

**INTERNATIONAL COMMISSION ON THE
HISTORY OF GEOLOGICAL SCIENCES
INHIGEO**

NEWSLETTER No. 27 for 1994



**INHIGEO is
A Commission of the International Union of
Geological Sciences**

**An Affiliate of the International Union of the
History and Philosophy of Sciences**

**Compiled and Edited by Ursula B. Marvin
INHIGEO Secretary-General**

**Printed at the Smithsonian Astrophysical Observatory
Cambridge, Massachusetts, U.S.A**

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PREFACE to *INHIGEO Newsletter No. 27*

This *Newsletter* reports mainly on INHIGEO activities in 1994. It also includes information on future INHIGEO Symposia and other conferences, a Notes and Queries section, Book Reviews, and other items of interest to historians of geology.

With profound regret, we include Memorial Notes of two of our members. Dr. Gerhard Mathé, one of the convenors of the INHIGEO Symposium in Dresden in 1991, died on December 5, 1994, as a result of a tragic accident. Professor Ilarion I. Shafranovskii died in St. Petersburg, Russia, on July 1, 1994. The INHIGEO Board extends its deepest sympathy to their families and colleagues.

In August 1996, INHIGEO, in its role as a Commission of the International Union of Geological Sciences, will hold its XX1st International Symposium and Board Meeting at the International Geological Congress in Beijing. 1996 will be an election year in which INHIGEO will choose a new Board as well as new members. According to our revised bylaws, operative since the 1993 Board Meeting in Brazil, **all members and any national committees of science may submit nominations for new members. Each nomination, accompanied by the Curriculum Vita of the candidate and an indication that the nominee is interested in joining INHIGEO, must be received by the Secretary-General on or before February 1, 1996.** Ballots will be circulated to the membership in April, 1996, and the election will be finalized at the Board Meeting in Beijing.

In 1994, INHIGEO elected 22 new members whose names are listed in the report of the Board Meeting in Sydney, Australia, and included in the membership list. We now have 132 members in 37 countries--after adding Belgium, Bolivia, and New Zealand in 1994.

To help us to continue our present schedule of circulating the *Newsletters* in advance of each year's Symposium, **please submit your country reports for 1995 and other news items by April 1, 1996.** It is important to realize that since INHIGEO voted in 1993 to abolish the categories of Full Members and Corresponding Members, **every member is welcome to submit a report of his or her activities and publications.** Indeed, inasmuch as INHIGEO is a working commission and not an honorary one, it seems only appropriate that each member should send in such information from time to time. We look forward to hearing from you.

Ursula B. Marvin
August 16, 1995

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THE XIXth INTERNATIONAL INHIGEO SYMPOSIUM, SYDNEY, AUSTRALIA 1994

The Symposium was held at the Department of Geology and Geophysics, University of Sydney, between 4-8 July, 1994. Several sessions also were held at the Australian Museum and the Library of New South Wales.

The theme initially chosen when planning began in 1992 was *The History of the Geological Sciences in the Pacific Region*. The initial response was encouraging; some 30 papers being offered. Thirty four papers were presented, covering a somewhat wider range than anticipated, with six papers dealing with aspects of the history of Asian geology.

Of course it was never envisaged that the meeting would produce a definitive statement of the history of the geological sciences in the Pacific region, if such is possible. But the diverse range of papers showed many surprising links in themes and personalities, and were notable for the quality of presentation and the discussions they provoked.

The papers were preprinted in a 359-page volume entitled *Useful and Curious Geological Enquiries Beyond the World* a title made up of 18th century quotes from Johan Forster, James Cook, and Arthur Philip, with the addition of "Geological" to please the bibliographers.

Some fifty enquiring minds attended the friendly meeting, a few locals opting for one day registration. Fourteen came from abroad (New Zealand, USA, Canada, UK, Germany, Hong Kong and Japan). Sadly INHIGEO Secretary, Ursula Marvin, was prevented at the last minute from attending. However, her report of the 1993 activities of INHIGEO was distributed at the meeting.

Three excursions were held in association with the meeting. There was a midweek one-day trip to the Blue Mountains on a perfect winter day, visiting Werner's Precipice and other points of historical/geological interest. Weekend visits before and after the conference were made to the Hunter Valley in the steps of Leichhardt, Strzelecki, and Edgeworth David, and to Narooma on the South Coast of New South Wales in search of lost (or forgotten) geologists Lamont Young, William Anderson, and Ida Brown. On both occasions the weather was kind, and the company invigorating, providing an excellent blend of physical and intellectual stimuli for those who attended.

Social events included a "book launch" at the Macleay Museum, University of Sydney, thanks to Curator, Julian Holland, in association with the opening of the display of historical books (most from the Tomkeieff Collection of the Rare Books Department of the University) and artifacts, a display that will continue at the Museum until early December. A conference dinner in St. John's College, with musical (?) entertainment, including geological songs by the "Sans Tones" proved a pleasant interlude.

The meeting and conference volume were dedicated to the memory of the late Tom Vallance, a founding member of INHIGEO and for some years a Vice-President. INHIGEO is a working commission of the International Union of Geological Sciences, and is affiliated with the International Union for the History and Philosophy of Science. Both bodies gave generous financial support to the meeting. Membership of INHIGEO is by election through nomination by members, by national committees or academies of science in each country, or by the executive Board of INHIGEO, which changes every four years. David Oldroyd (New South Wales) and Max Banks (Tasmania) were elected at the Board Meeting of INHIGEO, as was Alan Mason of New Zealand. Other Australian members in attendance were David Branagan (President, 1992-96), Bary Cooper and David Corbett (S. Australia), and Tom Darragh (Victoria).

The meeting brought together an interesting cross-section of researchers - geologists and historians: many of the former making their first foray into historical matters, and finding it both interesting and challenging, while some of the latter were moving into geological topics with similar results. Hopefully the mix will, in time, produce a really good cake.

The INHIGEO symposium was planned and carried through by the committee of the Earth Sciences History Group of the Geological Society of Australia (David Branagan, Chairman, Greg McNally, Secretary, Alan Day, Treasurer, with committee members Bill Chesnut, John Wennerbom and Michael Shortland.

Only 150 copies of the Conference Proceedings were printed. It is available for \$44. (cost price, includes postage) from Greg McNally, School of Applied Geology, University of New South Wales. Cheques should be made to GSA-ESHG.

INHIGEO Board Meeting, 5 July, 1994

The Board Meeting was held at the Department of Geology and Geophysics, Edgeworth David Building, University of Sydney, Australia during the 19th International INHIGEO Symposium. The meeting commenced at 4:50 pm with President D. F. Branagan presiding. Eighteen members and visitors were in attendance. In view of the unavoidable absence of Secretary-General Ursula Marvin, M. R. Banks agreed to take minutes.

Apologies for absence and best wishes for the success of the meeting were conveyed from U. Marvin, E. Dudich, Wang Hongzhen, M. Guntau, K. Taylor, W. Narebski, C. Czarniecki, J. Haubelt, N. Archbold, M. M. Lopes, S. Figueirôa. In particular, the meeting returned best wishes for a speedy recovery to Secretary-General Ursula Marvin.

The President announced with regret the deaths of Founding President of INHIGEO, Professor Vladimir V. Tikhomirov, former President R. Hooykaas, and former Vice-President Thomas G. Vallance.

Minutes of the previous Board Meeting of INHIGEO, held at Campinas, Brazil, in July 1993, having been published in the INHIGEO Newsletter for 1993, and available to all attending, were taken as read on the motion of P. Schmidt and W. A. S. Sarjeant.

Election Of New Members. The President announced that all proposed new members had been elected. Although not all had received unanimous election, the number of votes in all cases exceeded that required by the bylaws. The President welcomed those new members present at the meeting: Maxwell Banks (Australia), Léo Laporte (USA), Alan Mason (New Zealand), and David Oldroyd (Australia). The new members unable to attend were Daniel Rubiolo (Argentina), Eric Groessens and France Ladeuze (Belgium), Carlos Serrano (Bolivia), Keith Tinkler (Canada), Jan Kozák (Czech Republic), Rudolf Musil (Czech Republic), Bernhard Fritscher, (Germany), Kotapalli A. Murty (India), Patrick Wyse Jackson (Ireland), Nir Orion (Israel), Józef Labuda (Slovakia), Juan José Durán (Spain), Emilio Pedrinaci (Spain), Octavio Puche (Spain), and John Cooper, John Fuller, and Andrew Grout (U. K.). On behalf of INHIGEO, the President expressed congratulations and cordial good wishes to all of these new members.

The President pointed out that INHIGEO is a working commission, and that the purpose of INHIGEO is to encourage research, particularly cooperative research, and that those who find themselves unable to carry out research should consider withdrawing and making way for others who could represent their countries more effectively. The President also commented that it was vital that younger people be attracted to INHIGEO and that it will attempt in whatever ways possible to encourage the study of the history of geology as a professional activity and to create a higher profile for the history of geology.

The bylaws of INHIGEO call for response from members, and failure to provide evidence of research, or to vote in two successive elections will result in cancellation of membership.

Proceedings of Previous Meetings. Disappointment was expressed that the papers presented at two previous highly successful meetings, at Dresden (1991) and Campinas/Ouro Preto (1993), had not yet been published to supplement the useful but brief abstracts. Dr. Schmidt reported that the Dresden Proceedings were ready for printing, but that only half the money required was in hand. The papers of the Brazil meeting are reported to be ready for publication, but are delayed at the printer.

Future Meetings. At the Campinas meeting in July 1993, Dr. A. R. Martinez had expressed a desire to hold a meeting in Venezuela in 1995. At the time there had also been a suggestion of a meeting in Austria and one in Italy (both tentatively proposed prior to the Dresden meeting in 1992). The general feeling was that a European meeting should be held in 1995 to encourage the participation of the larger part of the INHIGEO membership, and that, given the 1996 meeting in Beijing, any further meetings outside Europe should be postponed until later years.

It was a great pleasure, therefore, to announce at the meeting that a Symposium on the History of Volcanology had been organized by Dr. Nicoletta Morello and associates to be held in Naples and the adjacent volcanic islands September 19-26, 1995. The first circular had already been issued and an enthusiastic response was expected.

The present Symposium at Sydney and some previous meetings have been aided not only by funding from INHIGEO (through its annual allocation from the IUGS) but also from stipends from the IUHPS. The attendees passed a unanimous vote of thanks for this support and expressed the hope that it will be continued in future years.

INHIGEO is committed to supporting/co-ordinating history of geology sessions at the International Geological Congress in Beijing, August 1996 (and at future IGCs). Vice-President for Asia, Professor Wang Hongzhen, already is planning this meeting. At the 1996 Board Meeting the present executive Board will finish its period of activity.

Hugh S. Torrens spoke on proposed celebrations in Scotland and England to commemorate the work of both James Hutton (d. 1797) and Charles Lyell (b. 1797). These were being planned by the Geological Societies of Edinburgh and London for July/August 1997. Although these Societies have expressed a major interest in using the celebrations to consider present-day aspects of geological research, INHIGEO members urged that the historical aspects should not be ignored. Torrens moved (seconded by Sarjeant) that letters be sent by the President and by Dr. Laporte (in his capacity as President of History of Earth Sciences Society) emphasizing the centrality of the historical element to the Hutton/Lyell meeting. The motion was passed unanimously.

Torrens said that it would be preferable to hold a Lyell history meeting out of London (e.g. at Bartley Lodge, New Forest), invite several keynote speakers and then accept other good papers and allow (but not encourage) posters. Torrens noted that the Geological Society of London was shortly (October, 1994) to hold the inaugural meeting of its History of Geology Group.

In view of the considerable activity likely within INHIGEO between 1994 and 1997 the members at the Board Meeting expressed the wish to leave 1998 free of an official Symposium, but to support a meeting of INHIGEO in Venezuela in 1999, perhaps on the history of Geology in the Caribbean and South and Central America, or on the history of petroleum, if local funding and organization can be obtained.

General Business

Archives of INHIGEO. Concern was expressed about the archives of INHIGEO. With death or retirement of many early office holders it seemed that many records were likely to be lost, and there was already a need to put down in writing a brief history of the Commission. Members were asked to give consideration to where the archives of the Commission might be safely and permanently housed, and as to whether an archivist should be appointed.

Archives of Geology. It was also suggested that INHIGEO could fruitfully develop a list of accredited archival repositories for material and books relevant to the history of geology, such repositories to be given a certificate of accreditation (to be designed) and a list of such repositories in any country be made available to the national geological body in that country. The executive was asked to investigate through IUGS how this might be done.

Contact Within the Community of The History of Geology. There was discussion on the place of INHIGEO in the general community of the History of Geology, and its links with other interested bodies. This was a matter also discussed at the Penrose meeting of the Geological Society of America in San Diego, California, in March, 1994. It was suggested that E-mail links through the Internet could be established to avoid simultaneity of meetings and open avenues of fruitful communication. This possibility was being pursued by L. Laporte and others. Better use of the *History of Earth Sciences* Journal for notices also was recommended. INHIGEO will continue to encourage and sponsor major international meetings and to distribute its annual newsletter.

Peter Schmidt informed the group that a Newsletter on the History of Geosciences in Germany is published annually and available to anyone interested.

Yasumoto Suzuki reported that the Japanese Committee on the History of Geology had been elected recently, and the Centenary meeting of the Geological Survey of Japan had been highly successful.

David Branagan notified overseas members that the Australian Academy of Science publishes an information sheet on meetings and other items of interest twice yearly, and is available to all interested.

There being no further business the president thanked those attending and invited all who could to attend the next Board Meeting to be held in conjunction with the XXth International INHIGEO meeting in Italy in September, 1995. The meeting was adjourned at 6:10 pm.

[Attending: M. R. Banks, J. Beattie, D. F. Branagan, Roy O. Chalmers, W. S. Chesnut, B. J. Cooper, D. Corbett, T. A. Darragh, J. M. Dickins, L. Laporte, A. Mason, A. Moyal, D. R. Oldroyd, W. A. S. Sarjeant, P. Schmidt, Y. Suzuki, H. S. Torrens, S. Turner.]

David Branagan

FUTURE INHIGEO SYMPOSIA

XXth International INHIGEO Symposium, Italy, September 19th to 25th, 1995

At the invitation of INHIGEO member Nicoletta Morello, the XXth International INHIGEO Symposium on the theme *Volcanoes in History* will be held in Italy. A most interesting program is planned in which five scientific sessions will be interspersed with excursions to volcanoes, sites of historical interest, and evenings of folk songs. Registration will take place on Tuesday, September 19th, at the Osservatorio Vesuviano outside Naples where the first two scientific sessions will be held. On September 20th, an excursion will visit Pompeii where lunch will be served on the patio of the *Ristorante Internazionale* amid the excavations. In the afternoon visits are planned to the spectacular volcanic areas of Campi Flegrei, Solfatara, Serapeion, and Monte Nuovo. Neapolitan songs will accompany dinner at the *Lago Averno*. An excursion to the crater of Mt. Vesuvius on the morning of September 21st will be followed in the afternoon by the third scientific session. That evening participants will board a ferry for the Lipari Islands and have dinner and spend the night on board. The ferry is scheduled to arrive at 10:40 in the morning of September 22nd at Vulcano Island, where the group will visit the crater after lunch and stay overnight in the Eolian Hotel. On Saturday, the 23rd, there will be a boat trip to Lipari Island to visit pumice and obsidian quarries and the archaeological museum, have lunch, and return to Vulcano Island for the 4th scientific session. At 8:30 a.m. on September 24th, a ferry will depart for Milazzo in Sicily. The rest of the day will be spent visiting Mt. Etna and the many points of interest in that vicinity. At 7:00 p.m. the group will arrive at the President Park Hotel in Catania for dinner and a Sicilian folk evening. The final scientific session will be held at the hotel the following morning. The Symposium will come to a close at 3:30 on Monday afternoon, September 25th.

By mid-July 90 persons from 19 countries had registered for the Symposium, which promises to be a great success. We thank Nicoletta Morello and all members of the organizing committee as well as the organizations contributing support for our XXth very International Symposium.

XXIst International INHIGEO Symposium, Beijing, China, August, 1996

The XXIst International INHIGEO Symposium will be held during the 30th International Geological Congress which will meet from August 4th to 14th in Beijing. Symposium 22: *History of Geosciences* will include the following three sessions:

- 22-1. *History of geology and international communication of geoscience ideas*. Convenors: David Branagan (Australia) and Yusheng Shai (China).
- 22-2. *Geological concepts, thinking and philosophy*. Convenors: W. B. Harland (U.K.) and Wang Hongzhen (China).
- 22-3. *Development of geoscience disciplines since the 19th century*. Convenors: Ursula Marvin (U.S.A.) and Baoheng Shi (China).

Abstracts are due in Beijing on November 1st, 1995. Registration and Hotel Reservation forms must be received before February 1, 1996. Registration fees rise from \$300 (U.S.) before February 1st to \$350 after that date. Air China, the official airline of the Congress, offers special discount fares. For information and forms, write to: 30th IGC, P.O. Box 823, Beijing 100037, P.R. China.

XXIInd International INHIGEO Symposium in Britain in 1997, the Year of Hutton and Lyell

INHIGEO plans to hold its XXIInd Symposium in tandem with the major Bicentenary Conference being organized by the Geological Societies of London and Edinburgh in recognition of the anniversaries of the birth of Sir Charles Lyell (1797) and the death of James Hutton (1797). The Bicentenary Conference is to be held in London from July 30th to August 4th and in Edinburgh from August 4th to 9th. INHIGEO Vice-President Torrens proposes that INHIGEO hold its Symposium outside London, perhaps at Bartley Lodge in New Forest, at a time when participants could also attend the other meetings and field trips. No date for INHIGEO has been announced.

THE INTERNATIONAL UNION OF THE HISTORY AND PHILOSOPHY OF SCIENCES

The IUHPS provided generous support for the 1994 INHIGEO Symposium in Sydney, for which we are very grateful. We have received the first announcement that the IUHPS Division of the History of Science will hold the XXth International Congress of History of Science, 25-30 July, 1997, at the University of Liège, Belgium, on the theme: *Science, Technology and Industry*. The First Circular will be distributed in September, 1995; the Second Circular and Registration Form will be sent in September, 1996; the Third Circular, in February 1997. April 1997 is the deadline for acceptance of abstracts. Correspondence should be addressed to Congress Office, Centre d'Histoire des Sciences et des Techniques, Université de Liège, Avenue des Tilleuls 15, B-4000 Liège, Belgium. Tel: 32 41/66.94.79; Fax: 32 41/66.95.47.

THE HISTORY OF EARTH SCIENCES SOCIETY

In July 1994, HESS held a meeting at Troy, New York, and took the occasion to honor Gerald M. Friedman for his 12 years of service as the Founding Editor of *Earth Sciences History*. (For details on the program see the U. S. A. Country Report.) Gerry has "passed the torch" of editorship along to Mott T. Greene of the University of Puget Sound in Washington. In his first issue of *Earth Sciences History*, Volume 13, No. 2, Mott outlined his plans for the journal. He has designed a new style sheet for authors, appointed six new members to the editorial board, and set up a schedule (subject to renewal) of three-year terms. The new members are Bruce Hevly, University of Washington, Eric Mills, Dalhousie University, Dorothy Sack, Ohio University, A. M. C. Sengör, Istanbul Technical Institute, Naomi Oreskes, Dartmouth College, and Joanne Bourgeois, University of Washington. After issuing his first two numbers of the journal, containing articles accepted earlier by Gerry Friedman, Mott hopes to reestablish a regular spring/fall schedule of publication. Mott Greene may be reached at University of Puget Sound, Tacoma, Washington, 98416. Tel: (206) 756-3782; Fax: (206) 756-3500; E-mail: greene@ups.edu.

Membership in HESS includes subscription to the journal at \$30 inside the U.S. and \$35 outside. Forms may be obtained from the Secretary: Ronald Rainger, Department of History, Texas Technical University, Lubbock, TX 79409. Tel: (806) 754-3754. The Treasurer is Dorothy Sack, Department of Geography, Ohio University, Athens, OH 45701.

INHIGEO NOTES AND QUERIES

A Lyellian Paradox. In July, 1994, I retired from active teaching after 35 years so that I could have more time for the history of geology. My principal current project is a study of Charles Lyell's four visits to America and the lectures that he gave during his first there. One tentative conclusion that I have reached is that the impact of America upon Lyell seems to have been even greater than *vice versa*.

I could use help with two matters. First, how and by whom was Lyell's 1842 New York lecture series arranged? This was the only series ever published, but I have found no record of the arrangements either for the lectures themselves or for their subsequent publication by Horace Greeley. Nine illustrations from the lectures were

published with the text, which virtually demands that Lyell cooperated with the publishing venture. The second issue involves Lyell's supposed anti-fluvial posture. It is certainly true that he attributed much present topography to erosion by marine waves and currents during his much-postulated (Pleistocene) submergence. Nonetheless, his writings also indicate that he advocated fluvial erosion of valleys in the Auvergne and the Niagara River gorge, to name just two cases. Those writings also reveal a rather sophisticated understanding of the origin of river terraces (e.g. Mississippi and Ohio valleys). So how can we reconcile this Lyellian paradox? For many rivers now in existence, Lyell seems to have been a conventional fluvialist, but how did he think the valleys of great rivers such as the Mississippi were formed in the first place? Seemingly not simply by river erosion, but he was mute about his alternative. *Help!* Please contact me at: Department of Geology and Geophysics, University of Wisconsin, Madison WI 53706. E-mail: RDott@Geology.Wisc.Edu.

Robert H. Dott

Geologists and the History of Geology. In late fall of this year I hope to be able to publish three volumes: Supplement 2 (1985-1995 and Additions) to my bibliography, *Geologists and the History of Geology. An International Bibliography from the Origins to 1978.*

However, it is likely that these volumes will not be published unless you can help by ordering a set or getting your library, your Society or Institution to order one. This will be a strictly limited edition and the 3-volume, 2,350 page set will cost U.S. \$299.50 before publication, and U.S. \$365.00 after publication. If you have any queries you can contact me through mail, phone, fax or my research assistant on the internet: linda.dietz@sask.usask.ca.

William A. S. Sarjeant

James Malcolm Maclaren (1873-1935). The Historical Studies Group of the Geological Society of New Zealand is researching the life of James Malcolm Maclaren who was born at Thames, New Zealand but spent most of his working life overseas, first with the Geological Survey of Queensland and then with the Geological Survey of India. About 1910 he began his main career, that of a consulting mining geologist based in England. For the first few years he was associated with Bewick Moering and Co. but the major part of his career was identified with the Goldfields Group. As a consultant he published little but his one book, *Gold* (1908) which was very favorably reviewed. Furthermore it was his practice to destroy incoming letters after he had read them and he does not appear to have kept copies of outgoing correspondence. He is therefore providing a hard subject to 'track down.' The obituaries in *Q.J.G.S.* and *The Mining Magazine* referred to him as being pre-eminent in his field.

Copies of Maclaren correspondence have been obtained from the Mellard Reade archives at the University of Liverpool and there may be more items in other archives. I would be grateful for copies of these and any other items relative to his career and for leads as to where such information may be found. Please send information to me at 75A Argyle St., Heme Bay, Auckland 1002, New Zealand.

Alan P. Mason

John Williams (1732-1795) mining engineer and mineral surveyor. In 1777 the first publication by this Welsh-born mining expert was published in London and Edinburgh. It was on the archaeology of the vitrified forts he had discovered during his Highland Scottish Mineral Surveys. It was translated into Russian in 1798. Then in 1789 appeared his major - and geological - work (*The Natural History of the Mineral Kingdom* in two volumes and in two editions, 1789). This work established his credentials as a mineral surveyor and sometime in the 1790's he was commissioned by the political refugee and Venetian nobleman Count Alvise Zenobio (1757-1817) to undertake mineral exploration for him in the Veneto of Italy. Sadly, soon after his arrival he died there of cholera in 1795. Please send me any information about him, his Italian experiences, and any other translations of his books at: Dept. of Geology, University, KEELE, Staffs, UK.

Hugh Torrens

James Ryan (1770-1847), mining engineer & inventor of the first boring apparatus to recover cores from boreholes. Ryan was born in Ireland and is first found as a mineral surveyor working for the Grand Canal Company of Ireland in 1800. By 1805 he had patented his boring apparatus and come to England to help further its promotion in the heartland of the Industrial Revolution. Unfortunately, most mine owners were then more interested in costs than efficiency and so his potentially very efficient invention was hardly put to the use to which members of William Smith's school thought it should have been in prospecting for stratified minerals. Instead it was 'high-jacked' to the more vitriolic debate from 1812 about ridding mines of noxious vapours, which involved

Humphrey Davy and Michael Faraday (and took the lives of many English miners until proper legislation and inspection were introduced). Ryan worked all over the British Isles and his work was more highly regarded in Belgium and France. Any information about his work, and especially his influence on the Continent is sought.

Hugh Torrens

Japanese Mining Scroll ca. 1840. In 1942 C. E. N. Bromehead's article "Ancient Mining Processes" in *Antiquity* vol. 16, pp. 193-207 referred to a Japanese scroll 22 feet long illustrating gold mining on the Japanese island of Sado; he illustrated it with one scene from the scroll. I want to know where the scroll is now. As his note was written in the middle of World War II the scroll is unlikely to have left Britain, though of course it may have been destroyed in the blitz. There is a similar scroll, 29 metres long, in the Munich State Library which was used to illustrate a German mining equipment company's calendar in 1965. Please contact me at Department of Geology, University, Leicester, LE1 7RH, UK.

T. D. Ford

(NOTE by H. S. Torrens). Bromehead died on 4/12/1952 at 122 Corn Street, Witney, Oxon, UK. He was a founding member of the British Society for the History of Science. Thus an approach to Oxford Museums might be worth while. But he had obtained this scroll from another geologist, H. J. Osborne White who might have got it back. White died at Deal in Kent on 3/6/1954.

The New Dictionary of National Biography. The Oxford University Press and the British Academy are now engaged in a very ambitious millennium 2000 project to produce a new *Dictionary of National Biography* to replace the old multivolume version which first started to appear over a hundred years ago. It will form a guide to all those men and women who have made the most outstanding contributions to British life and culture, even if born abroad. Geologists are to include all those who have already appeared in the existing Dictionary in suitably or completely revised versions, written by today's specialists, with the addition of about 20 new entries for forgotten or previously ignored persons. It will include geophysicists and mineralogists as well as main-stream geologists, although some industrial geologists will appear within the world of Business as opposed to that of Science, and paleontologists will appear with Zoologists.

The assessment phase of this work has to be completed by the end of the summer of 1995. So far the following new names have been suggested: Florence Bascom 1862-1945, Etheldred Bennett 1776-1845, Jean-Francois Berger 1779-1833, Alfred Brammell 1879-1954, Sydney Savory Buchman 1860-1929, Mary Morland Buckland, died 1857, Grenville Arthur James Cole, 1859-1924, John Coster, ca 1680, John Roch Dakyns 1836-1910, Jane Donald 1856-1935, Gertrude Lillian Elles 1872-1960, Sir Lazarus Fletcher 1854-1921, Patrick Ganly 1809-1899, Dame Maria Ogilvie Gordon 1864-1939, Charles Greville 1749-1809, Edward Hull 1829-1917, William James Lewis, died 1926, Mary Lyell 1808-1873, David Mackintosh 1815-1891, Walter Mykura 1926-1988, Louis Albert Necker 1786-1861, Gerald Seligman 1886-1973, Dame Ethel Mary Reader Shakespear (nee Wood) 1871-1946, Charles Davies Sherborn 1861-1942, William Whitehead Watts 1860-1947 and William Bourke Wright 1876-1939.

The new *DNB* is anxious that proper representation will be given to both women and industry. Will anyone with special knowledge of any of the above be willing to support their inclusion; or do you wish to nominate other persons deserving of inclusion? If you are not sure whether the persons you might wish to name are already included in the old *DNB*, please send their names anyway.

In addition to proposers and writers of new entries, I am seeking potential contributors to revise the following existing entries: Robert Were Fox (1789-1877) who studied the internal temperature of the Earth and the electromagnetic properties of veins in Cornish mines; David Forbes (1828-1876) geologist and philologist. He travelled widely as a chemist *cum* metallurgist to South America, Norway, and the south sea islands; Sir Henry George Lyons (1864-1944) meteorologist and Director of the Geological and Cadastral Survey of Egypt. He also explored the upper atmosphere using kites and was Secretary-General of the International Union of Geodesy and Geophysics; William Francis Porter McLintock (1887-1960), geologist and pioneer of geophysics within the British Geological Survey; Matthew Paul Moyle (1788-1880), writer on the atmosphere and temperature of mines; Richard John Nelson (1803-1877) major general in the Royal Engineers and student of West Indian geology and coral reefs; John Arthur Phillips (1822-1887), geologist, metallurgist and mining engineer.

If you are willing to help, please contact, as soon as possible, Hugh Torrens, Lower Mill Cottage, Furnace Lane, Madeley, Crewe, Cheshire, CW3 9EU, UK, Tel: 01782 58383 (day) or 01782 750689 (evening): Fax 01782 715261, Email ggal10@keele.ac.uk. Hugh Torrens

Progress on a history of the International Union of Geological Sciences. *The Geologists at Prague*, an account of the interruption of the International Geological Congress at Prague in 1968, will appear in the fall, 1995, issue of *Earth Sciences History*. This is Part II of the three-part history I am writing of the IUGS. I have completed Part I, covering the period from the founding of the IUGS in 1960 at the IGC in Copenhagen through 1967, and am still working on Part III, from 1969 to the present. I would appreciate hearing from anyone with information or pictures (including snapshots of sessions or field trips) during that interval. Please contact me at River Road, Newfields, NH 03856, USA. Tel: 603-772-4597; Fax: 603-862-2649; E-Mail: CJS1@hopper.unh.edu.

Cecil Schneer

Who was Captain Tihausky? The first report to reach Italy and be transmitted thence to England of two events in eastern Europe that we now recognize as meteorite falls--those of a stone at Eichstädt in 1785 and of a mass of iron at Agram in 1751--was contained in a letter written sometime between 1791 and 1794 by Captain Tihausky to Guglielmo (William) Thomson, the English expatriate mineralogist-metallurgist-naturalist in Naples. Tihausky is named as the source of this information but is not further identified by the Abbé Domenico Tata, Professor of Physics and Mathematics at Naples, in his paper on the fall of stones at Siena in 1794. Who was Captain Tihausky? Recent historians of meteoritics have located neither his full name nor his birth and death dates. While browsing through old issues of *Observations sur la Physique, sur l'Histoire Naturelle et sur les Artes*, I came upon an article (Vol. 38, 1791, pp. 208-225) on metals extracted from different earths by one François Tihausky, "Premier Lieutenant des Fonderies Impériales" in Vienna. Assuming that he was the same Tihausky, we thus learn that between 1791 and 1794 the First Lieutenant had been promoted to a Captain of the Imperial Foundries. What did such a title mean? Can anyone suggest where I may find more information about the Captain?

Ursula Marvin

Note: How a Spring Warbler can Lead to a Geo-Physicist.

The Setting: Mount Auburn, America's first garden cemetery, founded in 1831 on 174 acres of rounded hills, three ponds, and a deep glacial kettle hole. Laid out in curving walks amid magnificent trees and flowing shrubs, many of which were sent from east Asia in the 19th century, Mt. Auburn became the favored final resting place of families throughout greater Boston. Famous authors, professors, poets, and scientists abound there, with memorials--simple or ornate--reflecting nearly two centuries of changing tastes. Mt. Auburn also lies on the Atlantic flyway and is a favorite resting place for migrating birds. From mid-April to mid-June, a member of the Brookline Bird Club (America's most venerable birding society dating to 1913) leads a 6:00 to 8:00 a.m. walk through Mt. Auburn to keep a daily record of species and numbers of spring migrants.

The Sighting. One May morning in 1989 the party spotted the first (and likely to be the only) cerulean warbler of the season. As a crowd gathered, the bird flew off. At that moment, I glanced down and saw "Geo-physicist" on a stone. My husband glimpsed it too, just as we dashed off after the warbler. We would, of course, return soon to copy the full inscription relating to the 'Geo-physicist' commemorated there.

The Search. We returned. The stone was not where we remembered it. Nor was it to be found anywhere else we looked--that year, or the next year, or the next. We obtained a map of Mt. Auburn with lists of the names and locations of many famous residents and checked out each one who conceivably could be a geologist, physicist, or natural scientist. It was a fascinating roster, but it included no geo-physicist. We began to canvas Mt. Auburn section-by-section but did not get far. One May morning in 1994 I was introduced to the Director for Programs and told her of our quest. She had an (incomplete) computer list, she said. I gave her my INHIGEO card with my name, address, and telephone numbers at my home and office. I waited. And waited--for a year.

The Discovery. In May, 1995, a card came saying "Eureka!" "Geo-physicist rediscovered!" It seems that a red phase, eastern screech owl had taken up residence in a hollow tree, drawing great crowds. The Director was

taking pictures of the crowds when she glanced down and saw the stone. She enclosed a print of the stone, which reads in part:

Here lie the ashes of
GEORGE FERDINAND BECKER
Born January 5, 1847
Died April 20, 1919
GEO-PHYSICIST AND PATRIOT

The following biosketch is taken from *Mount Auburn Biographies* by Foster W. Russell (1953):

George Ferdinand Becker (1847-1919)

"Born, New York City. Geologist, physicist, metallurgist. After graduating from Harvard and Heidelberg, he served as a war correspondent during the Franco-Prussian War. He later graduated with high honors from the Royal Academy of Mines in Berlin and won a certificate as a practical worker at the Royal Iron Works. Returning to America, he perfected a process of iron puddling which was in use for many years, and subsequently taught mining and metallurgy at the University of California. As a geologist with the U. S. Geological Survey, he made surveys of the Comstock Lode, the quicksilver deposits of the Pacific Coast, the gold fields of South Africa, and the mineral resources of the Philippines. These surveys are believed unmatched for breadth and thoroughness and were important in guiding the prompt exploitation of valuable minerals in this country and the Philippines. Yet his greatest work was in the solution of abstruse chemico-physical problems. Through his influence in founding the Carnegie Geophysical Laboratory, his work, great as it was, has borne fruit in a sort of geometrical progression. His home in Washington was the gathering place not only of scientists, but also of senators, cabinet members, judges, and foreign diplomats."

Ursula Marvin

Correspondence from Albania

Although INHIGEO has no members from Albania at this time, Dhurata Thanasi, Librarian of the Instituti i Studimeve dhe Projektmeve te Gjeologjise at Tirana, has sent an eight-page article, *A Brief History of Geological Surveys and Studies in Albania*, by Afat Seriani, Dhurata Thanasi, and Aferdita Osmanlliu. It outlines the history of geological work in Albania and some current activities.

Part I, "Ancient Data about Mineral Ores in the Illyrian Region" reports references, quoting one from Aristotle, found in ancient and Medieval manuscripts to deposits of asphalt, iron and copper in this area. Observations on rock types and landforms were made from the XIV through the XIXth century mainly by travelers. Part II, "The Geological Works of the First Half of the XXth Century," outlines the work done in Albania by geologists from other countries such as Austria, Hungary, Germany, Poland, and France. The field work and mapping of F. Nopcsa (see the Hungary Country Report) is emphasized. In 1917 an Italian Commission struck oil in the Vlora region, starting a rush by companies seeking concessions. Part III, "The Period of Intensive Prospecting for Mineral Ores and Contemporary Geological Studies in Albania (1950-1990)" points out that mines, refineries, and mineral resources were nationalized immediately after World War II, but in this period Albanian students were enabled, for the first time, to study geology in universities in other countries of eastern Europe. The Albanian Geological Survey was founded on August 16, 1952, and the teaching of geology was initiated at the Polytechnic Institute of Tirana the following month. For some years, most geological prospecting still was carried out by expeditions from Russia, Poland, Czechoslovakia, Germany, Hungary, and Bulgaria. In the 1960s, however, Albanian geology came into its own. The Faculty of Geology and Mines was founded in 1962 at the University of Tirana. That same year saw the establishment of the Mining and Institute of Albania and the Institute of Oil and Gas Researches. The first geological journal started publication in 1965. Contacts with geologists of western Europe began in 1960s and Albanian students began postgraduate studies in the universities of France, Italy Germany and Austria in the 1970s. The number of Albanian geologists rose from 50 in 1960 to 500 by 1990 when 12 geological enterprises were underway. Joint geological projects between Albanian and western institutions began after the foundation of

the Geological Association of Albania in 1989. The following international geological conferences and symposia took place between 1989 and 1994:

- Conference: "Geological Prospecting, Exploration, and Treatment of Solid Mineral Ores, Oil and Gas." Tirana, November 10-11, 1989.
- Symposium: "Thrust Tectonics in Albania." Tirana, November 16-17, 1990.
- Colloque sur la géologie de l'Albanie (Seance specialise de la S.G.F.) "L'Albanie Dans la Chaîne Alpine: Evolution Geodynamique, Magmatique et Paleogeographique", Paris, 12-13 April 1991.
- First Symposium of Geophysics in Albania, Tirana, May 10-11, 1991.
- Field Symposium on "Tethyan Cretaceous Formations and Related Mineral Resources." IGCP Project 262. Tirana, October 11-17 1991.
- Meeting and field trip in framework of IGCP project 256: "Ophiolite Genesis and Evolution of Oceanic Lithosphere," Tirana; October 6-10, 1992.
- International Conference: "FERENCE Nopcsa and Albania." Tirana 13-14 October 1993.
- Final Meeting (and field trip) of IGCP project 287. "Tethyan Bauxite." Tirana, October 21-27, 1993.
- International meeting and field trip in Jonian zone on theme: "Phosphorites, Dolomite and Bituminous Rocks of Albania." Tirana, May 6-12, 1994

CONFERENCES AND SYMPOSIA

Penrose Conference on the History of the Earth Sciences, San Diego, California, March 1994

Penrose Conferences sponsored by the Geological Society of America have been held since 1969, as a way of bringing together groups of earth scientists to encourage direct topical interchange. In March of 1994 the first Penrose Conference focusing on the history of the earth sciences was held in San Diego, California. Convened by Kenneth L. Taylor of the University of Oklahoma at Norman, Naomi Oreskes of Dartmouth College, and Léo Laporte of the University of California at Santa Cruz, the conference was attended by 88 participants from six countries (U.S.A., U.K., Australia, France, Italy, and Russia). The three-and-one-half day meeting was organized around the theme "From the Inside and the Outside: Interdisciplinary Perspectives on the History of the Earth Sciences."

The polarity implied in the "Inside-Outside" title chosen by the conference convenors reflects an adaptation of ideas about subject-object problems raised in a 1972 essay by the sociologist of science Robert K. Merton. In "Insiders and Outsiders: A Chapter in the Sociology of Knowledge," Merton was concerned in part to examine the implications of the belief that "...you have to be one in order to understand one." This is what Merton called the Insider doctrine. An "extended version" of the Insider doctrine, according to Merton, involves a further conviction: that "one must not only be one in order to understand one; one must be one in order to understand what is most worth understanding." The correspondingly strong form of the Outsider doctrine holds "that knowledge about groups, unprejudiced by membership in them, is accessible only to outsiders."¹

So the conference aimed at an airing of the contradictory claims to privileged understanding of the past of geology (broadly construed to include atmospheric and oceanographic science) on the part of geologists themselves and on the part of historians of science and their sociologist-philosopher allies. At a certain level, of course, to fix upon the different perspectives of Insiders and Outsiders in historical examination of the earth sciences was little more than a pretext for defining some of the leading methodological and historiographical issues that separate many of those who have tried to write on the subject. The convenors recognized this, spoke soothingly with a few prospective participants who stated their (not altogether unreasonable) apprehensions about a meeting apparently organized around a theme of division and confrontation, and tried to plan a program in which themes of provocation could become more nearly a delicate instrument for mutual instruction and comprehension than a bludgeon used to subdue the other side.

As events showed, while those who enjoy intellectual jousting certainly had a good many moments of fulfillment, the overall temper of the conference was one of accommodation and equability. Perhaps this was in

part because participants tended instinctively to embrace a point made forcefully by Martin Rudwick: that since inquiries in the Earth sciences and historical disciplines belong themselves to domains of specialized procedure and knowledge, anyone pursuing the history of geological sciences is almost inescapably in some measure both an insider and an outsider in the enterprise. Indeed the predominant note of virtually all the conference presentations and discussions was not (to paraphrase Merton) contention over who has monopolistic access to relevant knowledge, but rather a search for balanced interactions of roles and perspectives in the process of seeking truth. The participants might almost have been acting out Merton's parting peroration: "Insiders and Outsiders, unite. You have nothing to lose but your claims. You have a world of understanding to win."

A more detailed report on the conference appeared in *GSA Today*, August 1994, vol. 4, no. 8, pp. 203-4.

1. *American Journal of Sociology*, July 1972, 77:9-47; reprinted in Merton, *The Sociology of Science: Theoretical and Empirical Investigations*, Univ. of Chicago Press, 1973, 99-136.

Kenneth L. Taylor

The Historiography of Contemporary History of Science, Technology, and Medicine

A Workshop sponsored by the Swedish Council for Planning and Coordination of Research met 16-17 September 1994, to address questions such as: Is there a qualitative difference between scientists' history and historians' history? Does the lack of historical distance prohibit traditional historical scholarship? Does the technical complexity of recent science and technology prevent historians and sociologists of science from doing their job? Does the increasing specialization of scientific work prevent scientists from engaging in historical overviews? Can oral history and interviews contribute anything significantly beyond the written sources? Does the immense volume of published literature make the historian dependent on electronic databases for reviewing recent science and technology? How do the new information and communication technologies effect the access of historical sources? Is there a place for scientific biography in the history of Big Science and technology as an increasingly collective enterprise? Can science journalism contribute to the history of contemporary science, technology, and medicine? The Workshop, limited to 30 participants was held at Göteborg University, Göteborg, Sweden.

From *Soc. Latinoamericana de Hist. Ciencia y Tecnologia*, submitted by Carlos Aboleda

History of Geology Symposium, Geological Society of America, November 7, 1995

A day-long Division Symposium, *The Dana Legacy, a Century Later*, will focus on the highly productive career of James Dwight Dana (1813-1895) in the centennial year of his death. Dana served as the geologist-mineralogist of the Charles Wilkes Expedition to the Pacific in 1838-1842, and held a professorship at Yale from 1856-1890. During much of this time at Yale, Dana edited the *American Journal of Science*. His interests were wide-ranging. He coined the term "geosynclinal, enunciated the theory of the permanence of continents and ocean basins, authored his *System of Mineralogy*, *Manual of Geology*, and *On Corals and Coral Islands*. The Symposium convenor is Robert Ginsburg, who is chairing the Division in 1995. Invited speakers include Charles Beyers, Robert Dott, Brian Mason, James Natland, Julie Newell, Edward Purdy, and John Rodgers. Abstracts for the Symposium and the annual Discipline Session were due on July 12, 1995. All who are interested in history of geology are urged to attend the sessions and join in the discussions.

The History of Geology Award will be presented to Robert H. Dott, Jr. at the Division Luncheon and Business Meeting on Monday noon, November 6th.

**Symposium on the History of Mineralogy, Petrology and Geochemistry
Munich, 29-30 September 1995**

In cooperation with the German working group on the History of Geosciences, the Institute of Applied Mineralogy and Geochemistry of the Technical University in Munich, the Bavarian State Mineralogical Collection, and the Institute for the History of Science of the University of Munich are organizing a symposium on the *History of Mineralogy, Petrology and Geochemistry* to be held at the Ludwig-Maximilians-Universität, Munich, 29-30, September 1995.

The subjects of the symposium are the various interactions between chemistry and earth sciences in history. Besides the internal aspects of the development of mineralogy, petrology and geochemistry, attention will be paid to the political, economical and sociological aspects. The symposium focuses on the development from the 18th century to the present, but papers on early relations between chemical and mineralogical, or geological knowledge in antiquity, the Middle Ages, and early modern times would also be welcome.

Proposed topics of the individual sessions:

Mineralogical analysis in 18th and 19th century
Experimental Petrology

Mineralogy, geochemistry and metallurgy
Geochemistry and prospecting

Geochemistry of the interior of the Earth
Scientific instruments and experimental techniques
Institutionalization of geochemistry
Mineralogy and alchemy

Although applications for participation were due in January, 1995, those interested in attending the sessions should contact Dr. Bernhard Fritscher, Ludwig-Maximilians-Universität, München, Museumsinsel 1, D-80306 München, Germany.

COUNTRY REPORTS

Authors or coauthors are listed at the end of each country report or section thereof. Reports with no authors listed were compiled from news items, letters, or reprints sent to the Secretary-General. All reports have been edited in the interests of brevity and a common format. We always hope for news from all INHIGEO member countries and regret the lack of communication from some of them. Every individual member is welcome to report upon his or her own activities in history of geology. We invite such communications next year.

AUSTRALIA 1994

1994 was INHIGEO year in Australia. For reports on the XIXth International INHIGEO Symposium and the Board Meeting in Sydney see pages 2-5. In addition, the following publication was issued:

Rock Me Hard...Rock Me Soft.. A History of the Geological Society of Australia. Compiled and edited by B. J. Cooper and D. F. Branagan, 1994, The Geological Society of Australia Inc., Sydney, NSW, 194 pp.

Although the first attempt to form a geological society in Australia took place in 1852, the present Society is a post-World War II creation, formally constituted in 1952. This monograph delves into the century-long record preceeding the present national society, describes its founding and outlines the work of its national committees, regional divisions, and specialist groups. It is generously illustrated with property faded, historical looking, black-and-white prints. The caption to Figure 6, page 149, which shows an undifferentiated mass of hikers sitting and lying on bedrock, declares: "Never before has the summit of the highest mountain on any continent been covered by so many geologists. A brief and windblown break during the mid-conference field-trip across the Kosciusko Plateau during the Jindabyne Field Conference, February 1944." Good browsing even for non-Australians.

BRAZIL 1994

For the second time, one symposium dedicated to the history of geological sciences was included among the scientific activities of the Congress of the Brazilian Geological Society, held at Balneario Camboriu-Santa Catarina, October 1994. This illustrates that this field of knowledge is no longer seen as strange to the Brazilian geoscientific community as it was a decade ago. The Symposium was organized and coordinated by Dr. Silvia Figueir6a. Nine papers were presented by authors from the University of Campinas (UNICAMP) (3 papers), University of Minas Gerais (UFMG) (1 paper), University of Ouro Preto (UFOP) (1 paper), University of Bahia (UFBa) (1 paper), University of Vale do Rio dos Sinos (UNISINOS) (1 paper), the National Department of Mineral Production (DNPM) (1 paper), and the Company of Research on Mineral Resources (CPRM) (1 paper). Besides this local activity, INHIGEO Members Maria Margaret Lopes and Silvia Fernanda de Mendon9a Figueir6a also presented papers at other national as well as international meetings.

Silvia Figueir6a

CANADA 1994

Reprints and notices from William A. S. Sarjeant show that he was reviewing books on scientists, writing articles about Sherlock Holmes and other detectives in geology and fiction, and recording folk music (harmonica, percussion, vocal) as a long-term member of the *Prairie Higglers* in 1994. [See Book Reviews for his critique of *Eustasy: the Ups and Downs of a Major Historical Concept* edited by Robert H. Dott.] Sarjeant reviewed a biography of Spencer Baird (1823-1887), an almost forgotten scientist of gargantuan energy and managerial talent who became the second Secretary of the Smithsonian Institution and built it into the research and museum complex that it is. "Few persons," wrote Sarjeant, "have influenced the development of the earth sciences so profoundly, not only in north America but as an exemplar to other nations world-wide...it was through his activities that the U. S. National Museum of Natural History came into being and took shape and became a cornerstone of research in science." Baird also founded the Woods Hole Oceanographic Institution and almost single-handedly initiated fisheries research in the U. S. He should not be forgotten, and Sarjeant concludes that with this admirable biography the authors have done their best to insure that he *will* not be forgotten. [The book: *Spencer Baird of the Smithsonian* by E. F. Rivinus and E. M. Youssef. Smithsonian Institution Press, Washington D. C. nd London, 1992; review by Sarjeant in *Earth Sciences History* 13(1):77-79, 1994.]

Sarjeant found *Darwin's Desolate Islands: a Naturalist in the Falklands, 1833 and 1834*, by Patrick Armstrong, [Picton Publishing Ltd., Chippingham, England, 1992], to be a meticulously researched study of a little-known episode in Darwin's early career that had a lasting influence on his scientific development. Armstrong followed Darwin's footsteps through the Falkland Islands as closely as possible and took photographs to match illustrations from Darwin's notebooks or published works with truly illuminating results. Sarjeant regrets that this groundbreaking book with an original approach based on research of great value is marred by poor writing, editing and proof-checking. [*Earth Sciences History* 13(1):80-81, 1994.]

In an anthology called *A Peck of Troubles* by Daniel George (Jonathan Cape, London, 1936) Sarjeant discovered *About Stones*, relating an episode taken from the *Life of Shelley* by Thomas Jefferson Hogg (1858). The protagonist is, of course, Percy Bysshe Shelley, the English poet (1792-1822). Sarjeant sent the following passage to *Geolog* where it appeared in Vol. 23(2):7, March-April 1994, and thought it worth sharing with us:

My guest [Shelley] suddenly burst into the room, threw down his cap, and as he stood shivering and chafing his hands over the fire, he declared how much he had been disappointed in the lecture. Few persons attended; it was dull and languid, and he was resolved never to go to another...I went away indeed, before the lecture was finished. I stole away; for it was so stupid, and I was so cold, that my teeth chattered. The Professor saw me, and appeared displeased. I thought I could have got out without being observed; but I struck my knee against a bench, and made a noise, and he looked at me. I am determined that he shall never see me again.'

'What did the man talk about?'

'About stones! About stones!' he answered with a downcast look and in a melancholy tone, as if about to say something excessively profound. 'About stones! -- stones, stones, stones! -- Nothing but stones! -- and so drily. It was wonderfully tiresome -- and stones are not interesting things in themselves!'

I wonder who the Professor was, asks Sarjeant: Robert Jameson, perchance?

PEOPLE'S REPUBLIC OF CHINA 1994

The Thirtieth International Geological Congress, Beijing, 1996 The response has been optimal to the First Circular of the 30th IGC to be held in Beijing, August 4 to 14th 1996. Up to the end of 1994, 5,989 persons have returned the Preliminary Questionnaire. The first meeting of the Scientific Committee of the 30th IGC was held January 11-12, 1995. The Scientific Programme of the Congress was discussed and some changes and additions were made. [See also notice of the XXIst International INHIGEO Symposium of Pages 5-6].

The colloquia will focus on continental geology, global environment, energy and mineral resources for the 21st century, and the interrelationship between geological science and human survival and development. There will be 70 sessions in the 13 Special Symposia, and 150 sessions in the 22 sections of Symposia. The History of Geosciences Section will include the following four sessions:

- 22-1 History of geology and international communication of geoscience ideas.
- 22-2 Geological concepts, thinking and philosophy.
- 22-3 Development of geoscience disciplines since the 19th century.
- 22-4 The role of geological survey organizations in market economics.

We are very glad that the first three sessions will be jointly organized by INHIGEO and related Chinese organizations. We plan to publish a pre-Congress volume mainly in regard to Symposium 22-3, and many friends, in and out of INHIGEO, have been invited to contribute papers. We sincerely hope INHIGEO will give assistance and support to all the sessions, and especially to this planned volume. The deadline of abstract submission for the Symposia is November 1, 1995. Completed manuscripts for the pre-Congress volume should reach Zhai Yusheng or myself no later than the end of September 1995. We look forward to meeting as many members of INHIGEO and interested friends as possible in Beijing in August 1996.

Wang Hongzhen

History of the Geological Society of China, Annual Convention. The ninth annual convention of the HGGSC was held in Zhengzhou, Henan Province, China, April 20-24, 1994. More than 50 participants attended from universities and colleges, research institutes and mining companies. Altogether 27 papers were read. The keynote lectures, "Retrospect of the history of geoscience development in Southeast Asia" by Professor Wang Hongzhen, "Some aspects of the study of history of geological disciplines" by Professor Zhai Yusheng, and "The development of oil and gas geology in China" by Professor Lu Hua aroused general interest. Eight young geologists presented their papers at this meeting, some of whom were attending this kind of scientific activity for the first time.

The working programmes of the HGGSC for 1995-1996 were discussed. It was decided that the main effort in this period will be to make preparations for the Thirtieth International Geological Congress in Beijing, August 4-14, 1996. The Committee will endeavor to strengthen research programs on the history and development of the geoscience disciplines in order to better understand the growth and development of the geological sciences both at home and abroad. All the participants agreed that history is a great treasure trove, and we may, through learning from the past, do better hereafter for the common cause of promoting economic and social progress in China.

Zhai Yusheng, Wang Hongzhen

Jade and Jewel Geology. On 25 February 1994, a special meeting to address "The History of Research in Jade Civilization and Jewel Geology" was held in the China University of Geosciences (Beijing), organized by the HGGSC. The meeting was attended by about 80 persons. Five papers were presented on the themes: "Research on the geology of jade in ancient China," "The medicinal use of jewels," "The early exploration for jade in the Kunlun Mountains," and other interesting subjects. The participants welcomed this kind of short session focused on a specific subject.

Zhai Yusheng

Centennial Memorial of Professor Sun Yunzhu (Y. C. Sun)

October 1st, 1995, will be the 100th birthday of the late Professor Sun Yunzhu, a first generation geologist trained in China, founding member of the Geological Society of China and founding president of the Paleontological Society of China. Professor Sun was a forerunner in Chinese paleontology and stratigraphy, and held appointments as Professor and Head of the Geology Department of Peking University for over 15 years. The HGGSC will, in cooperation with related institutions, organize a memorial meeting and scientific sessions at the end of September, 1995. A memorial volume in Chinese, containing papers treating the history and development of geoscience disciplines in China will appear in advance of the meeting, and a volume in English, including papers in paleontology and stratigraphy, the fields in which Professor Sun had made important contributions, will also be published.

Wang Hongzhen

Publications

Selected Works of Doctor Ting Wenjiang (V. K. Ting. Compiled by Huang Jiqing (T. K. Huang) and Pan Yuntang. Peking University Press, Beijing, 1993.

"Studies on the History of Petroleum Geology." *Proceedings of the Third Conference of the Committee on History of Petroleum Geology*, The Petroleum Society of China. Publishing House of the Petroleum Industry, Beijing, 1994.

Collected Papers on the History of Geology, No. 3. ed HGGSC. Geological Publishing House, Beijing, 1994.

An Outline of the History of Geology in China. ed Wang Yangzhi. China Science and Technology Press, Beijing, 1994.

Newsletters of the History of Geology, No. 9, No. 10. ed. Yang Guangrong for HGGSC, 1993-1994.

Yang Guangrong

COSTA RICA 1994

1994 was a very quiet year in our activities related to the history of geology. One of our colleagues, Giovanni Peraldo, of the University of Costa Rica, has been very active during the last two years investigating historical earthquakes and volcanic eruptions in Central America, particularly in Costa Rica. At the same time he developed

an interest in the geological aspects of historical exploration and development of the Isthmus. As a consequence, he published an interesting paper about the role of geologists in interpreting historical documents: "El geólogo antes el discurso del documento histórico" [The geologist before the discourse of the historical document]. *Revista Geológica de América Central* 15:87-91, 1993. In 1995, he and his collaborators are planning to publish two books about historical earthquakes in the region during this year.

To our great regret, Dr. Cesare Dondoli passed away on July 8 1994. He has been considered to be the founder, or the "father," of Costa Rican Geology, because of his continuous and tireless efforts to develop the study of geology in this country. Dr. Dondoli arrived in Costa Rica in 1939 and began teaching geology in the Agricultural School, which was transformed into the Agronomy Faculty when the University of Costa Rica was founded in 1940. As professor, he sponsored several geological theses and collaborated effectively with members of the National Geographical Institute. He was one of the most powerful promoters for the creation of the Directorate of Geology, Mining, and Petroleum, and for establishment of a code of modern mining laws in the 1950's. Probably his most outstanding accomplishment was the founding in 1970 of the Central American School of Geology in the University of Costa Rica. He was the first Director, an office he held until he retired in late 70's. The University awarded him an Emeritus Professorship for his outstanding efforts in developing the Costa Rican Geosciences. Even after retirement, he continued giving support to several projects and advising students and researchers until a few months before he died.

Gerardo Soto

CZECH REPUBLIC 1994

The staff of the Department of Geology and Paleontology, Faculty of Science, Masaryk University in Brno carries on a wide range of activities concerning the history of geological sciences. Substantial collaboration is arranged with other institutes of the University as well as institutions outside of the University, mainly in the solution of historical and prehistorical problems.

Karel Zapletal (1903-1972) was one of the most prominent Moravian geologists of this century. He served as full professor and chairman of the Department of Geological Sciences at the Faculty of Science, Masaryk University. Zapletal investigated a wide spectrum of geological subjects including the history of geology. In recognition of the 90th year since his birth, the Department published a book summarizing his life and work.

The Commission on the history of the Faculty of Science is engaged in studying the history of individual disciplines. It plans, one by one, to publish biographies of all professors.

Currently, our attention is focused on the oldest human activities in the area of the Czech Republic. The earliest traces of the collecting and use of local Jurassic cherts were found at the Stránska Skála hill in Brno. Besides flaked stone artifacts, there were found white-grey and dark animal bone fragments in a layer dated to the upper phase of the Cromerian, some 600,000 to 700,000 years ago. By means of differential thermal analysis and Rock-eval pyrolysis we proved that the dark bone fragments had been subjected to temperatures between 300 and 500°C. The Stránska Skála hill is the oldest known site in Central Europe where chert was collected as raw material and fire was used.

From the Upper Palaeolithic we have ascertained a few sites of intensive surface collecting of raw materials in addition to Jurassic cherts at the Stránska Skála hill. These include erratic siliceous rocks from glacial sediments at the Czech-Polish border, and radiolarities near the Czech-Slovak border. In the Neolithic-Eneolithic, exploitation shifted to the extraction of cherts from weathered limestone layers (Stránska Skála) or from soft Miocene sands and gravels (the Krumlovsky loess area). Other raw materials used were siliceous weathering products of serpentinites, moldavites (tekites), and porcellanites. From that period we already know of evidence of the quarrying of greenschists, metabasites, serpentinites and graywackes for fashioning of stone axes and hammers.

We also studied the prehistoric mining of iron ores. The oldest exploitation in this region is believed to have been in the Moravian Karst near Bull Rock cave during the Hallstatt period (800-400 years B. C.). The Bull Rock

Foundation was organized to clear up the unsolved questions relating to this period of iron mining by means of geochemical studies of iron artifacts from the cave and iron ores from the surrounding area.

A search for the source of raw materials used by ancient Slavs to produce pottery at their famous sites, Mikulcice and Pohansko, during the Great Moravian Empire was the final problem to be addressed in 1994.

Rudolf Musil, Antonín Prichystal

Jan Kozák spent several months in America consulting with seismologists and searching archives for illustrations and documentation of historic earthquakes in the Americas. For this purpose he traveled from Washington and Boston to San Francisco. He plans to publish a companion volume to his *Historic Earthquakes in Europe*, issued in 1991. It was a pleasure to receive a visit from him in Cambridge.

UBM

FRANCE 1994

Three scientific meetings were held by the French Committee on the History of Geology (COFRHIGEO) in 1994. The following lectures were delivered during the sessions. They will be printed in the *Travaux du Comité Français d'Histoire de la Géologie*, 3rd series, Volume 8, which will be distributed in October 1995.

Jean Boulaine: *La triple carrière de Carl Ludwig Gieseck, comédien et rédacteur d'opéras, géologue de terrain et professeur de géologie à Dublin.*

Jean Roman: *Les vicissitudes des oursins fossiles de la collection Lamarck.*

Francis Robaszynski: *Historique des recherches géologiques sur les tunnels sous la Manche.* (titre provisoire).

Philippe Grandchamp: *Deux exposés des doctrines de Cuvier antérieurs au Discours préliminaire : les cours de Géologie professés au Collège de France en 1805 et 1808.*

Lydie Touret: *René-Just Haüy (1743-1822): ses relations internationales.*

Bernard Gèze: *La ruée vers le phosphate dans les cavernes du Midi de la France.*

Michel Durand-Delga et Richard Moreau: *La vie aventureuse de Jules Marcou (1824-1896), géologue franco-américain.*

Bernard Balan: *Développement, Progression, Evolution: La vie, la terre et le temps au XIXème siècle.*

In 1994, the French Committee on the History of Geology started the preparation of a volume dedicated to the well-known Swiss geologist Eugène Wegrann, who had previously made a bequest to the French Geological Society in order to create a prize in the field of History of Geology. This volume, which will be something like a "best of" papers read during the scientific meetings of the French Committee on the History of Geology, will be included among the *Mémoires de la Société géologique de France*. We expect that it will be off the press before the end of 1995.

COFRHIGEO is very pleased to announce that the second volume of François Ellenberger's *Histoire de la Géologie* was published in January 1994. In addition, our Committee heartily applauds our American colleagues who arranged for the election of François Ellenberger as both an Honorary Fellow of the Geological Society of America and as the recipient of its 1994 History of Geology Award. [See the USA Country Report, and a review of Ellenberger's *Histoire*, Vol. 2, in Book Reviews.]

Latest News! We will organize in 1995 a symposium for celebrating the 80th birthday of François Ellenberger.
Jean Gaudant

GERMANY 1994

Conferences. In Chemnitz and Freiberg celebrations were held in recognition of the 500th anniversary of Georgius Agricola's birthday. The Prime Minister of Saxony, Kurt Biedenkopf, assumed honorary patronage of the events arranged during the Agricola year in the Free State of Saxony. A colloquium *On the Knowledge of*

Geosciences in the 16th Century was held in Wittenberg. Additional cities holding colloquia included Berlin, *Following the Footsteps of Alexander von Humboldt in Russia and the Altai*; Halle, *60 Years of the Geisel-tal Museum*; Hannover, *100 Years of the International Geological Map of Europe of the Scale of 1:1500 000*; Steinach, held a commemorative colloquy on the occasion of the 100th anniversary of Bruno von Freyberg's birthday; and in Gera another colloquy was held on the occasion of the 100th anniversary of Theodor Liebe's birthday. Special colloquia celebrated the 65th birthday of Prof. Ludwig Baumann (Freiberg) and the 80th birthday of Prof. Helmut Hölder (Stuttgart).

Due to the unfortunate passing away of two good friends and highly productive colleagues we have lost the active participation in our field of Dr. Gerhard Mathé of Dresden and Professor Paul Wurster of Bonn. Commemorative colloquia have been held for each of them.

The annual meeting of the working group "History of Geosciences" took place on 23 and 24 April in Munich. The preparations were carried out by Bernard Fritscher. Twenty-three members and friends of the working group took part in the meeting.

The author of this report was the only German participant of the XIXth International INHIGEO symposium in Sydney in 1994.

Teaching. Peter Lange lectured on the history of mineralogy and geology in Freiberg, and the seminar "History of Geosciences and Mining Mirrored by Historical Manuscripts" was held there under the auspices of Peter Schmidt. In Munich the responsibility for teaching the history of geology was assumed by Bernhardt Fritscher.

Books Published

Christoph Bartels, Reinhard Feldmann, and Klemens Oekentorp: *Geologie und Bergbau im rheinisch-westfälischen Raum*. (Geology and Mining in Rhenish Westfalia.) Bücher aus der historischen Bibliothek des Landesoberbergamtes Nordrhein-Westfalen in Dortmund. Münster, 214 pp. (Schriften der Universitäts- und Landesbibliothek Münster. Vol. 11).

Hans Prescher and Otfried Wagenbreth: *Georgius Agricola: seine Zeit und ihre Spuren*. (Georgius Agricola, his Mark on his Era.) Leipzig and Stuttgart, 234 pp.

Cosmographica et geographica. (Cosmography and Geography.) Festschrift for Herbert M. Nobis on his 70th Birthday. B. Fritscher and G. Brey, Editors. 2 Vols., Münschen. X, 413 pps; VIII, 402 pps. (Algorismus. H. 13)

Georgius Agricola: 500 Jahre. Proceedings of the Scientific Conference held March 25-27, 1994, in Chemnitz, Saxony. Organized by the Technical University of Chemnitz-Zwickau and the Georgius Agricola Society for the Advancement of the History of Natural Science and Technology. F. Naumann, Editor. Basel, Boston and Berlin. 506 pp.

International Newsletter. *The Cultural Heritage of Libraries concerned with Geosciences, Mining and Metallurgy*. Ed. by P. Schmidt. Freiberg, 1994, Vol. 1, 118 pp.

Studia Fribergensia. Lectures presented at the Alexander von Humboldt Colloquia in Freiberg, November 8 to 10, 1991, on the 200th anniversary of the beginning of his studies at the Bergakademie in Freiberg. Berlin, 1994, 387 pp. (Beiträge zur Alexander-von-Humboldt-Forschung. Bd. 18).

A wide range of papers also were published. Those interested may refer to the News-sheet on the history of geosciences No. 4 (1994) published by Ewald E. Kohler (Regensburg) and Peter Schmidt (Freiberg).

Peter Schmidt

HUNGARY 1994

There were three major events of the year in Hungary:

(1) The inauguration on 4 March of a tablet commemorating the founding of the Hungarian Geological Society in January 1848 at Vidfalva, Slovakia. Addresses were delivered by O. Samuel, President of the Slovak Geological Society (read in Hungarian), T. Kecskeméti, President of the Hungarian Geological Society (read in Hungarian and interpreted in Slovakian), and E. Dudich, President of the Association of European Geological Societies (read in Slovakian and distributed to the attendants in Hungarian.) It was a prime example of goodwill and mutual esteem.

(2) Celebrations of the 125th anniversary of the Hungarian Geological Institute, combined with a Business Meeting of ICOGS (International Consortium of Geological Surveys), 19-21 September. The "History of the Geological Institute of Hungary" was presented by E. Dudich and published in *Episodes* [see below].

(3) A Commemorative session held jointly by Budapest University and the Hungarian Geological Society, on the occasion of the 100th anniversary of Prof. J. Szabó's death. A series of lectures were read on the various aspects of J. Szabó's pioneering activities.

The following lectures were presented at the regular meetings of the Historical Section of the Hungarian Geological Society:

January	"Activities of the Section in 1991-1993", by G. Csiky. Gábor Csiky and J. Hála were re-elected as President and Secretary of the Section, respectively.
June	"H. Horusitzky, the hydrogeologist" by G. Bidló "Prof. E. Balogh's merits in geology" by G. Csiky "Chapters from an apocryphal history of geology" by A. Kaszap.
November	Prof. F. Papp - his life and works" by J. Dobos "Commemoration on S. Gesell, mining geologist" by Gy. Vitalis.
December	"Annual Report on 1994" by G. Csiky "G. Melczer, the mineralogist", by G. Bidló.

Major Publications

- Agricola, G. (1994) *Bermannus, or conversation about the miraculous world of minerals* (Hungarian translation). Ed. L. Zsamboki, Miskolc - Rudabánya, 234 pp.
- Géczy, B. (1994) Brief History of the Hungarian Palaeontology. *Annals of the History of Hungarian Geology*, Special Issue 6. Ed. Hungarian Geological Society, Budapest, 68 pp.
- Gimesi, I. M. (1994) *Hungarian bibliography of the minerals of the Carpathian realm, 1859-1951* (in Hungarian), Szeged, 315 pp + maps.
- Hála, J. ed. (1994) *125 years of the Geological Institute of Hungary*. (in Hungarian), Ed. MAFI, Budapest, 180 pp.
- Kecskeméti, T. and Papp, G. eds. (1994) *Hungarian treasure-chambers of the Earth. Studies on the history of geoscientific collections in Hungary* (in Hungarian). *Studia naturalia*, 4. Budapest, 432 pp.
- Tóth-Makk, A. ed (1994) *125 years Hungarian Geologist Survey*. *Studies*. Ed. Hung. Geol. Survey, Budapest, 188 pp.
- Zsamboki, L. ed. (1994) *Agricola's century*. Proceedings of the session held on the occasion of the 500th anniversary of Agricola's birth. *Közl. a magyar. asv. nyers. tort., IV*, Miskolc, 134 pp.

Minor Publications (Articles in Hungarian)

- Csiky, G. (1994) L. Berzenczey. In "Ervfordulók..." (Anniversaries...) 1995, pp. 111-113, Budapest.
- Csiky, G. (1994) E. Pávai-Vajna. - *Ibid.*, pp.124-125

- Dobos, I. (1994) Exhibiton illustrating the activity of the 75-year old Hungarian Hydrogeological Society. *Hidr. Táj. àpr.*, pp. 45-48. Budapest.
- Dobos, I. (1994) Development of the Lukacs Bath until its nationalization. *Balneologia...*, XV/2, pp.51-57, Budapest.
- Dobos, I. (1994) 32 items in vol. IV. of the Hungarian Biographical Lexicon, Budapest.
- Dudich, E. (1994) 125 years of the Geological Institute of Hungary. *Term. Tud. Közlöny* 125/9, pp. 387-391, Budapest
- Dudich, E. (1994) Hydrogeological activities of the 125-year old Geological Institute of Hungary. *Hidr. Táj. okt.*, pp.6-8, Budapest.
- Hàla, J. (1994) H. von Bandat. "Evsfordulók..." (Anniversaries...) 1995. p. 28, Budapest.
- Hàla, J. (1994) Inauguration of a memorial tablet at Videfalva. *Honismeret*, XXII/4, pp. 78-79, Budapest
- Hàla, J. (1993) F. Pávai-Vajna as ethnographer. *Ethnographia* CIV/1 pp. 197-214, Budapest.
- Hàla, J. (1994) Stone quarrying and stone carving at Magyvista in the Kalotaszeg area. *Ház és Ember*, 9, pp. 65-86, Szentendre.
- Kaszap, A. (1994) Honor Antecedentibus! Chapters from an apocryph history of geology. *Szöszölö* VII/7-8, p. 8, Budapest.
- Vitális, Gy. (1994) Commemoration on H. Horusitzky, who died 50 years ago. *Hidr. Tj. àpr.*, pp. 5-6, Budapest.
- Vitális, Gy. (1994) Hydrological lessons learnt from G. Agricola's "Twelve books on mining and metallurgy 3. *Hidr. Táj. okt.*, pp. 8-9, Budapest.
- Vitális, Gy. (1994) In memoriam H. Kessler (1907-1994). *Hidr. Közl.* 74/2, pp. 65-66, Budapest.

Gábor Csiky, József Hala

Franz Baron von Nopcsa. Anmerkungen zu seiner Familie und seine Beziehungen zu Albanien. Eine Bibliographie. (Francis Baron von Nopcsa. Remarks on his family and on his relations to Albania. A bibliography.) József Hala (1993) Ed. Geological Survey of Austria, Vienna, and Hungarian Geological Survey, Budapest. Vienna 79 p; 67 figs.

Franz Nopcsa (1877-1933), son of a noble Hungarian family from Transylvania, has acquired world fame as a pioneer of the paleobiology of fossil reptiles, in particular of the dinosaurs. From 1925 to 1928 he was Director of the Geological Institute of Hungary. From 1903 on he undertook several long research journeys in Albania, which became his second mother-country. Nopcsa observed, collected and published basic facts on many aspects of the virtually unexplored nature and culture of Albania, including geography, hydrology, geology, paleontology, archeology and ethnography.

On the occasion of a double anniversary (90 years after his first trip to Albania and 60 years after his suicide in Vienna) solemn commemorations were held both in Albania and Hungary. An International Conference on *F. Nopcsa and Albania* was organized jointly by the Albanian, Austrian, and Hungarian Geological Surveys in Budapest, Hungary, 13-14 October 1993. Altogether 20 lectures were presented; their English-language abstracts have been published. For this occasion József Hala (assisted by B. Balogh, Cs. Horváth, and M. Kázmér) has compiled a comprehensive bibliography. Starting with a German-language "Preface" by J. Hala, the bibliography consists of two parts:

- (1) Papers (including newspaper articles) on F. Nopcsa and remarks on his family (267 items)
- (2) F. Nopcsa's papers on Albanian topics (57 items, published between 1905 and 1933).

The documentation is completed with 15 photographs and 55 reproductions of title pages of Nopcsa's original papers. It has to be pointed out that this is not a full bibliography of Nopcsa's very extensive scientific oeuvre; it contains only the papers relating to Albania. In this respect, however, it is the most comprehensive one that has been published so far. Accordingly, it is both a valuable contribution to the history of science and an appropriate tribute to an exceptionally open-minded, all-round scientist and scholar.

Endre Dudich

A Central European Survey in a changing society: 125 years of the Hungarian Geological Survey.

Endre Dudich (1994), *Episodes*, 17(4):111-114.

This article by Endre Dudich, a previous Secretary-General of INHIGEO, appears in a special issue of *Episodes* devoted to *Geological science in a changing society*, the theme chosen by the Hungarian Geological Survey for its 125th anniversary meeting held in September, 1994, in Budapest. About 56 geoscientists attended from 25 countries in Europe, North America, South America, Asia, and Africa. To make space for the full proceedings of the meeting, *Episodes* dropped a number of its regular features from this issue. The following is extracted from Dudich's article.

In his introduction Dudich observes that since the middle of the last century Hungary, in common with other countries of Eastern Europe, has experienced a succession of foreign invasions, internal revolutions, economic crises and boundary revisions. The effects on geoscience have been profound. However, 125 years since its founding in 1869, the Hungarian Geological Survey remains a vital organization ready to face new challenges.

In 1844, in a spirit of reform, the Hungarian Parliament adopted Hungarian in place of Latin as the official language of Hungary. Four years later, in January 1848, the Hungarian Geological Society was founded. The famous 1848 "spring of the peoples" that blossomed in much of Europe reached Budapest the following March and triggered a violent reaction from the Austrian monarchy. A short, desperate War of Liberation ensued but was all over by August when the Hungarian army surrendered to an overwhelming Russian invasion. Severe reprisals and long term repression stopped economic and political progress in Hungary and led to a wave of emigration. The Austrian Emperor sustained heavy losses elsewhere, however, and by 1866 he no longer could afford to maintain permanent confrontation with the Hungarians. Thus, in 1867 a 'historic compromise' marked the birth of the 'Austro-Hungarian Monarchy,' symbolized by the double-headed Hapsburg eagle. By then, Dudich writes, "...almost 20 precious years of possible development had been irrevocably lost. It is in this historical context that the foundation of the Hungarian Geological Survey should be viewed." That event took place by royal decree on June 18th, 1869. It constituted a new beginning for geoscience in Hungary.

Dudich subdivides subsequent developments into the following five periods.

1869-1918: surveying in the (Austro)-Hungarian Empire. The first Director of the Survey, Miska Hantken, headed a homeless Survey with few staff. "Nonetheless," writes Dudich, "he managed to take over the task of geological mapping of Hungary from the geologists of the Imperial Geological Survey in Vienna." The second Director, János Böckh, fully understood the requirements of capitalist development and initiated activities in applied geology, including a mineral resources inventory, agogeology, hydrogeology, and hydrocarbon exploration. He also arranged for construction of the Survey headquarters building in Budapest that now ranks as one of the finest examples of Hungary's architectural heritage. In 1869, the Survey, in cooperation with the Hungarian Geological Society, celebrated the thousand-year establishment of the Hungarian state by issuing the 1:1,000,000 geological map of Hungary. Beginning in 1910, geological mapping extended from the Carpathians to the Dalmatian Coast. A truly interdisciplinary team of international scientists and scholars led by L. Lóczy, the 3rd Survey Director, published a multivolume monograph on the region of Lake Balaton in 1914. Mapping continued (even in Bosnia and Macedonia) during the First World War, but the defeat of Germany and its allies brought about the collapse of the Austro-Hungarian Empire in 1918.

1919-1948: the consequences of two lost wars. The Hungarian Republic established in October 1918 was replaced by the Hungarian Soviet Republic in March 1919, placing beyond question any possibility of celebrating the 50th anniversary of the founding of the Survey that year. In 1920, Hungary lost more than two-thirds of her territory under terms of the Trianon Peace Treaty. In response to the ensuing political and economic crisis, the Survey refocused its activities, with considerable success, on coal and bauxite prospecting in Central Transdanubia. Franz Baron Nopcsa, who became Director in 1925, revived the Survey's flagging morale and reopened international relations. In 1928 he brought a meeting of the German Paleontological Society to Hungary. He was followed as Director by the sons of the first two Directors in succession. They brought about oil and gas exploration and mapping of territories (temporarily) restored to Hungary. In 1944, with the Soviet Army advancing on Budapest, geologists spent part of the Survey's 75th anniversary year evacuating the organization's most valuable objects to a village on Lake Balaton. The Germans left Hungary but the Russians stayed on. Until 1947,

Hungarian science, geology in particular, had been rather German-oriented. That year the Iron Curtain cut links to the west and the geosciences came under Russian influence.

1949-1969: 'a country of iron and steel.' The development of heavy industry followed the nationalization of industry and commerce and the collectivization of agriculture. Geology was charged with the duty of supplying more and more mineral resources. Many experts were transferred to industrial geological services while the remaining Survey staff struggled to save the documentation of nationalized companies. However the trend at the Survey was toward growth. The capacities of the laboratories and mineral exploration departments were greatly expanded and the total Survey staff grew from 73 in 1945 to 322 in 1953. That year a 1:300,000 Geological Map of Hungary was published. After the failed October 1956 revolt against Soviet domination and the subsequent repression, a new era began in 1958 when J Fülöp was appointed Director. He set up four aims for the Survey: systematic geological mapping, scientific research, development of methodologies, and publication of results. He reopened international contacts and arranged to hold the Mesozoic Conference in 1959, an unprecedented event that attracted 72 participants from 11 countries.

Dudich comments that 1968 was marked by two events, one negative, one positive. The negative one was the disruption of the International Geological Congress at Prague by military intervention of Warsaw Pact troops. The positive one was introduction of economic reform and gradual political liberalization in Hungary. As a result the Hungarian Geological Survey celebrated its 100th anniversary in 1969 with scientific conferences, colloquia, and field trips. The festivities included a 'Day of the Geological Institutes of the World'—the first international meeting of Directors of National Geological Surveys, chaired by Sir Kingsley Dunham, Director of the British Geological Survey. There were more than 700 participants for whom simultaneous translation was provided in English, French, German, Hungarian, and Russian.

1970-1990: controlled growth and cautious change. In 1970 J Konda was appointed Director of the Survey to replace J Fülöp, who began serving as President of the newly established Central Office of Geology. Konda diversified the Survey's activities in several respects, including the establishment of a Department of Economic Geology and a number of geological nature protection areas. The Survey developed a computer-based system of mineral resource assessment and reserve calculation. Geological parties mapped parts of Mongolia and Cuba at scales of 1:200,000 and 1:250,000, respectively. Individual geologists worked in Guinea, Guyana, Iran, Mali, and Nigeria. The 'Geological Key Sections Programme' was launched and by 1990 it had produced descriptions of 140 outcrops and 236 borehole sections. The Survey staff grew in numbers to a peak total of 655 in 1980, when a new Director, G. Hámor, instituted significant changes. He cut mineral exploration activities to 30% of what they had been and emphasized the importance of integrated programs of mineral-resource prediction, agrogeology, hydrogeology, and environmental geology. Collections, archives, and laboratories were modernized and publication activities enlarged. The mapping of the Great Hungarian Plain was completed; that of the Little Hungarian Plain started. International cooperation burgeoned, UNESCO postgraduate training courses were organized, and major international meetings were held in Hungary. Efforts were made to improve the qualifications and language skills of Survey staff members in order for them to play a bridging role between geological institutions of the West and the East.

1991-1994: the struggle for survival and adaptation. In this short period the centralized, planned economy of the 'one state-one party' system in Hungary gave way to multiparty parliamentarianism that brought with it decentralization, privatization, and a market economy. Links with the former 'socialist' countries were cut or radically reshaped. Dudich writes: "A number of problems disappeared with the departure of Soviet troops in June 1991, but others appeared to replace them, including unemployment, social security problems, organised crime, drugs and inflation." A new President of the Central Office of Geology was charged with transforming the institutional structure of Hungarian geology. He soon was replaced, however, and confusion ensued as his successor tried to work amid a plethora of home-grown and foreign expert advisors. In April 1993 the Hungarian Parliament adopted a new Mining Law that threatened the legal existence of the Geological Survey. The following August a new system was established: the Central Office of Geology was replaced by the Hungarian Geological Service with authority over two 'independent' research institutes—the Geological Institute and the Geophysical Institute. As Dudich explains: "The Regional Branches, the National Data Bank (Archives) and the thematic computerised data banks have been transferred to the Service, which took the controversial name 'Hungarian Geological Survey.'"

Drastic changes took place in 1994, when the Survey's allocation from the state budget was less than half that of the previous year and staff numbers were cut by more than 60%, to 142. Mapping of mountainous regions, the key sections program, and coal and bauxite prospecting all ended abruptly. The print shop was abandoned and regular publication activity endangered. The remaining capacities were focused on hydrogeology, agrogeology, environmental geology, and geochemical surveying while research activities were devoted to basin analysis, structural geology, and palaeoenvironmental studies. In an effort to revitalize the Survey, external contracts, both national and international, were sought, and met with considerable success. Currently, eighteen multinational projects are in operation. Dudich concludes: "The future may be very different from the past, but the Survey will go on doing its duty as requested by society."

UBM

Congratulations to Dr. Gàbor Csiky

The INHIGEO Board takes great pleasure in congratulating you on the occasion of your 80th birthday. INHIGEO always has very much appreciated the exemplary activities of the Historical Section of the Hungarian Geological Society, the creation of which, exactly 25 years ago, is one of your major personal achievements. You have been cooperating with INHIGEO since 1978 at the Münster Symposium, and we were glad to welcome you at the Dresden Symposium in 1991. We wish you many more years of good health and vigorous activity and look forward to hearing from you each year on your contributions to the history of geology.

Ursula B. Marvin
Secretary-General

IRELAND 1994

December 31st, the final day of 1993, marked the 150th anniversary of the establishment by Trinity College in Dublin of the third oldest Chair of Geology and Mineralogy in the world. Since that time the chair has been held by ten geologists including John Phillips, Thomas Oldham, Samuel Haughton, John Joly, and, until 1993, Charles Holland. Prior to 1843 men such as James Ussher and the Rev. William Hamilton, both of whom were Fellows of the College, made significant contributions in geochronology and the earth sciences.

To mark this sesquicentenary an illustrated volume *In Marble Halls: Geology in Trinity College, Dublin* (ed. P. N. Wyse Jackson) was published in September 1994. It contains two parts: the first a historical narrative and the second recollections by 21 past and present staff members and students.

1994 marked another sesquicentenary: that of the publication of Frederick M'Coy's seminal work on the Carboniferous palaeontology of Ireland. The importance of M'Coy's work in Ireland is discussed in an article by Wyse Jackson and Monaghan 1994.

Wyse Jackson, P.N. (editor) 1994. *In Marble Halls: geology in Trinity College, Dublin*. Department of Geology, Trinity College, Dublin, 1994, pp. 135. Available from the undersigned for the price of £8,00 (Irish).

Wyse Jackson, P.N. & Monaghan, N.T. 1994. Frederick M'Coy (c. 1823-1899): an eminent Victorian palaeontologist and his synopses of Irish palaeontology of 1844 and 1846. *Geology Today* 10(6), 231-234.

Patrick N. Wyse Jackson

The following is a brief overview of an article by Paul Mohr, of the Department of Geology at University College Galway, that appeared in the Bulletin of the Geological Society of Italy. Mohr has performed extensive

geologic work in Ethiopia and other parts of East Africa and has an abiding interest in history. His article could be discussed under Ireland, or Italy, or Book Reviews. Since it is not strictly a book review, we will place it here between Ireland and Italy.

The Half-Centenary of the Publication of *Geologia dell'Africa Orientale* by Giotto Dainelli: an Attempted Assessment. Paul Mohr (1993) *Boll. Soc. Geolog. It.* 112:635-646.

In this article, Paul Mohr addresses the writing and current status of the four-volume master-work *Geologia dell'Africa Orientale* by Giotto Dainelli (1878-1968). Of this work, published in Italy in 1943 at the height of World War II, Mohr states: "...the first thing that can be said of this superb if admittedly prolix synthesis is that it has never received the recognition and acknowledgement so eminently due to it. Sadly and inevitably, with the subsequent and accelerating advance of geologic researches in Ethiopia and Somalia, Dainelli's work has now become largely of historical rather than scientific interest, though with some not unimportant exceptions."

Mohr traces Dainelli's early field work of 1905-1906 that led in 1909 to the publication, coauthored with Olinto Marinelli, of the first geologic map to cover all of Ethiopia, and, in 1912, also with Marinelli, of a detailed account of the geology and geography of central Eritrea and northernmost Afar. The young Dainelli also joined an Italian expedition to the western Himalaya, Tien Shan, and Tibet. By 1924 his contributions were of such merit that he was appointed to the chair of geology and physical geography at the University of Florence, the city of his birth.

In 1936, Dainelli led a scientific mission to survey the basin of Lake Tana in Ethiopia. This work, in itself, led to nine volumes of maps and text and stimulated Dainelli's interest in producing a new 1:2,000,000 scale geologic map of the Horn of Africa. His motivation, in part, was to correct what he regarded as errors and inexactitudes in a map of similar scope issued in 1933 by Giuseppe Stefanini. Originally intended as a map accompanied by explicatory text, Dainelli's project burgeoned into 1,889 pages of text and ten map sheets of which, writes Mohr "...the jewel is the 1:2,000,000 geologic map of the Horn in two sheets, utilizing 26 different color/ornaments." This work also has a bibliography listing nearly 1,000 references. Mohr ranks Dainelli's literature search as of a thoroughness that can have few rivals in the history of the science of geology. It required a meticulous investigation of Italian, French, German, and English journals and books, including some that were rare and difficult of access—carried on during pressures of war time. For all that, Mohr has not found a single typographical error in *Geologia dell'Africa Orientale* during thirty-five years of scrutiny.

Mohr discusses Dainelli's findings on subjects that are of interest to scholars in the 1990s. These include aspects of the late Proterozoic-early Paleozoic basement, Mesozoic and Tertiary marine sedimentation, the plateau basalts of Ethiopia, uplift and rifting, and Quaternary volcanism. In his assessment, Mohr states that "Dainelli was that rarity, a geological scholar. His work attests to a breadth of vision, to a power of deep critical scrutiny, and to a thorough and generally dispassionate survey of the literature...Dainelli combined exceptional zeal toward discovering the regional geologic processes that have shaped eastern Africa, with a scrupulous regard for detail and respect for facts." Yet, in essence, his book is lost to geology and to scholarship. Mohr feels that the virtual absence of modern citations of *Geologia dell'Africa Orientale*, even by Italian workers, reflects on contemporary attitudes and not on the scientific value of Dainelli's work.

Dainelli G. (1943) *Geologia dell'Africa Orientale*. R. Acad. D'Italia, Centro Studi per l'Africa Orientale Italiana, No. 7: Vol. I - Il Progresso delle Conoscenze 461 pp.; Vol. II - L'Imbassamento Cristallino e la Serie Sedimentaria Mesozoica, 701 pp.; Vol. III - La Successione Terziaria e i Fenomeni del Quarternario, 727 pp.; Vol IV - Tavole (vol. I, 4 maps; vol. II 1 map; vol. III 3 maps; 1:2 million geologic map in two sheets).

UBM

ITALY 1994

Italy is hosting the XX1st International INHIGEO Symposium *Volcanoes in History* in September, 1995. [For details, see page 5].

Founding of the *Centro Studi di Storia Della Geologia L Della Paleontologia* (Research Center on the History of Geology and Paleontology).

On the 4th of July 1995, the *Centro Studi di Storia Della Geologia L Della Paleontologia* was established within the *Societa Italiana di Scienze Naturali* (Italian Society of Natural Sciences), which is based in the Museo Civico di Storia Naturale di Milano, Italy. The *Centro Studi* has the following three purposes:

- 1) to promote in Italy and abroad the study of the historical development of the geological and paleontological sciences.
- 2) to encourage the diffusion of historical-scientific researches, through the organization of symposia, seminars, workshops, etc. and the publication of their proceedings.
- 3) to collect historical and contemporary material (books, reprints, manuscripts, etc.) concerning the disciplines of interest.

The initial programme of the *Centro Studi* will include:

1) The organization of an international symposium *Scienze e mito nel Diluvio Universale* (Science and myth in the Universal Deluge) in November 1995 in the Museo di Storia Naturale of Milan, Italy. For further information please contact Giovanni Pinna, Museo Civico di Storia Naturale, corso Venezia 55, 20121 Milano, Italy. Tel: (02) 79 9870; Fax (02) 76 02 2287.

2) The establishment of a specialized center of documentation on the history of geology and paleontology. This will be based in the Library of the Museo di Storia Naturale of Milan. For this reason we would like to invite all interested scholars to send copies of their historical-scientific works to the Biblioteca del Museo Civico di Storia Naturale, corso Venezia 55, 20121 Milano, Italy.

A complete report of the activities of the *Centro Studi* will be printed once a year in the *Atti della Societa Italiana di Scienze e del Museo Civico di Storia Naturale di Milano*.

International membership is hoped for. The annual fee is Lire 45,000 (+ Lire 5,000 as an entrance subscription in the first year only). Members will receive the Society's journals *Atti della Societa Italiana di Scienze Naturali e del Museo Civico di Storia Naturale di Milano* and *Natura*. They also will have the opportunity to publish in these journals where preference is given to members. If you are interested in joining the *Centro Studi*, request an application form the *Societa Italiana di Scienze Naturali*, Museo Civico di Storia Naturale, Corso Venezia, 55, 20121 Milano, Italy.

Nicoletta Morcello, Giovanni Pinna, Ezio Vaccari
The Founding Committee

Centennial of the Priabonian Stage

In June 1993, a meeting was held in the village of Priabona, near Vicenza in the Venetian region of northeastern Italy, to mark the centennial of the establishment of the Priabonian stage by Ernest Munier-Chalmas and Albert De Lapparent. The original name was published in the Bulletin of the Geological Society of France, vol. 21, p. 447, Paris, 1893.

The local people set up a paleontological museum, where the fossils recovered during agricultural and quarry operations are deposited. Scientific sessions were held in the Department of Geology and Paleontology at Padova University. Paleontologists and geologists from many countries visited the museum in 1993 and 1994, including some from as far away as Russia, China, and Indonesia.

More than 30 Italian paleontologists participated in the centennial of the Tethys, celebrated in September 1994 in Albrechtsberg, Austria, with homage to its author, Eduard Suess. The occasion was the International Symposium "Shallow Tethys 4."

Giuliano Piccoli

JAPAN 1994

Prior to 1994, Japanese geologists had no organization for studying the history of geological sciences. On March 29th 1994, the Gathering for Discussion on the History of Geological Sciences was inaugurated during the general meeting of the Geological Society of Japan in Tokyo. Mr. Omori, a member of INHIGEO was elected chairman, and N. Yamashita as secretary, to be assisted by Y. Suzuki, a member of INHIGEO, and T. Kutsukake. The organization will hold meetings twice a year.

A first gathering was held on June 11 in Tokyo, where three lectures were given, namely: "The history of petroleum geology in Japan" by N. Komatsu, "A historical review on the concept of time in geology" by M. Omori, and "Japanese geology in the South Sea Islands before World War II" by Y. Suzuki.

On the 25th of September, during the annual meeting of the Geological Society of Japan at Sapporo, Hokkaido, an evening meeting on the history of geological sciences was held with the assistance of the organization. Two lectures related to the history of the reclamation of Hokkaido were given; one on "The Reclamation of Hokkaido and geology," by Y. Kitagawa; the other, "The Geological survey of Hokkaido by Lyman" presented by S. Matsui. B. S. Lyman was an American geologist employed by the Hokkaido Reclamation Agency who stayed in Japan from 1872 to 1881. He conducted pioneering geological field work and published many outstanding papers and geological maps of Hokkaido. In addition to those works, he trained many young geologists not only in the field but also in the classroom. Some of his students made brilliant achievements in geology and coal mining.

The next meeting of the gathering will be held in Tokyo on the 3rd of December, 1994, when lectures and a report on the Sydney Symposium of INHIGEO will be presented.

The Fossa Magna Museum at Itoigawa City, Niigata Prefecture, was opened on April 19th. Among the invited guests were the grandson and granddaughter of Edmund Naumann, and several German contributors to Naumann's biography. Edmund Naumann was a German geologist who stayed in Japan from 1875 to 1885 and founded the study of geology in Japan. He gave the name Fossa Magna to that outstanding feature, and proposed the foundation of the Geological Survey of Japan. After the opening ceremony at the Museum, participants went to the office of the Survey at Tsukuba on April 21 to attend a reception sponsored by the Director. Lectures were presented at the University of Tokyo where Dr. Naumann had held the first professorship in geology. On April 23, all attended a final reception held under the auspices of the president of the Geological Society of Japan.

Yasumoto Suzuki

THE NETHERLANDS 1994

The annual report of the Commission for the History of the Geological Sciences of the Royal Netherlands Academy of Arts and Sciences states that after having served the Commission as secretary for twenty years, Frans H. G. Engelen handed over this office to E. W. A. Henssen, a notable historian of university affairs. In his farewell address Engelen urged the Commission to evaluate the past and to chart a course for the next twenty years. This move coincided with a similar one by the academy's council. As a result, a review and proposal were prepared and submitted to the council. In order to help overcome the Commission's operational difficulties, the council was asked to offer special publication facilities. Subject to reshuffling its membership so as to obtain a better balance between earth scientists and professional historians of science, the Commission probably will be accorded its own series of academy publications, the periodicity depending on the funds available at each particular moment. A closer co-operation with other groups engaged in the history of science will be fostered.

On January 4th Professor Reijer Hooykaas died. The loss of our founder, an inspiring personality, is deeply regretted by the history of science community in the Netherlands as well as abroad. Professor Hooykaas' ultimate paper on the historical and philosophical background of Haüy's theory of crystal structure appeared, late in 1994, in *Academiae Analecta of the Royal Belgian Academy of Sciences, Letters and Fine Arts*.

Later in 1994 professor F. R. van Veen joined, and Dr. M. J. M. Bless rejoined, the Commission's membership. Frans Engelen received the Zilveren Anjer of the Prins Bernhard Fonds for his work on the history of mining and geology in the province of Limburg.

It is hoped that the memoir on the history of Earth sciences in Suriname will be published in 1995. It will appear in the Mededelingen of the Netherlands Geological Survey (Rijks geologische Dienst) at Haarlem.

Preparations are being made for the Benelux Conference on the History of Science that is to be held at Echternach (Luxemburg) in October 1995, where the earth sciences will be under discussion for one full day.

Emile den Tex

The Historical and Philosophical Background of Haüy's Theory of Crystal Structure by Reijer Hooykaas was published in English in 1994 in *Mededelingen van de Koninklijke Academie voor Wetenschappen, Letteren en Schone Kunsten van België*, Brussel, Jaargang 56, Nr. 2, p. 1-108. Hooykaas' opening summary (p. 4) reads as follows:

"In the historical part (chapter 1) the influence of Bergman and Romé de Lisle on Haüy is traced and his claims to originality are critically evaluated.

In chapter II an analysis of Haüy's beliefs and methods shows that, after his great discovery (the law of decrements), he stretched analogical reasoning too far in his application of the notion of "limit" and by forcing data into conformity with a spurious law according to which the ratios of the dimensions of certain lines upon or traversing the crystal are as the radicals of simple integers.

Haüy's work is characterized by a strong belief in the simplicity of nature and by a predilection for methodological simplicity. This leads him to the introduction of 'useful' fictions in crystal theory (chapter IV).

In chapter III it is shown that his concept of mineral species led to great difficulties in classifying iron spar.

A great similarity in contents and methods of their theories turns out to exist between Dalton (atomic theory) and Haüy (structure theory).

In order to support his ideas on the structure and on species Haüy had an interest in using the less precise contact goniometer instead of the reflecting goniometer.

In the last chapter Haüy's influence on an opponent (Weiss) and on crystallographers who continued and revived his work (in particular Delafosse and Bravais) is dealt with."

UBM

NEW ZEALAND 1994

This is the first report from New Zealand so there is much of a historical nature in its content.

The Historical Studies Group of the Geological Society of New Zealand had its origin in 1980 when the Society formed a Reminiscences Subcommittee to encourage older members to record their memories of New Zealand earth science research. The last convenor of the subcommittee was the late Sir Charles Fleming. Following his death in 1987 the Subcommittee was reconstituted as the Historical Studies Group of the Society and its commission widened to include all aspects of the history of New Zealand geology.

Reminiscences still form a large part of the Group's activities. Geology began late in New Zealand – in 1859 when Ferdinand Hochstetter of the Austrian "Novara Expedition" carried out the first reconnaissance surveys – and more than half of the history of New Zealand geology has occurred in the lifetime of many of our members.

The first newsletter of the Historical Studies Group was published in September 1990 and it has been published twice yearly ever since. Although still in the style of a newsletter it is now the main vehicle for information on the history of New Zealand geology, and the forty pages of each issue contain much that can be regarded as fundamental research.

Regrettably, up to the present there has not been a great sense of history among New Zealand geologists and less than fifty of the eight hundred members of the Geological Society of New Zealand are members of the Historical Studies Group. Yet, progress is being made and our membership has doubled in the last five years.

The contribution of our Group to the on-going *Dictionary of New Zealand Biography* has been out of all proportion to its size. Of the 1200 biographies published so far, ten, or almost 1%, have been contributed by members of the Group.

There were three milestones in 1944:

1. For the first time, our Group was represented at an INHIGEO Symposium (Sydney in July). Four of our members attended and three gave papers.
2. During the Symposium Alan Mason was elected as the first New Zealand member of INHIGEO.
3. At the Annual Conference of the Geological Society of New Zealand sufficient papers were presented to warrant, for the first time, a special Historical Session.

Alan Mason

POLAND 1994

The History Department of the Museum of the Earth in Warsaw is preparing the edition of archival materials on the history of geological sciences at the University of Wilno (Vilnius) in the years 1802-1832 and 1919-1939. This problem was discussed during a scientific session in this institution devoted to the memory of its ex-director and INHIGEO-member Prof. A. Halicka. The lectures, delivered by J. Garbowska, Z. Wójcik and W. Narebski are being published in *Przegląd Geologiczny* (Geological Review).

A revised edition of the historical atlas of Polish territories in the 19th century, called "Logistic Map," is being prepared in the Institute of History of Sciences, Polish Academy of Sciences, by a team led by J. Babicz. Its geological part is being elaborated by J. Garbowska.

The Siberian Commission was formed within the Committee on the History of Science and Technology, Polish Academy of Sciences, lead by Z. Wójcik. Its main task is to collect and publish source materials on the history of exploration by Polish geoscientists in the Asiatic part of Russia.

In the same Committee, a Commission on the History of Natural Sciences was formed (led by J. Garbowska) during a session in the Museum of the Earth, dedicated to the 130th anniversary of the founding of the Physiographic Commission of the Academy of Sciences and Letters in Cracow.

In 1994 several scientific sessions and exhibitions were organized and publications issued to celebrate the 75th anniversary of the foundation of several scientific institutions in the State Geological Institute in Warsaw and its regional branches and in the University of Poznan. In the Institute of Geology of the higher school at Poznan a symposium was organized by J. Skoczylas on the state of knowledge of geology, and rock and mineral resources in the first centuries of Polish statehood (from the 10th to the 16th centuries).

W. Narebski participated in the International Scientific Conference held in Chemnitz March 25-27, 1994, organized to commemorate the 500th anniversary of the birth of Georgius Agricola, and published two papers on this outstanding humanist and geoscientist.

Publications

- Brzek G. (1994) *Benedykt Dybowski. Życie i dzieło* (Life and activity of this Polish explorer of Lake Baikal and Kamchatka in the 2nd half of 19th century).
- Czarniecki S. and Z. Grzywacz (1994) "Jan Jaskiewicz and his dissertation." *Kamienie* No. 19-20, p. 16-20.
- Czarniecki S. (1994) "Rene Just Haüy (1743-1822)." *Ibidem* No. 21, p. 3-5.
- Czarniecki S. (1994) "Gejza Bukowski - from Bochnia to the Dalmation Coast." *Rocznik Bocheński*. 1:149-162.
- Czarniecki S. and Narebski W. (1994) "Exploration by Polish geoscientists in the Australasian Region." In: *Useful and Curious Geological Enquires Beyond the World*. Pacific-Asia Historical Themes. Sydney, 103-109.
- Bolewski A. (1994) "Rectors of the Academy of mining in Cracow (1919-1939)." *Biul. Inform.* AGH No. 5, 5-8.
- Bolewski A. (1994) "Achievements of the Mining Academy in Cracow in 1919-1939." *Ibidem* No. 6-7, 5-8.
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- Skoczylas J. (1994) "Gedanken zur Petro-Archäologie und Gesteine als Baumaterial fruehmittelalterischer Bauwerke Grosspolens." "Geschiebe Aktuell" Hamburg, **19** (4):131-134.
- Skoczylas J. (1994) "75 years of geology at the Poznan University" *Przeł. Geol.* (5), 376-381.
- Skoczylas J. and K. Kasparzak (1994) *History of evolution of protection of nature*. Poznan. 190 pp.
- Smulikowski K. (1994) *Droga po kamieniach, wspomnienia*. (Itineraries on stones - memoirs), Warszawa, 396 pp.
- Wojcik Z. (1994) "Geological ideas in medieval Poland (problems of exploration of mineral raw materials)." In: *The use of mineral rock materials at the beginning of Polish statehood* (J. Skoczylas ed.), Poznan, 75-78.

Memorial Notes

- Tomasz Komornicki (1916-1994) by K. and B. Oleksyn. *Miner. Polon.* **25** (1):89-91.
- Henryk Pendias (1921-1994) by H. Sylwestrzak. *Ibidem*, 93-94.
- Wiesław Bilan (1940-1992) by S. W. Alexandrowicz. *Ann. Soc. Geol. Polon.* **63** (4):355-357.
- Jorzy Wojski (1929-1992) by H. Jurkiewicz and Kowalczewski. *Ibidem*, 359-360.
- Włodzimierz Sedlak (1911-1993) by J. Janiec and H. Zakowa. *Ibidem*, 361-363.
- Roman Krajewski (1906-1993) by A. S. Kleczkowski and Z. Wilk. *Ibidem*, 365-367.

Wojciech Narebski, Zibnigniew Wójcik

SPAIN 1994

Meetings

A session in honor of Georgius Agricola in his Vth Centennial year was held in the Mining School of Madrid in December. Two lectures were presented, one by Dr. Francisco Ayala-Carcedo on "Scientific and Technological Works of Agricola," the other by Dr. Octavio Puche "Mining and metallurgy in Spain in the Modern Age." The session was attended by Dr. Klaus Jacobs, the scientific advisor at the German Embassy.

Exhibitions

Several exhibitions and meetings were organized in Asturias to commemorate the second centennial of Jovellanos, who created the "Instituto de Náutica y Mineralogía" in the XVIIIth Century to promote the exploitation of coal and the construction of roads and channels to encourage commerce and open the way for the Industrial Age in Spain. Dr. Luis Adaro presented a lecture titled "Jovellanos and Mining."

The "Museo Felipe de Borbón y Grecia" of the School of Mines of Madrid organized an exhibiton, "Archeological and Mining Heritage" in December.

The Lepe Town Hall in Huelva organized an exhibition on Alonso Barba, discoverer of "hot amalgamation" by the method of "cazo y cocimiento" in Potosí. He also was author of *Arte de los Metales*, the most important metallurgical book of the XVIIth Century. In addition, a monument was erected in his honor.

The Mining School of Almadén organized an exhibiton on "The Vth Centennial of Agricola."

Books

- Castillo, M. (1994) *Minería y Metalurgia. Intercambio Tecnológico y Cultural entre América y Europa durante el periodo colonial español*. Ed. Muñoz Moya y Montravela, Sevilla-Bogotá.

Two facsimile editions of the first book of natural history in Spain, *Aparato para la Historia Natural Española* by Joseph Torrubia, were issued by the Spanish Paleontological Society and the Geomining Technological Institute of Spain. 1994 was the 150th anniversary of publication of the original book in 1754.

Papers

- Ayala Carcedo, F. (1994): La aportación científica y tecnológica de Jorge Agricola." 5:509-513 *Bol. Geológico y Minero*. Madrid.
- Durán, J.J. (1994): "Un siglo de Diccionarios de la Comisión de Historia de la Geología de España", 2:4-8. *Sociedad Geologica de Espana*.
- García-Orea, A. y Barrera, J.L. (1994): "Descubrimiento de las Aguas y origen de los Baños de la Margarita de Loeches". *Tierra y Tecnología*, 8:56-62. Col. Oficial de Geólogos. Madrid.
- Martín, C.(1994) "El Geólogo José Macpherson. Tierra y Tecnología," 7:66-70. *Colegio Oficial de Geólogos*. Madrid.
- Mata, J.M., Puche, O. y García Cortes, J.M. (1994): "El Museo de la Minería de Cataluña". IXth Int. Congress of Mining and Metallurgy. León (España).
- Ordoñez, S. (1994): "El Geólogo José Royo Gómez." *Tierra y Tecnología*, 8:63-65. Colegio Oficial de Geólogos. Madrid.
- Puche, O., García Cortés, A. y Mata, J. M. (1994): "La Conservación del Patrimonio Minero-Metalúrgico Español." IXth Int. Congress of Mining and Metallurgy. León (España).
- Puche, O. (1994): "La Esperienze Espagnola." *Il Convegno Valorizzazione dei siti minerari dismessi Cagliari* (Italia).
- Puche, O.,(1994): "Influencia de la legislación minera del laboreo, así como del desarrollo técnico y económico en el estado de las minas de Guancavelica, en sus primeros tiempos". 48th Int. Congress of Americanist. Stockholm Sweden.
- Puche, O. et al. (1994): "Análisis sobre el origen de los materiales arqueológicos del Museo Histórico Minero D. Felipe de Borbon y Grecia, de la Escuela Técnica Superior de Ingenieros de Minas de Madrid." *Bol. Geológico y Minero* 105(5):79-90. Madrid.

Posters

- Font, L., Mata, J.M., Puche, O. Y García Cortes, A.: "Il complesso minerario-neolítico di Gavá (Baix Llobregat, España)."
- Mata, J.M., Puche, O., Font, L. Y García Cortés, A.: "Il futuro Museo de la Minería de Catalunya".
- Puche, O., Mata, J.M. Y García Cortés, A.: "The historical mining-metallurgical heritage."

Geological, Mining and Metallurgical Heritage.

A first meeting was held in the Mining School's "Fundación Gómez-Pardo" among institutions and persons concerned with preservation of this Heritage, dealing with the constitution of the "Sociedad Española para la Defensa del Patrimonio Geológico y Minero."

El Museo de la Minería y de la Industria de Asturias.

This new Museum of Mining and Industry of Asturias located in a mining village, El Entrego, opened in March, 1994. Exhibits display a large variety of the machinery and apparatus used in various aspects of ore extraction and assaying from the 16th to the latter 19th centuries. There are dioramas of miners working narrow seams and ore carriers in a principal underground gallery. The Museum displays were erected under the scientific direction of Dr. Luis Adaro. The Museum attracted more than 80,000 visitors in the first few months after opening its doors.

L. Adaro, F. Ayala-Carcedo, J. J. Duran, L. Mansilla, O. Puche

Datos y Documentos para una Historia Minera e Industrial de Asturias. Volume IV. Luis Adaro Ruiz, 1994, Imprenta D.G.M, La Industria, S. L., Gijón 480 pp. 189 illust. I.S.B.N.: 84-604-8612-5.

A reader should not suppose from its title that this large, beautifully illustrated volume limits its subject matter to the history of mining and industrial development in Asturias. This is volume IV of a series that begins with documentation of the mining of coal in Asturias in the 16th century and continues, covering a wide spectrum of subjects, through 1845. The current volume focuses on mining in Asturias from 1802 to 1845. However, seven

sections address subjects of historical importance to mining and the development of geological knowledge throughout the world. All of these volumes provide quotations, with commentary, from fully referenced source materials, and reproductions of historical maps, diagrams, engineering drawings, and scenes, including many taken from hand-colored originals. Part I of this volume (about 100 pages long) focuses on documentation of mining in Asturias from 1802 to 1830. Following it, are three sections on the following topics:

- Section 1. Brief Outline of mining in Europe and some related manufactures up to 1810.
- Section 2. Forms of exploitation of mines in the first half of the 19th century.
- Section 3. Some catastrophes of miners, occurring up to the end of the 19th century.
(This section is full of colored depictions of dreadful mine accidents.)

Following Part 2, which documents mining in Asturias from 1831 to 1845, are four more sections:

- Section 4. English mining and machinery during the 19th century.
- Section 5. Some early books on the sciences of geology, paleontology, metallurgy and mining (1700-1869).
- Section 6. Mining in America, from the beginning in 1492 through the duration of the Spanish Empire.
- Section 7. Articles, artifacts, machines, installations, and mining methods in different countries of Europe.

The entire volume consists of 480 pages of text plus 189 illustrations, equalling 669 large (21 x 29 cm) pages of glossy paper. The text and graphics, many of which unfold to pages of much larger sizes, are beautifully printed. Historians of geology would be particularly interested in Section 5, which discusses and reproduces title pages and diagrams of numerous early 18th century scientists including Charles Lyell. Also included are prints of twenty pages of drawings of fossils from F. J. Pictet's *Traité de Paléontology* of 1853-1857.

This series of volumes, authored by INHIGEO member Dr. Luis Adaro Ruiz, is printed in a limited edition. Having completed volumes I, III, and IV, Dr. Adaro currently is working on volume II. For further information, write to Dr. Luis Adaro Ruiz, Marqués de San Esteban 15, 33206 Gijón, Spain.

UBM

UNITED KINGDOM 1994

New History of Geology Group

During 1994 the Council of the Geological Society of London approved the formation of the History of Geology Group (HOGG) and a well-attended inaugural meeting was held in October. The steering committee that had done the groundwork that led to the formation of the Group was replaced by a formally elected committee with Mr. J. C. Thackray as Chairman, Dr. A. J. Martin as Secretary, and Dr. J. C. Fuller as Treasurer.

The Group plans to hold approximately two meetings per annum and in addition it will cooperate with other organizations, both nationally and internationally, in joint meetings and projects with the aim of promoting the history of the earth sciences.

Prior to the formal inauguration of the Group, members of the steering committee had arranged the six poster exhibits listed below at the 1994 Annual Convention of the American Association of Petroleum Geologists in Denver which attracted wide interest. As a direct result of this effort a poster comprising five cross-sections, originally published by William Smith in 1819, will be published jointly by the Geological Society and the A.A.P.G.

The Group's first *Newsletter* was published in January, 1995. The editor is Peter Tandy, Department of Mineralogy, The Natural History Museum, London. SW7 5BD.

Poster Sessions

In 1994 John Fuller, a newly-elected member of INHIGEO, exhibited 18 posters covering the following six subjects in the history of geology:

A Glasse Representing the Face of the World:

Order, the Great Chime and Symphony of Nature:

Prelude to Geology in England, 1549-1649.

Stratigraphy in England, 1649-1799.

Bellers & Hauksbee: Specific Gravities and Strata: The Subsurface Density-Log, 1712.

John Strachey's Cross-Sections, 1719-1727: The Invention of Stratigraphic Cross-Sections

H. D. Rodgers, First State Geologist of Pennsylvania: Organic Metamorphism, Pennsylvania, 1863.

Williston Basin Mississippian, a Borderline Case: Stratigraphic Stand-Off at the 49th Parallel, 1954.

In 1994 the exhibits were shown at four meetings: the Annual Convention of the American Association of Petroleum Geologists, held at Denver, June 12-15; the Conference on the History of Geology held at the Rensselaer Center of Applied Geology, Troy, NY, July 7-9; the Annual Meeting of the British Association for the Advancement of Science at Loughborough, England, September 5-9; and at the the Inaugural Meeting of the History of Geology Group of the Geological Society of London on October 4. At that meeting, Dr. John Thackray, the Society's Honorary Archivist, was elected Chairman of the new Group and Dr. John Martin, former Chairman of the Petroleum Group, was elected Secretary. Some fifty to sixty people attended the meeting.

During the Spring of 1994 officers of the Petroleum Group of the Geological Society of London prevailed on the Society's Council to authorize the formation of a History of Geology Group. The Inaugural Meeting was held October 4, when Dr. John Thackray, the Society's Honorary Archivist, was elected Chairman, Dr. John Martin, former Chairman of the Petroleum Group, was elected Secretary, and some fifty to sixty people attended the meeting. As noted above, the posters were on display at this event.

John Fuller published a short paper explaining the historical significance of a stratigraphic cross-section, made originally by John Strachey in 1719, which was found among William Smith's papers in the University Museum, Oxford. It appeared in *Archives of Natural History* (1994) 21 (2):195-199.

John Fuller, Hugh Torrens

1994 Publications by British INHIGEO Members

Ford T. D. "Mining in the Isle of Man." in *Dips, Angles and Spurs* (the journal of the Society of Mining Law Antiquaries, USA), 14:6-9.

Ford T. D. "15th Century Mining as shown in the Kutenberger Kanzionale." *Bulletin of the Peak District Mines Historical Society*, 12:81-3.

Ford T. D. "Blue John Fluorspar." *Geology Today*, 10(5):186-190.

Fuller, J. with W.A.Cawthorne "James Mitchell's The Thames Tunnel -- unpublished notes by an amateur geologist, August 1839." *The London Naturalist*, 73:27-29.

Fuller, J. with W.A.Cawthorne "James Mitchell's Brickmaking -- an early nineteenth-century study in economic geology." *The London Naturalist*, 73:31-35.

Fuller, J. "The forty-four yard problem: a cross-section by John Strachey annotated by William Smith." *Archives of Natural History*, 21(2):195-199.

Thackray J.C. "Mineral and Fossil Collections." p. 123-135 in (MacGregor A. ed.) *Sir Hans Sloane: Collector, Scientist, Antiquary*, British Museum Press.

Torrens, H. S. "First Class Third man?" (Review of John Griffiths. 1992, *The Third Man - the Life and Times of William Murdoch (1754-1839)*, *Notes and Records of the Royal Society of London*, 48:161-163 (ISSN 0035-9149).

Torrens, H. S. "Patronage and Problems: Banks and the Earth Sciences," in R.E.R. Banks *et al.*, (editors), *Sir Joseph Banks: A Global Perspective* (the Commemorative Volume for the 250th Anniversary of his birth). London: Royal Botanic Gardens, Kew pp. 49-75, 1994. (ISBN 0 947643 61 3).

Torrens, H. S. "E. T. Higgins (c. 1816-1891): Geological Collector and Natural History Dealer, Bengal to England and then Australia (twice)," in Branagan D F. & McNally G. (editors), *Useful and Curious Geological Enquiries Beyond the World*. The 19th International INHIGEO Symposium, Sydney, Australia 4-8 July 1994. Springwood: Conference Publications pp. 200-208, 1994. (ISBN 0 646 19244 2).

Torrens, H. S. "Problems of the 'Practical Man' in 19th Century English Geology." Paper read to the Australasian Association of History, Philosophy and Social Studies of Science Annual Conference, Griffith University, Brisbane, July 1994. Abstracts volume, p. 35.

Torrens, H. S. with Jean Jones and Eric Robinson, "The correspondence between James Hutton (1726-1797) and James Watt (1736-181) with two letters from Hutton to George Clerk-Maxwell (1715-1784): Part I." *Annals of Science*, 51:637-653, 1994. (ISBN 0003-3790).

Torrens, H. S. "No Impact": Rene Gallant (1906-1985)'s Book Bombarded Earth 1964." Paper read to the 1994 Annual Meeting of the Geological Society of America, Seattle, Washington, October 1994. Abstracts volume, p. 98.

Society for the History of Natural History

The Ramsbottom Lectures. This series commemorates John Ramsbottom, Keeper of Botany at the Natural History Museum and the second President of the Society. The lectures are normally delivered every two years by a distinguished visiting speaker, often at the time of the Society's Annual General Meeting.

The first lecture was given in 1976 by David Allen, who spoke on '*Naturalists in Britain: some tasks for the historian*'. Recent lectures have included those by Professor Jacob Gruber on Richard Owen, Professor Dennis Dean on Gideon Mantell, and Professor Joseph Ewan on American naturalists of the Andes and Amazon.

The Society is the focal point for all those interested in the history of botany, geology and zoology – indeed for all those interested in the history of any of the numerous disciplines which go to make up natural history in its broadest sense. History is interpreted widely, to include biographical accounts, bibliographical reviews of literary and artistic works, as well as more extensive and investigative historical studies of the many facets of natural history. The Society has an enthusiastic and diverse international membership.

Presentation of the Sue Tyler Friedman Medal of the Geological Society of London to David R. Oldroyd

Presentation. Professor Curtis, the Citationist, reviewed Oldroyd's education in England where he read for Natural Science at Emmanuel College Cambridge, specializing in chemistry but including geology. After graduating in 1958, he taught for a time at John Lyon School, Harrow, and then moved his family to New Zealand and wrote a Master's dissertation on pre-20th century history of geology in New Zealand. Ten years later he took up a lectureship in New South Wales and in 1974 he completed his PhD degree with a thesis on the development of mineralogy in relation to chemistry. Remaining at the University of New South Wales, Oldroyd was appointed to a professorship and in 1992-1993 he became Head of the School of History and Philosophy of Sciences. He is the first member of the Faculty of Arts and Social Sciences to be awarded the degree of DLitt. of the University of New South Wales.

Oldroyd has authored many papers on the interrelated histories of chemistry and geology and other topics, ranging from 17th century music theory to the ethics of *in vitro* fertilization. He also has authored two books *Darwinian Impacts* (1980) and *The Arch of Knowledge* (1986) that have been widely-read and well-received. However, it was for his outstanding work on the history of British geology, that the Society was honoring him with the Sue Tyler Friedman Medal. In 1990, Oldroyd had published *The Highlands Controversy* documenting the remarkable story of 19th century work on the Moine thrust zone in northwest Scotland. More recently he published three papers on the Archaen controversy in Britain. Professor Curtis pointed out that Oldroyd's superb documentation of investigative research and his practice of repeating the field observations of the key geologists about whom he writes have established him as the authority on 19th century British geology.

In response, David Oldroyd elaborated a bit on his early training: "It used to be said that competence in billiards was an indication of a mis-spent youth. In my case the problem was the cello." At Cambridge he had taken a degree in natural science and chamber music playing. For Part II he read chemistry rather than geology. On completing his degree he found, things being as they were in those days, only three occupations open to him: national service, coal mining, or school teaching! He could not contemplate either of the first two so he became a science teacher. He first became interested in the history of science as a result of reading Lucretius, Sir James Jeans, Newton's *Optiks*, and Charles Gillespie's *Genesis and Geology*. In 1959 he took a course at Oxford titled *Science as a General study in the Sixth Form*. Those were the days when 'two cultures' were on everyone's lips and it seemed that History and Philosophy of Science might serve as a bridge that would enable pupils to step freely from the sciences to humanities and back again. As a musician and scientist, he hoped to find a location on

that bridge. Thus, when Oldroyd heard of an evening MSc course in History and Philosophy of Science at University College, London, he enrolled with enthusiasm and slowly started a career change.

He had, however, always wanted to travel: "...and one day when walking down the Strand I passed New Zealand House and observed that the New Zealand Government was willing to take me, my family, and my possessions all the way to the other side of the world, and provide me with a job and a house." He took this as an opportunity not to be missed and so it was that David Oldroyd arrived in New Zealand in 1962, "...with a lovely wife, two small children, some bits of furniture, a magnificent 18th century cello and £50 in my pocket."

To make ends meet, both David and his wife worked very hard. He described how she would get up at five in the morning to cut asparagus and later in the day pick fruit in the orchards or beans in the fields. He held down two jobs and picked fruit on weekends or worked in pine forests during vacations. He kept on with his cello though, and finished his MSc dissertation which very agreeably required him to examine the geology all over New Zealand. In 1969, "by some miracle" he landed a job as a lecturer at the University of New South Wales where he has worked contentedly ever since. His wife no longer is an agricultural worker but a Master of Arts in English Literature and an administrative assistant—generally acknowledged to be the power behind the throne—in the Economics Department at Macquarie University in Sydney.

Oldroyd spoke with regret of the tragic death in 1993 of his friend Tom Vallance, the previous year's recipient of the Friedman medal. After they were introduced to one another by Victor Eyles, the two had become great friends and Tom had made rare and valuable books from his own collection available to David and helped him informally with his doctoral studies. He remarked that the loss of Tom Vallance is a severe loss to the academic life of Sydney. We may add that the sense of loss is shared by the worldwide community of historians of geology.

Oldroyd expressed his special pleasure at the presence in the audience of Gerald and Sue Tyler Friedman and remarked on their great services to studies in geology by their work with the journal *Earth sciences History* and their endowment of the Medal. He remarked that currently his greatest interest lies in the history of geology in Britain, which, happily, requires frequent trips north from the far South, where he and his wife have become Australian citizens. He has studied aspects of geology in Scotland and Wales and is now giving his attention to the Lake District—while being grievously distracted by completing a book on the history of geological ideas to be called *Thinking About the Earth*. He gave hearty thanks for the distinction being conferred upon him—something beyond his wildest dreams while he was pruning *radiata* pines in New Zealand.

UBM

Extracted from *Geoscientist*, 4, No. 5, 1994

UNITED STATES OF AMERICA 1994

History of Geology Division, Geological Society of America

The Division Symposium on *Historical Investigations of Extraterrestrial Events and Causes in Earth History*, was convened at the October, 1994, GSA meeting at Seattle by Joanne Bourgeois and Mott Greene. It included the following invited papers;

Eugene M. Shoemaker: *Ignorance of History is Bliss.*

Kenneth L. Taylor: *Earth and Heaven, 1750-1800: Enlightenment Ideas About the Relevance to Geology of Extraterrestrial Operations and Events.*

Ursula B. Marvin: *Ernst F. F. Chladni (1756-1827): The Founder of Meteoritics?*

Peter H. Schultz: *On the Origin of Lunar Craters by Impact.*

Mott T. Greene: *Alfred Wegener's Theory of Impact Craters and Origin of the Moon.*

Robert S. Dietz: *Historical Recognition of Astroblemes.*

Hugh S. Torrens: *'No Impact': Rene Gallant (1906-1985)'s Book "Bombarded Earth" (1964).*

Steven L. D'Hondt: *Theories of Terrestrial Mass Extinctions by Extraterrestrial Objects (A Historical Perspective).*

William Glenn: *How Different Disciplines Have Responded to the Alvarez-Berkeley Group Hypothesis.*

The Division Discipline Session included the following volunteered papers:

Brent H. Breithaupt: *Tyrannosaurus Rex and the West: 100 Years of the World's Most Popular Dinosaur.*

Jeffrey A. Wilson and Donald K. Pedersen: *Teller City: Colorado's Lost Mining District.*

Allan F. Schneider: *Chamberlin and Salisbury: A Personal as Well as Professional Association.*

Carl-Henry Gerschwind: *Earthquake Forecasting in the 1920s.*

Presentation of the History of Geology Award to François Ellenberger

Citation by Kenneth L. Taylor. If you visit François Ellenberger at his home in the small town of Bures-sur-Yvette, south of Paris, you find that he and his wife Hélène live in a what amounts to a small alpine enclave set on the rim of the Yvette valley. Their house is in fact a comfortable alpine chalet, and the garden is a riot of diverse shrubs and trees and flowers, many of them wild plants adapted to these surroundings. François main hobby is botany, an interest he has pursued since his youth. He remembers with evident pleasure his first scientific distinction, a "medal of encouragement" won at age 14 for his dedication to botany.

I imagine that this somewhat improbable alpine domestic setting, on the outer fringe of the Paris suburbs, reflects François' enduring preference for mountain scenes, and his keen esthetic sensitivity to his natural environment. To this day he recalls with particular pleasure the postwar years he spent in the Vanoise region of Savoie, drawing up the detailed geological map of this complex metamorphic massif for his doctoral thesis. He invokes words like "exalting" and "intoxication" in describing the pleasures of physical and intellectual exhaustion experienced in the solitary exploration he conducted. He also registers his regret that such a project would now no longer be considered a legitimate match for a single researcher. As I believe François will tell you himself, he regards the breadth of his geological experience—indeed the wide range of his comprehension as a naturalist and a scholar—as fundamental to a coherent geological vision, as well as to the perspectives he is able to bring to the history of geology.

François Ellenberger was born in 1915 in southern Africa, at Lealui on the upper Zambezi, in what is now Zambia. His early education, in Lesotho, was overseen by his parents, who were evangelical missionaries; he had no schooling outside the family before he was eleven. He took his secondary education at Montauban in southern France, and pursued studies in natural sciences at the University of Toulouse and the Ecole Normale Supérieure in Paris, completing these studies with a degree in 1937. He was then mobilized as an artillery officer, serving over seven and a half years. Five of those years he was a prisoner of war at the Southern Bohemian camp, Oflag XVII A, at Edelbach in Austria. One gains some understanding of François' tenacious and determined character from the way he occupied himself during those five years in an officers' camp. François participated in the invention and operation of a prison-camp university, complete with disciplinary curricula and degrees. In charge of general geological and geomorphological courses, he organized a group for geological research of the camp site, 400 meters on a side. This led in 1948 to publication of a collaborative monograph, chiefly petrographical and paleobotanical, under François' leadership, an astonishing piece of work called by Eugene Wegmann, in his preface, "a truly heroic effort."

Since the award to be conferred upon François today is for historical work concerning geology, I will comment all too briefly on his geological career and accomplishments to permit slightly more ample remarks on François as historian of geology. Following the war François became assistant (lecturer) at the University of Paris, and earned a post as *attache de recherches* with the CNRS. His monumental doctoral thesis on the Vanoise completed, he was named *Maitre de conférences* (senior lecturer) of the Paris Science Faculty, and embarked on researches over a long period in stratigraphy, paleontology, and applied geology both in France and overseas, notably in South Africa and Norway. From 1962 on he held a chair in regional and structural geology, and directorship of a laboratory soon relocated at the new suburban campus of the University of Paris at Orsay. Among the distinctions he has earned have been two prizes conferred by the Société Géologique de France, the Prix Viquesnel and the Prix Wegmann. He served the French Geological Society as President in 1972. He is an Honorary Member of the Geological Society of London, and won that Society's Sue Tyler Friedman Medal.

As a teacher Professor Ellenberger long conducted summer field courses in geological mapping, and led groups of more advanced students in studies of European structural geology. He has consistently urged students

to confront natural phenomena in a spirit of openness to nature's complexity, and of suspicion regarding doctrines and orthodoxies. He also began, as a teacher, to elaborate on a habit of historical review and appreciation that he had begun in the opening chapter of his doctoral thesis. By reminding students that early geologists had to work their own way to resolution of scientific problems, François emphasized the difficulty--and the merit of those scientific pioneers--in conceiving largely invisible geological structures through a combination of scrupulous attention to evidence and free exercise of the informed imagination.

Starting from use of history of geology as a pedagogical tool in his courses, François rapidly expanded his involvement in this field in the early 1970s. Right away he demonstrated one of the most important of his scholarly perceptions: he knew the necessity of going directly to original historical sources. Even among aficionados of James Hutton, the reading of *An Investigation of the Principles of Knowledge* must be rare. François studied this three-volume work, and also prepared a translation with commentary of Hutton's medical thesis. François' voluminous historical publications over the last twenty-odd years are marked by a characteristic determination to find and utilize relevant historical sources, including sources that may once have been obscure or little known to other researchers.

Sometimes, as in his treatment of Gautier or Gorpheus, Ellenberger's historical analysis has been based on materials he for all intents rescued from oblivion. In other cases the materials he has mined are sources by no means unknown, but nonetheless all too seldom read--rather, mentioned in histories written on the basis of other histories. Read François' own greatest synthetic effort, his two-volume general *Histoire de la Géologie* from antiquity to the early nineteenth century, and you will never see him submit passively to historical authorities. The greatest single attribute of his work is its authenticity: it reflects his own judgments based on personal encounters with the writings of his scientific forebears.

Many of the sources with which François has been most fascinated are francophone, especially from the eighteenth century and the first part of the nineteenth century: Bourguet, Boulanger, Rouelle, Guettard, Sauvages, Soulavie, De Luc, Cordier, and many others. One of his motivations, clearly, has been to illuminate the frequently undervalued roles of French scientific figures in the development of the geological sciences. But his perspective is not narrowly parochial, rather it has consistently been admirably international; indeed, an important theme of much of his work is the intercultural character of work in the sciences. As a historical scholar he is, himself, a model of intercultural understanding, taking special pains to examine the writings of historical characters in various languages, ancient and modern.

François Ellenberger's use of historical materials bearing on the history of the geological sciences displays also his typical insistence on scientific exactness and rigor in the effort to establish historical truth. And finally, readers of Ellenberger's researches in the history of geology know of his keen originality and independence of thought in reinterpreting geology's past.

A motivation that can be seen in François' historical work has been his belief that individuals like himself, deeply informed by direct experience in the earth sciences, can make special contributions to historical understanding of those sciences. His scholarship has demonstrated the truth of this belief. Yet he has undertaken his endeavor not in adversarial fashion, but rather in a spirit of cooperation and mutual respect and understanding among scientific and historical scholars. My own closest personal encounter with François' genius for getting scientists and historians to prowl together the ground of past geological investigation came in the marvelous historical field trip he organized and led in 1980, in conjunction with the International Geological Congress. It is hard for me to imagine a more instructive, or a more collegial historical field experience than we enjoyed during that memorable nine-day trek from Paris to Marseille. [Throughout his citation, Ken Taylor showed slides of Ellenberger; many of them taken on that excursion.]

For those who know François Ellenberger and his work, the merit of his published writings hardly looms larger in their estimation than his tireless efforts to promote a cooperative and interdisciplinary study of geology's history by scientists and historians alike. He was the principal founder and animating spirit of the Comité Français d'Histoire de la Géologie, which since its beginnings in 1976 has greatly raised the profile within France of historical studies about the earth sciences. COFRHIGEO now has a substantial international membership. Under François' continual guidance COFRHIGEO has grown into one of the world's most active groups in the field, and its *Travaux* regularly publish articles and notes of high caliber.

In the future, when people concerned with the history of geology look back on the work done in this field by scientists and scholars during the last third of the 20th century, I believe that François Ellenberger's name will stand out as among the handful who contributed most to its advancement. He will be seen as having advocated and practiced methods of research and writing according to high critical standards—subjecting conventionally-accepted ideas to analytical scrutiny and searching vigorously for little-known or unstudied documents to shed light on significant historical problems. He will be recognized as the author of a large number of original-minded publications, many of which have broken new ground. And he will be recalled as a cultivated, humane, and successful promoter of a previously underdeveloped field, many of whose practitioners profited from his generous encouragement and wise guidance.

I do not wish to end without a few words on François' versatility. I already mentioned his botanizing hobby. To those who have had occasion to be with him out of doors, a familiar Ellenbergerian posture is hunched over, aiming a camera close range at some plant. In 1991 he published an original monographic, self-proclaimedly amateur study—but no less technical for being amateur—of phyllotaxia, or leaf arrangement. At certain junctures, notably while geologizing in southern Africa, he has given some of his time to ethnomusicology and ethnology. And not least impressive, in 1947 he published a prize-winning book based on introspective psychological self-study carried out during wartime imprisonment, *The Mystery of Memory*. All of this was accomplished on the side, as it were, by a man mainly occupied by geology and in due course by its history.

I think the scope of François' interests and abilities is quite relevant to the achievements for which he is recognized here today. He is a man of extraordinary breadth, intellectually and personally. To the synthetic enterprise of historical investigation concerning what I believe to be the most integrative and complex of natural sciences, he brings his seemingly inexhaustible energy and curiosity, his richly cultivated mind, and his capacity for unfeigned wonder. He is an altogether remarkable man. It is a great personal privilege for me to take part in presenting to François Ellenberger the Geological Society of America's 1994 History of Geology Award.

Response by François Ellenberger. [François Ellenberger, recovering from a stroke, was unable to travel from France to attend the meeting. His response was presented in his absence by Kennard B. Bork.]

I dare say that the Citatonist has gone a little too far in his laudatory words! Whatever my alleged merits, the support of all my friends has greatly contributed to my achievements, and I address to them a very warm "*Merci!*" In what follows, my duty, I suppose, is to talk egocentrically about myself?

Last May, I received a letter which filled me both with joy and distress: I was informed, to my great surprise, that the illustrious Geological Society of America had bestowed a very great honor on me (indeed, a double one!). It was only too evident that I would not be able to attend your meeting: I was then still struggling to recover from an inopportune attack of a hemiplegia. Please, do not feel offended by my absence to-day; put the blame on my doctors, who go on warning me not to overtax my physical possibilities.

In my peaceful hospital bed, I knew that my first duty was, at whatever cost, to keep my poor brain working; thus I tried to recall some algebraic formulae, but found more reward in turning to recollect my golden childhood at Leribe. This name fills me with ineffaceable warmth and happiness. Leribe was a mission station in Lesotho, South Africa, of which my parents were in charge, among quite friendly natives. The scenery around was magnificent, the vault of the sky by night showed an incredible display of countless glittering stars. The large mission garden was my Eden (with occasional huge vipers!). I trotted around bare-foot, climbed trees and tried all sorts of naive experiments. I learned the very expressive native language, plus some crude English. Above all, I was a most fortunate boy, who did not sit on a school bench before he was 11 years old. My dear parents were both highly cultured; my mother managed to find time to instruct her rather disobedient pupil (who was quick to jump out of the window!) in all basic subjects. She loved literature and history, and would recall for us children the feats of our Huguenots forefathers, who endured martyrdom for the sake of liberty of belief and thought. My father added Latin lessons. But perhaps the greatest benefit of this unorthodox tuition lay elsewhere. Through my mother, I learnt a deep regard for history. My father taught us how fascinating it was to scrutinize every object found outdoors. Each trip with him into the countryside was full of discoveries: insects, birds, shrubs, stones, perhaps even fossil bones, or the huge birdlike footprints you could find upside down, in low relief, on the bottom surface of some protruding beds in our sandstones cliffs. He was a born naturalist (I took this trait fully from him), though his academic education in sciences was poor; he admitted his ignorance—a most salutary example, compared to the "everything-is-known" that now too often prevails. I developed an almost universal curiosity, a passionate and

jealous love of Nature, lasting to this day. (My wife and I consider the current, world-wide extermination of wild life to be a sacrilegious offense against the mysterious Creator of our evolving Universe. From early childhood, I studied the Bible, and I still do, but have now discarded any fundamentalism, in the free light of modern exegesis.

Missionary families have to endure the ordeal of separation. Aged 14, I was put in a Protestant boarding school in Montauban, in southern France. I was a rather brilliant student in both humanities and mathematics, but wild nature was my main solace. I went on enriching my large herbarium. In those pre-pesticide days, our countryside still offered a profusion of wild flowers. (Recently, my lasting taste for botany has led me into rather deep researches in phyllotaxis). I also became fascinated by the casual discovery of fossil marine shells. The Scout movement taught me to take full responsibility for decisions and initiatives, both for myself and for those younger.

At 18 I felt a call to teach the wonders of nature and creation to children, and I decided to graduate in natural sciences. In the Faculty of Science at Toulouse, a whole new world was opened to me, thanks to the lectures of some men of exceptional stature, especially in zoology and botany. In geology, the main courses were dull, but the lecturer in charge of practical exercises, named Gaston Astre, was an unduly modest man, who was dedicated to research. And not just his own research; he provided generous help to authors, mainly amateurs, including the printing of their work in a provincial journal of which he was the untiring editor. With great kindness, he encouraged me to undertake my own research directly in the field: a decisive start. I have never forgotten his sound advice. For example, one must read thoroughly all the literature, however old, pertaining to the subject of research. He also taught me to be boldly disrespectful on scientific grounds--not to persons, but to opinions. Such principles later inspired my whole scientific career. (I believe this generation should be earnestly reminded of these precepts.) Thanks to Astre, how proud I was to see my first geological work (mainly on local unrecognized thrusts) printed! I was just 22.

In the famed Ecole Normale Supérieure in Paris, I acquired the full qualifications for teaching or writing a doctorate, after spending one year in the Army. But then a certain Mister Hitler shattered all my expectations. I spent the next eight years in the uniform of an artillery lieutenant: first, three years lost in low I.Q. routine activities; then, after June 1940, five full years as prisoner of war, in the Spartan comfort of a large camp for officers.

But this period of total seclusion in Oflag XVII was crucial in my life. Among many hardships, one could also gain immense benefits, both moral and intellectual. Some 4500 persons, many of them highly cultivated in technology, science, humanities, music, entertainment, and fine arts, were packed together in a 400 meters on a side, located on the Austrian part of the Bohemian massif. One could find there unique opportunities to cultivate one's mind and soul through daily contacts with many fine personalities. Thus, guided by a renowned philosopher, I went deeply into introspective psychology. The arduous book I then wrote on the phenomena of reminiscence won me a prize and was published in 1947.

Very soon, after our arrival, lectures for a "general public" began with great success (including mine, on astronomy for beginners). A whole program of university-level courses was soon instituted, covering a wide range (not mention a certain course of Chinese, which proved just a pleasant hoax, as the "teachers" knew not a single word of the subject! Humor helped to overcome gloom).

The courses of Geology at Oflag XVII A were a more serious affair; I joined the teaching team, bravely promoting myself in the chair of an assistant professor, and lectured on various subjects, among which was geomorphology. To teach, I had first to learn, at the rate that long-awaited packages of books (and pedagogic samples) arrived from France. Thus, I think I became pretty well-read in some fields of the earth sciences. We brought up several comrades to *licence* level, which was officially acknowledged on our return to France. Our Oflag could be compared to some sort of extremely busy (and noisy) monastery, set aside from the turmoil of war and its horrors (including the Shoah, and the aimless bombing of so many beautiful cities).

But as year after year elapsed, a general feeling of discouragement spread. As others did in their own fields, I decided to launch a program of research, to be pursued at any cost, with a daring and juvenile enthusiasm that I think survives in me even to-day. Three years of continuous tramping had completely laid bare the soil of what had been meadows; running waters had dug erosion furrows. Thus, we could collect and study a great number of stones and other objects, including some prehistoric and protohistoric artifacts and large pieces of silicified wood. We could have a precise idea of the structure of the top subsoil, which cropped out in the ditches: coarse gravels

lying on the crystalline basement (catazonal schists, plus strange hydrothermal silicifications, both offering fine examples of metasomatic processes). Under my guidance, a handful of volunteers, all amateurs, began to work, in spite of some general skepticism. Meticulous observations were conducted in the "field" (right under the eyes of our suspicious guards); we started the crucial job of cutting thin sections. We had no saws, no machine, nothing but chips of stones to be patiently worn down by hand and stuck onto bits of window glass with a mixture of violinist's colophane and sardine oil. Pinches of precious carborundum powder were begged from the workshop of the telescope mirror grinders (who sprouted from our local Astronomy Society). Each slice was scrutinized with the utmost care on a makeshift microscope. In some respects, our endeavour had a genuinely patriotic side: it was our way of being French *résistants*, as it were, to thumb our noses at our enemies. All in all, our work was of a sufficient quality to find easy publication, on our return to France, in the form of a collective illustrated memoir of 180 pages. My chief personal results were to confirm the synkinematic nature of regional metamorphism (contrary to the doctrine then prevailing in France), and show that in this case lineation lay parallel to the transport, then a heretical assertion.

What follows is perhaps less picturesque. Amid great post-war difficulties, I married Héléne, my marvellous wife, in 1947, and she gave me three adorable and loving children. I started working for my D.Sc. doctorate, and undertook the ambitious task of unravelling the extremely intricate geology of the Vanoise massif in the Alps of Savoie: a grand aim indeed. It fulfilled all the dreams of wild rambles that had obsessed my mind in the seclusion of Oflag XVII-A. It also satisfied my inclination to pluridisciplinarity: an exciting necessity in high mountains where you happened to find ammonites transfixed by glaucophane needles! Truly, the job was exhausting, both for body and mind, and the funding was miserable; but I enjoyed an incredible freedom in my work. In those blessed ages, research had not yet fallen under the iron grip of prejudices short-sighted bureaucrats. I got my D.Sc. degree in 1954 and was lucky enough to see my work lavishly published in 1958 (actually that work produced many advances in Alpine tectonics). A significant byproduct was the Introduction, in which I briefly traced the succession of conflicting doctrines about Alpine metamorphism, from 1830 on. This was my first essay in the history of geology.

In 1957, I was appointed assistant professor, with the main duty of initiating whole classes of beginners in the art of geological mapping in the field. Hundreds of future geologists were thus my pupils, and I well remember our unforgettable open air sessions. I pity all those people who now despise such activities as outmoded; they seriously overlook the true nature of geology, which is as much a craft as a science. I say to them: *Tant pis pour vous!* They deprive themselves of great pleasures; and, even more damaging, they endanger geoscience by forcing it to be deductive, so that truth is supposed to come from the top. In the light of one simple scheme, you must interpret all observed facts—as poor old Werner had done! But History testifies with great clarity that the progress of earth sciences has been impelled fundamentally by induction, involving a thorough knowledge of all already recorded data—the Baconian approach. I recall with great happiness these weeks of convivial life in small villages, with teams of young cheerful students. We struggled together to decipher the structure and the sequence, largely hidden under detritus and thorny bushes. The most difficult part was to make the students conscious of the fact that rock units *do* continue *inside* hills, and then to induce by reason what their invisible underground forms may be. Is this not exactly the laborious path taken by nascent geology, after the great Steno had formulated his key principles? Such a personal practice will certainly enhance, in the historian, sentiments of understanding and of high esteem towards the early pioneers in earth science.

In geological research many subjects interested me. One topic, however, was central: comparative tectogenesis—comparison both between different mountain belts, and within one definite belt (laterally, or linked to depth). I took a special interest in two opposed types of structures: clean-cut low-angle thrusts and very deep seated recumbent folds. In the latter, all foliations became parallel, from the re-worked granite-gneiss core to the enveloping sedimentary schists. Such is the case in parts of the Swiss Alps and Norway; but also, so it seems, in the Saxon Erzgebirge (this fact in part explains Werner's vision of one single sequence of conformable deposits). With doctoral students, we pursued studies in the Alps, Spain, central France, the Pyrenean belt, and more extensively, in the Caledonides of Norway. The tectonic style of this latter belt differs widely from any received model, with its huge, paper-thin crystalline nappes. I am sorry to say that it challenges the blind "plate-tectonics-can-explain-everything" credo: faced with the multifarious problems of tectonic reality, the word "collision" is void of sense. The same with the enigmas of epeirogenesis, about which I wrote an extensive analytic paper. Experience and the lessons of history have made me wary of systems and dogmas.

I shall say only one more thing of my many other activities as practising geologist (digging Dinosaurs, etc.). We know that the history of geology is pursued in parallel by professional historians and by geologists. The latter sometimes may doubt if the former really understand the problems at stake. But mind! The range of topics involved is extremely wide, out of reach of somebody too specialized. Therefore, I am grateful to have meddled in many disciplines of "grandpa's geology" (as they call it to-day, looking at you scornfully over their computer screens). But I ask: Who, then, in the future, will have the ability to write about the general history of that dying discipline, true Geology? A tidal wave of abysmal ignorance is sweeping away the wealth of patiently gathered data on the natural world.

In 1962, I was given a professorship of regional and structural geology in the University of Paris at Orsay, which I kept until my retirement in 1983. In my lectures, partly centered on the structure of Europe, I introduced for the sake of pedagogy, some glimpses of the history of geology (as did a colleague). At that time, the approach of the Russian school was to lay stress on the subdivision of the uppermost crust, in superimposed major units, disposed in a standard order from the basement up. On the other hand, the western school put the emphasis on orogenesis and the subdivision of mountain belts in longitudinal zones of different ages and types (according to the geosynclinal doctrine). I told the students that this first, static vision was in one sense rooted in Wernerian geognosy of two centuries ago. The second, which insisted on transformation, was typically Huttonian in its spirit. "Now, let us talk a bit about these fellows!" I would say, to make things lively.

My interest in history thus aroused, I wanted to learn more than I had picked in Geikie's classic book. Taking it for granted that Hutton was the father of modern geology, a scientific hero, I threw myself into serious study of his books. I travelled to London, translated his medical thesis from Latin, and went in search of possible sources, or forerunners. So it was that, through Louis Bourguet, I discovered Henri Gautier (1660-1737)—my first significant find, with his surprisingly modern intuition of the geostrophic cycle. In the meantime, I felt more and more concerned about the neglect by historians, notably in my country, of early Continental geological literature. I started greedily to photocopy original texts anywhere I had the chance. In the great medical library of Montpellier, I was allowed to explore the venerable treasures hoarded on long, dusty shelves: a most exciting privilege indeed! Thus, I gathered in my home a large collection of primary sources. With the same eagerness as in the past when I collected plants, day after day I enriched my boxes of classified large cards, covered with excerpts: my "bibliographic herbarium" (but all historians do the same). Now, texts are useless if left unread. If one desires old authors to become one's real concern, one must listen to them with great attention, and in their own language. Many will recoil from the great effort involved. But how great a happiness you enjoy, when you become able at last to read them in their own words: Hooke in English, Arduino in Italian, Fuchs in Latin, Werner in German, and even Strabo in Greek!

Among the papers I published, I mention here only two, which are of more general interest. One discusses the influence of the physical environment on general concepts; in Northern France, agents still in operation *do not* account for both landforms and recent deposits (we now know them to be a periglacial heritage). Diluvianism was thus a logical last resort after all. In another paper (with Gabriel Gohau), the despised Jean-André Deluc was shown to have actually been an important pioneer in stratigraphical paleontology and even transformism. Apparently, no historian had condescended to read his prolix writings. Indeed, from ancient ages right to the present, ignorance of the literature must be stigmatized as a major hindrance to the progress of knowledge and science.

I was co-opted by INHIGEO in 1972, at a time when very few people in France felt concerned by the history of even their own geology. In 1976, I reacted by founding the French Committee for the History of Geology, which turned out to be a lasting success. It also happened that in 1987 a publisher asked me to write a short (!) history of geology. Like a perfect fool, I accepted, vastly underestimating the amount of labour it would demand. Some of the better years of my terrestrial autumn I spent chained to this task. My reward will be if people read or consult my book with real pleasure, not as another tedious duty! Life is short, we should all have some fun in our most serious endeavors. So I have tried to live since childhood. And I recollect what the deeply regretted Reijer Hooykaas told us, in a moving lecture, about the great delight given to the historian when he can identify himself fully, as it were, in an intimacy with past geologists and with their own joys in discovery. I have indeed been able to experience that!

From *GSA Today*
March 1995, Pages 58-59

The U. S. National Committee for the History of Geology (USHIGEO)

Léo Laporte, Chair, opened the meeting of USHIGEO at 5:45 on October 25, 1994, during the Geological Society of America meeting in Seattle, Washington. After approval of the minutes of the 1993 meeting in Boston, Naomi Oreskes reported on the highly successful Penrose Conference of "Insiders" and "Outsiders" (geoscientists and historians writing history of geology) held in San Diego in March 1994 (see report below). Laporte reported on the equally successful INHIGEO Symposium held in July in Sydney, Australia. He mentioned being particularly impressed by the numbers and range of interests of participants from Australia and New Zealand. History of geoscience is a lively subject in that part of the world. Ursula Marvin described plans for the 1995 INHIGEO symposium in Italy—to begin in Naples and end in Catania with exact dates depending on ferry schedules for 1995.

The chair then took up the new items on the agenda. These included plans for the hoped-for electronic newsletter "Friends of GeoClio," the RockStar (or GeoHeroes) project, a proposal to present a History of Geology short course for students at the 1995 GSA meeting in New Orleans, and plans for future meetings.

The Friends of GeoClio. This name, merging those of the ancient goddesses of "Earth" and "History," is the title chosen for a proposed new electronic Bulletin Board to serve as a center for discussions relating to the history of geology—including all aspects of the earth sciences. The establishment of a Center for the History of Geology was proposed by USHIGEO in 1992 and the possibilities were investigated in detail the following year. Although the subcommittee assigned to the task showed substantial benefits to be derived, the patent lack of resources for a bricks-and-mortar Center led to the alternative, proposed at the 1993 meeting, of creating an electronic Center. Dr. Dean A. Dunn, of the University of Southern Mississippi, volunteered to oversee the setting up of the system at his University if the requisite funds were provided by the NSF. Members of USHIGEO at the Seattle meeting heartily approved of this approach.

GeoClio Developments Since the USHIGEO Meeting: In December, 1994, Dunn submitted a proposal for acquisition of a computer server for the Bulletin Board to NSF's Instrumentation and Facilities Program. In June, 1995, he received word that NSF has awarded 100% of the funds requested for this purpose. The proposal received extremely positive reviews with the following caveats: 1) that GeoClio should cover **all** aspects of the geosciences, 2) that Dunn and Ted Feldman, his Co-PI, should carefully manage and monitor the Bulletin Board, and 3) that they should "expend considerable effort" to ensure widespread awareness of the service. All three suggestions were part of the original intent and will be carried out in full. (This notice is intended to partly fulfill item 3.) *Establishment of GeoClio has begun. We look forward to the announcement of its inauguration.*

The RockStar (GeoHeroes) Project. This project, conceived and initiated in 1992 by Robert Ginsburg of the University of Miami, aims at interesting youthful readers in careers in geology. It involves writing a three- or four-page illustrated biosketch of a RockStar—recounting how this person got interested in geology and went on to make an exciting career. Ginsburg had passed around two examples he had completed—on T. Wayland Vaugn and Charles Darwin—at the 1993 meeting, where they were viewed with enthusiasm. At the 1994 USHIGEO meeting he reported that two more were finished, one written by himself on Charles D. Walcott and the other by Kenneth Bork on Kirtley F. Mather. The plan is to publish the RockStar sketches first in *GSA Today* and to arrange for widespread distribution to schools which might use them for special events such as Canada's "Logan Day." All geologist-historians are cordially invited to compose a biosketch of his or her GeoHero. Bring it to GSA at New Orleans or send it to Bob Ginsburg who will act as reviewer and distributor. [Dr. Robert N. Ginsburg, University of Miami, 4600 Rickenbacker Highway, Miami, FL 33149-1098.]

History of Geology Short Course at GSA, 1995. Robert Ginsburg proposed that a short course on History of Geology be offered for students—not for professionals—at the GSA meeting in New Orleans. He finds that the GSA welcomes such efforts and hopes to carry out such a course in 1995, the year he will serve as Chair of the History of Geology Division. USHIGEO fully approved his plan.

USHIGEO Meeting Concluded. After hearing tentative plans for the Hutton-Lyell Bicentennial celebrations in the U. K. in August, 1997, and taking nominations for new members of USHIGEO, the chair adjourned the meeting at 6:55 p.m.

The (new) AGU History of Geophysics Committee

In 1994 the American Geophysical Union formed a new History of Geophysics Committee with 15 members, chaired by Dr. Edward Cliver of Hanscom Air Force Base in Massachusetts. As indicated in the AGU Handbook of January 1995, the Committee is charged as follows:

The History of Geophysics Committee has responsibility for fostering an interest in the history of geophysics within the AGU. It is charged with building interdisciplinary interaction and educating AGU members about the nature and importance of the problems and issues in the history of geophysics.

The Committee plans to work with the program committees for AGU meetings to develop special sessions that would advance the history of geophysics, and to consider opportunities for Chapman Conferences and other interdisciplinary and specialized meetings that would support its goal. It also will consider the role of the AGU publications program in this area and actively encourage the development and enhancement of publication services to meet the needs of its constituents.

The Committee will maintain a continuing review of AGU's existing history programs such as articles, book reviews, and news items in *EOS* related to the history of geophysics, and of obituaries of notable AGU members. It also will coordinate AGU activities in the history of geophysics with those of other organizations with the same interests.

The original History of Geophysics Committee was set up by resolution of the AGU Council in December 1981. David Stern, the first chair, outlined in the May 4, 1982, issue of *EOS*, three areas in which the Committee might operate: "classical" history, contemporary history, and data preservation. Three sub-committees were formed and over the next few years, the Committee sponsored a number of historical talks at AGU meetings, encouraged the writing and publication of articles on history, initiated a series of Volumes on the History of Geophysics, and discussed questions ranging from the use of acid-free paper to fuller obituaries of prominent geophysicists. A newsletter, initiated in November 1982, was published twice a year until November 1990. After that it seemed that the establishment of a new organization imbued with new goals and fresh enthusiasm was in order.

List Server for the History of Geophysics Committee. A list server intended to serve as a discussion group has been created to send simultaneous E-mail messages to the 15 Committee members, six contacts interested in receiving information, and four members of the AGU staff. When the new GeoClio system of the U. S. National Committee on the History of Geology becomes operational, a generous degree of "cross-pollination" will be sought between geologists of the GSA History of Geology Division, geophysicists of the AGU, and with professional historians. The E-Mail address of the History of Geophysics Committee is: C@KOSMOS.AGU.ORG

History of Earth Sciences Society, Troy, N.Y. July 7-9, 1994

The third meeting of HESS was held in Troy, N.Y., July 7-9, 1994, hosted by the Northeastern Science Foundation. Twenty-seven papers were presented orally and eight as posters. The topics were grouped into categories as shown:

The History of Geology in N. Y. State in the 19th Century

Carle J. Kopecky: "River Spark, Troy, New York, Hudson-Mohawk Urban Cultural Park Visitor Center."

David I. Spanagel: "Great Convulsions and Parallel Scratches: The Era of Romantic Geology in Upstate New York."

Roland Seal: "Evolving Concepts of Time and Stratigraphy in the Catskills, Early 1800s to 1950s."

History Of Geology and Art in the Hudson Valley Area in The 19th Century

William M. Jordan: "Art and Understanding the Catskills."

Kenneth G. Johnson: "Hudson River School Landscape Paintings: A Bridge Between the Arts and Natural Sciences."

History of Economic Geology: I

- Samuel A. Epstein: "The Geological Thought Process: A Help In Developing Business Instincts."
Gerald M. Friedman: "The Odysseys of the Clinoform."
Samuel A. Epstein: "Revisiting Our Predictions of Petroleum Reservoir Properties, U. S. East Coast Mesozoic Offshore."

General Sessions on The History Of Geology

- Chuanmao Liang: "Why Modern Geology Was Not Born In China."
David J. Leveson: "Chasing Down Hutton's Empiricism."
Lewis S. Dean: "Michael Tuomey, Rensselaer Class of 1835 and the Spirit of Inquiry."
Robert H. Silliman: "Pumping the North Americans: Lyell and the Charges of Intellectual Piracy."
Mossbah M. Kolkas and C. E. Nehru: "The Beginnings of 'Environmental Science'."
Fatemeh Sayrafiezadeh: "The History of Structural Geology."
George D. Klein: "History of Marine Geology along the New Jersey Coast."
William R. Brice: "Field Camp in the Helderbergs—1900 to 1909."
William C. Morgan and Peter H. Von Bitter: "John Jeremiah Bigsby's 1821 Manuscript Geologic Map of the Western Lake Huron United States - Canada Region."
Rhodes W. Fairbridge: "Eolianites and Eustasy: Early Concepts on Darwin's Voyage of HMS Beagle."
Curt Teichert: "Photointerpretation of Coral Reefs in World War II." (paper read by John Sanders).
John E. Sanders: "Astronomical Forcing Functions: from Hutton to Milankovitch and beyond."

History of Economic Geology: II

- Sally Newcomb: "Uranium in Pennsylvania, its Past and Present."
Paul Lucier: "Looking For Oil in all The Wrong Places: Consulting Geologists in Civil War America."
Samuel T. Pees and Anne W. Stewart: "The Drake Well Museum, A Repository of Oil Industry History."
J. G. C. M. Fuller: "Organic Metamorphism In 1863--Oil and Gas In Pennsylvania."
C. E. Nehru: "19th Century Meteorite Mineralogy *à la* Maskelyne (1823-1911)."
John Fuller: "Prelude To Geology: A Glasse Representing The Face Of The World, England, 1649-1799."
Peter H. Von Bitter: "Sir William Logan's Geological Maps Of Canada."

Poster Presentations

- John Fuller: "The Invention Of Stratigraphic Cross-Sections by John Strachey, F. R. S."
John Fuller: "Order, the Great Chime and Symphony Of Nature: Stratigraphy in England, 1649-1799."
Mossbah M. Kolkas and Gerald M. Friedman: "Studies on Sauk Sequence (Cambro-Ordovician) Of Ohio."
John Fuller: "The History of Subsurface Exploration."
Hugh Torrens: "The Search for Oil-Shales in Eastern England (1907-1924)."
Haslemere Educational Museum: "The Geikie Archive Development Project."
Gerald M. Friedman And Carle J. Kopecky: "The Birth of Geological Science in America."
William C. Morgan: "Geological Maps of Canada: History and Evolution."

Field trips revisited some of the now classic field locations in eastern New York of geologic pioneers including Amos Eaton (1776-1842), James Hall (1811-1898), William W. Mather (1804-1859), Lardner Vanuxem (1792-1848), Sir Charles Lyell (1797-1875), Louis Agassiz (1807-1873), and Sir William Logan (1798-1875).

Presentation to Gerald M. Friedman

Past and present members and officers of HESS took this occasion to give special recognition to Gerald M. Friedman for his many years of service to the Society. It was Gerry who originally envisioned the founding of the journal that became *Earth Sciences History*. And it was he who launched it, nursed it through its difficult beginnings, and made it the success that it is through his 12 years of unstinting efforts as editor and publisher. An album was presented to Gerry filled with letters of thanks and good wishes from a good many members of HESS as well as some of his former students, and other friends. We extend our thanks and good wishes to Gerry and his wife, Sue Tyler Friedman, and to the Northeast Science Foundation for their efforts in loyal support of HESS.

William Jordan

BOOK REVIEWS

Histoire de la Géologie, Volume 2, La Grande Écllosion et ses Prémices, 1660-1810

François Ellenberger (1994), Technique et Documentation (Lavoisier), Paris, 381 pp. ISBN2-85206-674-2.

François Ellenberger devotes the second volume of his *History of Geology* to an analysis of the great flowering of geology as a science that occurred between the late 17th and the early 19th centuries. A master of many languages who diligently tracks down original writings, Ellenberger has produced a remarkable work in which multiple sources are documented and juxtaposed as a way of illustrating the widespread generation of new ideas and to indicate which ones were and which were not incorporated into each important theory.

Part I outlines the main concepts that were extant in the 17th century and the vocabulary that expressed them. He begins by asking how methods of inquiry were viewed by the 'actors.' For one example he discusses "The Present is the Key to the Past," a phrase and a concept that today is commonly attributed to Charles Lyell about 1830. Ellenberger points out that when Buffon affirmed in 1742 that, "conclure du présent au passé," this idea was by no means original with him. Ellenberger finds the same concept articulated by Steno (1669), Vallisneri (1721), Gautier (1721), Bourget (1729), Boulanger (1753), Desmarest (1753), Buffon (1742 and 1778), De Luc (1779), Soulavie (1780), Hutton (1778), de Saussure (1796), Cuvier (1801), Poiret (1805), Brocchi (1814), and Prévost (1830), etc." This list includes investigators of every stamp, from diluvialists to actualists, with totally different assumptions about the nature of the world. Indeed, it appears so patently obvious that geologists (and other detectives) routinely deduce the past from present observations, a reader of today may wonder how this approach ever came to be viewed as one of the ruling concepts of earth science. In Part I Ellenberger also compares theories of the Earth held between 1650 and 1800 and ideas of that time the nature of the Earth's interior, its axis of rotation, the formation of minerals, the lowering of sea level, climate change, exotic fossils, the duration of geologic time, the Deluge, and uses of the word "Revolution."

In Part 2, Ellenberger discusses in depth the ideas and influence of some of the great figures who contributed to the birth of geology from the time of Athanasius Kircher (1602-1680) to that of James Hutton 1726-1797) and Abraham Gottlob Werner (1749-1817). The reader will encounter some surprises and many fresh insights. Ellenberger ranks Robert Hooke as a major pioneer long unrecognized as such. We also hear more than historians generally tell us today about the contributions of John Ray (1627-1705), whom Ellenberger regards as a fine zoologist, the greatest botanist of this time, and a savant whose ideas on fossils, minerals, and the history of the Earth were highly influential. Ellenberger places each scientist fully within the context of his time, showing to what influences he was responding, what contributions of value he made, and in what respects he may have failed. He concludes consideration of each one with "Our Verdict," a paragraph or two summarizing the originality and importance of that scientist's contributions to geology.

In a five-page section titled *From Hooke and Ray to Hutton?* Ellenberger presents an inventory of 17 statements by Hutton matched with almost identical statements by Hooke, and ten more by Ray. Some of the parallelisms with Hooke concern the wasting of the land and deposition of detritus in the sea, subterranean heat and fire, the raising up of a continent from the bottom of the sea, the existence of fossil species with which we are not acquainted, and "Let us...open the book of Nature and read in her records," (Hutton, 1795) and "...Turn over, and spell, and read the Book of Nature," (Hooke, 1705). Among those with Ray are statements on the raising of relief by subterranean fires, the burning of combustible strata (coal seams) at depth, the slow inexorable wearing down of the land--followed by rejuvenation, and a suggestive comparison of the circulation of the blood in living organisms with that of waters in the Earth. Hutton even uses certain archaic terms that are found in Ray. Ellenberger remarks, that the parallelisms are truly troubling. Nevertheless, he declares that by no means all of the grandiose vision of Hutton is contained within the works of Hooke and Ray; Hutton's merit rests secure. Even if he owes diverse intuitions chosen at his pleasure from the earlier works, nobody disputes the glory of Hutton's major contribution--the knowledge that during each orogenic cycle a new assemblage of rocks with a "primitive" appearance is created from metamorphosed sediments. Neither Hooke nor Ray, concludes Ellenberger, had any notion of such things.

Among the fascinating natural scientists discussed in his book, we have a special interest in Ellenberger's views of Giovanni Arduino (1714-1795) and Horace-Bénédict de Saussure (1740-1799), the subjects of the following two book reviews. Ellenberger regards Arduino, 'the Genial Venetian,' as one of the great pioneers of geology; the most 'modern' of the 18th century geognosists and one whose insights were sixty years in advance

of his time. As an inspector of mines, professor of mineralogy, and superintendant of agriculture, Arduino had close relationships with German mineralogists, and he exercised considerable influence through a vast correspondence with them and many other naturalists, as well as through contacts with innumerable visitors. He was a very close observer indeed, whose detailed descriptions and cross sections of formations in the mountains near Venice are the first clear representations of Mesozoic and lower Tertiary stratigraphic sequences. He published little, but in his "Two Letters" written in 1760 to Antonio Vallisneri on his observations of nature, Arduino proposed the first rational subdivision of rock formations into four 'orders'--primary (but not primordial) mountains of crystalline rock often enriched with minerals and metals; secondary mountains consisting of regular, parallel beds of limestone and marble commonly containing marine shells or their debris; tertiary (foot)hills consisting of sedimentary debris of the two lower orders; and quaternary plains strewn with alluvium deposited by streams issuing from the mountains. Today, his terms 'Tertiary' and 'Quaternary' are universally used to designate geological age groups of the types of strata he referred to. Ellenberger finds that despite his dearth of publications, Arduino's ideas were widely known and referred to by his contemporaries. He writes that Arduino gives to us all a marvelous lesson in the geology of Earth's terrains: his descriptions are concrete, precise, vast, but exempt from vain speculations, and have not aged at all. It is thus, he remarks, that little-by-little was born our science. Ellenberger regrets that Arduino has been too much neglected by historians. We are especially pleased, therefore, to point out that this year Ezio Vaccari filled the void with the excellent volume reviewed below,

"Universally celebrated, equal to the greatest of the great," Ellenberger describes Horace Bénédict de Saussure as a pioneer essential to modern geology and above all to tectonics. He adds: de Saussure "...should feel no envy of modern polar explorers; a conqueror of mountains, he was also a total scientist of a high level--naturalist, mineralogist, and physicist." De Saussure led scientific expeditions into the Alps at a time when climbing mountains was rare. In 1787, one year after two men made the first ascent of Mt. Blanc, De Saussure climbed to the summit with 18 guides carrying instruments, many of which were of his own design and construction, for making measurements and tests. At the top he sat for four and one-half hours feverishly filling his notebooks with observations of the physiography, the structure of the mountains, the compositions of the rocks, the color of the sky, and making exhaustive measurements of the atmosphere--its temperature, pressure, boiling point, H₂O and CO₂ contents, and readings on a magnetometer, a hygrometer, and an electrometer. [Ellenberger does not mention that at the summit of Mt. Blanc de Saussure collected specimens of rock struck by lightning and coated with bubbly glass; a find that encouraged numerous opponents of the idea that stones fall from the sky to interpret meteorites as rocks struck by bolts of lightning.] After years of studying the Alps, and northern Italy and central and southern France, de Saussure conceived a grand vision of tectonics that was of great value to geology, but he remained always unsatisfied with his theory of the Earth, which was to have been his magnum opus. It remained unfinished when he died. Ellenberger concludes that the geologist of the present day who plunges himself into the de Saussure's *Voyages dans les Alpes* and who has seen and perhaps read some of his trip records, compiled in such exemplary fashion day after day, will find it a marvelous experience thus to communicate with a man of such stature so full of sensibility, intelligence, and courage. Ellenberger concludes: "...after two centuries he remains a living example to us all."

In the final part of his book, Ellenberger declares that the grand revolutionary emergence of geology in the 18th century established three major new concepts: 1) the immense duration of geologic time and age of the Earth; 2) the radical modifications of living things attested to by the succession of floras and faunas in the course of time; and 3) the transformation of rocks and the periodic reformation of the terrestrial framework. Historians of geology will find Ellenberger's book to be an indispensable guide to essential source materials and an endlessly fascinating account of the beginnings of modern geology.

Ursula Marvin

Giovanni Arduino (1714-1795) Il Contributo Di Uno Scienziato Veneto Al Dibattito Settecentesco Sulle Scienze Della Terra.

Ezio Vaccari, 1993, Casa Editrice Leo S. Olschki, Firenze, XVI+408 pp., 10 Figures

Without question, Giovanni Arduino was one of the most prominent figures in the study of geology in the XVIIIth century. However, a complete historical and critical analysis of his work has been missing until the present. Thus, we have to praise Ezio Vaccari for undertaking the not easy task of placing Arduino and his work into an historical perspective. He shows Arduino to be a brilliant scientist and a man far ahead of his times striving to break free from philosophical conjectures on the formation of the Earth's crust in order to build a rigorous scientific

theory based on observations. In this respect the author emphasizes how the Galilean legacy is very much present in Arduino's work.

To prepare this book Vaccari conducted a thorough bibliographical search of published and unpublished sources in Italian as well as European libraries. He personally catalogued Arduino's papers at the Biblioteca Civica in Verona. The author meticulously describes all the stages that Arduino followed to elaborate his stratigraphic theory. Vaccari emphasizes how fundamental his early training in mine work was for Arduino's scientific accomplishments. Through the pages the reader can see how Arduino scientifically matured and how he entered the scientific debate on the formation of the Earth's crust with ideas based on his observations painstakingly taken in the field. The description of Arduino contacting the Italian academic community at first and the European later is one of the best conceived parts of the book.

Vaccari presents Arduino, the scientist, building his theory block by block, beginning with his early field work and the publications of the *Due Lettere* in 1760. Arduino led the way in understanding the effects of water and volcanism on crustal formation as well on as their respective influence over time. This work eventually culminates in his *Saggio Fisico-Mineralogico* of 1774.

Ezio Vaccari has done an excellent job in presenting this material. His critical analysis is thorough and careful and no assertion is left unsupported by a bibliographical source. The illustrations in the book are handsomely printed and present some of Arduino's masterful geological sketches and one of his maps. This book is a scholarly work of the first rank.

Mario Cosmo

The Scientific Library of Horace-Bénédict de Saussure (1797): Annotated Catalog of an 18th-Century Bibliographic and Historic Treasure.

Albert V. Carozzi and Gerda Bouvier (1994) *Mémoires de la Société de Physique et d'Histoire naturelle de Genève*, Vol. 46, In quarto, 208 pages, 27 full-page figures, softbound, ISSN 0252-7960.

This volume is itself a treasure. In their effort to catalog the contents of the private library assembled by de Saussure between about 1768 and 1795, the authors have provided us with a matchless picture of the writings that led to the late 18th century emergence of sciences into the modern era. Possessed of an unquenchable thirst for knowledge of natural history and living in the small city-state of Geneva far from centers of learning, de Saussure realized that he must assemble his own library if he wished to keep informed of the advances in science occurring all around him. His wealth allowed him to pursue this end on an impressive scale. He was buying scientific books at least as early as 1760 but in 1769 he embarked upon a systematic series of purchases by placing orders with booksellers in Paris, London, Leipzig, Zürich and St. Petersburg. Within a few years he had collected 1,143 books and subscribed to 59 periodicals in fields he listed as mineralogy, natural history, natural history travels, geographic travels, chemistry, geology (theories of the earth--except that of James Hutton which evidently appeared too late), botany, agriculture, physics, engineering, astronomy, mathematics, philosophy, and medicine. His collection brimmed with first editions of works that have become classics.

De Saussure accumulated his library not for fireside reading but for planning and interpreting the results of his field expeditions and laboratory experiments, formulating his theory of the earth, and informing his teaching and writings. Carozzi and Bouvier constructed a bar graph showing the number of book orders placed by de Saussure each year from 1769 to 1792. For most of those years the graph also shows what else de Saussure was doing at the time. Thus, we have a fascinating schematic diagram of the highlights of the most productive years of his career. The graph indicates that after de Saussure completed his youthful grand tour of France, Holland, and England he ordered 32 books in 1769, 325 books in 1770, none in 1771--the year of his field trip to the lakes of northern Italy--and 304 books in 1772. After these two peak years in which he accumulated the bulk of his collection, his orders declined to between 10 and 50 books most years until 1792. In 1788 de Saussure prepared the first catalog of his library. Working from this document in de Saussure's own handwriting, and also with his letters, the records of booksellers, and other notes, Carozzi and Bouvier have reconstructed a close approximation of what that library contained.

Alas, the great library was not to remain intact. In 1789, on returning from the ascent of Monte Rosa, de Saussure heard news of the fall of the Bastille. Holding liberal political views himself, he underestimated the

threat to stability and consequently lost most of his own fortune and that of his wife by allowing their holdings to remain invested in France. He had resigned his professorship at the Academy in Geneva as early as 1786 and his efforts to find a similar appointment in Europe or at Thomas Jefferson's newly established University of Virginia ended in failure. De Saussure decided that he must sell a major part of his library to avoid poverty. He sent lists of many of his books on botany, entomology, natural history, and medicine--"My most valuable books"--to various dealers. Sales took place between 1796 and 1799, the year of de Saussure's death. Nevertheless, 320 books and 39 scholarly periodicals were not sold or dispersed and they remain today, along with his letters, notebooks and unpublished manuscripts, in the collections of three members of the de Saussure family in Geneva who have put much of this material in the public domain. Carozzi arranged to examine every volume.

Carozzi and Bouvier have added immeasurably to the value of this annotated catalog of a historic library by including accounts of de Saussure's life and contributions to science as well as describing his efforts to build his library, and their own scholarly detective work in reconstructing it. The volume includes 27 illustrations, including pages from de Saussure's original catalog in his own hand, lists of books for sale, and title pages from many of the classic works he assembled. This book is a superb resource for understanding the origins of geology and other sciences in the late 18th century.

Privately printed. Address orders to: Secretary of S. P. H. N., Natural History Museum, P. O. Box 6434, CH-1211 Geneva 6. \$40.00 (postage and handling included.)

UBM

Eustasy: The Historical Ups and Downs of a Major Geological Concept.

Edited by Robert H. Dott, Jr., 1993, Geological Society of America, Memoir 180
Boulder, Colorado, United States, 120 pp. \$45

On all of Canada's coasts, we may see the effects of rising and falling sea levels. Raised beaches, fjords, rias and the stranding of tree trunks along western Canadian Shorelines all give witness to such changes. Most of us nowadays have decisively rejected such once-imagined causes as burstings-forth of contained waters from within the earth, the soaring of the moon upward from the cavity of the Pacific Ocean, and the malign influence of comets and supernovae. Although science fiction nightmares concerning dinosaur decimation continue to haunt some of us (no, not usually the paleontologists) the concepts of Hutton and Lyell have prevailed. We are, instead, examining continuing causes -- what one might term "intraterrestrial" causes -- to explain the surficial features of our planet in present and past times.

As editor Dott states in beginning a useful introduction to this thought-provoking volume:

Sea level is our most fundamental datum, being the boundary between land [and] the sea as well as the ultimate reference for all elevations. Although on a day-to-day basis, sea level seems permanent, in reality it is constantly changing. (p. 1)

It was Eduard Suess who first coined the term "eustatic" for such changes, in his *Der Antlitz der Erde* (1881), but, as Dott's introduction shows and Carozzi's account of the work of Benoit de Maillet stresses, the concept is much more venerable. The very idea of a universal deluge, termed by Jews and Christians "the Noachian deluge", but predating even the writing of the Old Testament, has its part in this story. Moreover, throughout centuries of seafaring, submergences and emergences of land have been affecting the use of harbors and rivers, causing the decline of formerly flourishing ports and generating lawsuits concerning the ownership of newly emergent lands. However, serious scientific discussions of this question did not begin until the 18th century, the century when geology -- or was it to be called "geognosy," as Werner urged? -- was at last taking shape.

Within the context set for them by Dott's introduction, the successive papers in this volume show how geologists' concepts of eustasy have evolved. After being reminded by Carozzi of *Tellamed*, we have Tony Hallams's lively discourse on Suess and his ideas; Dott's own recounting of T.C. Chamberlin's hypothesis of a diastrophic control of eustasy; Markes Johnson's exposition of Amadeus Grabau's pulsation theory; and the intriguing demonstration by Rex Buchanan and Christopher Maples of how a great stratigrapher, Raymond C. Moore, could long close his mind to the effects of glacial advances and retreats upon sea level. Ralph Langenheim and John Nelson discuss how the concept of cyclothems has (in properly eustatic fashion!) risen, fallen and risen

again, specifically in its application to the Illinois Basin. Peter Vail's spirited defence of the virtues of seismic stratigraphy usefully incorporates an account of the origins of that particular approach, currently so fashionable. In a final chapter, a group of authors wonder whether the effects of eustasy can be disentangled from the web of other events revealed, albeit only partially, by the stratigraphic record.

The concept of this volume was good; its production has been excellently done. Will there be sibling volumes from the Geological Society of America, examining the fluctuating fortunes of other geological concepts? I hope so.

William A. S. Sarjeant
From *Geoscience Canada*, 21(1):38-39.

Johannes Walther On Reefs: Pioneering Concepts of Biogeology 1885-1910

Robert N. Ginsburg, Eberhard Gischler, Wolfgang Schlager, Editors; Lois Keith, Gabriela Meyer Translators; The Comparative Sedimentology Laboratory, Division of Marine Geology and Geophysics, Rosenstiel School of Marine and Atmospheric Science, University of Miami 1994, 141 pages.

This book is concerned with Johannes Walther's (1860-1937) contributions to the study of reefs and related carbonate deposits. My acquaintance with Walther dates back to the early 1960's, when I served overseas as Fulbright Professor. I presented my students and colleagues with what I thought was the latest in reef studies. The senior geology professor Leo Picard, who attended my course, remarked that he was familiar with my material, as he had learned it from his professor Johannes Walther. He then graciously presented me with a book of Walther's *Coral Reefs of the Sinai Peninsula* (1888) which in translation forms the bulk of the volume under review. As a result in 1969 when I published SEPM Special Publication No. 14 on carbonate deposits I employed from Walther's 1888 publication part of a lithograph for the cover showing ecologic zonation of a modern reef and a complete lithograph on the title page.

Walther was one of the most-effective pioneers in making the principle of actualism useful as a stratigraphic tool for a better understanding of the rock record. Walther traveled all over the world, and his fascinating and penetrating observations and writings on coral reefs of the Sinai Peninsula make fascinating reading even today. These writings present some of the first real data for use in the interpretation of the origin of the sedimentary strata in the bedrock. Some of Walther's observations form the cornerstone of modern stratigraphy.

In 1967 when I served as visiting professor at the University of Heidelberg I found that Walther was almost unknown in his native country and on my lecture tour of German universities reintroduced him in Germany. In the 1950's German soft-rock geologists became intrigued with clay minerals and sedimentary petrology and Walther was thus forgotten. As David Stoddert points out in this book Walther's name was not included in the *Dictionary of Scientific Biography* until 1990.

Among his important observations in the study of coral reefs of the Sinai Peninsula Walther noted a reef with striking white color. He considered that it probably was dead and ascribed its death to subsidence. Along the western shore of the Sinai Peninsula he found fossil reefs at altitudes of 10 m. Moreover along the cliffs of the western shore of the Sinai Peninsula he observed dolomitized Tertiary reefs at higher elevations.

The bulk of this book (pages 38-89) is a translation of pages 439-505 of Walther's coral reefs of the Sinia Peninsula. However, in the original volume of the Abteilung Mathematisch-Physische Classe of the Saechsische Gesellschaft der Wissenschaft (Society of Science of Saxony) appeared the preceding 330 pages (p.9-339). Nowhere in this book is there a reference to this omission.

In 1968 I started a program "In the footsteps of Johannes Walther" and visited all his locations in the Sinai Peninsula, described in this book, by helicopter, jeep, and ship, and rediscovered in 1968 the classical Ras Muhammad site. I served as field-trip leader to these sites for the Tenth International Congress on Sedimentology in 1978, and as invited keynote speaker of the German Geological Society, when the Society met for the first time on Walther's campus in 1992. Guidebooks, papers, and even entire biographies now promote Walther.

David R. Stoddart and Eberhard Gischler provide brief backgrounds on Walther's life and works, as well as a selected bibliography. Brief translations are also included of Walther's studies on the Gulf of Naples, as they relate

to the origin of structureless limestone, and on the Adam's Bridge and the Coral Reef of the Palk Strait", a study of coral reefs near India.

I differ with editor R. N. Ginsburg, who wrote in his preface that time erodes the source of ideas" and "Walther's works is fading." On the contrary, when I first heard about Walther from Leo Picard in the 1960's I had never heard of Walther, yet I served as editor of the *Journal of Sedimentary Petrology* and was deeply involved with sedimentology and sedimentologists, none of whom had ever heard of Walther. Today almost every course in sedimentology and stratigraphy begins with Walther, and textbooks promote his concepts.

Gerald M. Friedman

Gemology: An Annotated Bibliography

John Sinkankas. 2 volumes. xxxiv + 1,179 pp., illus., bibl., index. Metuchen, N.J./London: Scarecrow Press. 1993. \$179.50, \$250 (special limited edition).

The bibliographer, Captain John Sinkankas, a naval aviator in an earlier incarnation and a longtime book collector and dealer, takes a broad view of gemology. These volumes hold about 7,500 entries, ordered alphabetically by author and including, in many cases, the meticulous description of separate editions, or even of separate copies, in the manner of the great dealers and auction houses (some of their catalogues appear as separate items). Sinkankas prepared succinct biographical notes for many of the authors, as, for example, for "ORPHEUS, Pseudonym, fl 4th C AD?" (p. 775), whose life--or, rather, the source of the thirteen editions of the *Lithica* listed as published between 1517 and 1971--is the subject of an analysis of some three hundred words. Of these thirteen editions, Sinkankas was able to study and describe nine in meticulous detail. Like the catalogues of the dealers (whose assistance in assembling the library that forms the original basis for this bibliography is acknowledged), *Gemology* is profusely illustrated with engravings, title pages, and the like. Such catalogues of early collections of mineralogical specimens are themselves the beginnings of mineralogical and geological science (for example, Conrad Gesner's *Bibliotheca universalis* [1545]); William Babington's *New System of Mineralogy* [1799], one of Sinkankas's few notable lacunas; or Jacques-Louis, Comte de Bourmon's *Catalogue de la collection minéralogique* [1813]).

The biographical notes preceding the entries for individual works or editions vary from the briefest of descriptions to the exhaustive treatment of G. F. Kunz, Tiffany's gemologist-mineralogist--an article that bears comparison with the best work in the *Dictionary of Scientific Biography* (from which Kunz was unaccountably omitted). Entries for the individual works or separate editions are accompanied by Sinkankas's analytic summary articles--informative critical digests that reflect contemporary historical scholarship and mineralogical science. His analysis for the entries of Orpheus's *Lithica* cites Lynn Thorndike, F. D. Adams, and J.-C. Brunet. Not every author in these two densely packed volumes is treated so thoroughly; not every book entry is accompanied by full-dress summation, but very few of these digests fail to interest, inform, and enlighten. Those accompanying Robert Boyle's *Experiments Touching Colours* and *Origine and Virtues of Gems* bring a new perspective to the study of Boyle's work that is well worth the attention of historians of seventeenth-century science.

Gemology is focused primarily on gems and ornamental stones. Sinkankas, the author of 135 journal articles and 27 textbooks, manuals, field guides, catalogues, and handbooks on mineralogy and gemology, is also a distinguished lapidary whose work is on view at the Smithsonian in Washington, the Royal Museum in Ottawa, and New York's Museum of Natural History. Nevertheless, it is his love of books that shines out through these handsome, acid-free pages--he deplors the use of perishable paper. In describing so minutely the physical images and summarizing works that are now rapidly disintegrating, he hopes that "by means of this bibliography, at least some will be kept alive in spirit if not in body" (p. viii). These two volumes, in red cloth with gold embossed lettering on the spine and cover title in gold on black, reflect their author's approach both to nature and to scholarship--a reminder in an era of perforated printout of what was once a culture of the book.

Cecil J. Schneer

From *ISIS*, 85:3 (1995) p. 560

Cracking Rocks and Defending Democracy: Kirtley Fletcher Mather, Scientist, Teacher, Social Activist, 1888-1978.

Kennard B. Bork (1994), Pacific Division AAAS, California Academy of Sciences, San Francisco, California. 336 pp. ISBN 0-934394-01-1.

As a former graduate student in geology at Harvard who knew Professor Kirtley Mather for many years, I find this book to be well-researched, well-written, and very informative indeed. I learned that I knew not the half of Mather's myriad interests and accomplishments. As the title implies, Mather excelled as a scientist, teacher, and social activist. Trained as a geologist at the University of Chicago and Denison University in Ohio, where he met his wife-to-be, Marie Porter, Mather performed field work in Colorado, the mid-continent oil fields, Bolivia, and Alaska. As a teacher at the University of Arkansas, Queen's University in Ontario, Denison University, and finally Harvard University where he was a professor from 1924 to 1954 he became famous for his well organized, articulate courses, delivered with a dramatic flair and great good humor. He also served for many years as Director of the Harvard University Summer School, and he greatly enjoyed giving courses in adult education. As a social activist, Mather challenged, again and again, any law or movement that he saw as threatening to fundamental rights or civil liberties. A spellbinding speaker, Mather was much in demand at public forums and political, social, and religious gatherings as well as at scientific meetings. He also was a prolific writer of articles on a wide range of subjects and of several books. Bork points out that Mather's writings demonstrate a change in his main interests that took place about 1932. Up to that time his subject matter was chiefly geological—focusing on stratigraphy, paleontology, glacial geomorphology, or petroleum geology. In the mid-1930s he began to emphasize political, educational, and religious subjects. He strongly believed in popularizing science, saying that those who opposed it demonstrated either lack of faith in the democratic process or inexcusable ignorance.

Mather was a dedicated Baptist (named in honor of the Reverend Lycurgus Kirtley who conducted his parent's wedding ceremony) with a decidedly humanistic outlook. As a professor who routinely taught about evolution in his classes, Mather had no difficulty at all reconciling his religious faith with his scientific training. In 1925 in his role as expert witness for the defense in the famous Scopes trial in Dayton, Tennessee, in which a young teacher, John Scopes, was charged with breaking state law by teaching evolution, Mather prepared a position paper that began (Bork, p. 66):

The facts of life development are so numerously displayed and so evident in the rocks of the earth's crust that every geologist with whom I am acquainted has accepted the evolutionary principle as demonstrated." After guiding the reader through geologic time from the unfossiliferous rocks of the Canadian shield through the fishes of the Paleozoic and the dinosaurs of the Mesozoic to the mammals of the Cenozoic, he concluded: "...none of these facts is really in any way disturbing to the adherent to Christianity. Not one contradicts any teaching of Jesus Christ known to me. None of them could; for his teachings deal with moral law and spiritual realities. Natural science deals with physical laws and material reality."

The Scopes trial actually had been set up as a test case that the defense lawyers, headed by the famous barrister Clarence Darrow, hoped to lose, in order to appeal the case all the way to the U. S. Supreme Court where they hoped to win; thus striking down all state laws against the teaching of evolution. The defense did lose. But, when the case reached the Tennessee Supreme Court, the Dayton trial was ruled null and void, with no grounds for a retrial. Technically, the judge in Dayton had erred when he, rather than the jury, had set the fine of \$100. The defense was forced to drop the matter. Some schools in Tennessee continued to teach evolution (illegally but without further challenge) until 1967 when the state legislature repealed the law against it. [This should give us no cause for rejoicing, however, given the widespread assaults on the teaching of evolution being mounted today.]

What became of John T. Scopes? Bork is the first author I know of to raise this question. The reporters who crowded to Dayton saw that Scopes was a modest, unassuming young man evidently being "used" by the defense team for its own purposes. What will happen to Scopes when you all go home, they asked Mather. Struck by the question, Mather asked Scopes about his long-term goals. Scopes answered that he would like to become a professional geologist but had no money for graduate school. Mather carried this information to members of the defense team which organized a scholarship committee with Mather as secretary and David Starr Jordan, Chancellor Emeritus of Stanford University as national chairman. Donations began rolling in, largely, according to Jordan, because of Mather's high reputation and his strong support of Scopes. It also helped, said Jordan, that Scopes had turned down, on Mather's advice, a highly remunerative 30-lecture series offered by a New York lecture bureau—a type of offer with a decidedly contemporary ring. Scopes earned his MS in geology in 1927 at

the University of Chicago and made a long, successful career in the petroleum industry. Mather kept in touch with Scopes for many years, as he did with hundreds of students and friends.

All of the well-known and some lesser known causes Mather championed are recounted in detail. Among these are his objections to signing the Massachusetts Teachers Oath instituted in 1935, two years after the U. S. astonished and terrified large segments of the population by formally recognizing the Soviet Union. Mather had gladly sworn an oath to uphold the Constitution of the United States, both as an employee of the United States Geological Survey and as a Captain in the Army. However, he saw an oath of fealty to state legislators as a fascist-type of requirement that reduced teachers to state employees and clearly could be used to squelch expression of any ideas that the legislators saw as objectionable. He finally signed, however, largely to avoid bringing additional calumny upon Harvard University which received more than its share in those days (and still does). Treated from the first as a dead letter, that loyalty oath stayed on the books until the Massachusetts legislature repealed it in 1967—the same year, incidentally, that Tennessee repealed its law against teaching evolution. Bork also details Mather's principled responses to investigatory committees in the era of Senator Joseph McCarthy in the 1950s and on numerous other occasions.

As a naturally gregarious leader of church groups, clubs and associations of many kinds, his scientific standing remained such that Mather was selected in 1950 as president-elect of the American Association for the Advancement of Science and he went on to serve as president in 1951. In 1957, Mather was elected president of the American Academy of Arts and Sciences, a venerable institution chartered in 1780 but badly in need of rejuvenation by the 1940s when Mather headed a committee to revamp its procedures and bring it into the late 20th century.

Bork recounts Mather's early efforts to admit women students, who officially were registered at Radcliffe College, to Harvard classes, laboratories, and field courses. Such an idea remained anathema to the Harvard administration and to much of its faculty and alumni. Inasmuch as Radcliffe had no faculty members of its own, this meant that Harvard professors were expected to deliver their lectures at Harvard and then walk across the Cambridge Common and repeat them at Radcliffe. Moreover, each professor retained full authority to refuse to accept Radcliffe students in his courses. Some of those who did accept them allegedly sent their assistants "over there" to give their lectures. All this continued until 1943—when wartime exigencies led to the new rule that Radcliffe students could register in any classes they chose and actually attend them in Harvard buildings! Thus when this reviewer entered graduate school in the fall of 1943, she had no idea what a ground-breaking act she was committing by attending lectures and working in laboratories in the old Harvard Geological Museum on Oxford Street. In the fall of 1945 some returning veterans were astonished to find her employed as a research assistant by Professor E. S. Larsen, Jr., who had come to Harvard from the University of California and fully approved of co-education. Much more shocking to many was the faculty decision to hire her in the 1946-1947 academic year as the first woman teaching assistant in Kirtley Mather's popular and overcrowded Geology-I course! Kirtley was delighted that the diminutive pool of graduate students made a necessity of a move he had advocated for years. Kirtley graciously welcomed me to his group and made me feel very comfortable there, as he did everyone. He was a remarkably warm, generous man with a great zest for living and an optimistic outlook on life despite the many injustices he observed and combated. I hope others will enjoy meeting him and enjoying his company in this excellent volume.

Ursula Marvin

MEMORIAL NOTES

The INHIGEO Board extends its deepest sympathy to the families and friends of two of our members for whom we share a great sense of loss.

Gerhard Mathé (1938-1994)

On the 5th of December, 1994, Dr. Gerhard Mathé suddenly died as a result of a tragic accident. He was the Director of the State Museum of Mineralogy and Geology in Dresden and a member of many bodies such as the International Commission of History of Geological Sciences (INHIGEO).

He was born on 14 December 1938 in Dresden. After leaving school he decided to study mineralogy at the Mining Academy of Freiberg and the University of Halle, from which he graduated in 1961.

During his education he was employed in various enterprises of mining and geological exploration. At this time he presented scientific papers on mineralizations in Saxon hard coal beds, on gneisses of the Ore Mountains, and metabasites of the Saxon granulite mountains.

For more than two decades he worked in various fields of mineralogical-geological teaching and research at the Mining Academy of Freiberg and later he was the head of the Museum in Dresden for 10 years. In his numerous publications he mainly dealt with aspects of the geology and petrology of Saxon crystalline areas, protected natural geological sites, protection of geotopes, geological museum science, and the history of geology and mineralogy.

He was the author of several publications on Georgius Agricola, Leopold von Buch, Karl Ernst Adolf von Hoff, Richard Beck, and Horace-Bénédict de Saussure as well as on the history of the genesis of serpentinite. Gerhard Mathé proved to be very talented in organizing his museum work and planning field excursions. All participants of the XVth INHIGEO Symposium held in 1991 in Dresden ("Museums and Collections in the History of Mineralogy, Geology and Paleontology") will never forget his great contributions and helpfulness as co-convenor and host of this conference. Only due to his commitment could this symposium become a truly successful event under the complicated conditions of that time.

Because of his open-mindedness, capability, friendliness and also because of his diligence and humor Gerhard Mathé was highly regarded by his students, fellow-workers and colleagues. His early death has deeply affected us all. On 14th March, 1995, a commemorative colloquy was held in Dresden to honor Gerhard Mathé. The State Museum of Mineralogy and Geology in Dresden will publish a commemorative volume in honor of its esteemed director.

Martin Guntau, Peter Schmidt

Ilarion Ilarionovic Shafranovskii (1907-1994)

The son of teachers, I. I. Shafranovskii was born on March 24, 1907, in St. Petersburg, where he attended school until 1924. From 1925 to 1930 he was a student at the Faculty of Mathematics and Natural Sciences at the University of Leningrad. There he concentrated on the areas of mineralogy and crystallography, attending the lectures of A. E. Fersman. In 1930 he left the University a mineralogist and began work at the Leningrad Institute of Mines in 1931; first as an Assistant Professor, then as an Associate Professor, and since 1944 as a Full Professor of Crystallography. From 1934 to 1948 he also taught crystallography at the University of Leningrad. In 1984 he retired from the Institute of Mines.

In his work I. I. Shafranovskii focused on topics relating ideal and real forms of crystals, the balance of symmetry and statistics in minerals of the universe (Minerals of Earth, the Moon, and in meteorites), and the history of crystallography. Among the large number of his publications, which appeared outside the USSR in Austria, China, Denmark, France, Germany, India, and the USA, one finds ten monographs and two textbooks of crystallography. His book "Crystallography" appeared in a total of five editions between 1941 and 1972 and was published in three languages. Several works that are especially noteworthy are his monograph "Crystals of the Minerals" (2 Vols. 1957/67), "Laws of Symmetry in Mineralogy" (1987), and "Harmony in the World of Minerals" (1992).

Shafranovskii published many articles and monographs on the history of crystallography and mineralogy. He produced biographical works on R. J. Haüy, N. I. Koksharov, E. G. Laksman, M. W. Lomonoso, F. P. Moissenko, N. Stensen, Ch. S. Weiss, A. G. Werner, and others. He also presented an informative "History of Crystallography in Russia" (1962). The most comprehensive "History of Crystallography" to date was planned as a three-volume set, of which the first two appeared in print in 1978 and 1980. The third volume, dealing with the 20th century, is in press. Due to his fundamental contributions to the history of crystallography, Shafranovskii was elected as a member of the International Commission on the History of Geological Sciences (INHIGEO) in 1970.

Professor Shafranovskii was honored for his scientific achievements in many ways. He was an honorary member of the Mineralogical Society of Russia, the Ukrainian Mineralogical Society, and the International Society for Interdisciplinary Studies of Symmetry. He became a member of the Russian Academy of Science in 1990 and an honorary member in 1993. As early as 1982 a newly discovered mineral was given the name of "shafranovskite" in recognition of his work in mineralogy.

I. I. Shafranovskii died on July 1, 1994 in the city of his birth, St. Petersburg. He is succeeded by his wife, Helene, his two children and five grandchildren. He also is mourned by his students, both at home and abroad, as well as by numerous colleagues throughout the world. Our memory of him is that of a gracious and educated man, who was always tactful and ready to help others, and who could also be quick-witted and jovial. With his great achievements he has earned his place in crystallography and its history.

Martin Guntau

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