

**INTERNATIONAL UNION OF
GEOLOGICAL SCIENCES**

**INTERNATIONAL UNION OF THE
HISTORY AND
PHILOSOPHY OF SCIENCES**

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

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

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PREFACE

This *Newsletter* reports mainly on INHIGEO activities in 1992. It also includes information on future INHIGEO symposia and other items of interest to historians of geology.

In 1992 the Full Members of INHIGEO elected a new Board and then voted themselves out of existence by casting their ballots in favor of new bylaws that abolished the distinction between Full and Corresponding Members and extended voting privileges to all. The new Board was ratified by the IUGS Council during the 29th International Geological Congress at Kyoto. The proposed new bylaws were endorsed, in principle, by the IUGS Executive Committee at a meeting in Pretoria in January, 1993. The bylaws still await ratification by the full IUGS Council at its meeting in Beijing in 1996. In the meantime, we have been assured that we may begin implementing them immediately. As a result the membership list at the end of this *Newsletter* has been reformatted alphabetically by country to reflect the single level of membership.

INHIGEO now has 116 members in 36 countries, including two that are new to us: Peru and Turkey.

Due to special circumstances, this *Newsletter* was not ready for distribution in advance of the XVIIIth INHIGEO Symposium that was held in Brazil in July, 1993. However, every attempt will be made to complete *Newsletter No. 26* before the XIVth Symposium opens in Sydney, Australia, in July, 1994. To aid in maintaining this schedule, please submit items for *Newsletter No. 26* before April 1, 1994. This date is chosen to give members an opportunity to report on activities that occur toward the end of 1993.

Ursula B. Marvin
INHIGEO Secretary-General
August 20, 1993

The INHIGEO Board as confirmed by the IUGS Council for 1992-1996

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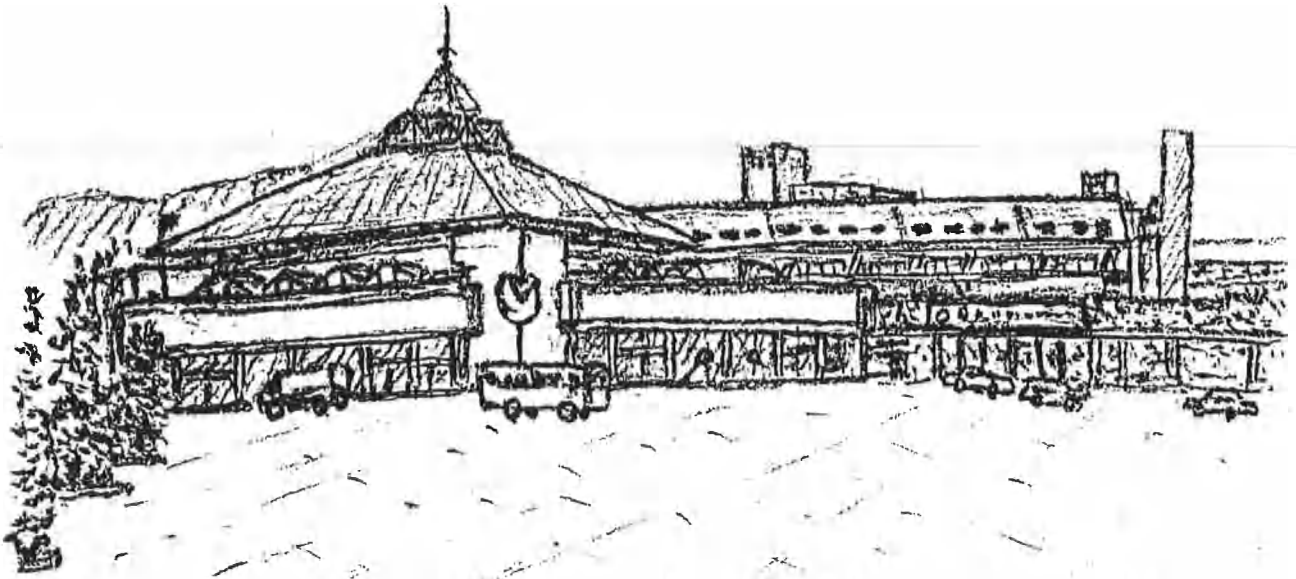
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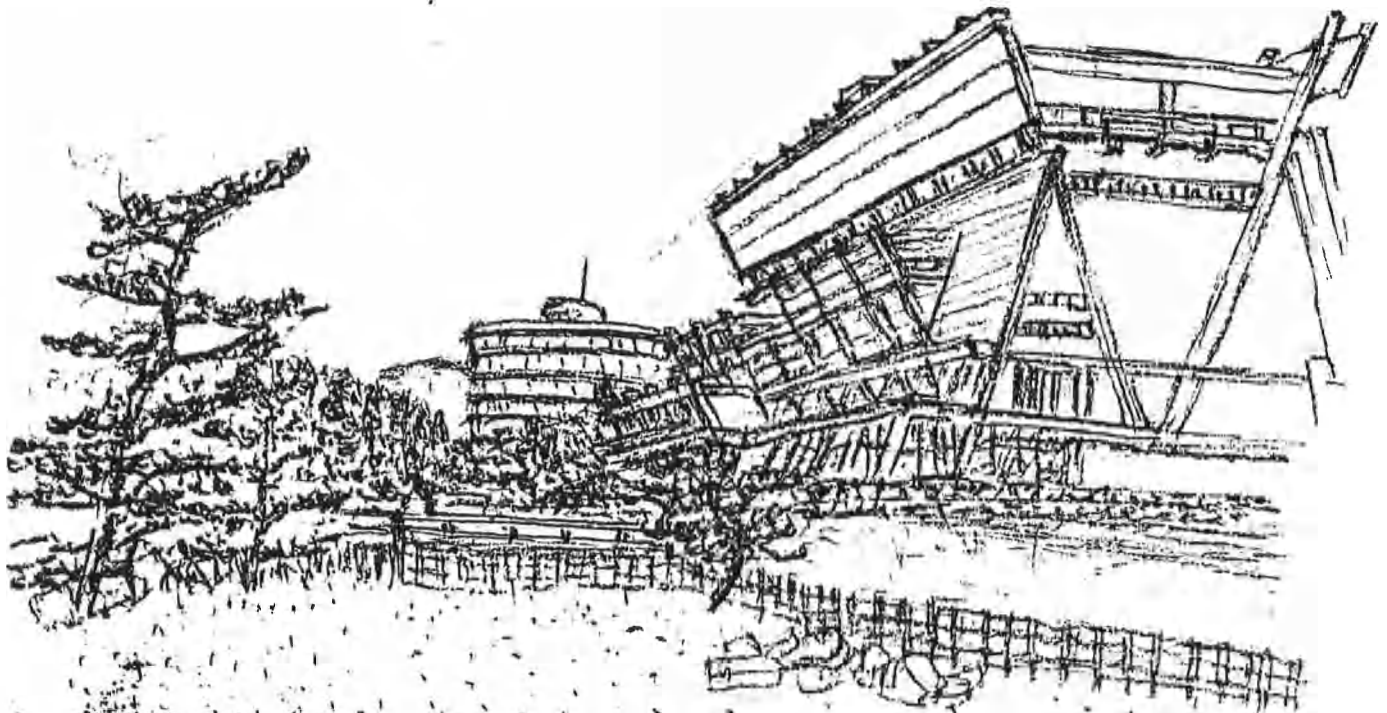
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Y. Suzuki

Aug. 21, 1992



京都国際会議場
Aug. 23, 1992

Y. Suzuki

Figure 1. Two views of the Kyoto International Conference Center. 1a. The Scientific Exhibition Hall. 1b. The Conference Hall. (Sketches by Yasumoto Suzuki)

INHIGEO at the 29th International Geological Congress in Kyoto, Japan, 1992

The 29th IGC was held at the Kyoto International Conference Center (Figures 1a and b) which lies beside an artificial lake amid a large expanse of green lawns, ornamental trees, and flowering shrubs. There were 4,437 attendees from 91 countries who presented 5,402 papers. Crown Prince Naruhito, Honorary President of the IGC, addressed the audience at the opening ceremony with the message that "Today, there is a large variety of problems related to the global environment. We are facing a tremendous challenge regarding our understanding of the Earth. Also, in years to come, the interaction between mankind and the Earth will have to be carefully scrutinized. Thus, geosciences will undoubtedly play increasingly important roles. Great expectations will rest with you, who are gathered here today." [The Prince also spoke about his difficulties in finding a bride, in large part because Japanese traditions require that the eldest son shall bear full responsibility for the care of his parents, and his wife's activities are circumscribed by conventions that allow her very little personal freedom. We are happy for him that his fortunes have changed since then, and wish all the very best for the Crown Prince and his talented young bride. UBM]

Since the IGC was held for the first time in the most representative system of island arcs in the world, it was quite natural that the origin and evolution of island arcs was selected for the main theme of the Congress. We were very pleased to observe that most of the sessions throughout the Congress were well attended and generated lively discussions.

In addition, the participants enjoyed the social programs, including Koto (a musical of Japanese harps), Kyogen theater (classical drama; Figure 2), Gagaku (ancient music and dance). (A member of the Program Committee was upset, however, when he was asked, "Don't you have any modern culture in Japan?")

Kenzo Yagi

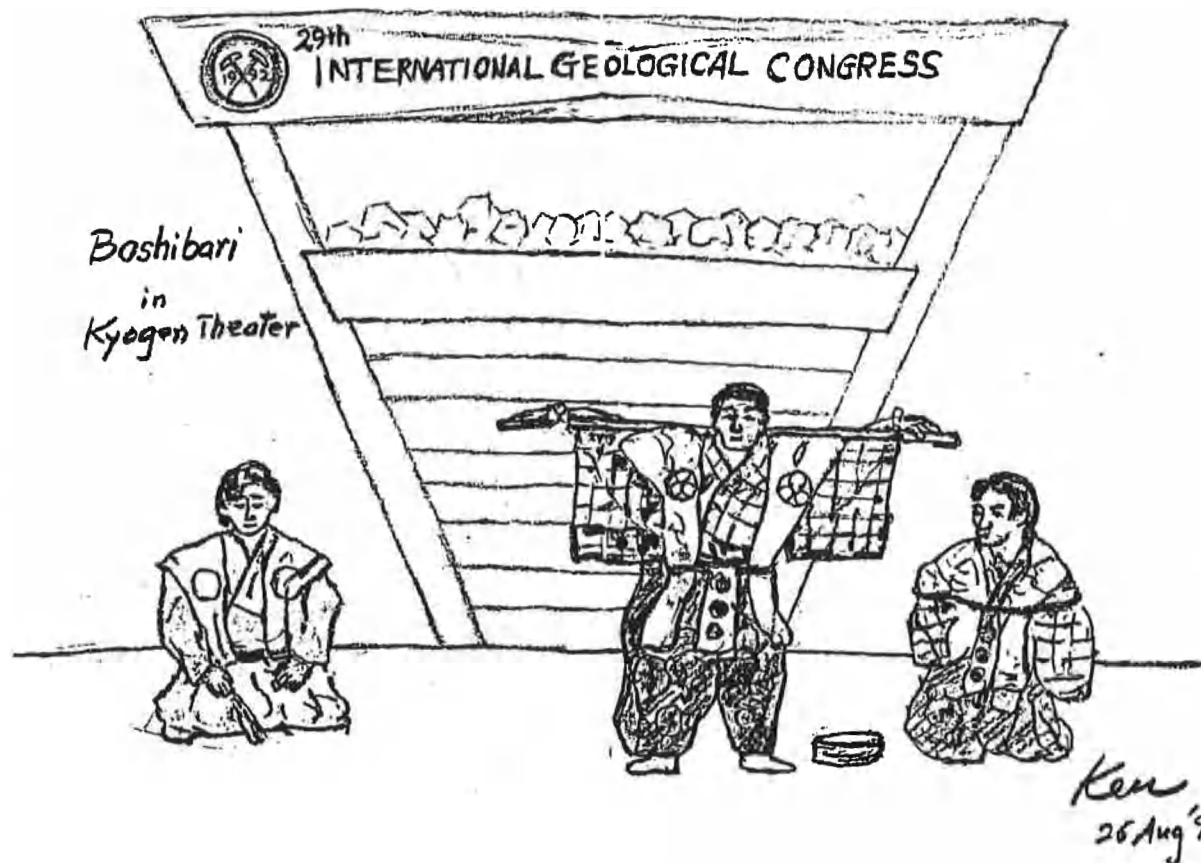


Figure 2. The renowned actor Boshibari (center) in Kyogen Theater, a form of drama dating to the 14th century. (Sketch by Kenzo Yagi)

INHIGEO Symposium II-25-1 on "The development of geology in Japan and the international exchange of ideas on earth sciences" was convened by M. Guntau of Rostock, Germany, A. Sugimura of Tokyo, and M. Hashimoto of Tokyo. The following thirteen papers were presented; ten in oral and three in poster sessions.

Akio Yoshida: *Some important geophysical discoveries by Japanese geophysicists in the early 20th century*

The fundamental features of island arcs including inclined seismic zones marked by deep earthquakes extending beneath trenches and the associated zones of active volcanism, all had been studied by Japanese geophysicists in the 1920s and 1930s, long before the birth of plate tectonics and the realization that island arcs mark subduction zones. In addition, Matuyama measured reversed magnetic fields in Quaternary formations as early as 1929.

Andreas Küppers and Noboru Yamashita: *Heinrich Edmund Naumann and the beginning of geosciences in Meiji-Japan*

Heinrich Edmund Naumann, a German geologist and one of the founders of modern geology in Japan, helped to establish the first geological institute in Tokyo University and the first governmental geological survey - known thereafter as the Geological Survey of Japan. Newly found documents and manuscripts disclose details of his career after his return to Germany.

Arata Sugimura: *Volcanic front: a concept of asymmetrical zonation in island arcs*

Discussions of the petrographic provinces in the Japanese islands and the Sea of Japan were commenced by Tomita in 1932. The study of regional compositional variation of basaltic magmas in the Japanese islands led the author in 1960 to propose the volcanic front concept and to discuss the asymmetrical zonation of geophysical and geological features in island arcs in general.

David F. Branagan: *Australian geologists and Japanese geology--19th and early 20th century contacts*

Australian-Japanese contacts in geological sciences commenced as early as 1895, when T. Wood visited Japan. In 1900 E. W. Nardin became a mining consultant in small Japanese coal deposits and established a link between the Australian Institute of Mining Engineers and Kyoto University. T. W. Edgeworth David of Australia helped greatly the Japanese Antarctic Expedition led by Lt. Shirase to solve their financial problems when they visited Sydney in 1911. The Pan-Pacific Congress at Sydney in 1923 was held just at the time of the great Tokyo earthquake. Since that time Australian and Japanese geophysicists have developed strong scientific contacts through the works of E. David, L. A. Cottor, and others.

Daikichiro Shimizu: *Acceptance of European geology in East Asia*

When modern geology was introduced from Europe to China in the 19th century, most of the European terms of geology were translated into Chinese by phonetic equivalents. In some cases traditional terms were then introduced into Japan just as they were, because the two nations have common characters in their languages. But recently a number of newly invented Japanese geological terms have been reimported into China.

Hong-Zhen Wang: *A brief history of geology in East Asia with a special comparison between China and Japan (1894-1949)*

The history of modern geology in China is divided into five stages, ranging from the preparatory stage, beginning in the early 19th century, to the present highly active stage. The development of geology in Japan also was briefly described.

Martin Guntau: *Transfer and exchange of geological ideas in history*

When geologists from advanced countries work in developing countries they educate people of the host countries in new techniques and ideas and, at the same time, learn much from them. When they return home the geologists bring with them new knowledge and new data that contribute to the emerging of new theoretical concepts. The mutual advantages of the international transfer and exchange of geological ideas are illustrated by the examples of Edmund Naumann, who visited Japan from Germany in the 1880s, Orville A. Derby of the U.S.A. who worked in Brazil in the 1880s, and Amadeus William Grabau, of the U.S.A. who lived in China in the 1920s and 1930s.

Masae Omori: *Recent progress of the studies of microstructures of fossils in Japan*

This paper described the history, mostly after the Second World War, of the governmental and academic organizations in Japan that undertook the study of microstructures of fossils.

Mitsuo Hashimoto: *The historical background of the concept of paired metamorphic belts*

Edmund Nauman from Germany was the first geologist to recognize that the pre-Cenozoic geology of the Japanese islands is fundamentally asymmetric, being represented by two pairs of geologically contrasting terrains. Each pair consists of a terrain rich in granites and a schist terrain without granites, both stretching side by side lengthwise of the islands. This asymmetric configuration, in conjunction with the baric type classification of metamorphic rocks, lead Miyashiro (1961) to propose the concept of paired metamorphic belts: a high T/P belt on the continental and a low T/P belt on the oceanic sides of an orogenic belt. This configuration is particularly clear in the circum-Pacific arcs.

Yasumoto Suzuki: *Historical sketch of the development of study on the earthquake zones in Japan*

Japan developed a strong leadership role in seismology under the leadership of J. Milne and A. Ewing who came to the islands from England during the Meiji-era. After two great earthquakes, at Nobi in 1891 and Kanto in 1923, the people organized new systems of observation and Japanese seismology progressed markedly until the outbreak of the Second World War. In view of its unique history in Japan, we now expect the geological aspect of seismology to undergo further advances.

Posters

Eugen Seibold and Ilse Seibold: *German contributors to the development of geology in Japan a century ago*

Documentary materials were displayed related to the works of the following four German geologists, who contributed greatly to the development of modern geology in Japan in the Meiji-era: F. von Richthofen (1833-1905), E. Naumann (1854-1927), D. Brauns (1827-1893), and K. Gottsche (1855-1909).

Lajos Stegena: *The first European documentations from Japan's geology*

Japan as a country supposedly rich in gold and precious stones appeared at first in the report of Marco Polo as early as the end of 13th century. From that time to the 18th century, geological information on Japan, particularly on mines, was reported repeatedly, although fragmentarily, in Europe.

Daniel Rubiolo: *Early German influence at the first school of geology in Argentina.* (No abstract).

M. Hashimoto

INHIGEO Symposium II-15-3, "The history of meteorite studies in Japan and international contributions to advances in meteoritics," was convened by Masatake Honda of Nihon University in Tokyo, Ursula B. Marvin of the U.S.A., and Kenzo Yagi of Hokkaido University in Sapporo. The following eight papers were presented:

Masako Shima and Sadao Murayama: *The history of study on meteorites fallen or found in Japan*

This history falls into five periods: 1) Precultural time when tales were told but no specimens were preserved from witnessed falls. 2) The 5th-18th century when records were kept and four meteorites from observed falls were preserved in Shinto shrines or Buddhist temples but no scientific studies were done. The Nogata chondrite, which fell on May 19, 861, is the world's oldest meteorite from a witnessed fall. 3) The 19th century when 10 chondrites, one iron, and one stony-iron fell in Japan. In 1880 a German scientist performed the first chemical analysis of a meteorite in Japan. Analyses by Japanese chemists followed, and scientists and citizens became interested in meteorites. 4) The first half of the 20th century, when meteorite studies decreased; and 5) the last 40 years when scientific studies and systematic museum collections came into their own.

Herbert Palme: *Early chemical analyses of meteorites*

Scientific work on meteorites began at the turn of the 19th century with the chemical analyses of Howard in England, Klaproth in Germany, and Vauquelin in France. A high content of nickel soon came to be regarded as the most prominent chemical signature of meteorites, distinguishing them from terrestrial materials. In 1808 the fall of the Stannern achondrite, which lacked both nickel and chondrules, confused the issue but led to recognition of a new type of meteorites. By mid-century numerous scientists published sophisticated classification schemes based on morphology, structure and mineralogy but not bulk chemistry, and so genetic relationships remained obscure. In the 20th century, chemical analyses of meteorites and spectroscopic analyses of the solar photosphere showed that chondrites resemble the chemical composition of the sun but not the Earth's crust. Trace elements became important in V. M. Goldschmidt's Earth model where meteorites served as analogues to the Earth's core and mantle.

C. E. Nehru: *19th century meteoritics using polarizing microscopy*

The first polarizing microscope studies of meteorite thin sections were made in the early 1860s, about ten to fifteen years after those of terrestrial rocks. In 1869, Henry Clifton Sorby, published a description of meteorite microstructures, concluding that they were unlike any terrestrial volcanic rocks, that it was extremely unlikely that they came from the Moon, and that meteorites have constituents of such high temperatures that they had to be derived by condensation of vapor of nebular origin. From about 1870 onward Sorby, Nevil Story-Maskelyne, Tschermak, and others who pioneered the use of the polarizing microscope identified many new minerals in meteorites and made marked advances in interpretation of their textures.

Masatake Honda: *History of cosmogenic isotope studies on meteorites*

The study of cosmogenic nuclides in meteorites began in 1952. After the opening of this new field isotopic studies of meteorites were extended to stable noble gases and to long- and short-lived radioactivities. This work provided new data on the histories of meteorites in space and on secular variations in cosmic radiation. The effects of interactions between meteoritic bodies and cosmic radiation can be deciphered as those of two independent phenomena. Sometimes the two can be read out simultaneously, but sometimes they are inextricably combined. Since 1969 cosmogenic isotope studies have been extended to lunar surface materials. After 1980, some low-level counting methods have been replaced by accelerator mass spectrometry for long-lived radio nuclides.

Robert M. Walker: *The discovery of fossil nuclear particle tracks in meteorites.*

The discovery in 1959 that heavy nuclear particles produce trails of radiation damage (tracks) that can be seen by transmission electron microscopy, led to a collaboration at General Electric with P. B. Price and R. L. Fleischer to investigate the idea that a lunar rock might act like a block of nuclear emulsion, storing tracks and preserving a long-term record on radiation impinging on the Moon. They made the key discovery that tracks of near atomic dimensions could be enlarged by chemical etching and made easily visible in an optical microscope. Continuing studies of fossil nuclear tracks in meteorites and lunar samples have shown that the flux and energy

spectrum of heavy cosmic rays has remained constant within 20% for at least 3×10^6 years. This fact, coupled with the rapid attenuation of cosmic ray track density with increasing depth, have made tracks useful for measuring various dynamic processes including gardening of the lunar regolith, meteoroid erosion in space, and ablation during atmospheric entry. Internally generated tracks from the spontaneous fission of "extinct" ^{244}Pu are common in meteorites and show that this isotope was present in the solar system at the time the major minerals were formed.

Kenzo Yagi: The beginning of research on the Antarctic meteorites

No attention was paid to meteorites by the Japanese Antarctic Research Expeditions (JARE) until the 10th expedition which, for the first time, was to study glaciology of icefields near the Yamato Mountains. Prior to his departure, Yoshida was advised by Professor Gorai of Tokyo University of Education to search for meteorites there. On 21 December, 1969, Yoshida's party picked up a black rock with a shiny surface and then found eight more of them nearby. Later, Gorai determined that all were meteorites and distributed chips to several investigators. In 1973, at the Meteoritical Society meeting at Davos Shima reported finding different types of meteorites among these samples. That year, the 14th JARE found 12 more meteorite fragments on the same icefield. Yanai, of the 15th JARE in 1974, made a systematic survey and collected 663 samples, which made a great impact on meteorite research in Japan. Mineralogy, magnetism, and other types of analyses were carried out. The search for meteorites was put on the list of principal observation items for the first time for the 16th JARE in 1975. The second stage of research started with the U.S.-Japan joint search for meteorites in 1976.

Kunihiko Nishiizumi: Development of terrestrial age determinations of meteorites

The terrestrial age of a meteorite (the interval between its fall and the present) can be calculated from the decay rate of cosmogenic radionuclides that were produced in the body during its flight in space but not after it entered the Earth's shielding atmosphere. A series of terrestrial age measurements for stony and iron meteorites was published in 1958-1963. The studies required samples of 10-100 grams for stones and 400 grams for irons and involved measurements of ^{39}Ar , ^{14}C , and ^{36}Cl using Geiger counters and proportional counters. The thermoluminescence method also has been applied to terrestrial age determination, but the results are not quantitative. The recovery of Antarctic meteorites opened a new era for terrestrial age studies. Measurements of ^{36}Cl using the new Accelerator Mass Spectrometry (AMS) technology, developed in 1978, showed that one of the Allan Hills chondrites had a terrestrial age of 700,000 years, which made it 35 times older than any stony meteorite previously studied. Presently, ^{14}C , ^{36}Cl and ^{41}Ca are routinely measured by AMS, as is ^{81}Kr by high sensitivity noble gas mass spectrometry. These two methods require samples of only about 10^6 atoms.

Ursula B. Marvin: History of the United States Antarctic search for meteorites

The idea for the United States Antarctic Search for Meteorites (ANSMET) was conceived in 1973 by W. A. Cassidy, of the University of Pittsburgh, during M. Shima's talk at Davos, Switzerland, about finding four classes of meteorites among nine samples found in a small area of a bare icefield skirting the Yamato Mountains in Antarctica. For two years the U.S. National Science Foundation turned down Cassidy's proposals to conduct meteorite searches from McMurdo Station on the other side of the continent. That changed after the Japanese team reported collecting 663 meteorite fragments in 1975. Beginning in 1976 U.S. teams, based at McMurdo, spent 15 field seasons collecting meteorites, the first three in joint searches with Japanese colleagues. ANSMET has collected about 5000 specimens from 23 icefields. In 1977, collection and curation procedures were instituted modeled on those used for lunar samples. Uncontaminated research samples have been distributed to at least 90 laboratories in 13 countries.

Ursula Marvin

INHIGEO Board Meeting at the IGC In Kyoto, 1992

The meeting was called to order at 6:00 p.m. on August 27th. Eleven attendees considered the following six items:

1. Remarks by President Guntau and the Secretary-General on events of the term 1989-1992

President Martin Guntau opened the session with an expression of thanks to Kenzo Yagi, the Full Member from Japan, and all of the other Japanese INHIGEO members for their hard work in planning for the International Geological Congress and its two INHIGEO Symposia. He briefly outlined the report he had prepared for presentation to the IUGS Council on new trends in INHIGEO's activities. (His text is given below). Guntau concluded his remarks by thanking the Secretary-General for her help throughout his term of office.

I responded with special congratulations and thanks to Martin Guntau whose term as President was marked by difficulties that were unique in the history of INHIGEO. Soon after his election he invited INHIGEO to hold its XVIIIth Symposium in Dresden in 1991. A few months later the Berlin Wall crumbled and his country vanished from the map--taking with it his Full Membership in INHIGEO. Suddenly, Wolfhart Langer of Bonn, the Full Member for the Federal Republic, found himself to be representing all of Germany. Neither INHIGEO nor the IUGS had any provisions for such an eventuality: the bylaws of both organizations required that each Board member must be the Full Member from his or her country. Dr. Langer, however, had no wish to dispute Guntau's presidency and the irregularity was overlooked.

With reunification, all familiar East German sources of support vanished for events such as as scholarly symposia. In the spring of 1991 confusion reigned; even to make contact became difficult. Letters we sent to and from Rostock were in transit for up to five weeks. Sometimes the Fax at Rostock University accepted messages and sometimes it did not--for days on end. Then, Guntau changed residences and had to wait for a new telephone number. To hold the Symposium in Dresden seemed less and less feasible feasible to me as the silence lengthened and I watched events unfold from across the Atlantic Ocean. I was fully prepared to send cancellation notices to INHIGEO members around the world. However, when we finally connected by telephone, Martin said, "I am hopeful that all will go well." Admittedly, he had just received a refusal from one more potential source of support; "...but," he said, "I remain optimistic."

Personally, I could not have remained so optimistic if my own country had lost its identity. But I was wrong and Martin was right. In September, 1991, INHIGEO held an excellent Symposium at Dresden, attended by more than 60 persons from 17 countries. And throughout the following year he worked hard on the revision of our bylaws and other projects of importance to INHIGEO. The Board and the entire membership owe to President Guntau our sincerest thanks for contributing so substantially to the work of INHIGEO in the face of such difficulties.

2. Future INHIGEO Symposia

Brazil, 1993. Kenzo Yagi distributed copies he had received from Silvia Figueirôa of the First Circular on the XVIIIth INHIGEO Symposium to be held in Brazil in 1993. The meeting on the theme *Geological Sciences in Latin America: scientific relations and exchanges* was scheduled to open at Campinas, in São Paulo, on July 19th and to close in Ouro Preto, Minas Gerais, on the 25th. At least two excursions were planned to museums, libraries, mining localities and other sites of interest in the history of geology.

1994 and Beyond. This item raised two questions: a) where to hold a symposium in 1994, and b) whether to hold one at all that year. Endre Dudich, the former Secretary-General, pointed out that INHIGEO previously held symposia every second year; to return to that schedule would ease our members' need for travel funds. However, most of those present wished at least to consider possible future meeting sites.

Professor Alexander Tollman explained that unforeseen circumstances made it necessary for him to withdraw his invitation for INHIGEO to meet at his castle near Vienna in 1994. President-elect David Branagan, invited

INHIGEO to meet in Sydney, Australia, that year. As a theme, he suggested the history of geology in the South Pacific region and outlined several possible excursions that could be taken inside and outside Sydney. The members voted with enthusiasm to accept Branagan's invitation to Australia in 1994.

Professor Wang Hong-Zhen described the efforts already underway to plan for INHIGEO symposia at the 30th International Geological Congress at Beijing in 1996. (For additional information see the China Country Report.)

3. Discussion of proposed revisions of INHIGEO bylaws

Proposals for changing the structure and working procedures of INHIGEO originated with the so-called Dresden Proclamation composed by David Branagan, Hugh Torrens, and Bill Sarjeant in September, 1991. A draft of proposed new bylaws, based on the principles of the Proclamation, was circulated to the membership for comments and suggestions in January, 1992 (see INHIGEO Newsletter No. 24, pp 7-12). Responses from members were generally favorable, but a few minor changes to the draft had been recommended, mainly to clarify the meanings of certain passages.

At the Board meeting, questions were raised about the wisdom of extending voting privileges to all members and thereby, in effect, creating a Society in place of a Commission. Would such a change be acceptable to the IUGS? In response, the Secretary-General explained that this issue had been discussed with members of the IUGS Executive Committee and they saw no difficulty with it. In any case, INHIGEO had no intention of transforming itself to a standard dues-paying Society and would remain a Commission of the IUGS and IUHPS. Indeed, movements toward similar changes seemed to be taking place within a number of other Commissions. The decision was made to circulate the final draft of the proposed new bylaws to be voted upon by the Full Members of INHIGEO in advance of the January meeting of the IUGS Executive Committee (see Section below on the Bylaws).

4. Election of the INHIGEO Board and new Corresponding Members

INHIGEO's first Board with a truly global membership was elected for the period 1992-1996 as a result of mail ballots circulated before the Kyoto IGC and ballots cast at the Board meeting. The newly-elected Board members are listed below and in the Preface, where their addresses, telephone and Fax numbers also are given.

President	David F. Branagan	Australia
Vice-Presidents	Wang Hongzhen	China
	Franco Urbani	Venezuela
	Hugh Torrens	United Kingdom
	Martin Guntau	Germany
Past-President	Ursula Marvin	U.S.A.
Secretary-General		

The following 13 new Corresponding Members also were elected. Their addresses are in the Membership List at the end of this *Newsletter*.

Maria M. Lopes	Brazil	Jan A. Ryzmelka	Poland
Zhai Yusheng	China	Martim P. Ferreira	Portugal
Jean A. Gaudant	France	Francisco A. Conçalves	Portugal
Ezio Vaccari	Italy	Francisco J. A. Carcedo	Spain
Emile den Tex	The Netherlands	Luis Mansilla Plaza	Spain
Mario Samamé Boggio	Peru	A. M. C. Sengör	Turkey
Jadwiga Garbowska	Poland		

The Board extends a warm welcome to all of these members, two of whom represent countries that are new to INHIGEO: Peru and Turkey.

5. Comments by the new INHIGEO President

David Branagan, who joined in 1972 and has long and vivid memories of INHIGEO, expressed his hopes and expectations for a more cooperative, friendly, and relaxed organization than the INHIGEO that was dominated by cold war rivalries. As one of the three coauthors of the Dresden Proclamation, he was especially hopeful that the proposed new bylaws would be passed and the consequent single level of membership would encourage many more members to play active roles. He was pleased that INHIGEO is holding a Symposium in Latin America next year and Australia in 1995, thereby providing opportunities for members and other interested persons in those parts of the world to take part in the work of the organization.

6. New Business

During the meeting, Kenzo Yagi and Masai Omoro presented gift copies of a book by Dr. Shoji Ijiri to the attendees. A note inside the book explained that Dr. Shoji is one of the leading paleontologists of Japan. He has explored in depth the microstructure of fossils. He is also a unique scientist interested in philosophy of natural sciences and has studied the Hegelian Dialectic for many years. The book is a German translation from the Japanese entitled *Aus der "Wissenschaft der Logik" von Hegel lernen: Kritik der Hegelschen Dialektik* (*Learning from the Hegelian Dialectic*). It was hoped that readers would address questions or comments to the author. In addition, a review would be welcomed by this Newsletter whenever any INHIGEO member wishes to submit one. A review copy may be obtained from me or from Dr. Yagi.

As all issues had been discussed in full, the Board meeting adjourned at 7:40 p.m.

Ursula B. Marvin
INHIGEO Secretary-General

Report by INHIGEO President, Martin Guntau, to the Council of the IUGS, August 28, 1992

Current Aspects of INHIGEO Work

The International Commission on the History of Geological Sciences (INHIGEO) was set up 25 years ago in 1967 in Yerevan, Armenia, according to a 1964 resolution of the Council of the International Union of Geological Sciences in New Delhi. Since then the Commission has been working continually. The activities have focused on international symposia on the history of geology which took place in Europe, North America, Australia, and Asia. Publications resulted which met with international interest and approval.

As can be seen from the current report for 1989-1992, this work has been successfully continued into recent years.

Permit me to draw your attention to some current tendencies in the work of the INHIGEO Commission.

First, the trend has become increasingly interdisciplinary. At our last symposium in Dresden in 1991 on *Museums and Collections in the History of Mineralogy, Geology, and Paleontology* geoscientists, historians, curators, librarians, and archivists came to similar conclusions based on different experiences. All agreed that documents and results of geoscientific works must be protected and evaluated with more consistency. This involves (in addition to conserving specimens of rocks, fossils, and minerals) collecting manuscripts, notes, journals, reports, maps, correspondence, and compilations of data in archives, libraries, and museums. This should become a serious responsibility of all geoscientists.

Second, the number of historical works documenting the exchange of geological ideas among different regions is growing; as is international cooperation between scientist-historians in various countries as they perform research on the transfer of geoscientific knowledge and methods of history and education.

In relation to this we can view the initiatives of our Union's Executive Committee in asking for a history of the IUGS. INHIGEO member Cecil Schmeer (USA) has begun work on this task. Of equal importance is the continuation and expansion of the international "big bibliography" on the history of the geological sciences by INHIGEO member W. A. S. Sarjeant (Canada).

Third, we can say in closing that interest in the history of the geological sciences is steadily growing. More than 125 colleagues from 35 countries now are members of the Commission on the History of Geological Sciences. During the past three years we have gained new members in Australia, Brazil, China, Colombia, Costa Rica, France, Germany, Japan, Norway, Malta, Peru, Portugal, South Africa, Spain, Turkey, the United Kingdom, the U. S. A., and Venezuela.

It is pleasing to note that many young geoscientists have not only shown an interest in the history of our discipline, but have also done active research in this area.

In 1989 at the IGC in Washington, we oriented ourselves toward increasing work on the history of geology outside of Europe and North America. We seem to have succeeded in this with the INHIGEO symposia in China in 1990, in Japan in 1992, and the upcoming meeting in Brazil in 1993. David Branagan from Australia will be our President for the period 1992 to 1996. New areas of research will be developed through all of these channels.

On the basis of these premises we optimistically look toward future work. INHIGEO has a real chance of intensifying and expanding its effectiveness.

THE NEW INHIGEO BYLAWS

Introduction

Early in January, 1993, a strong majority of the Full Members of INHIGEO voted in favor of the newly revised bylaws. As noted above in the Preface, these bylaws were endorsed, in principle, by the IUGS Executive Committee late in January, 1993. INHIGEO now is working under the new rules in the expectation that the full Council of the IUGS will endorse them at its meeting in Beijing in 1996.

The three main operational changes are as follows:

1. INHIGEO has abolished the distinction between Full and Corresponding members. All INHIGEO members now hold equal rights to vote, to hold office, and to participate fully in the work of INHIGEO.
2. INHIGEO has abolished the requirement that a National Committee of Geology or an Academy of Science must endorse each new candidate for membership. Nominations from national committees will be very welcome but no longer obligatory, because some countries have no such committees at this time or none that are familiar with activities in the history of geology. Henceforth, INHIGEO will accept nominations for new members on the basis of recommendations from their peers plus their record of publications, of meetings convened or attended, papers presented, and other activities serving to advance studies in the history of geology.
3. The new bylaws state that a quorum for election of members or other decisions shall constitute a response from one-third of the INHIGEO members. Decisions will be made by affirmative votes of a simple majority of the quorum, cast by mail ballot and/or ballots submitted at a meeting of the INHIGEO Board. In the belief that every INHIGEO member should play an active role, the bylaws also state that failure of a member to vote on two successive ballots will result in cancellation of membership.

The Bylaws of INHIGEO; Adopted In 1993

1. INHIGEO is a Commission of the International Union of Geological Sciences (IUGS), and it is affiliated with the International Union of the History and Philosophy of Sciences (IUHPS). It is, therefore, bound by the IUGS statutes and bylaws for Commissions of the IUGS.

2. The task of INHIGEO is to promote studies in the history of geological sciences and to stimulate and coordinate the activities of national and regional organizations that have the same purpose. It does so *inter alia* by promoting the holding of national, regional and international symposia and the publication of individual and collective works on the history of geological sciences.

3. Reports on the work performed by INHIGEO and the plans and budget for the following year are to be submitted annually to the IUGS at a date designated by the IUGS Secretary-General. Similar reports will be submitted to the IUHPS.

Structure

4a. INHIGEO consists of a convenient number of geographically representative members, kept at a practical minimum in relation to the nature of its work. The number of members should not exceed eleven from the same country. INHIGEO encourages the formation of national or regional subcommissions.

4b. Members are elected from among scientists and other scholars known for their publications and/or other activities in the field of the history of geological sciences.

4c. The Board of INHIGEO consists of the President, the Vice Presidents, the Secretary-General and the Past President. It is recommended that membership on the Board should circulate among regions and countries as much as possible. The major regions to be represented are: North America, South and Central America, Europe, Asia, Australia and Oceania, and Africa. Candidates are nominated by Board members and elected by the members of INHIGEO, subject to approval by the IUGS Executive Committee and ratification by the Council. The President and the other members of the Board remain in office until the next session of the IUGS Council and are immediately eligible for reappointment once only, or twice if their initial appointment was made between the installation of IUGS Councils.

4d. New members may be nominated by at least one INHIGEO member and one member of the INHIGEO Board, or by a national committee of geology or the history of science. They will be elected at INHIGEO business meetings by ballots cast in advance by mail plus those submitted at the meeting. A quorum for election of members or other decisions shall constitute a response from one third of INHIGEO members. Members are elected to serve until the next session of the IUGS Council, and may be reelected without restriction provided that participation in INHIGEO activities continues. Members should be asked in writing half a year before the expiration of their terms whether they apply for reelection. Failure to apply results in cancellation of membership. Failure to vote on two successive ballots also will result in cancellation of membership.

Functions

5. The Board directs the activities of INHIGEO. The President may delegate his or her powers to one of the Vice Presidents by mutual agreement. The President and the Secretary-General divide the management of organizational and financial matters between themselves.

6. The Board sends information to members by means of an annual Newsletter in English and, if convenient, in another widely read language such as French, German, Italian, Russian or Spanish.

7. Business meetings of INHIGEO are held at the time of the sessions of the International Geological Congress, in order: a. to discuss reports on the work of INHIGEO and of any subcommissions of INHIGEO that may be formed, or of other national groups (which have been formed either by free association of historians of the

geological sciences or by appointment by national geological societies or academies of science), and to consider plans for the next term. b. to elect Board members for confirmation by the Council of IUGS, and c. to carry on any other business that may come before the meeting.

8. Business meetings of INHIGEO, or of its Board, can be convened at any time by decision of the Board. It is recommended that business meetings be held in conjunction with international INHIGEO symposia, or if no symposia are given, at least once in two years.

9. In the Business Meetings of INHIGEO each member present, including members of the Board, has a vote. Members not present at the meeting have the right to vote on mail ballots circulated by the Secretary-General before the meeting, or by a proxy, who shall be designated in advance in writing. A member attending the meeting may serve as a proxy for only one absent member. A motion is considered passed if it has received a simple majority of affirmative votes cast at the meeting.

ACTIVITIES OF THE INTERNATIONAL UNION OF HISTORY AND PHILOSOPHY OF SCIENCE (IUHPS)

The Union consists of two Divisions, the Division of History of Science (DHS) and the Division of Logic, Methodology and Philosophy of Science (DLMPS). Each Division has its own membership and organization and each organizes International Congresses at four-year intervals. The joint activities of the two Divisions include the biennial International Conferences of History and Philosophy of Science.

Division of the History of Science (DHS)

During 1992 the Division supported five international conferences:

- 1) The 3rd Latin American Congress on History of Science and Technology, 12-16 January.
- 2) A conference on "Time and Astronomy at the Meeting of Two Worlds," Warszawa, Poland, 27 April-May 2.
- 3) A conference on "Acceptance of Mendel's Theory in Different Countries," Brno, Czechoslovakia, 20-22 July.
- 4) "International Conference on the 100th Anniversary of Li Yan and Qian Baozong," Beijing, China, 21-23 August.
- 5) XIIth Scientific Instrument Symposium, Edinburgh, UK, 7-11 September.

The main activity in 1993 will be the XIXth International Congress of History of Science, held in Zaragosa, Spain, 22-29th August.

The secretary of the Division, Professor Tore Frängsmyr, is also the Secretary-General of the IUHPS in 1992-1993; his address is: Office for History of Science, Box, S-751 05 Uppsala, Sweden. Fax: 46-18-108046.

Tore Frängsmyr

NOTICES OF GENERAL INTEREST TO HISTORIANS OF GEOLOGY

Geological Society of America Penrose Conference: *From the Inside and the Outside: Interdisciplinary Perspectives on the History of the Earth Sciences* San Diego, California, 19-21 March 1994

The goal of the conference is to bring together people who write on the history of the earth sciences to discuss key methodological issues arising out of the different approaches taken in this field. A basic premise of the conference is that a deep schism separates the "insider" and "outsider" perspectives in the history of the earth sciences. The scientist-historian finds it difficult to comprehend how anyone who is not an earth scientist can grasp the history of the discipline without mastering it, or understand the internal dynamics of earth science research without taking part in it. Conversely, the historian of science is inclined to believe that scientists lack an appropriately historical outlook and have not learned how to frame historical questions or use historical materials. Scholars in other disciplines (e.g., sociology, philosophy) are also critical of earth scientists' efforts at humanistic interpretation of their own discipline.

Although there is some recognition of basic common interests between "insiders" and "outsiders," most observers realize that these constitute two rather distinct communities. The earth scientist-historians write primarily for other scientists, using the language and analytical forms of the sciences and prefer to publish in scientific journals. Historians, sociologists, and philosophers use assumptions, methods, and terminology that are often unfamiliar to scientists and usually publish in their own professional journals. These divisions, while perhaps somewhat unavoidable, are currently deeper in the writing of history of the earth sciences than in the writing of the history of physics or of biology. This "insider-outsider" dichotomy is ironic, given that one of the primary purposes of historical investigation is precisely to bridge this gap. One recent authoritative restatement of this purpose, the National Academy of Sciences publication "On Being a Scientist" (1989), called for renewed attention to historical examination of science as a way of integrating social and personal values with the scientific process.

This Penrose Conference aims to assemble "insiders" and "outsiders" for robust and candid exchange on central issues in advancing historical understanding of the earth sciences. Emphasis will be placed on such issues as the purposes, methods, and analytical processes of research and presentation in the history of earth sciences, with participants from either side gaining insight and appreciation of viewpoints different from their own. Prospective participants should include, of course, not only persons already actively engaged in research in the history of the earth sciences, but also others thinking of entering the field. Thus, graduate students and persons with recent PhDs in the earth sciences or in history, philosophy, sociology, or other disciplines are particularly invited to apply (some financial support may be available to defray expenses).

If you would like to attend, please contact one of the convenors, who will send more detailed information and application materials.

Application Deadline: 1 November 1993

Convenors:

Léo F. Laporte, Earth Sciences Dept., Univ. of California, Santa Cruz, CA 95064
Tel. 408-459-2248; Fax 408-459-3074; E-mail: laporte@cats.ucsc.edu

Naomi Oreskes, Earth Sciences Dept., Dartmouth College, Hanover, NH 03755
Tel. 603-646-1420; Fax 603-646-3922; E-mail: naomi.oreskes@mac.dartmouth.edu

Kenneth L. Taylor, History of Science Dept., Univ. of Oklahoma, Norman, OK 73019-0315
Tel. 405-325-2213; Fax 405-325-2363; E-mail: aa0214@uokmvsa.bitnet

Conference to Commemorate the 500th Anniversary of Georgius Agricola
Chemnitz, Saxony, March 25-26, 1994

On March 25th, the scientific program will open with a lecture by Hans Prescher of Dresden on "Georgius-Agricola, a Saxon Humanist of European Significance." The following talks will be given in a plenary session:

"On the Development of Applied Science from the 16th to the 20th Centuries," by Wolhard Weber of Bochum.

"Georgius Agricola and the Intellectual Milieu of his Time," by Günther Wartenberg of Leipzig.

"Agricola from the Viewpoint of Foreign Countries: Respectives and Retrospectives," (speaker unnamed).

Separate sections will discuss five topics: 1) Agricola in Medicine, Pharmacy and Natural Science; 2) Agricola and the Educational and Cultural Matters of his Time; 3) Agricola as Diplomat and Politician; 4) Agricola and Technology; 5) Agricola as an Observer of his Time.

On Saturday, March 26th, the Georg-Agricola Society will hold its annual meeting, working groups will meet, and participants will have opportunities to view the Agricola exhibition and to take excursions to Freiberg, with its historic Bergakademie, and to the silver mines of the Erzgebirge.

For information, contact: Technische Universität Chemnitz-Zwickau, AGRICOLA-Ehrung, Postfach 964, 0-9010, Chemnitz/BRD; Fax: (0371) 668-342.

The Earth, the Heavens, and the Carnegie Institution of Washington: Historical Perspectives after Ninety Years

Over 150 historians and scientists gathered in June 1992 at the Carnegie Institution of Washington for a three-day symposium with the above title. In more than 25 papers, presenters examined the activities of geochemistry and astronomers at the CIW since it was founded in 1902. Papers considered historical studies of a wide range of geo/space sciences, from petrology and isotope geochemistry to geomagnetism and ionospheric physics. Speakers also discussed the institutional context of the founding and administration of the Institution's departments: the Department of Terrestrial Magnetism, the Geophysical Laboratory, and the Mount Wilson Observatory. Special perspectives were provided on the experiences of women researchers at Mount Wilson, on CIW-sponsored expeditionary science (including Roald Amundsen's Northwest Passage voyage, and submarine gravity research by Vening Meinez in the 1920s), Vilhelm Bjerknes' meteorology, the CIW's international relations, and post-World War II work in explosion seismology, isotope geology, paleomagnetism, and high pressure research. The symposium also included discussions of archival resources at the CIW and for the history of the geo/space sciences generally. An exhibit of historic scientific instruments, manuscripts, and old photographs of CIW scientists and research projects provided another dimension. Taken altogether, these presentations constitute one of the most concentrated symposia ever on the history of the geo/space sciences. It convened a most productive mix of scholars. It connected historians with scientists, producing several oral history interviews. It resulted in the transfer of manuscript collections from private hands to the CIW archives. And lastly, it focused attention on the roles of the Carnegie Institution in the formation of twentieth-century geo/space science.

The proceedings of the symposium, with other contributed papers and commentaries, will be published as the next special volume of the American Geophysical Union series *History of Geophysics*, 1993. The symposium was funded by the Carnegie Institution of Washington, under the auspices of the History Committee of the American Geophysical Union. The program was coordinated by Gregory A. Good, and many individuals at the CIW oversaw local arrangements. For abstracts and further information contact Gregory A. Good, Department of History, West Virginia University, Morgantown, WV 26506.

Gregory A. Good

Activities of the History of Earth Sciences Society (HESS)

The History of the Earth Sciences Society, founded in 1982, held its first meeting in 1992 in Troy, New York. The meeting was organized by Dr. Gerald M. Friedman, of Brooklyn College and the City University of New York. Facilities of the Rensselaer Center for Applied Geology, operated by Dr. Friedman, were made available for the sessions. The Northeastern Science Foundation, Inc. provided financial support.

Participants from several countries heard formal presentations, took part in informal discussions, and profited from an all-day field trip on Friday, 31 July. On the first day, the group visited the RiverSpark exhibits in Troy, "where water ignited the Industrial Revolution" in the United States. That evening the Friedmans hosted a gathering at their home, featuring a display of letters and books by Hutton, Werner, William Smith, Lyell, Darwin, Amos Eaton, and other luminaries in the history of geology.

Papers were presented on the development of the geosciences in Canada, the United States, Europe, and Brazil. One session focused on the rich history of the Canadian Geological Survey, which had just celebrated its 150th anniversary. A second set of papers looked at "The Transatlantic Link," including contributions of Agassiz and Lyell, the North American collections of Sir Hans Sloane, the work of Johannes Walther and Amadeus Grabau, and the 1918-1924 quest for oil in England. Three papers discussed the Canadian/Brazilian linkages forged by Charles Hartt (1840-1878). In the general session on Saturday, subjects ranged from individuals such as William Maclure, Mary Griffith, and Florence Bascom and her circle, to historical elements in the Cretaceous-Tertiary boundary debate and aspects of teaching a college course in the history of geology.

On Friday, 31 July, Dr. Friedman led the group on a field trip in and around Troy, New York, to sites made famous by geologists and industrialists in the region. The Troy area was not only an important center of the Industrial Revolution in the USA, it also served as the base for such geologic pioneers as Amos Eaton, Ebenezer Emmons, James Hall, and others. In addition to visiting sites associated with those individuals, we toured a museum dedicated to "industrial archaeology" and saw noteworthy field examples of sedimentary structures, sequence stratigraphy, and Devonian stratigraphy.

The success of the meeting led the participants to plan a second annual meeting which was held in Missoula, Montana, in June 1993. The Pacific Division of the American Association for the Advancement of Science will co-sponsor the 1993 meeting. A report of that meeting will appear in *Newsletter No. 26*.

Kennard Bork
Secretary, HESS

Progress Report on the History of the International Union of Geological Sciences

INHIGEO member Cecil Schneer has completed his text of *Geologists at Prague*, an account of the breakup of the 23rd International Geological Congress at Prague when Soviet tanks invaded that city on August 20th, 1968. Dr. Schneer would appreciate hearing from anyone who could lend him photographs of the Prague invasion. He also would welcome suggestions on a publisher for this monograph, which will run to about 120 printed pages. *Geologists at Prague* is Part II of a history of the IUGS to be written in three parts, each of which can be published separately. Dr. Schneer currently is working on Part I, which treats the founding and the first eight years of the IUGS. He would appreciate hearing from anyone who has information or photographs on this subject. His address is: River Road, Newfields, NH, 03856-0181, USA. International Fax: (1) 603-862-2649.

Facsimile Edition Available of Book by John Farey, 1811

The facsimile edition is available of Volume I of *Agriculture and Minerals of Derbyshire* by John Farey, 1811, 532 pages. In addition, there is a biographical introduction entitled *John Farey (1766-1826) an unrecognized polymath*, and a bibliography of his writings which range through agriculture, geology, mathematics, music, and politics, by Trevor D. Ford and Hugh S. Torrens.

Farey's Volume I included the first published version of William Smith's stratigraphic sequence. The reprinted version is available from the Peak District Mining Museum, Matlock Bath, Matlock Derbyshire DE4 3NR, U.K. at 27.50 pounds sterling plus 2.50 postage by surface mail.

Trevor Ford

Reprints Available of "The Meteorite of Ensisheim: 1492 to 1992"

by Ursula B. Marvin, *Meteoritics* Vol. 27, No. 1, p. 28-72, 1992

This article traces the history of the 280-pound stone that plunged into a wheat field outside the gates of Ensisheim, in Alsace, on November 7, 1492 and still is housed in the Museum at Ensisheim. It was the earliest witnessed meteorite fall in the West from which pieces are preserved. The stone gained immediate and widespread fame by falling in the path of King Maximilian, heir apparent of the Holy Roman Emperor Friedrich III, as he was leading his army to battle against the French. His advisors declared the stone to be a favorable omen for the King and he instructed the people of Ensisheim to preserve it intact in their parish church--an act which accounts in large part for its survival. Sebastian Brant memorialized the event in poems printed on broadsheets headed by dramatic woodcuts. Albrecht Dürer depicted the exploding fireball in an oil painting and an engraving; Diebold Schilling illustrated the fall of the stone in ink and tempera color, and other artists used watercolors and and pen and ink sketches. After being regarded as an act of God from the 15th through the 17th centuries, and as an object of vulgar superstition in the 18th century Age of Enlightenment, an inaccurate chemical analysis performed in 1800 prevented the Ensisheim stone from being among the first meteorites to become widely accepted as authentic natural phenomena.

Reprints with color plates are available, while they last, from Ursula B. Marvin; address on Page 1.

Copies Available of the *Centennial History of the Geological Society of Washington, 1893-1993*

An attractive, highly informative and very readable *Centennial History of the Geological Society of Washington, 1893-1993*, edited by Eugene C. Robertson, chronicles the origin and evolution of a key scientific society over the past 100 years. It was published in paperback by The Geological Society of Washington in 1993; 165 pages, figures, illustrations, tables. For copies, (purchase price, \$10.00) write to The Geological Society of Washington, c/o Mineralogical Society of America, 1130 17th Street, NW, Suite 330, Washington, D. C. 20036. A review of this book will appear in *INHIGEO Newsletter No. 26*.

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 regret that communications with some of our regularly reporting members failed this year. Dr. Malkhassian, in Armenia, sent a message by a relative who traveled to New York saying that no mail was entering or leaving his country. He asked for news via his relative but gave no report for this *Newsletter*. All notices to Professor Mekhtiev in Azerbaïdzhân were returned by the postoffice. No reports have come from our members in the new republics of eastern Europe or the former Soviet Union. We wish them all well and hope soon to see an end to these disturbed times.

AUSTRALIA 1992

The Earth Sciences History Group of the Geological Society of Australia, which publishes two newsletters each year, organized a successful session of papers and a one day field excursion at the 11th Australian Geological Convention in Ballarat, Victoria, in January, 1992. The volume of memoirs of Professor Alan Voisey "Sixty years on the Rocks" was launched at the Convention, which honored the work of Professor S. Warren Carey in a special symposium in which historian of science, Homer Le grand, was one of the keynote speakers. The Group held a weekend meeting to commemorate the centenary/bicentenary of the death of Richard Owen and the birth of Thomas Mitchell, and their important work on Australian vertebrate fossils. The proceedings of this meeting have been published by the Royal Society of New South Wales.

The Specialist group for Solid Earth Geophysics (Chairman F. E. Lilley) of the Geological Society of Australia held a special meeting in May, 1992, in Tasmania to commemorate (and re-enact) the first geophysical measurements made in Australia by the French D'Entrecasteaux Expedition in 1792.

The annual meeting of the Australian Association for the History, Philosophy, and Social Studies of science, held at the University of New South Wales in July, had an excellent symposium on the History of Geology.

Considerable research is being undertaken on the history of the earth sciences. In preparation are volumes on the Australian Geological Survey Organization, the South Australian and Western Australian Departments of Mines, and on the work of Reverend W. B. Clarke and other pioneers.

Enthusiastic work is now being undertaken in New Zealand, where the History group of the Geological Society publishes a regular newsletter edited by Alan Mason.

David Branagan

As noted above in the Preface and the report on the Board Meeting at Kyoto, David Branagan was elected as the President of INHIGEO for 1992-1996. Since the founding of INHIGEO in 1967, Branagan is the first President from outside Europe, and his election demonstrates the Commission's efforts to become more global in its membership and activities.

UBM

Professor Thomas George Vallance (1928-1993)

Tom Vallance, a founding member of INHIGEO who served as its Full Member for 22 years, from 1967 to 1989, and as a Vice-President for 13 of those years, died in Sydney on March 7, 1993, after a heroic battle with cancer. Although severely disabled and frequently in pain, he continued to pursue his research interests. Shortly before he died, Tom received word from the Geological Society of London that he was the recipient of the Sue Tyler Friedman Medal for 1993. We may hope that this honor brought him a well-earned sense of pride in his outstanding contributions to the history of geology. A report on the the presentation will appear in *Newsletter 26* for 1993.

AUSTRIA 1992

In a session on meteorite craters at the IGC in Kyoto, Alexander Tollman presented an unscheduled paper on "The Flood Impact," in which he argued that the thousands of accounts of the Biblical Deluge, found worldwide in 72 languages, refer to gigantic tsunamis, accompanied by earthquakes and wildfires, that followed the catastrophic impact of seven large fragments of a comet which plunged into the oceans at the beginning of the Holocene. Eyewitness accounts, deeply embedded in myths, describe a "long impact night" and other disasters currently ascribed to the impacts at the end of the Cretaceous. This theme is outlined in "Der Sintflut-Impact (The Flood Impact)" by Edith Kristan-Tollman and Alexander Tollman (1992) *Mitt. österr. geol. Ges.* 84, pp. 1-63; in German with an English summary. A book on the subject is in press.

UBM

BRAZIL 1992

Events

An event of major importance for the development of the history of the geological sciences in Brazil occurred in 1992 during the 37th Brazilian Geological Congress in São Paulo, December 9-15, organized by the Brazilian Geological Society (SBG): for the first time since its foundation, the Society included a special one-day Symposium on this subject. Coordinated by Dr. Silvia Figueirôa, ten papers were presented, mainly on the history of geological sciences in Brazil and other parts of Latin America. In order of presentation, the papers were by R. Pereira; H. Roeser, K. Schurmann, H. J. Tobschall and J. Evangelista; J. Alves; I. F. Machado; J. C. B. Santana; S. F. M. Figueirôa; M. M. Lopes; W. R. Brice; P. W. Gonçalves, and M. B. Carvalho. Special themes included the development of iron metallurgy and Brazilian industrial modernization, Brazilian museums of natural history, and some theoretical aspects of the development of geological sciences.

The Symposium ended with a fascinating paper on the "History of Dinosaurs" by Hugh S. Torrens of the U. K., one of INHIGEO's Vice-presidents. The conference proceedings will be published in Portuguese in the scientific journal of the Institute of Geosciences (Cadernos IG-UNICAMP). The other papers are scheduled to appear in QUIPU (the Journal of the Latin-American Society on the History of Science and Technology).

This Symposium served as preparation for the XVIIIth INHIGEO Symposium to be held in Campinas and Ouro Preto, July 19-25, 1993.

Membership

A new Corresponding Member from Brazil, Maria Margaret Lopes of the Institute of Geosciences at the University of Campinas, was elected during the 29th IGC at Kyoto in 1992. Since 1988 she has been actively working on the history of geological sciences in Brazil, focusing especially on the development of Brazilian museums of Natural History, from the 18th to the 20th century.

Publications

As one of the results of a scientific exchange agreement between the Universität Rostock in Germany and the Universidade de Campinas, Brazil, a special volume (No. 21) was issued of the scientific journal *Wissenschaftliche Zeitschrift* dedicated to the history of sciences in Latin America. Edited by Martin Guntau and Silvia Figueirôa, the volume discussed the 500th anniversary of the discovery of the Americas by Europeans. It included contributions by 12 Latin-American and German historians of science.

Other publications include:

Brice, W. R. and Figueirôa, S. F. de M. (1992) "Hartt, Agassiz, and Pleistocene glaciation in Brazil." In *Abstracts with Programs, Geological Society of America* 24, No. 7, p. A38.

- Figueirôa, S. F. de M. (1992) "Science in the home land: the adaptation of foreign models and the construction of a Brazilian scientific 'agenda' (1840-1870)." In: *Cong. Internat. America 92*, São Paulo and Rio de Janeiro. Resumos..., São Paulo, p. 105. (in Portuguese).
- Figueirôa, S. F. de M. (1992) "Brazilian-Canadian connections via USA: Charles Frederic Hartt and the Geological Commission of Brazil (1875-1877)." *Northeastern Geology*, Troy, **14**, No. 4, p. 266.
- Figueirôa, S. F. de M. (1992) "Different uses of photography: comparing the Geological Commission of Brazil and the Geographical and Geological Commission of São Paulo." In: *Geol. Soc. Amer. Abstracts with Programs*, Cincinnati. **24**, No.7, p. A126.
- Figueirôa, S. F. de M. (1992) *Science in the search for the "Eldorado": the institutionalization of geological sciences in Brazil (1808-1907)*. São Paulo, FFLCH/USP, Ph.D. Thesis in Portuguese.
- Figueirôa, S. F. de M. (1992) "Scientific associations in Brazil: the "Brazilian Historical and Geographical Institute" as an institutional locus for natural sciences during the 19th century." *Interciencia*, Caracas, **17**, No. 3, p. 141-146 (in Portuguese)
- Figueirôa, S. F. de M. (1992) "Teaching and professional formation for mining in Brazil, from the end of the 18th to the beginning of the 20th century." In: *Cong. Latinoam. 3, and Cong. Mexic. Hist. Ciencia Y Technol. 3*, Mexico. p. 60. (in Portuguese)
- Lopes, M. M. (1992) "Aspects of gender relations in the history of sciences in Brazil." Campinas, *Cadernos IG-UNICAMP*, **2**, No. 1, p. 90-107, (in Portuguese)
- Lopes, M. M. (1992) "Brazilian museums of natural history and international exchanges in the transition to the 20th century." In: Petiejean, P. (ed.) *Science and Empires*. Boston, Kluwer Acad. Publ., p. 193-200.
- Lopes, M. M. (1992) "Brazilian natural history collections sent to Portugal in the second half of the 18th century." In: *Internat. Cong. The Exploration and Opening up of America as Mirrored by Natural History*, Vienna, 1992. Abstracts, p. 15.
- Lopes, M. M. (1992) "Change the women or change the sciences." São Paulo, *Informativo Mulher & Meio Ambiente*, **5**, p. 3-8, (in Portuguese)
- Lopes, M. M. (1992) "Charles Frederic Hartt's contribution to the Brazilian museums of natural history." *Northeastern Geology*, Troy, **14**, No. 4, p. 261.
- Lopes, M. M. (1992) "The sciences in the museums: natural history, European travellers and the different conceptions of museums in Brazil by the end of 19th century." In: *Cong. Int. America 92, São Paulo and Rio de Janeiro*. Resumos..., Sao Paulo, p. 148 (in Portuguese).

Silvia F. de M. Figueirôa
Maria Margaret Lopes

CANADA 1992

Two birthyear celebrations kept Canadians in a festive mood in 1992. The Geological Survey of Canada, a government agency founded in 1842, was 150 years old. The Dominion of Canada commemorated its 125th year of confederation.

If this appears to be a strange case of a child being older than a parent, and therefore worthy of a front page headline in a tabloid, so be it. Let me assure non-Canadians that there is a rational explanation, but one that schoolchildren need years of history classes to grasp. Fortunately, we have to concern ourselves here with the

history of the earth sciences and therefore will pay attention only to the Geological Survey of Canada, known as the GSC (the letters are pronounced).

Through several means the Survey (another shortened version of the official name but one that is widely understood and not only by geologists) used the opportunity of its celebration to bring the organization to the public's attention. Often the basic message -- that Canadians all across the country had benefited from the exploration and investigation of its geological resources by the GSC -- was directed to students in schools and universities.

Metal buttons with crossed geological hammers superimposed on the map of the country and surrounded by the words CANADA Geological Survey-Commission Géologique 1842-1992 (the anniversary logo) were made freely available. So were large, colorful posters with a striking portrait of Sir William Edmond Logan (1798-1875), the Survey's first director from 1842 to 1869.

A short history -- *No Stone Unturned. The First 150 Years of the Geological Survey of Canada* -- was also published. This 52-page booklet by Christy Vodden is freely available as long as supplies last. Anyone interested in obtaining a copy should direct their request to Dr. Charles H. Smith, Coordinator, 150th Anniversary Coordination Office, Geological Survey of Canada, 601 Booth Street, Ottawa, ON, K1A 0E8 Canada.

Also several meetings were held and lectures given dealing with the history of geology in Canada over the last 150 years. Among these were a Symposium in Ottawa (Future Research Trends in Earth Science) and papers or posters presented at conventions of national and international organizations such as the Geological Association/Mineralogical Association of Canada, the American Association of Petroleum Geologists, (the 1992 annual meeting of which was held in Calgary) and the 29th International Geological Congress in Kyoto, Japan. Some of these presentations will no doubt be published during the coming year. Of particular interest to members of INHIGEO is a forthcoming issue of *Earth Sciences History* which contains some papers read at a meeting held in Troy, New York, and which included a program on the history of Canadian geology.

Besides these scientific activities, the artistic side of geology was also brought out. An exhibit in Ottawa featured water colours by Sir William Logan, together with instruments he used and documents he prepared.

Unsolved questions remain in much historical research, as anyone working on matters of the past known. So it is with "Logan's Silver Fountain." This fountain, "a massive piece with several basins one above the other, engraved with fossil plants, mounted on an ebony base symbolizing a bed of coal, and an inscription plate" (Gordon Winder in *Geolog*, v. 21, pt. 3, 46) was presented to Logan in 1856. Now it is lost without a trace. If you have any leads in this mystery please contact Prof. C. Gordon Winder, Department of Geology, University of Western Ontario, London, ON N6A 5B7 Canada.

By all accounts then the year 1992 has been not only memorable but productive with respect to the history of the geological sciences, even through some problems remain and may reveal their secrets.

W. O. Kupsch

CHINA 1992

The election of Professor Wang Hong-zhen, of the China University of Geosciences in Beijing, as a Vice-President of INHIGEO was ratified by the IUGS Council at its meeting in Kyoto on September 28th. Professor Wang is INHIGEO's first Board member from Asia.

Professor Wang presented a paper at INHIGEO's History of Geology Symposium II-25-1 entitled: *A brief history of geology in East Asia with a special comparison between China and Japan*. He also presented a poster, coauthored with Li Xiang and Zhu Hong, on *Late Mesoproterozoic and Neoproterozoic world tectonic frame and reconstruction of the palaeocontinents*.

At the INHIGEO Board meeting Professor Wang described preparations for the 30th IGC at Beijing in 1996. The Congress will focus on "Continental Geology--natural resources, protection of the environment, hazard reduction, and social development." A preliminary draft of the scientific program indicates that three sessions are proposed on History of the Geosciences: 1. The Importance of Geosciences in the Development of Human Society; 2. The Origin and Practice of Current Chinese Geological Ideas; and 3. The Development of Geoscientific Ideas Since the 19th Century. The Preparatory Office of the 30th IGC invited those interested to submit comments and suggestions before the end of 1992. However, most participants at Kyoto found it difficult to focus on the 30th IGC during the year of the 29th. Although another year now has passed, Professor Wang Hong-Zhen may still welcome proposals from members who wish to convene sessions on special aspects of the history of geology.

UBM

FRANCE 1992

In 1992, Professor François Ellenberger was presented with the Sue Tyler Friedman Medal of the Geological Society of London. Brief versions of the citation and acceptance speeches are given in the Country Report of the United Kingdom.

Three scientific meetings of the French Committee on the History of Geology were held in 1992. Nine lectures with the titles listed below were delivered at the sessions and appeared in the *Travaux du Comité Français d'Histoire de la Géologie*, Volume 5, third series, available in May, 1993.

René Letolle, "La mer d'Aral: découverte et controverses des origines à 1914."

Georges Pichard, "Robert de Paul de Lamanon (1752-1787): entre Théorie de la Terre et Géologie."

Endre Dudich, "Les relations franco-hongroises dans le domaine de la Géologie."

Maurice Lelubre, "Conrad Kilian, géologue et explorateur saharien."

Michel Angel, "Propriétés accidentelles des pierres: couleur, dureté, fissilité, porosité et densité selon Albert le Grand."

François Ellenberger, "Giovanni Arduino (1714-1795): le génial vénitien."

Jean Gaudant, "Hommage à Richard Owen (1804-1892), le Cuvier anglais."

François Ellenberger, "Commémoration du bicentenaire de la naissance de Roderick Impey Murchison (1792-1871)."

Geneviève Bouillet, "Quelques notations géologiques chez Rutilius Namatianus (Vème siècle après J.C.)."

At the end of 1992, the second volume of François Ellenberger's *Histoire de la Géologie* was nearing its completion.

Jean Gaudant

GERMANY 1992

The Symposium "History of the geological sciences in the German Lands" was most prominent among the meetings held. It comprised four days of sessions and excursions in and around Freiberg (Saxony) which were organized by the Working Groups "History of Geophysics" (Chairman: Dr. Buntebarth, Clausthal-Zellerfeld), "History of the Geological Sciences" (Chairman: Prof. Köhler, Regensburg) and "History of Geosciences"

(Chairman: Dr. Schmidt, Freiberg). The number of participants was approximately 70. Other meetings included: "Higher plants in the geological past," held in honor of the 100th anniversary of Walter Zimmermann (Tübingen) at the Museum of Natural Science in Berlin; the Leopoldina Session "On the edition of natural science texts at the time of Goethe;" the 144th General Meeting of the Deutsche Geologische Gesellschaft; a colloquium in honor of the Freiberg mineralogist and geologist O. W. Oelsner (1902-1963); a colloquium in honor of the Greifswald meteorite researcher Emil Cohen (1842-1905) and the Second All-German Humboldt Days in Bad Steben. Members of INHIGEO took part in several of these meetings; thus, Prof. Rudolf Daber (Berlin) spoke about the life and work of Walter Zimmermann at the Berlin Symposium on "Higher plants in the geological past," Prof. Wolf von Engelhardt (Tübingen) reported on Goethe's attitude towards the mineralogical and geological heritage at the Leopoldina Session, and Professor Otfried Wagenbreth (Freiberg) read a paper at the 144th General Meeting of Deutsche Geologische Gesellschaft on the history of the geological investigation of lignite in Central Germany.

German members of INHIGEO also took part in meetings abroad, for instance the XVIIIth INHIGEO Symposium in Kyoto where Prof. Martin Guntau (Rostock) spoke about "Transfers and exchanges of geological ideas in history."

The following exhibitions on the History of Geosciences were held: 1. "Ferdinand Roemer's journey through Northern America (1845-1847)" in the Roemer Museum in Hildesheim. 2. The geological, mining and metallurgical exhibition held in Freiberg on the occasion of a session of *Allantik Brücke e. V.*, 3. "Four centuries of geological collections in Dresden" in the State Museum of Mineralogy and Geology in Dresden, 4. The exhibition "Collection Alphons Stubel" in Münster, and 5. "500 years of gold fever" in the State Mineralogical Collection in München and the Museum of Natural Science of the Humboldt University in Berlin.

On May 2, 1992, the 220th anniversary of Friedrich von Hardenberg (called *Novalis*), the International Novalis Society was founded in Wiederstedt near Hettstedt. The romantic poet von Hardenberg studied in Freiberg in 1797-1799. On the occasion of the foundation of the Novalis Society, Bergakademie Freiberg published Novalis' "Bericht über die Erdkohlenlager von 28 April, 1800" in a facsimile accompanied by a brief commentary and a colored portrait of von Hardenberg as a young man. The original portrait, unsigned and undated, is in Novalis' birthplace, Schloss Wiederstedt. The reprint illustrates von Hardenberg's importance for the geological survey of Saxony.

A call in November 1991 to erect a monument to Alexander von Humboldt in Freiberg was well accepted by the public. In 1992, discussions on the possible place and design of the monument were under way.

Another important milestone was the first issue of the "Nachrichtenblatt zur Geschichte der Geowissenschaften." This new periodical published by Prof. Ewald Köhler (Regensburg) and Dr. Peter Schmidt (Freiberg) presents useful information for all those interested in the history of geosciences, including short reports on related meetings and exhibitions, news of bequests and gifts of scientific documents, information on monuments to geologists in eastern Germany, and stamps related to the geosciences, particulars of scientists, and a little bibliography of articles on the history of the geosciences which were published in Germany in 1990. The publication was very well received, as indicated by written and oral responses. From now on, the "Nachrichtenblatt" will be published once a year. Orders should be sent to Technische Universität Bergakademie Freiberg, Universitätsbibliothek, Abteilung Wissenschaftlicher Altbestand.

In 1992, activities began in preparation for the 500th anniversary of the birth of Georgius Agricola (1494-1555). Among others, celebrations are planned in Chemnitz, Freiberg, Dresden, and Lutherstadt Wittenberg. Those wishing to participate in the celebrations in Freiberg and Dresden should write to Professor Otfried Wagenbreth, TU Bergakademie Freiberg, Institut für Wissenschafts und Technikgeschichte; the contact person for the celebration in Chemnitz is Professor Frieder Naumann, TU Chemnitz-Zwickau.

In Lutherstadt Wittenberg, a colloquium on "Georgius Agricola and the geosciences in the 16th century" will be held in September 1994. Contact address: Diplom-Geologe Olaf Hartmann, Geologisches Landesamt Sachsen-Anhalt, Zweigstelle Magdeburg Freiligrathstrasse 7, and Dr. Peter Schmidt, TU Bergakademie Freiberg, Universitätsbibliothek.

University courses on the history of geosciences in 1992 included "The history of the geological sciences" read in Freiberg by Professor Wagenbreth within the framework of general studies, and a course on the history of geology read by Prof. Wolfhart Langer in Bonn. In the University of Rostock Professor Guntau read a course of lectures on the view of the earth in the history of scientific thinking. The Working Group "History of Geosciences" held its annual meeting in Berlin on June 20, 1992.

The INHIGEO members in the Federal Republic of Germany look upon the Working Group "History of Geosciences" as their national association, so that a "GER-HI-GEO" appears to be unnecessary. There is a close cooperation between this group and the other working groups and societies in Germany which specialize in this field.

Our congratulations go to Prof. Wolfhart Langer of Bonn: the French Committee of Geohistorians has elected him as a non-resident Council member.

In 1992 Professor Helmut Hölder (Münster/Stuttgart) and Dr. Hans Prescher (Dresden) asked for termination of their memberships in INHIGEO. We wish to thank both of them for their extensive work in various fields of the history of the geosciences. Fortunately, these two colleagues will not fully retire: for instance, Helmut Holder has published a historical and anecdotal survey of the role of women in geology and paleontology in Volume 74 of the *Annual Reports of Oberrheinischer Geologischer Verein*, a study of the change of the interpretation of fossils through the centuries in Volume 122 of *Natur und Museum*, and a historical analysis of the role of water in geology in Volume 143 of the periodical *Deutsche Geologische Gesellschaft*. Together with Ulrich Horst and George Fraustadt, Hans Prescher has published "G. Agricola: Briefe und Urkunden" as Volume 9 of the memorial edition in honor of Georgius Agricola issued by the State Museum of Mineralogy and Geology in Dresden.

A noteworthy addition to the literature on the history of the geosciences published in Germany is a special bibliography in No. 2 (1992) of the *Nachrichtenblatt zur Geschichte der Geowissenschaften*. Among the monographs worthy of special mention are the biography of Pallas by Folkwart Wendland (Berlin) announced in INHIGEO Newsletter 24 (1992), and *Der Weg zur Biogeologie: Johannes Walther (1860-1937) - ein Forscherleben im Wandel der deutschen Universität* by Dr. Ilse Seibold (Freiburg i. Br.).

In the preparation of this National Report, I was supported by Prof. Dr. Rudolf Daber (Berlin), Prof. Dr. Wolf von Engelhardt (Tübingen), Prof. Dr. Martin Guntau (Rostock) and Prof. Dr. Wolfhart Langer (Bonn) to whom I would like to express my gratitude.

Peter Schmidt

HUNGARY 1992

The Section for the History of Hungarian Geology of the Hungarian Geological Society held the following five meetings:

In April, I. Dobos spoke on the life and works of J. Sümeghy on the 100th anniversary of his birth, and V. Széky-Fux presented a commemoration of E. Scherf.

In May, L. Hably spoke on the contributions of the paleobotanist, M. Staub, born 150 years ago. G. Csíky read a commemoration of T. Posewitz.

In June, the Section participated in a commemorative session organized by the Hungarian Geological Survey celebrating the 90th anniversary of the birth of A. Tasnádi-Kubacska. Talks were given by L. Kordos, O. Kákay-Szabó, and J. Hála.

In November, C. Széky-Fuz and K. Balogh commemorated Gábor Pantó on the 75th anniversary of his birth. L. Pesty spoke on the mineralogical book published in 1942 by I. Csécsi Nagy. and T. Zelenka gave a short history of state-sponsored geological and geophysical research and exploration in Hungary.

At the final meeting in December, G. Csíky reviewed the activities of the year 1992, and J. Hála discussed the book *Bandat Horst, a Hungarian Geologist in western New Guinea*, published in 1992.

The third "Conference on the Role of Hungarians in Scientific and Technical Progress of the World" was held in Budapest in August. On this occasion, a 687-page biographical lexicon was published under the title, *Hungarians in the History of Science and Technology*. Compiled and edited by G. Csíky, it included a large number of renowned geologists of Hungary in sections written by K. Balogh, G. Bidló, G. Csíky, I Dobos, E. Dudich, J. Hála, A. Kaszap, T. Póka, V. Széky-Fux, and Gy. Vitális.

Publications

G. Csíky (1992a) "Report on the twenty years of activity of the Section for the History of Hungarian Geology." *Annals of the History of Hungarian Geology*, 13, 25-35.

I. Dobos (1992) "Contemporary memories of V. Zsifmondy." *Ibid.*, 37-41.

G. Bidló (1992) "The life and oeuvre of Lázló Tokody." *Ibid.*, 43-46.

V. Széky-Fux (1992a) "The crystallographer Maria Vendl; born 100 years ago." *Ibid.*, 47-48.

G. Csíky (1992b) "F. J. Müller von Reichenstein and the discovery of tellurium." *Ibid.*, 49-56.

G. Csíky (1992c) "J. Pettkó, the first Professor of Geology in Hungary." *Ibid.*, 57-60.

V. Széky-Fux (1992b) "Gy. Szadeczky-Kardoss; deceased fifty years ago." *Ibid.*, 61-63.

Gy. Vitális (1992) "The role of J. Böckh and H. Böckh in Hungarian geology." *Hungarian Geological Survey*, 70 pp.

Gabor Csíky
(Translated by E. Dudich)

ITALY 1992

The following volume of letters has been published showing the development of the ideas of Anton Lazzaro Moro, whose outline of geologic stratigraphy, *De' crostacei e degli altri marinin corpi che si trouovano su' monti*, was published in Venice in 1740.

Baldini, M., Conti, L., Cristante, R., and Piutti, R. (1993) *Anton Lazzaro Moro-Carteggio (1735-1764)*, Leo S. Olschki ed., Firenze, 176 pp.

Giuliano Piccoli

A paper by Ezio Vaccari entitled "Geology and mining in northern Italy between the eighteenth and nineteenth century: the influence of German earth sciences on some Italian scientists," published in English in 1991 (*Rostocker Wissenschaftshistorische Manuskripte*, Heft 20, p. 80-83) was translated into Italian and expanded in 1992 (*Nuncius, Annali di Storia Della Scienza*, Istituto e Museo di Storia della Scienza Firenze, Vol. VII, 93-107). In it, Vaccari shows that the relevance of German mineralogy and mining was fully recognized in northern Italy during the 18th century, for example in the work of such distinguished Italian scientists as Giovanni Arduino and Benedetto Spirito Nicolis de Robilant Malet. Nevertheless, over the turn of the 19th century, the

lithogenic theories of Abraham Gottlob Werner caused an internal division in the Italian scientific community between "vulcanists" and "neptunists." Vaccari analyzes this controversy with particular attention to the Venetian area.

UBM

JAPAN 1992

The hosting of the IGC, with its two INHIGEO Symposia, in Kyoto (reported above in detail) monopolized the time and efforts of our Japanese members in 1992. Nevertheless, they began planning the Centennial Anniversary of the Geological Society of Japan to be celebrated in 1993.

MALTA 1992

On December 13, 1992, INHIGEO member George Zammit Maempel was honored with the award of the M. Q. R. (Medalja għall-Qadi tar-Republika) for distinguished service to Malta. The ceremony was carried out at the Palace in Valletta and the citation, read to the President of the Republic before he pinned on the Medal, stated that Dr. Maempel had "...made outstanding contributions in the field of the paleontology of the Maltese Islands and promoted the advancement of knowledge of local geological sciences and their history." INHIGEO extends its sincerest congratulations to Dr. Maempel.

Ursula Marvin

THE NETHERLANDS 1992

In 1992 the Commission for the History of the Geological Sciences of the Royal Netherlands Academy of Sciences and Arts met three times: on 28 January, 29 April, and 1 October. A meeting place was graciously provided by the Institute for the History of Natural Science of the National University at Utrecht.

Dr. Willem A. Visser, a founding member of the Commission, passed away on the 9th of April 1992. His unfinished manuscript entitled *Nederland van delfstofarm tot delfstofrijk* is being examined by members of the Commission for the possible publication of self-contained parts, such as the contributions to earth science by Simon Stevin (1548-1620).

Towards the end of 1992 Dr. M. J. M. Bless regrettfully advised that his current activities no longer permitted him to be an active member. Membership of the historian Dr. E. W. A. Henssen was proposed to the General Executive Council of the Academy.

The reading committee gave substantial support to Dr. D. R. de Vletter for his project *History of Earth Sciences in Suriname*. Publication of this Memoir, initially expected to occur before 1994, will have to be postponed several months. Attempts to obtain additional funding from the Cultural Co-operation Treaty Netherlands-Suriname have proved unsuccessful so far.

Dr. Henssen completed his manuscript on the history of earth science pursuits in the National University at Groningen (1658-1986). It will be presented by the chairman for publication by the Academy.

The manuscript on the Netherlands Antilles, written by the late Dr. J. H. Westermann, is expected to be ready for printing early in 1993.

E. den Tex, F. H. G. Engelen

In December, 1992, Professor R. Hooykaas wrote that his study on "The Historical and Philosophical Background of Haüy's Theory of Crystal Structure" was in press at the Royal Belgian Academy of Sciences.

UBM

PERU

From INHIGEO member Mario Samamé Boggio we have received a copy of a history of five centuries of silver mining in Peru, which he presented at the XVth World Congress of Mining in Spain. His 33-page paper entitled *La Plata Peruana Sigue Deslumbrando al Mundo (5 siglos de producción)* outlines the development of ideas on geological occurrences and methods of extraction of silver and includes a long table listing the production in kilograms of silver in Peru for every year from 1531 (188 kg) to 1990 (1,761,637 kg). (The total production over that period is given as 109,520,878 kg.) Boggio shows how production varied due to factors such as the promulgation of new ordinances on mining and extraction, discoveries of new deposits, destruction of mines by earthquakes, local uprisings, the redrawing of political boundaries, the introduction of explosives into mining, and many others.

Peruvians also are looking at prospects for the future economic and social development of their country based on the mining industry. In 1989, Dr. Boggio, who is the Peruvian Minister of Energy and Mines, formed a Consulting Commission to examine the developmental possibilities for mining and metallurgical installations and the generation of energy for the two decades: 1990 to 2010. The resulting 84-page document spells out in detail how 64 proposed projects, demanding an investment of 6,970 million dollars, could generate an annual growth rate of 8.5% and multiply fivefold the value of mining production, taking it to a value of 10 billion dollars.

POLAND 1992

In Poland the 500th anniversary of the controversial discovery of America was an occasion to celebrate those persons who contributed to the development of geosciences in our country and on the other side of the Atlantic Ocean. Among them, one of the most eminent was Ignacy Domeyko (1802-1889), often called "The Father of Polish and Chilean Mineralogy." The Polish Society for Latin-American Studies published a reprint of Domeyko's monograph of 1845 "Auracania and Its Inhabitants." To mark the centenary of his death, the Mineralogical Society of Poland struck a medal to serve as the highest distinction for persons in mineralogical sciences. Moreover, in Warsaw a commemorative plate was unveiled and plans were begun for the erection of a monument to Domeyko.

The jubilees of several historians of sciences were celebrated. A. Chalubinska (1902-), author of books on Domeyko's scientific output was nominated as an honorary doctor of Lublin University. Commemorative books were published and a scientific session organized in honor of the 80th birthday of Stanislaw Siedlecki, eminent geologist and initiator of Polish polar expeditions, as well as of 70th birthday of Z. Mikulski, historian of hydrogeology. On the occasion of the approaching 100th anniversary of the birth of Stanislaw Zuber, called the "Father of Albanian Petroleum Geology," Stanislaw Czarniecki has prepared, in Tirana, a biographic exhibition of this Polish geologist, assassinated by the Hodja's communist regime in 1947. During his visit to Albania, Czarniecki delivered a lecture on the life and activities of this geologist and Albanian television showed a film based on this exhibition.

Polish historians of geosciences participated in several international and local scientific meetings. Z. Wójcik delivered a lecture on the activities of Polish geologists in Russia at the Russian-Polish symposium in Kazan, and contributed to the scientific session dedicated to the role of Cistercian, Jesuit, and Piarist monks in the development of geological investigations in Poland.

The Museum of the Earth in Warsaw has organized an exhibition "Geology in Postage Stamps," from the collection of late INHIGEO corresponding member Antoni Laszkiewicz (1904-1980), world-wide expert in philately.

Publications

The *Quarterly Journal of the History of Science and Technology* published the following seven papers on the history of geosciences in Volume XXXVI, No. 4, 1992:

- Brzozowski, A. M. and Wójcik, Z. "Antoni Gawel - the intellectual roots of his historical works" 3-18.
Szulczewski M. "Evolution of research methods in the stratigraphy of the West Carpathian Mts." 19-36.
Czarniecki S. "Cracow geologists' works on the history of geology" 37-52.

- Bieńkowski T. "Precious stones as a subject of historical researches" 53-65.
 Narębski W. "The life and scientific activity of Zygmunt Bosniacki in Poland and Italy" 67-74.
 Brzozowski S. M. "The petroleum industry as a subject of study in Lvov Technical University (until 1918)" 89-98.
 Narębski W. "The XVIIth international INHIGEO Symposium 'Museums and Collections in the History of Mineralogy, Geology and Paleontology' in Dresden 9-15 September 1991" 132-135.
 Czarniecki S. (1992) "The oldest collection of fossils," (translated from R. F. Gekker's posthumous paper in Russian with comment). Bimonthly *Kamienie* Vol. 5, 5-6.

Biographical Dictionaries

- Slabczynski, W. and T. (1992) *Słownik Podróżników Polskich* (Biographic dictionary of Polish voyagers). Wiedza Powszechna Publ. Warszawa, 370 pp. (in Polish)
 Wójcik, Z. (1992) *Polski Słownik Biograficzny* (Polish Biographical Dictionary), Biography of Bronisław Rydzewski, vol. 33 443-446.

Memorial Notes

- Annales Soc. Geol. Pol.* vol. 62 (1). Commemoration of Stanisław Sokolowski (1900-1990) by J. Znosko.
Mineralogia Polon. vol. 23 (1). Commemoration of Jan Łozinski (1920-1991) by W. Narebski.

Wojciech Narębski, Zbigniew Wójcik

SOUTH AFRICA 1992

Gerry Levin and Cornelis Plug continued their research on nineteenth century scientific societies devoted to geology. These are the State Natural Science Association (Potchefstroom 1873-1881), the South African Geological Association (Grahamstown 1888-1892), and the Geological Society of South Africa (Johannesburg 1895 to the present). A geological society which existed for a few years in Graaff-Reinet and of which very little is known is also being studied.

At a conference of the Palaeontological Society of Southern Africa a most interesting poster reported the results of fieldwork combined with a close study of maps and available published information that traced the site where the first dinosaur fossils were discovered in Cretaceous beds on a farm near Alexandria.

The involvement of South African geologists in the Allied war effort in North Africa and the Middle East was described by R. Borchers, who joined the South African Engineering Corps as a soldier-geologist.

Now that South Africa is represented in INHIGEO, various individuals have been contacted with the object of forming an informal group for the study of the history of geological sciences in South Africa.

Publications

- Borchers, R. (1992) "Douglas James Simpson-orbituary." *Geobulletin*, Vol. 5, no. 2, 18.
 Dalry, V.D.C. (1991) "African type-mineralogy: a general review (1938 - 1988)." *Journal of African Earth Sciences*, Vol. 13, no. 3/4, 313-322.
 De Klerk, W.J., Raath, M and Hiller, N. (1992) "The first South African dinosaur? A palaeontological site of historical significance." Abstracts. *7th Biennial Conference of the Palaeontological Society of Southern Africa*, Johannesburg, p. 49.
 Plug, C. (1992) "Scientific societies in South Africa to the end of the nineteenth century." *South African Journal of Sciences*, Vol. 88, 256-261.
 Potgieter, C.T. (1992) "Events which led to uranium production in South Africa." *Geobulletin*, Vol. 35, no. 1, 32-35.
 Willebees (Pseudonym). (1992). "Notes on textbooks by Alex. L. du Toit." *Geobulletin*. Vol. 35, no. 1, 37-39.

Johan Loock

SPAIN 1992

This report on the *Spanish-American Mining Bibliography*, a bibliographical and biographical reference work on Iberian and American mining represents the consummation of an historical investigation drawn out through the past century.

Exactly 100 years ago a number of geologist-mining engineers connected with the Commission on the Geologic Map of Spain (presently the Spanish Institute of Mining, Geology, and Technology), took up an ambitious project under the direction of Academician Manuel Fernandez de Castro to update the Spanish-American "Bibliography," a vast compilation of information (manuscripts, publications, bibliographic and biographical notes) on the development of mining activities and the sciences related to mining in Iberia and America. The work began in 1891 and continued through the following year. It was a laborious effort which took as its point of departure the mining bibliography which had been made up in 1871 by engineers Eugenio Maffei y Ramos and Ramon Rua Figueirôa y Fraga.

Work on this project was interrupted because of a lack of funds for its publication and the death of its backers. Through the efforts of one of its principal collaborators, the Academician Gabriel Puig y Larraz, it was deposited at the library of the Geological and Mining Institute of Spain.

In anticipation of the celebrations of the 500th anniversary of the discovery of America, Professor López de Azcona recommended, as early as 1987, that appropriations be raised to bring the *Bibliography* up to date. Also needed were the services of two Doctoral candidates in Spanish-American history. Thanks to the collaborative efforts of the College of Mining Engineers, the State Society of the 500th Centennial, and various other mineral and metallurgical organizations, the decision was made in 1990 to add two co-authors and to admit as collaborators various Spanish and South-American specialists in the preparation of this first complete bibliographic and biographical reference book on mining and its scientific aspects in America.

The four-volume work was completed in 1992.

Volume I. *Bibliography of Spanish-American Mining: 1492-1892* runs to 486 pages. It presents a bibliography, previously unedited, that was assembled in 1892 for the Geologic Mapping Commission of Spain. It includes 2,156 references, the majority of them on mining and metallurgy with many also on geology, mineralogy, paleontology, geophysics, and related sciences. This work is of singular importance both for the information that it contains and for the inestimable example it provides of the scientific depth of those Spanish and Iberio-American scientists who undertook this compilation in anticipation of the anniversary of 1892.

Volume II. *Bibliography of Spanish-American Mining, Supplement (1492-1892)*. Following the thematic criteria outlined by the initial compilers of the *Bibliography*, this second volume of 386 pages completes their work with 2,219 additional references on mining and geology in Iberio-America. The compilation was accomplished with contributions from more than a dozen Spanish and Spanish-American specialists who intensively searched the principal bibliographic sources of their respective countries. Volume II ends, as does Volume I, with cross indexes that make possible easy and exact access to the work.

Volume III: *Biographies (1492 to 1892)*. As had been projected in 1892, the bibliographic entries are complemented with biographical information on the geologists, mineralogists, mining specialists, politicians, geographers, and others connected with the mining enterprise, who are referenced in the bibliographic volumes. Volume III has 548 pages.

Volume IV. *Bibliography of Iberio-Americana (1893 to 1992)*. This fourth volume adds more than five thousand references to the history of mining and metallurgy in Iberio-America. It is an incomparable example of a contemporaneous bibliography. It is accompanied by a complete series of thematic, geographical, and chronological indices.

As the culmination of a Quincentennial project in bibliography and biography in the fields of mining and its related sciences, this work was presented at a solemn ceremony in the Museum of the Geomining Technological Institute of Spain.

López de Azcona

Historians of geology in Spain celebrated the 500th anniversary of the discovery of America by completion of the *Spanish-American Mining Bibliography*, a project directed by Dr. López de Azcona [see above]. This four-volume compilation of bibliographic and biographic information, in Spanish, is an essential source for information on mining, metallurgical, and geological history in America, Spain, and Portugal. It may be purchased for 18,000 pesetas from the Instituto Tecnológico Geominero de España, Servicio de Publicaciones, Ríos Rosas 23, 28000 Madrid, Spain; Fax: 34-1-442-6216.

Another event linked with the 500th anniversary was an exhibition in Madrid on the theme "Science and Technology during America's Colonization." It displayed maps, drawings, instruments, and other materials from Spain and America that provided a wealth of information on mining in México, Nueva Granada (Colombia), Perú, and other countries.

Dr. Eng. López de Azcona compiled a volume, in Spanish, on *New Granada Mining (1500-1810)* that includes interesting contributions on the mining and metallurgical works performed at about the turn of 19th century by Juan José Elhúyar, a mining engineer, who, with his brother Fausto, first recognized the metal tungsten in wolframite [(Fe,Mn)WO₄] in 1785.

On November 9-14, several organizations in Spain and México combined to celebrate the Bicentennial of the Royal Mining College of México, the first Engineering School in America, founded in 1792 by Fausto Elhúyar. One of its outstanding pupils was Andrés Manuel del Río, a mining engineer friend of Alexander von Humboldt, discoverer of vanadium (then called eritronio or rionio) and author of the *Oritognosia*, the first book of mineralogy published in America (in México in 1795).

A 500th anniversary exhibition at the Botanical Garden of Madrid commemorated José Celestino Mutis, an eminent naturalist, physician, and the director of the "Nueva Granada Expedition," who worked in the silver and emerald mines of Colombia with Juan José Elhúyar.

Additional outstanding events of 1992 included the assembly of the IIIrd Geological Congress of Spain at Salamanca along with the VIIIth Geological Congress of Latin America, 21-26 June, with a section on the history of geology. Several institutions organized a meeting in recognition of the "150th Anniversary of Luis Mariano Vidal," a geologist-mining engineer who initiated important works on geology in Catalonia at the end of the 19th century.

Publicatlons

Ayala-Carcedo, F.J. (1992) "Luis Mariano Vidal, ingeniero de minas-geólogo (1842-1992)." *Industria Minera*.

Jordá, J.F., (1992) "El profesor D. Eduardo Hernández Pacheco y su contribución a la prehistoria de España." *III Congreso Español de Geología*.

Ordaz, J. (1992) "Notas sobre la petrología en España." *III Congreso Español de Geología*.

Pelayo, F. (1992) "Ensayos sobre los métodos de beneficio de amalgamación y de fundición realizados por Juan José de Elhúyar y José Celestino Mutis en Nueva Granada." *Bol. Geol. y Minero*.

Puche, O. y Mata, J.M. (1992) "La enseñanza de la mineralogía y petrología, con especial atención a las escurlas de minas." *Industria Minera*.

Sequeiros, L. (1992) "Las ideas sobre los fósiles del jesuita Miguel del Barco (1706-1790)." *III Congreso Español de Geología*.

Francisco Javier Ayala-Carcedo

A seminar on the "Historia de la Geología" was organized as part of the VIII Congreso Latinoamericano de Geología in Salamanca by the Comisión de Historia de la Geología of the "Sociedad Geológica de España. The chairman of the Comisión is Dr. Jaime Truyols, Universidad de Oviedo, Fac. de Biología/Geología, Arias de Velasco, 33002 Oviedo; the secretary is Dr. Juan J. Durán Valsero, ITGME, Ríos Rosas 23, 28003 Madrid.

Publications

- Sequeiros, L. (1992) "Daniel de Cortázar (1884-1927); un evolucionista muy particular." *Paleontología y Sociedad. Actas VI Jorn. Paleont.*, Granada, pp. 173-181.
- Sequeiros, L. (1991) "Recensión de; Agustín de Betancourt y Molina (1783) Memoria de las Reales Minas de Almadén." Facsimil. C.I.C.Y.T., Madrid, *Llull*, Zaragoza, 14 (26) 331-332, *Geogaceta*, Soc. Geol. Esp. 10, 186.
- Sequeiros, L. (1992) "Lucas Mallada y Pueyo (1841-1921); 150 aniversario de su nacimiento." *Rev. Espan. de Paleontología*, vol.7, no. 1, pp.1-2.
- Sequeiros, L. (1992) "El 'Catalogo General' de Lucas Mallada (1892), un siglo después de su publicación." *Llull*, Zaragoza, vol. 15, no. 28, pp. 157-170.
- Sequeiros, L. (1992) Recensión del; Charles Lyell, "Principles of Geology," reissue of first edition, 1990-1991, 3 vols. Univ. Chicago Press, *Llull*, Zaragoza, vol. 15, no. 18, pp. 228-229. *Geogaceta*, Sociedad Geológica de España.
- Sequeiros, L. (1992) Recensión de; M. M.Lopes y S. F. de M. Figueiróa (1990) "O conhecimento Geológico na América Latina; questões de História e Teoria." Univ. Campinas, SP., 317 pp. *Llull*, vol. 15, no.28, pp. 227-228. *Geogaceta, Enseñanza de las Ciencias*, 10 (1) 105-106.
- Sequeiros, L. (1992) "Lucas Mallada y Pueyo (1841-1921), 'fundador de la paleontología española,' y el 'Catálogo General de las Especies Fósiles' (1892)." *III Congreso Español de Geología*, Simposio de Hist. de la Geología, Simposios, t.I, 589-599.
- Sequeiros, L. (1992) "Las ideas sobre los fósiles del jesuita Miguel del Barco (1706-1790)." *III Congreso Español de Geología*, Simpos. de Hist. de la Geología, Salamanca, Simposios, t.I, 579-588.

Leandro Sequeiros

UNITED KINGDOM 1992

The study of the History of Geology is in a state of some shock in the British Isles these days. Ron Cleavelly (Natural History Museum, London), Gordon Craig (University of Edinburgh), Beryl Hamilton (Rainford, Merseyside) and Trevor Ford (University of Leicester) have all 'retired' from their various higher educational positions and no-one seems to have come forward to continue research in this very marginal field. Trevor, however, remains busy with the Peak District Mines Historical Society, and Beryl is now hard at work on her biography of Charles Lapworth. She also published "'A Geological Blunder,' 1893: A Scientific Storm in a Journalistic Teacup," in *Notes and Records of the Royal Society of London*, 45, 63-77, 1991.

Of those few INHIGEO members left here, John Thackray has been as busy as ever helping the myriad of enquirers both at the Natural History Museum and in the archives of the Geological Society of London. But attempts to organise a new History of Geology group within the same society have so far failed to arouse sufficient interest. John published his fine *Catalogue of the Correspondence, Manuscripts and Drawings of Richard Owen, William Clift and Sir Everard Home in the Owen Collection at the Natural History Museum* in the "Richard Owen Commemoration" volume issued by the Natural History Museum, London, in 1992 (181 pp).

Hugh Torrens published "When did the Dinosaur get its name?" which pointed out that the 'invention' of dinosaurs was on or soon after the very appropriate date of April the first, 1842 (*New Scientist*, 134, No. 1815, 40-44, 1992). But the *Times* newspaper, the *British Association for the Advancement of Science* and the *Natural History Museum* in London (whose inmates clearly read neither our *INHIGEO Newsletter* or the *New Scientist*) all continued to celebrate the wrong date (1841) through 1992 and 1993!

Hugh also published (with M. A. Taylor), "The local geologist 8: the local geological historian" in *Geology Today*, 8, 102-107, 1992.

Hugh's visit to the U.S.A. in the summer of 1992 enabled him to meet several friends in the history of science community and he pays public thanks here for their real kindness in making his visit possible.

1993 will see the visit of the British Association for the Advancement of Science to Keele (Hugh's institution). We hope to arouse a greater interest in the history of geology through sessions on the history of the petroleum industry, and on the "Industrial Revolution." There will be a visit to the Ironbridge Gorge nearby--celebrated as the 'birthplace' of that dreaded industrial revolution.

Hugh Torrens

Sue Tyler Friedman Medal to François Ellenberger, 1992

In 1992, the Geological Society of London awarded the Sue Tyler Friedman Medal to François Ellenberger for his major contributions of a truly international scope to the history of geology. As the virtual founder and current president of the Comité Français d'Histoire de la Géologie he was cited as having done more than any other one person to promote the serious study of the history of geology in the French-speaking world. Along with a distinguished career, which won him honors for his work in fields as diverse as metamorphic petrology and paleontology, Professor Ellenberger developed his strong interest in the history of the earth sciences. In 1988, after many years of archival research, translations of documents from English, German, Italian, and Latin, and personal observations at type field localities, he published the first volume of his *History of Geology* which referenced much previously unpublished material as it traced our science to its 17th century roots. In 1992 his second volume was nearing completion. Meanwhile, in 1990, there mysteriously appeared an anonymous work entitled *18 Unpublished Adventures of Sherlock Holmes*, with certain stylistic similarities to the writings of an eminent French historian of geology.

In response, Professor Ellenberger stated that receiving this great honor would encourage him continue working as long as he is able. He recalled with thanks the many people who had helped him throughout his life. These included his parents, who raised him on a remote mission in southern Africa and introduced him to stones and wildflowers and dinosaur footprints and the value of words and texts; his Professors at the University of Toulouse, two of whom were ardent supporters of the Wegener theory; and the many outstanding geologists who supported his field studies, always encouraging him to formulate his own conclusions regardless of current dogma. Professor Ellenberger spoke of the international fraternity of geologists as one of the consolations for the disappointments of life--one of which is to see academic bureaucracy progressively strangling our profession and inhibiting research. "Notably, one is forbidden to work in more than one specialty," he said. "Perhaps today, Charles Darwin would be in serious trouble." He listed the history of geology as another consolation; one he has pursued thoroughly by reading original texts in their original languages. Admittedly, this is a big strain, but one he has found to be very rewarding. As for those colleagues who may see historical research as something not very serious, "how mistaken they are!" he said, because, in fact, "...the Past is the key to the Present." Rather than rely on our own apparently flawless theories, he pointed out that one should always look for a possible alternative and provide against it--as the real Sherlock Holmes, that great master of inductive science, said long ago.

UBM

(Adapted from *Geoscientist*
1992, Vol. 2, No. 4, 30:32)

Sue Tyler Friedman Medal to Hugh S. Torrens, 1991

(Inasmuch as Torrens, chief correspondent to the *INHIGEO Newsletter* from the UK, did not submit information on his own award last year, we learned of it too late for *Newsletter No. 24* and hereby make up for the oversight.)

In 1991, The Geological Society of London awarded this prestigious medal to Hugh S. Torrens, a specialist in ammonite biostratigraphy, who has authored some 55 papers on the history of geology and geological collections and about 30 more on the history of technology. In all of this work he has sought to place past science and technology in its contemporary context. With a decidedly non-Whiggish eye, Torrens looks beyond the successful "heroes" of science to consider the circumstances of "losers," who often, he finds, had good ideas based on painstaking observations. In numerous cases, he has identified significant contributions of people who have been long over-looked and, in so doing, has corrected many a misapprehension and long-held assumption. Despite his own extensive bibliography, Torrens remains skeptical of counting citations and numbers or kilograms of publications in systems of research appraisal. William Smith, he points out, would have had a very moderate citation index, but he made his discoveries known to everyone who wished for information and his influence has been enormous. Torrens' work on the history of geological collections has made curators more fully aware of the significance of their holdings and prompted efforts to improve their conservation. His researches into the often neglected history of technology have cast fresh light on the course of industrialization, worldwide, over the last three centuries.

Dr. Torrens thanked many of his teachers and colleagues who had alerted him to the excitement of science and of interdisciplinary research. He particularly thanked Gerald Friedman of the Northeastern Science Foundation in Troy, New York, for urging that the history of geology was a worthy subject and enabling the Geological Society of London to thus acknowledge the work of historians of geology. Torrens then spoke of how his attempts to ferry back and forth between the drifting continents of C. P. Snow's *Two Cultures* have not at all succeeded. In Britain, awash in so much history, that history is too often distorted in support of some strange "Heritage Industry" which wants us to view the "good old days" as those "unspoilt by progress." Science, in contrast, continually strives to show that its past is now irrelevant. Thus, study of the history of science becomes an activity suitable for its "ageing members...who have passed the 'philopause.'" As a result, lack of support had forced him in recent years to abandon a major research project on the history of an English engineering firm (founded by a friend of William Smith), and a biography of Mary Anning, the skilled (but also female and provincial) revealer of the fossil wealth of the Lias of Lyme Regis. Historians of science, he said, fare better in the United States where the National Science Foundation regards their discipline as worthy of its support. Torrens always tries to set scientific developments in their social contexts. For example, previous comparisons of the geologic maps of England by William Smith (1815) and George Greenough (1820) have focused on relative scientific strengths and questions of priority. But Torrens pointed out that for producing his map the impecunious Smith spent nearly ten weeks in the King's Branch Prison for debt, whereas Greenough, who enjoyed an immense private income, could live in style while supporting his own map. Greenough's fortune, incidentally, came from sales of "Samaritan Water," his grandfather's remedy for coughs, sore throats, and tooth and stomach aches. Another subject of special interest to Torrens is the process by which, early in the 19th century, geology ceased to be solely the occupation of 'Gentlemen' and started to provide livelihoods for a whole new generation of 'mineral surveyors.' He believes that we have as much to learn from the history of applications and misapplications of geology as from its better recorded history at the hands of 'Gentlemen.'

UBM

(Adapted from *Geoscientist*
1991, Vol. 1, No. 4, 33-34.)

UNITED STATES OF AMERICA 1992

The History of Geology Division, Geological Society of America

The Division Symposium on the theme, *History of the Use of Imagery (Art, Photography, Maps and other Illustrations) in Geological Literature* was held on October 27th. It included an introduction by the convenor, Donald M. Hoskins, and the following eleven presentations:

Thomas E. Pickett: *The Flowering of Geologic Art in W. P. Blake's 1858 "Report of a Geological Reconnaissance in California"*

Conrad Neumann and William B. F. Ryan: *Role of Marie Tharp's Physiographic Diagrams in Setting the Stage for Seafloor Spreading and Plate Tectonic Theory*
 Mark Lawrence Hine: *Block Diagrams as "Ideal Types" in the Work of William Morris Davis, Theorist*
 William R. Brice: *Charles Frederic Hartt (1840-1878) and Illustrations*
 Clifford H. Dodge: *Beyond the Age of Fancy Pictures--the Visual Acuity of the Second Geological Survey of Pennsylvania*
 Silvia F. M. Figueirôa: *Different Uses of Photography: Comparing the Brazilian Geological Commission (1857-77) and the Geographical and Geological Commission of São Paulo (1886-1931)*
 Peter Lessing: *The Rogers-Hotchkiss Geological Maps of Virginia and West Virginia*
 Léo LaPorte: *George G. Simpson's Use of "Visual Language"*
 Martin J. S. Rudwick: *Cuvier & Brongniart (1811): A Decisive Moment for the Visual Language of Geology*
 Naomi Oreskes: *Representation as Reified Belief: William Bowie at the U. S. Coast and Geodetic Survey*
 Kenneth L. Taylor: *Visual Representation in Enlightenment Earth Science: Some Examples from France*

In addition, the History of Geology and the Hydrogeology Divisions cosponsored a theme session on "Discovery in Hydrogeology--Heritage, Wisdom, and Vision," with the following papers:

Pichard R. Parizek: *Hydrology During America's First 500 years and the Future*
 Phillip E. LaMoreaux: *The Birth of a Science*
 Vladimir Litvak: *Early Soviet Russian Hydrogeology, 1920s-1950s*
 Joseph W. Troester and William Black: *Wind as a Hydrogeologic Agent and Cultural Factor in the Lesser Antilles*
 Paul R. Seaber: *History and Evolution of Hydrogeologic Mapping*
 Michael D. Guebert and Thomas W. Gardner: *Soil Macropores: Control on Infiltration, Hillslope and Surface Hydrology on a Reclaimed Surface-Mined Watershed*
 M. J. Neton, J. Dorsch, S.C. Young, and C. D. Olson: *Directional Scales of Heterogeneity in Alluvial Fan Aquifers*
 Jay H. Lehs: *Hydrogeology: Moving from a History of Order to a Future of Chaos*

The Division's technical session included the following seven papers:

William R. Brice and Silvia F.M. Figueirôa: *Hartt, Agassiz, and Pleistocene Glaciation in Brazil*
 Carl-Henry Geschwind: *Microscopic Petrography in the United States 1870-1885*
 Ellis L. Yochelson: *The History of Paleontology of the Ureka District*
 Jack E. Oliver: *History of Science as a Guide to Discovery*
 Barry J. Harding: *Nikola Tesla's Contributions to Geophysics*
 John A. Diemer and Michael J. Collie: *The Age of the Elgin Sandstones--Evolution to a Stratigraphic Debate*
 Mark J. Camp: *The La Rocque Legacy--Ohio State Years*

History of Geology Award to Michele L. Aldrich of the American Association for the Advancement of Science

In 1992, the Geological Society of America presented its History of Geology award to Michele L. Aldrich, of the AAAS. The Award was given in recognition of her outstanding research in the field. However, in his citation, Ellis L. Yochelson made it clear that, inasmuch as the official guidelines list service to the discipline as one of the criteria for choosing candidates, Michele could have qualified on that basis alone. He enumerated some of her many different contributions that have helped to advance the field of history of geology. After completing her PhD thesis on the early years of the New York State Geological Survey--a subject which required much in the way of developing her own ideas and insights--Michele spent a year at the Smithsonian Institution in Washington as an assistant editor of the Joseph Henry papers. There followed two years in temporary positions at various libraries searching for letters of Aaron Burr and unpublished material on women in America. She then joined the AAAS, where she has spent six years as director of a project on Women in Science, two years as an archivist and manager of computer services, and is currently serving as the Director of Information Services. During the same period she spent five years in charge of publicity for the History of Science Society, five years as secretary-treasurer of the Forum for History of Science in America, and ten years as editor of the *GSA History of Geology*

Newsletter. She also served one year as President of the History of Earth Sciences Society. In addition to all these activities, Michele devoted much time and effort to acting as a mentor for young people entering this field.

As an historian, Michele has investigated an impressively wide spectrum of geologists and ideas. The latter include the relationship of railroads to geology, the transfer of the concept of Gondwanaland from the zoological to the geological literature, and changes in science policy from the time of geologist James Hall (1811-1898) to that of President of the United States Harry S. Truman (1884-1972). Her papers have appeared in many different journals, including *Earth Sciences History*, for which she co-edited the issue on "Plate Tectonics and Biogeography," Volume 4, No. 2, 1985. Despite these manifold responsibilities and heavy demands on her time, Michele and her husband, Mark Aldrich, a specialist in economics and history of economics, each has flown thousands of miles between their separate abodes in Texas and Washington, maintaining their classic commuting marriage of 27 years.

In thanking the Division for the honor, Michele pointed out that getting to it had not been a straight road. As an undergraduate at Berkeley in the early 1960s she thought geology would be the perfect major for a student with an interest in science because it required taking all of the other sciences. At the time, however, Berkeley prevented students from early specialization by requiring everyone to take four courses in the humanities and four in the social sciences; history qualified for both categories. She found she preferred history, particularly history of science, to geology, and chose to pursue it in graduate school at the University of Texas at Austin. In the late 1960s, the history of American science had its problems, said Michele. Historians of science regarded early American work as colonial and derivative and judged its innovations to be of less value than those that arose in Europe. However, her advisor, William Goetzmann, taught his students to put American science in its national context, as had already been done for American literature and material culture. In tracking her career later on, Professor Goetzmann wrote that Michele ranks as one of this or any other generation's outstanding researchers.

Michele took six years to write her dissertation (earning for herself the name "chapter-a-year Aldrich"). In the midst of it, she followed her husband to New England and became involved in the women's movement at Smith College. From this experience she developed an abiding interest in the history of women in geology and its many lingering problems. Women appear in early American geology as scientific illustrators: did this indirect entry through socially acceptable "women's work" speed or retard the eventual integration of women into professional, research-oriented geological science? Was the American experience unique--were women as geological collectors more important in England than in the United States? How does the experience of women in American geology compare to that of minority ethnic groups seeking entry to the field? Another subject of serious concern to Michele is the wide gap that separates scientists from historians of science. Historians of science, she said, look to other historians, not to scientists, for validation of their work. On the other hand, she has tried for eight years to bring historical methods of research and analysis to geologists through the History of Geology Division and is disheartened by the many geologists who fail to do so. If they will not learn history, she said, at least they should apply the same canons of evidence and argument that they use in geology. "It is asking little to avoid generalizing from a sample of one, which some geologists have done in extrapolating from a biographical study of one scientist to his or her entire era. It is asking little to check the secondary literature before proclaiming that one has discovered that Darwin was a geologist. These are mistakes the authors would not make as scientists ... or do I presume too much?" Michele concluded her response by declaring that, despite such grumblings, she has observed genuine progress over the years and has found the history of geology to be an endeavor of great instruction and delight.

UBM (adapted from *GSA Today*, Vol. 3, No. 3, 1993, 70-71)

The United States National Committee on the History of Geology

The committee (USHIGEO) is a constituent body of the U. S. National Committee on Geology. Current members of the committee are Michele Aldrich (Washington, D.C.); Robert N. Ginsburg (Miami, Florida); Mott T. Greene (Tacoma, Washington); Donald M. Hoskins (Harrisburg, Pennsylvania); William M. Jordan (Millersville, Pennsylvania); Léo F. Laporte (Santa Cruz, California -- committee secretary); Daniel F. Merriam (Wichita,

Kansas); Naomi Oreskes (Hanover, New Hampshire); Ronald Rainger (Lubbock, Texas); Martin J.S. Rudwick (La Jolla, California); and Kenneth L. Taylor (Norman, Oklahoma -- committee chair).

A major current activity of the committee is preparation for a Penrose Conference on the History of the Earth Sciences, with sponsorship of the Geological Society of America, to be held in March 1994. (See the announcement on Page 13).

At its annual meeting in October 1992 the committee approved in principle a subcommittee report on a possible history of geology center: "Center for the History of the Geosciences -- a Proposal." This report, prepared by a subcommittee headed by Dr. Anne Millbrooke, favors establishment of such a center. It remains to be seen, of course, whether this recommendation can be translated into a reality.

Kenneth L. Taylor

Geological Society of America Memoir 180, "Eustasy--The Historical Ups and Downs of a Major Geological Concept" Edited by Robert H. Dott, Jr. (in press) 1992.

Eustasy, or worldwide change of sea level, is a significant and complex concept, which had its historical beginnings in the flood myths of ancient civilizations. Seventeenth century sacred theories sought geologic evidence of Noah's flood, and 18th century thought was dominated by neptunism's one-way eustatic fall. Nineteenth century geologists favored either repeated vertical movements of the Earth's crust or of sea level. After years of study, scientists today realize that isolating an unambiguous eustatic signal from tectonic crustal changes is even more complicated than had ever been imagined. Understanding eustasy is important because possible greenhouse warming predictions warn of a sea-level rise of as much as 30 meters due to the melting of the remaining Antarctic and Greenland ice sheets.

Although eustasy has a long history, only recently has there been a revival of interest in it stemming from two event's that occurred during the 1960's and 1970's. The Deep Sea Drilling Program provided abundant evidence supporting the Croll-Milankovitch theory of orbital forcing as a major cause of glaciations, of which eustatic changes are an important consequence. Simultaneously, the growth of seismic sequence stratigraphy provided compelling evidence of the apparent synchronicity of major packages of strata on many, widely separated continental margins, which also implied many eustatic changes. This convergence of data from two different sources has made eustasy an active research topic in diverse scientific fields such as glacial geology, climatology, marine science, tectonics, stratigraphy, and petroleum exploration.

Because the renewed interest in eustasy is so widespread, the History of Geology Division of the Geological Society of America sponsored a symposium on the history of eustasy at its annual meeting in Dallas, Texas in 1990. Its goal was to educate the geological community on the complex history of the concept, giving geologists a chance to learn from the mistakes of previous generations, rather than to repeat them. This volume presents a record of that symposium.

The nine chapters listed below discuss the history of eustasy, from the 18th century ideas of neptunism, to the 20th century thought of Chamberlin and Grabau as well as the idea of cyclothems, to the modern perspective of sequence stratigraphy. Finally the last chapter ponders the difficulty of distinguishing an unambiguous eustatic signal from others reflected in the stratigraphic record.

- An Introduction to the Ups and Downs of Eustasy (Dott)
- De Maillet's Telliamed--The Diminution of the Sea or the Fall Portion of a Complete Eustatic Cycle (Carozzi)
- Eduard Suess and European Thought on Phanerozoic Eustasy (Hallam)
- T. C. Chamberlin's Hypothesis of Diastrophic Control of Global Sea Level (Dott)
- A. W. Grabau's Embryonic Sequence Stratigraphy (Johnson)
- The Cyclothem Concept in the Illinois Basin -- A Review (Nelson & Langenheim)
- R. C. Moore and Concepts of Sea-Level Change in the Midcontinent (Buchanan and Maples)
- The Acceptance of Modern Sequence Stratigraphy and Its Implications for Eustasy (Vail)
- A Challenge: Is It Possible to Determine Eustasy? (Kendall, Moore, and Cannon)

Robert H. Dott

VENEZUELA 1992

In 1992, the election of Professor Franco Urbani as a Vice-President of INHIGEO was ratified by the IUGS Council at its meeting in Kyoto. This is a very welcome development. Professor Urbani is the first Board member from Latin America, a very large area of the world with rich archives on the history of geology and many able scholars interested in performing research in this field. We look forward to placing much more emphasis on Latin America in the workings of the Commission.

UBM

BOOK REVIEWS

Scenes From Deep Time: Early Pictorial Representations of the Prehistoric World by Martin J. S. Rudwick, 1992, The University of Chicago Press, Chicago and London, xiii + 280 pp. Figures, index.

Depictions of scenes no person can ever really see hold a special fascination. There must be many of my generation, growing up around mid-century -- when space flight still seemed visionary -- who were captivated as I was by Chesley Bonestell's vivid illustrations in Willy Ley's *The Conquest of Space* (1949). Here were grippingly realistic pictures of the Earth from above the atmosphere, scenes of the Moon's surface, Martian landscapes, and closeup views of other planets. Time soon proved mistaken my ignorant assumption that no human being would ever be likely to experience these supra- and extra-terrestrial sights. I wonder now if I am alone in my suspicion that the reality of space travel somehow diminishes a little bit the impact of Bonestell's wonderfully imaginative paintings: The fact that modest numbers of men and women have actually witnessed some of this, and others in due course may well see more, makes these views a shade less fantastic -- they are not, as I had once thought, utterly inaccessible.

While a sense of visual access to what is **spatially** distant is perhaps an apt symbol of our age's popular scientific tastes, the current Jurassic Park phenomenon reminds us that analogous recovery of what is **temporally** remote retains much vitality for the public imagination as well. Martin Rudwick's fine new book is a history of pictorial representations of nature's remote past, when no human witnesses were present. He traces a genre in a sense related to, but older than, the one embracing Bonestell's pictures from space. In fact the analogy between temporal and spatial distance is drawn directly in Rudwick's choice of the phrase "deep time" (for which he acknowledges John McPhee), comparing it explicitly with "deep space." And Rudwick's study convinces the reader that by the 1860s, where his narrative ends, established conventions for scenes from the irretrievable past produced emblems for the era's popular sensibilities about science that functioned no less effectively in their time than space scenes do in ours.

The book that effectively established the genre of scenes from deep time for the general public, Rudwick says, was Guillaume Louis Figuier's *La Terre avant le Déluge* (1863), with a series of illustrations drawn by Edouard Riou. These engaging pictures ranged from the earliest view of "Condensation and Rainfall on the Primitive Globe," through scenes from the major geological periods displaying successive plant and animal forms, to depictions of the "Appearance of Man" and "The Asiatic Deluge" (a cataclysm from the human period to be distinguished from the pre-human "European deluges").

The popular success of Figuier's illustrated book was the culmination of a historical process, Rudwick argues, dating back not just to Henry T. De la Beche's first full-fledged attempt at a scene from deep time (*Duria antiquior*, or "a more ancient Dorset," 1830), but also to earlier traditions of illustration in both natural history (anatomical depictions, fossil animal reconstructions) and historical and biblical narrative (scenes recreated on the authority of textual evidence). In a series of six chapters, Rudwick traces stages in the historical evolution of the genre, from the early eighteenth century to Figuier's 1863 book, and then completes his study with an extended interpretive essay in the seventh chapter.

Rudwick's study is, in a sense, a historical exposition of a set of pictorial conventions, showing links between an evolving tradition of visual representations and the developing social and conceptual frameworks in which they were understood. In common with a good many historians of science (but probably not very many geologists), Rudwick is inclined to regard science itself as a process of socially-constructed knowledge, and this gives his account of developing visual conventions an extra measure of coherence. Most geologically-informed readers may not need to be reminded of the conventional nature of pictorial representation in the earth sciences, but Rudwick's treatment is of a depth and subtlety that should profit everyone who picks up the book.

The illustrations themselves are of course wonderful--from J. A. Pfeffel's engravings of the Days of Creation for J. J. Scheuchzer's *Physica Sacra* or the almost hallucinatory paintings by John Martin, to J. Kuwasseg's sequences for F. X. Unger's *Die Urwelt* and Benjamin Waterhouse Hawkins's wall posters of extinct animals. Equally intriguing are the social dynamics Rudwick analyzes in conjunction with each step of pictorial innovation and adaptation. I was struck in particular by the extent to which authors of successive 19th-century efforts at scenes from deep time copied and adapted from previous examples. Rudwick also emphasizes the interesting point that many geological authors long remained reluctant to incorporate such imaginative scenes centrally into their serious scientific work, evidently out of concern that these visual time-travel excursions might compromise the solidly empirical reputation of their investigations with the taint of speculation.

The volume itself is handsomely done, no minor matter for a study of this kind. The size and format permit very effective presentation of over 100 clearly-produced figures. The illustrations are well coordinated with the textual discussion. A large number of the figures are edifyingly matched, too, with texts that accompanied the original illustrations. All in all this book is a feast for the eyes and the mind alike. It should gain immediate recognition as a pioneering work in establishing the importance of visual materials as indispensable resources for the history of geological science.

Kenneth L. Taylor

James Hutton and the History of Geology by Dennis R. Dean, 1992, Cornell University Press, Ithaca. Appendices, Bibliography, and Index. xiii + 303 pages.

Scarcely a history of geology has ever neglected to mention James Hutton (1726-1797). Two decades ago several of Hutton's geological works (along with a biographical sketch by John Playfair) became widely available in facsimile reprints. Despite these and the familiarity of his name, however, Hutton has often been little understood, and a comprehensive and informed biography has been lacking until now. Dennis Dean furnishes a welcome account of Hutton's geological work that may be confidently recommended to the interested general reader, geologist and historian of science alike.

Dean's account of Hutton's thought is not restricted to the "System of the Earth" abstract of 1785 or the classic "Theory of the Earth" of 1788, nor to the two-volume *Theory of the Earth* of 1795. Nor does he begin with these. Rather, Dean provides a richly-textured chronological narrative, reconstructing the development of Hutton's geological thought on the basis of surviving texts (including datable sections of later works such as the third volume of the 1795 *Theory of the Earth*, which was not published until 1899). The chronological organization admirably succeeds in its portrayal of Hutton's geology as a sustained pursuit involving a combination of theorizing and fieldwork, extending back nearly three decades before the first publication of his "Theory of the Earth" in abstract form.

One strength of the narrative lies in Dean's recognition of the significance of Hutton's medical and agricultural studies for his geological thought. Dean also notes Hutton's debt to certain strands of the Scottish Enlightenment, briefly touching on developments in chemistry and the British empiricist philosophical tradition to which Hutton was closely related. One might wish for a more prominent interweaving of the latter themes, yet Dean's account captures a unity and depth in Hutton's geological thought that illumines his whole corpus and encourages one to open Hutton's works and examine them anew. As a general companion to the reading (or rereading) of Hutton, we have no better guide.

Historians who remember Victor Eyles' attribution of the 1785 "Theory of the Earth" to Playfair will want to note Dean's reattribution, in one of four brief appendices, of the final wording of the abstract to William Robertson. One hopes that in some future publication Dean will defend this hypothesis, here supported by stylistic impressions not clearly specified.

True to the second half of his title, Dean continues the story past Hutton's own publications into the nineteenth-century Huttonian controversies. James Hall, Robert Jameson, John Playfair and others receive informed and judicious treatment in a substantial account that improves on Gillispie's *Genesis and Geology*. The empirical, nonspeculative efforts of the Geological Society of London are considered, along with semipopular works and journals which brought geological developments to a wider audience. Other fine chapters examine specific problems for Huttonian theorists in the first decades of the nineteenth-century, and explore the relation of Hutton's thought to that of Charles Lyell and the writings of Archibald Geikie, among other later figures. All in all, more ink is devoted to Huttonian ideas after Hutton than to Hutton himself.

Overall it is Dean's ambition to restore Hutton's reputation as the father of modern geology, as Geikie put it, and as E. B. Bailey reiterated. This runs counter to a pronounced tendency in recent historiography which has generally de-emphasized the significance of Hutton for the development of nineteenth-century historical geology. Mott Greene has shown that innovative and productive geological theories, on which the Huttonian theory had little effect, were pursued outside Britain. Rachel Laudan has described the dominant framework of early nineteenth-century historical geology as a "Wernerian radiation" driven by the historical turn implicit in Werner's definition of "formation," whose exponents broke new ground not exploited by the ahistorical Huttonian "system of the earth." The significance for Hutton's geological theories of his deistic teleology, his hypothetical methodology, and his Black-Boerhaavian philosophy of heat and solar matter have been excavated by a number of scholars, placing him firmly in a decidedly eighteenth-century context. So the heroic Hutton-Lyell-Darwin succession has broken up in favor of a more-directionalist-than-uniformitarian, more-continental-than-British storyline.

Any argument is strengthened, not weakened, by engaging contrary evidence and surmounting it. Dean indeed notes some of the views of these "revisionist" historians in his last several pages, yet he does not adequately engage them on their own historical ground. What we are offered in the final chapter is rather a relatively non-historical analysis of the modernity of selected Huttonian views, dissected away from their eighteenth-century context. One might say that while Dean's text and bibliography expose a rich vein for Hutton hounds to plunder, intrusions that might diminish Hutton's luster are left safely buried and out of sight.

The above criticisms should not mislead the potential reader. Dean's book offers an excellent survey of Hutton's geological thought and its influence which every university library should purchase and any geologist or historian of science interested in Hutton will find rewarding. The careful reader will even learn from Dean that at least one contemporary British review of recent geology, published by William Fitton in 1818, did not mention James Hutton.

Kerry V. Magruder

Towards New Horizons: John Haller, 1927-1984. Fritz H. Schwarzenbach, Ed., 1992, Verlag der Fachvereine and Schweizerische Stiftung für Alpine Forschungen SSAF, Zürich, 128 pages (in English), 92 illustrations (30 colored).

This handsome volume recounts the various stages in the life and work of the Swiss-born geologist, John Haller, as told by fellow students, professional colleagues, friends, and family members. The personal recollections of eighteen authors are grouped under six headings: From Student to Lecturer at the University of Basel (1946-1957); The Danish East Greenland Expeditions (Leader Dr. Lauge Koch); In service of East Greenland Expeditions, 1947-1964; Professor at Harvard University, Cambridge, USA (1964-1984); His Scientific Work; and John Haller the Person. The editor, Fritz Hans Schwarzenbach, a botanist and former field assistant to Haller in Greenland, explains the book's plan by comparing the effect of many short descriptions by different authors to that of pebbles which combine to form a picture in a mosaic. The book does, indeed, give an

impressionistic portrait of John Haller through the many and varied sketches, which include amusing anecdotes about mountain climbs, cave explorations, and glacier crossings, drawings and watercolors from his notebooks, special maps showing geological correlations, and recollections of his person and spiritual life.

Haller's overriding interest in East Greenland began in the course of his graduate studies at the University of Basel, when he spent a year (1949-1950) with a Danish expedition led by the pioneering explorer, Lauge Koch. Haller received his PhD in 1952, (in the record time of six years) and spent the next six years as staff geologist of the Danish East Greenland Expeditions. In 1957, he began teaching at the University of Basel where he worked on Alpine geology while compiling three massive volumes of the scientific results of the East Greenland expeditions, from their inception in 1926 to 1958. In 1964, John Haller joined the Department of Geological Sciences at Harvard University and remained there until his much too early death in 1984.

Once he was situated in America, Haller extended his range of interests to the structure and petrology of the 2000-mile Appalachian chain and then to the western cordilleras of North and South America. He also began correlating the structures of the Alps with those of eastern Europe and Asia in what clearly was planned as a world-wide synthesis. In the 1970s Haller became widely known as the Harvard professor who opposed plate tectonics. What he actually opposed, however, was not the grand new conception, with which he ultimately became largely reconciled, but the happy-go-lucky way in which many of his colleagues lept onto the bandwagon. His suspicions grew as he watched the liberal application of fudge factors, such as adjustments to the widths of magnetic stripes on the ocean floors to fit with assumed spreading rates: "Procrustes, Procrustes," he would say to his students. And he was appalled when, after reading the logs issued by the deep sea drilling program, he saw news releases which skipped over all the ambiguities and claimed positive evidence of plate motion. Haller maintained a file of the most outrageous discrepancies, fully expecting that there lay ahead a "Watergate of the Earth Sciences."

John Haller was a talented artist and photographer and this book is spiced with his paintings, sketches, maps, and photographs, many of them in color, as well as numerous pictures showing him and his colleagues at work in the field. Each article is fully referenced and the book includes a list of Haller's publications. Much of the information in this book is not available anywhere else.

Arrangements have been made by Mrs. Haller for readers of this *Newsletter* to purchase the book for \$54.00 plus \$5.00 for shipping, (a 10% discount off the list price). Copies may be ordered from: Mrs. Pauline Solomon, Harvard University, Department of Earth and Planetary Sciences, 20 Oxford Street, Cambridge, MA 02138, USA.

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