the history of the Academy and the various projects going on. The scientific leader of the same commission, Ludwig Braun, addressed the tradition of Antarctic research at the commission in his welcome speech. Cornelia Lüdecke, chairwoman of the Action Group, gave some technical advises, while Aant Elzinga (University of Göteborg) finally opened the workshop.

Each oral presentation was of 60 minutes duration which allowed enough time for detailed discussions. The posters were on display throughout the whole workshop. Altogether we had nine oral papers and three poster presentations.

Session I started with Jorge Berguño from the Chilean Antarctic Institute (Santiago, Chile) on the dawn of Antarctic scientific consciousness from the Chilean point of view. He described how a sort of elite developed in Chile in co-operation with Antarctic expeditions and with Punta Arenas as focal point for supplies. Due to a very strong earthquake in 1905, the Chilean government was prompted to establish a seismological network instead to realise the planned first Chilean Antarctic expedition. During the discussion, it was pointed out that the International Polar Years (IPY) always took place during fundamental scientific peaks: 1st IPY (1882/83): Observation of the transit of Venus, 2nd IPY (1932/33): Investigation of the upper air, and 3rd IPY (International Geophysical Year, 1957/58): Satellites. Comments on Chile’s Antarctic claims in comparison with the Antarctic Treats System were also made.

The poster presentation of five minutes each followed immediately afterwards. Jason Davis, a graduate student from the Department of Geography (Ohio State University, Columbus, OH, USA), explained the changes to Antarctic identity rhetoric as demon-
strated by papers published in the National Geographic Magazine. David Michael Dodd from the Royal Society of Victoria / University of Melbourne (Melbourne, Australia) in absence had send a short poster addressing the Australian context of the history of Antarctic research referring to the input of European scientists like Georg von Neumayer. The ‘Heroic Age’ (until 1916) activities were centred on Australian Antarctic Territory and the Ross Dependency. It was followed by the Second Polar Year (1932/33, Mawson Years), the Third Polar Year (IGY, 1957/58, the Law Years) and Antarctic research in the modern era—the past 40 years. Finally Helmut Honik’s (Filchner Archive, Munich, Germany) and Cornelia Lüdecke’s poster focussed on the Bavarian officer Wilhelm Filchner (1877–1957) leader of the second German Antarctic expedition to the south eastern part of the Wedded Sea. He wanted to investigate the connection of the western and eastern part of Antarctica being land covered by snow or being frozen water. Filchner’s estate is placed in the Filchner-Archive of the Bavarian Academy of Sciences and Humanities. It holds diaries, correspondences, books, movies, pictures, and personal belongings.

After the coffee break, Adrian Howkins a Ph.D. student from the University of Texas at Austin (Abington, USA) discussed Argentine scientific interests in Antarctica from 1946 to 1959. He divided this period in three sections, which were closely connected with changes of government in Argentine: The military or navy period (1946–1951), Peron’s period (1951–1956) with the foundation of the Instituto Antártico Argentino, and finally the time after 1956 with the impact of the International Geophysical Year (1957/58) and research in the so-called Argentine sector of the Antarctic Peninsula with respect of occupation. Howkins investigated the organisational structure of Argentine Antarctic science, the nature of Argentine scientific research and the use made of Antarctic science in Argentine political rhetoric. Due to the discovery of fossils on the Peninsula being the same as in the Argentine Andes, Argentine’s claims in Antarctica were based on geographical continuity. In the discussion the peculiarity of the Falkland War down to 65 km north of the boundaries of the Antarctic Treaty System was highlighted. British and Argentine soldiers were fighting against each other, while scientists from both countries were siting at the same table discussing matters of Antarctic research at the same time. Nevertheless a politicalisation of Antarctic history was stated according to Francis Bacon’s “Knowledge is power”.

Antarctic veteran John C. Behrendt from the Institute of Arctic and Alpine Research (University of Colorado, USA) presented his view of the U.S. Antarctic Oversnow geophysical-glaciological research program of the IGY (1957–58). Being a graduate student of geophysics, he participated in the US program as assistant seismologist on the Filchner Ice Traverse, where many crevasses were encountered. At the end of his talk, Behrendt underlined the fact that the highly demanded U.S. air program had resulted in an averaged death toll of 3.8 deaths/year from 1955–1961. In the discussion the special circumstances of the Cold War were emphasised. Everything was made for later territorial claims of the U.S., which never were presented, because the UK forestalled the Antarctic Treaty. Since 1956 the US flag flies above the South Pole, where all claims except that of the Norwegians meet. But today the U.S. needs the help of the Russian icebreaking cruise ships to resupply McMurdo base, because the US icebreakers and US coast guard ships had been to expensive to be refit in the last years.

It was a pity that the Russian colleagues had withdrawn their participation, because of the business with Antarctic Treaty Consultative Members in Sweden at the same time.
Their comments to the discussions would have been very valuable.

In session II after lunch Reinhard Krause filled in the time slot given to Lisbeth Lewander from the Department of Gender Studies (Göteborg, Sweden), who unfortunately had to cancel her participation on a very short notice or personal reasons. Nevertheless her planned contribution on the political dimensions of the Norwegian-British-Swedish-Expedition (NBSX) to Antarctica 1949–52 will be included in the proceedings. Instead R. Krause gave a paper on Georg von Neumayer (1826–1909) as pioneer of Antarctic research. Neumayer’s permanent agitation in favour of a German Antarctic expedition since the late 1850s finally led to the realisation of the first international Polar Year (1882/83), in which two German expeditions took part. One established a station in Cumberland Sound (Baffin Island) and one on the sub-Antarctic Island South Georgia to observe the transit on Venus at the same time.

To fill the time gap C. Lüdecke added a short paper on the Belgian attempt to institutionalize polar research (1905–1915) and the German point of view, which gave insight in the failed initiative of an early polar organisation, to which Berguño and Elzinga referred to several times during their talks. Aant Elzinga from the Department of History of Ideas and Theory of Science (Universität of Göteborg, Sweden) continued with his paper on the Swedish non-participation in the Antarctic leg of the IGY. He focussed on the personalities involved. It was interesting to see that prominent participants of the NBSX became rather influential in Antarctic research. But Sweden was not politically motivated and had no champions who who came forward to push for activities in Antarctica during the IGY. In the discussion it was noted that Canada was represented in Antarctic research through members of various expeditions since the Scott’s *Terra Nova* expedition (1910–1913). In the middle of June 2005, Canada will finally become a consultative member of the Antarctic Treaty.

When session II was finished, most participants used the beautiful summer evening for a short historic walk through the old parts of Munich passing by the Hofbräuhaus to stop at a typical Bavarian restaurant, where we could sit outside in the beer garden of the backyard. Here, over a glass of beer from Munich, exciting stories from Antarctic expeditions mingled with new ideas of further workshops.

On Friday morning Peter Abbink, a Ph.D. student from the Arctic Centre (University of Groningen, Holland) started session III with a presentation of Antarctica in the 1980s as subject of international politics. Obviously this period had been most dynamic and turbulent in the history of the Antarctic Treaty System (ATS). The debate about the mineral regime intensified and the ‘Question of Antarctica’ became an annual consideration in the United Nations General Assembly. The support for the ATS increased in the 1980s and the ATS expanded rapidly. Besides the concern for the conservation of the Antarctic natural environment grew considerably. In the discussions on the renewal of the ATS including the decisions about the minerals regime and the environment different types of legal systems had been involved: The German need for exact definitions and the Anglo-Saxon attitude of wait-and-see how things develop.

Johan van Bennekom, retired from Royal Netherlands Institute for Sea Research (Texel, The Netherlands), described the start of Dutch involvement in Antarctic research. In the mid-1960s, Dutch meteorologists were members of overwintering crews in three expeditions to the Belgian-Dutch Station “King Baudouin”, situated on the Princess Ragnhild coast. After many years of lacking continuation the Dutch interest in Antarctic research grew again in the 1980s in context with the possible revision of the Antarctic
Treaty. While governmental organisations were very much in favour of exploitation non governmental organisations in Holland played a major role focussing on the conservation of nature. Influential persons could help to reset Dutch Antarctic research through the hospitality of other countries to include Dutch scientists in their expeditions as it also happened with West German scientists after World War II. Instead, Holland will never raise money for a permanent station on the Antarctic continent. Therefore there is a move to try and establish a European station to be used by smaller countries like the Netherlands. This was keenly discussed by some Dutch scientists in Utrecht a few years ago, and it seems the French were also interested in such an endeavour.

The next talk after the coffee break dealt with a special case study. Balthasar Indermuehle from the School of History and Philosophy of Science (University of New South Wales, Glebe, NSW, Australia), gave a fascinating Introduction on the history of astrophysics in Antarctica. He identified three steps of development. The astrogeological era from the first discovery of a meteorite during the Mawson expedition (1911–1914) to the large scale meteorites finds in the 1960s, the high energy era with the dawn of high energy and solar astronomy in the 1970s, and the photon era since 1979 with the first optical research program and recent projects in high energy and sub millimetre astronomy. The Antarctic Plateau turned out to be an ideal place for astronomical observations due to its high altitude and the transparency of several atmospheric windows. This led to the largest single scientific and most international programme at the South Pole. AMANDA (Antarctic Muon and Neutrino Detector Array) is a collaboration of scientists from 20 institutions of six nations. Indermuehle described the special demands of such a project, in which a lot of logistics is involved limiting many other research projects.

The workshop finished with the last paper presented by Cornelia Lüdecke from the Centre for the History of Science, Mathematics and Technology (University of Hamburg, Germany) about the failed initiative of Karl Maria Herrligkoffer’s private “German South Pole Expedition” 1957/58. The paper was mainly based on newspaper clippings and pamphlets of the expedition. It is wellknown that West Germany had decided not send an official expedition to Antarctica during the IGY. Instead in 1955, the physician (specialist in anatomy) and mountaineer K.M. Herrligkoffer (1916–1991) had started a campaign to realise a private expedition the Neuschwabenland, which had been discovered by the 3rd German Antarctic Expedition (1938/39). In 1953, Herrligkoffer had been subject of headlines because of his successful expedition to the top of Nanga Parbat as well as his style of leadership. Due to a lack of his (scientific) competence, the German Geographers Day at Hamburg recommended not to support his expedition. Besides, Wilhelm Filchner was engaged by the scientific community to demand an agreement from Herrligkoffer about not including his expedition in the official frame of the IGY. Finally Herrligkoffer’s plan was not realised, because he was not the right man at the right place.

At the end of the workshop plans were made for a new meeting either in Argentine or in Chile at the end of May 2006. Besides a session will be also organised at the Open Science Conference of SCAR at Hobart (Tasmania) in July 2006, because we want to address colleagues from Asia as well.

The proceedings of the first SCAR workshop on the history of Antarctic research shall be published in the Reports of Polar and Marine Research of the Alfred Wegener Institute in Bremerhaven (Germany) prior to the SCAR Conference in 2006.

The German journalist, Wolfgang Karg from Berlin, also participated at the
workshop. Afterwards he maid some interviews with the speakers on their personal experience in Antarctic research as well as the significance of the history of Antarctic research for the future.

Summing up the workshop it can be said that the mixture of Ph.D. and graduate students, historians, Antarctic veterans, and historians of science, as well as profound experts of the Antarctic Treaty led to very lively and interesting discussions. Between single sessions nice coffee breaks right next to the conference room facilitated continuation of the discussions. During lunch breaks typical Bavarian dishes like “Leberkäs” with potato salad or “Weißwurst” with pretzels were served at the same place.

The workshop had been sponsored by the Scientific Committee of Antarctic Research, Deutsches Zentrum für Luft und Raumfahrt (Oberpfaffenhofen), Deutsche Gesellschaft für Pülarforschung, und Schwerpunkt Geschichte der Naturwissenschaften, Mathematik und Technik (University of Hamburg) and Spaten-Löwenbräu Gruppe.
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This article is based on research in the James David Forbes Papers, at St. Andrews University Library, in St. Andrew’s, United Kingdom. It has also drawn on the Oral History Interview of Walter M Elsasser, conducted by J. T. Kiehl on 12 March 1986. This interview and a preliminary transcript are part of the American Institute of Physics/American Meteorological Society project and may be consulted at the American Institute of Physics, College Park, MD, USA.

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Fields of academic endeavor often memorialize the passing of their practitioners through the publishing of obituaries, memorials, or éloges. The History of the Earth Sciences Society has established a committee (composed of the Past President and three other HESS members) to arrange for the writing of such biographical notices. These éloges will be published in *Earth Sciences History* at the first opportunity. The committee and the authors of éloges will follow these guidelines:

1. Individuals who contributed significantly to the history of the earth sciences will be appropriate for an éloge, for their contributions including the writing of articles or books in the field, for their efforts as editors, or generally in the support of history of the earth sciences, and to HESS particularly. Eligibility will extend to non-members as well as to members of the History of the Earth Sciences Society.

2. The committee shall normally solicit authors for particular éloges. Proposals for unsolicited éloges will be considered by the committee, but prospective authors of such unsolicited éloges are strongly advised to contact the Past President before beginning. Do not contact the Editor of *Earth Sciences History* concerning éloges.

3. The primary focus of the essay should be the contribution of the individual to the history of the earth sciences, not contributions to science or to other areas of scholarship, except insofar as those other efforts affected the individual’s historical work. While the text should focus on the person’s activity in history of earth science, it should also paint a vivid picture of the person. The person’s publications will always be evident and available; the personality will not.

4. Length: Essays will be between 1,000 and 2,000 words, as determined by the committee. One photograph may be included.

5. Bibliography: Only partial bibliographies can be published. Authors should refer mainly to publications relating to history of the earth sciences. Authors are encouraged to refer to more complete bibliographies published in other venues and to published memorials that summarize the person’s entire career.

MANUSCRIPT REVIEW GUIDELINES

In reviewing this manuscript for *Earth Sciences History* please comment in as much detail as your time permits upon the following matters (and of course anything else that comes to mind.) Please inform the Editor whether you wish your review to be anonymous.

1. Would you have read this through if you had simply come across it already published in *Earth Sciences History*? If your answer is “No”, what might the author(s) do to increase the interest of the piece for you?

2. Is the argument sound, and is its factual basis sufficient and accurate?
3. Are the references to both primary and secondary literatures sufficient, complete, and accurate? Is recent relevant scholarship acknowledged and/or discussed? Can you suggest further materials the author(s) might consult during revision?

4. Is the manuscript clearly written? How might it be reworked for greater clarity?

5. Is the manuscript well organized? What improvements might be made in this area?

6. What is the historical problem the author addresses within the confines of his/her topic? That is to say, if this subject/idea/person is “the answer”, what is the “question”?

7. Are the illustrations (if any) pertinent? Sufficient? Of good quality?

8. If this article is revised according to your suggestions, will it be suitable for publication in *Earth Sciences History*?

9. Other comments and suggestions?

10. Make your comments and suggestions constructive! Because articles for the journal typically pass through at least one cycle of revision before being accepted, it will help greatly if you phrase your comments in a manner which can aid the author(s) in the task of revising the manuscript.

11. If you judge that the manuscript cannot be brought to a publishable standard in anything like its present form, please say so.

Many thanks for this service to *Earth Sciences History* and The History of the Earth Sciences Society. Our referees’ reviews and commentary are the primary foundation and guarantee of scholarly standards. Please return your comments to me in a timely manner. **In no circumstances take longer than 30 days.**
# TREASURER'S REPORT FOR 2005

## (AS OF NOVEMBER 1, 2005)

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<td>Less other operating Expenses including Website and postage</td>
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<td>Income to HESS including interest</td>
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<td><strong>Balance as of November 1, 2005</strong></td>
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## EXPLANATION

Three issues of *Earth Sciences History* have been published in the year 2005 up to November 1. The issues were volume 23 numbers 1 and 2 for 2004 and volume 24 number 1 for 2005. The costs for volume 23 were higher than anticipated. 23-1 was $9,344.70 and 23-2 was $16,493.21. With the large increase in printing costs and with Patrick Wyse Jackson taking over as editor for volume 24, the decision was made to have the printing and mail distribution handled in Ireland. The savings realized was a factor in this decision. The cost for 24-1 dropped to $3,710.91. We anticipate the costs for 24-2 to be in the same range. The savings resulting from the change in printing firms has helped HESS maintain a healthy budget surplus through 2005. The increase in mailing costs and other services has resulted in an increase in dues by $2 for 2006.

Other expenses for 2005 include: Website fees of $109.85. $355.59 for Ed Rogers' participation at the Geological Society of America's Affiliated Society meeting in Boulder. $300 for coverage in the Allen Press Directory. $313 to cover Patrick Wyse Jackson's participation in an Allen Press Symposium. $348 to cover the cost of printing and mailing ballots notices. $473 for shipping back issues of ESH to one central location. $201 for mailing of dues notices, reminders and miscellaneous printings and reimbursements to our associate editors.

Overall HESS remains fiscally strong but we do need to increase both our individual and institutional memberships.

Respectfully submitted
Ed Rogers
HESS Treasurer
NOTES ON CONTRIBUTORS

**K. R. Aalto** is Professor Emeritus of Geology at Humboldt State University. He received his PhD in Geology at the University of Wisconsin-Madison in 1970. His research interests are in sedimentary tectonics, stratigraphy, igneous petrology and structural geology of the Franciscan Complex and Neogene rocks of northern California, volcanic geology of the Modoc Plateau, Pleistocene geology of the Bahamas Platform, and the history of science [which he effectively “minored” in while a graduate student, strongly influence by Robert H. Dott, Jr.]. He is a Fellow of the Geological Society of America.

**Paul Brinkman** is a Ph.D. candidate in the Program in History of Science and Technology at the University of Minnesota and the Lester Armour Graduate Fellow at The Field Museum - Library. His principle areas of interest are in history of vertebrate paleontology, Field Museum history, the life and career of Elmer S. Riggs, and Darwiniana. He is currently writing his dissertation on the history of Jurassic dinosaur collecting in the American West.

**Graham McKenna** was Chief Librarian and Archivist for the British Geological Survey (1984–2003). He was responsible for the transfer of its library and archives from the Geological Museum in South Kensington to the Survey’s present headquarters in Nottinghamshire in 1985 and 1986. He was also Curator of the British Association Collection of Geological Photographs at Keyworth.

**David Oldroyd** retired in 1996 and is presently an honorary visiting professor at The University of New South Wales. He was Secretary-General of the International Commission on the History of Geological Sciences for eight years and is currently a Vice-President.

**Jens Smed**, ICES Hydrographer 1946-1984. Recent work: contributions to the history of oceanography, especially the history of ICES. Further work on these subjects is in progress.
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<tr>
<td>Volumes 1-22</td>
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