

DISCUSSION

SPECULATIONS ABOUT THE EARTH: THE ROLE OF ROBERT HOOKE AND OTHERS IN THE 17th CENTURY:

A DISCUSSION¹

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Readers of the paper by Drake and Komar (1983) may find it interesting to refer to a paper by Ranalli (1982), discussing the importance of Robert Hooke in the history of earth sciences and pointing out several of Hooke's strikingly modern insights along lines somewhat similar to Drake and Komar's. While agreement appears to exist on the large role played by Hooke, opinions differ as to the relative importance of Robert Hooke and James Hutton (Drake, 1983; Ranalli, 1983). The matter being debated will not be clarified by ignoring view-points different from one's own.

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SPECULATIONS ABOUT THE EARTH: THE ROLE OF ROBERT HOOKE AND OTHERS IN THE 17th CENTURY:

A REPLY

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The objective of our paper (Drake and Komar, 1983) was to compare the speculations of Robert Hooke (1635-1703) and his contemporaries concerning various theories of the earth, including such topics as tectonism, cycles in nature, the use of fossils, and polar wandering. James Hutton (1726-1797) belongs to another generation and so was not relevant to this specific paper. It is of course interesting to consider how much influence these ideas had on Hutton a century later. But such considerations were published earlier (Drake, 1981) where we offered a number of examples showing that Hooke clearly did influence Hutton's ideas. In a separate journal Ranalli (1982) took issue with our conclusions which in turn invoked a discussion (Drake, 1983) and reply (Ranalli, 1983). We do not believe there is a difference of opinion between Ranalli and ourselves, but if a difference does exist, it is not one of "... the relative importance of Robert Hooke and James Hutton." We have never denied the genius of Hutton and his contributions to geology, only attempted to demonstrate that his ideas were influenced by his predecessors, especially Hooke.

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AMERICAN FRONTIERS: THE PHOTOGRAPHS OF TIMOTHY H. O'SULLIVAN, 1867-1874, 1981, Joel Snyder. Aperture, Millerton, New York, 12546/Harper & Row Co., and other distributors. Hardbound, 8 3/4" x 11", 120 p., \$31.50.

Photography during the days of the U.S. Territorial Surveys continues to hold fascination for Western buffs. O'Sullivan, the photographer first for the 40th Parallel Survey led by Clarence King and later for the Wheeler Survey, was a superb craftsman. As a result of his work during the Civil War under Matthew Brady, O'Sullivan may have been the best trained of the various lens artists who captured the West on film. One wishes that this book contained even more of his work. About half the book is text, illuminated by interspersed photographs which add more color to life in the West during the time of the surveys; it also supplies details of O'Sullivan's earlier work. The life of a commercial photographer was far more difficult a century ago than it is today; for those uninitiated in the history of photography, some information on materials and techniques is included. About 50 photographs and their captions fill the remainder of the book; several panoramic views on facing pages are included.

Obviously this work should be placed alongside the 1974 book on William Jackson by Newhall and Edkins. Both books began as museum displays, supported by the National Endowment for the Arts. It would be folly to compare the work of the two men or to judge who was the more skilled. O'Sullivan died early and never produced the number of photographs that Jackson did. This book will do much to bring his work to general attention. The topography and the reproduction of the photographs are excellent.

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THIRTY SUMMERS AND A WINTER, 1982, Evelyn Mertie. Mineral Industry Research Laboratory, School of Mineral Industry, University of Alaska, Fairbanks, Alaska. Hardcover, 187 p., \$8.75.

THE MEMOIRS OF FRANK REEVES, PH.D., NOTED GEOLOGIST, 1982, Frank Reeves. The Prince Maccus Publishers, P.O. Box 149, Berryville, Virgins. Hardbound, 135 p., price not given.

Many persons used to study geology in school on the assumption that they would spend their careers doing field work. The two books recount the experiences of two who actually did so in the days when the profession was not quite so laboratory oriented. Judging from Reeves' style, his use of Ph.D. in the title is a sly dig at the profession, for he writes in a light vein. "As we retired, Jacober remarked, 'It looks like hell ahead.' I replied, 'It's probably not that bad, and at any rate,

geologists, according to their wives, are always hell-bent for some place their wives are not allowed to go.'"

John B. Mertie, Jr. first went to Alaska in 1911. Between then and 1942 he missed only a single summer. Except for the one winter when he used a dog team, his preferred mode of travel was by canoe. Toward the end of his Alaska stint, he took to hitching rides with bush pilots and hiking between rides. Although he did not do geology in every part of this state, half the size of the old 48, he certainly did cover a lot of the territory! Only a few pages are recorded for each field season; one wishes there was more. During World War II, and for some years thereafter, Mr. Mertie, as his friends in Alaska called him, worked on mineral deposits in the southeastern United States. Physically he was a giant of a man - swimming icy rivers, scaling steep peaks, traversing countless miles of tundra - and all the while making careful geologic observations.

Frank Reeves, Ph.D., used a Ford, and its descendants in his work for a variety of oil companies. He did not get to Alaska, but he was in Europe, Asia, Africa, Australia and South America. During three years of his retirement, he compiled a number of vignettes about where he had been and what he had done, and sprinkled in a bit of poetry for seasoning. It is evident that he, like Dr. Mertie, enjoyed his field work and made light of the hardships. In these books, two classic field geologists tell what they did, and their words reflect the flavor of their lives. They should be read.

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AMERICAN SCIENCE IN THE AGE OF JEFFERSON, 1984, John C. Green. Iowa State University Press, Ames, Iowa, 484 p.

Idolizers of Thomas Jefferson in the United States refer to the period from the achievement of national independence to the 1820's as the Age of Jefferson, obviously because of Jefferson's overriding political and philosophical influence during those years. Jefferson also had a tremendous influence on the science of that time. Whether he himself should be considered a scientist has been a matter of disagreement; Simpson (1942, p. 155), for instance, maintained that Jefferson was not a "research scientist."

But who (or what) was a scientist in America between 1781 and 1826? Greene's fascinating book tells us this, and I conclude that Jefferson was a scientist in his breadth of interest, his eagerness for new facts, and his constant communication with colleagues, both by correspondence and by active participation in organizations such as the American Philosophical Society. Jefferson was typical

of some - but not all - of his contemporaries in his reluctance to erect hypotheses on what he regarded as insufficient data. For instance, he stated that he had never been much interested in geology "from a belief that the skin-deep scratches we can make or find on the surface of the earth, do not repay our time with as certain and useful deductions as our pursuits in some other branches" (p. 227). In this caution he was in agreement with William Maclure, who wrote (p. 234): "The thirty or forty cases of geological specimens, which I thought necessary to support my sketch of our geology --- will, I presume remain unchanged by the mutation of names introduced into theories."

To a small but active group of Europeans and Americans, the unknown flora, fauna and landscape of America presented an irresistible opportunity for learning, and Jefferson regarded such learning as a paramount task for the new country. In 1789 he wrote to Joseph Willard, president of Harvard, concerning studies of natural history: "It is the work to which the young men, whom you are forming, should lay their hands. We have spent the prime of our lives in procuring them the precious blessing of liberty. Let them spend theirs in showing that it is the great parent of science and virtue" (p. 253).

Green's book is in two parts, one geographic, the other topical. After an initial chapter setting American science in context with that of Europe, there are four chapters describing the scientific center of Philadelphia, New England, the Hudson River area, and "Outposts in the South and West," including, notably, Charleston and Cincinnati. The rest of the book consists of nine chapters on the following disciplines: astronomy, chemistry, geography, earth science, botany, zoology and paleontology, physical anthropology, archaeology, and linguistics. A final chapter discusses the end of the Jeffersonian era.

To the earth scientist, three chapters are of particular interest: Chapter 8, American Geography, Chapter 9, From the Theory of the Earth to Earth Science, and Chapter 11, Natural History in a New World: Zoology and Paleontology. The chapters on zoology and geology reflect a significant difference in the thinking of the workers in these disciplines. In zoology, as in botany, the emphasis was on the differences between Europe and America. There was a thriving traffic in American plants to English gardens, as is still evident at Kew and the less known Chelsea Physic Garden, established in the Seventeenth Century by the Royal Society of Apothecaries. Buffon asserted that "nature's productions" on the American continent were degenerate in contrast to those of Europe. This was strongly contested by Jefferson in Notes on the State of Virginia: he published tables comparing the weights of animals of the two continents.

Geologic thought, on the other hand, was influenced by the proliferation of theories of the earth, including those of the Americans Benjamin Franklin and Lewis Evans. Such theories, spurred on by the attempt to reconcile biblical teachings with field observations

provided a framework within which facts could be ordered. Amos Eaton, who, Greene points out, was a transitional figure between the Jeffersonian and Jacksonian eras, based his stratigraphic studies in western New England and New York on the Wernerian classification. He adopted European names for the strata wherever possible, easily accepting the concept of intercontinental correlation (which, we must admit, was made easy by the concept of a universal flood).

Geology, understandably, had a closer tie with practical matters than did natural history; a notable example is Eaton's stratigraphic studies under the patronage of Stephen Van Rensselaer, preparatory to the building of the Erie Canal. Benjamin Sillman, closely associated with Eaton, contributed beyond the bounds of earth science by founding the American Journal of Science. William Maclure merges as a major figure who could not resist plunging into the neptunist-plutonist controversy despite his repeated assertions that geologists should restrict themselves to collecting facts. Workers less well known to us such as Samuel L. Mitchell and Constantin-Francois Chasseboeuf, Comte de Volney, receive their due.

The pattern of thought and motivation that emerges from Greene's study differs from some of our stereotypes about the time. Although the American Philosophical Society and other contemporary organizations stressed the useful arts in their charters, the predominant interest of scientists of the Age of Jefferson was what we now call pure research. And such work was done with little or no prospect of reward. Most scientific workers earned their living in other ways; the few who, like Alexander Wilson, tried to earn their living by their science, were lucky to make ends meet, although Charles Willson Peale was an exception. Few wealthy patrons were to be found in the United States; no "livings," such as those of the Church of England, allowed leisure for natural history; and government and universities were too poor to support much scientific work. It is tempting to say that the United States was an emerging nation. So it was, economically; but like many emerging nations of today it retained intellectual ties to the mother country that transcended political differences.

In his introduction, Green states that his aim is to give a full account of American science for the period with the exception of the medical sciences. Despite this, the importance of medical schools to the development of science in the Jeffersonian era emerges again and again. Botany, chemistry and mineralogy were taught there; botanical gardens and libraries were supported; and, most important, scientists were employed as teachers and could pursue their research. As a modern parallel, many vertebrate paleontologists now teach human anatomy in medical schools.

In his treatment of paleontology Greene retells the well known tales of Jefferson and Megalonyx and of Peale's mastodon (which Greene unfortunately refers to as a mammoth). Mention is made of William Clark's excavation

at Big Bone Lick, Kentucky. Casper Wistar's plate of two skulls found there is reproduced. Greene's caption refers to them as "remains of a fossil ox" (*Bootherium bombifrons*), but two of the figures are of a large cervid, probably *Cervalces*. I wish that excerpts from Clark's letters to Jefferson from Big Bone Lick could have been included. His descriptions are accurate and explicit, and his stratigraphy has been corroborated by excavations made in the 1960's by the University of Nebraska and the U.S. Geological Survey. Also, reference should have been made to William Cooper's short-lived journal. Monthly American Journal of Geology and Natural Science (1831-1832), which included the best early paper on Big Bone Lick.

The geography of the period was rightly dominated by the Lewis and Clark expedition. We are told not only of the expedition itself, but also of the vicissitudes undergone by the resulting collections: a sad tale that emphasizes the importance of careful museum curating as it has developed since that time. Green also rounds out the record of the first decade of the nineteenth century by mentioning the other expeditions sent out by Jefferson to the trans-Mississippi region.

Throughout the book one is impressed by the small cast of characters, many of whom keep popping up in different connections: Benjamin Smith Barton in botany, archeology, and linguistics; Amos Eaton in geology and botany; Benjamin Latrobe in architecture and geology. Because of the number of polymaths of the time, Jefferson does not seem so unusual to our eye, and he is not easily dismissed as a dilettante when one learns of his compilation of Indian vocabularies which, nearly complete, were lost in transit between Washington and Monticello.

This summary barely touches the mass of information in the book, from which emerges a vivid picture of the American scientists of the early Nineteenth Century. The book is both an indispensable source and a penetrating analysis; it is also a first-class read. As evidence of this, see Manasseh Cutler's account of a visit in 1787 to Benjamin Franklin in his garden, surrounded by his three grandchildren "who seemed to be excessively fond of their Grandpapa." Or the bizarre tale of the naming of Charles Willson Peale's youngest son: when Peale and his wife could not agree on a name, "he presented the four-month-old infant to the (American Philosophical) Society at their meeting on February 9, 1796, and asked the members to name him. They lost no time in naming the child Franklin.

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CATASTROPHES AND EARTH HISTORY THE NEW UNIFORMITARIANISM

W. A. Berggren and J. A. Van Couvering, eds., 1984, Princeton University Press, 464 p., \$65.00 (hardcover), \$19.50 (paper).

This volume, which contains proceedings of two symposia held in 1977, has the good luck to be published at a time when its topic is of even greater interest than it was seven years ago. Generally speaking the data-oriented articles, particularly those on the K/T boundary, have suffered more from the ageing process than the more philosophical and historical papers.

Part I, "The Concept of catastrophe as natural agent," comprises five articles (authors: Gould, Benson, Gretener, Ager, and Denham) that provide a historical and theoretical consideration of 'catastrophism' (a term rejected by several of the authors) and its use as a paradigm in the practice of paleontology and historical geology. Gould and Benson cover the historical development and social context of uniformitarianism, Gretner presents a semi-quantitative evaluation of rare events, Ager considers the implications of catastrophes for the stratigraphic code and *vice versa*, and Denham outlines a method by which magnetic polarity changes can be used to estimate the duration and continuity of sedimentation.

All of the authors in this section make powerful arguments for recognizing the importance of rare and catastrophic events in geological history, or as Ager (p. 99) puts it "... catastrophes are so commonplace that they have become stepping stones rather than milestones." A clear message is transmitted; the episodes of sedimentation that are the quanta of the geological record are each a reflection of processes so rare that they may be difficult to interpret for an observer with the limited temporal perspective of a human.

The writing in this section is exceptionally clear and graceful. The articles are not only thought-provoking, but also fun to read. The only important perspective missing from this collection could have been provided by Sadler's work on sedimentary completeness.

The second portion of this volume "The Cretaceous/Tertiary boundary: a case in point," is made up of eight articles (authors: Newell, Fischer, Kauffman, Boersma, Hickey, Tschudy, and Archibald and Clemens), six of which are devoted to discussion of the K/T boundary event(s). As might be expected in such a "hot" debate, much of the material presented here is now outdated and/or has appeared elsewhere. Actually, this collection is of some historical interest because it is a sort of fossil discussion of the K/T boundary problem, *circa* 1977. Although most of the authors revised their contributions in light of the asteroid theory, much has happened even since those revisions. Reading these papers makes one realize that we are now attempting to resolve events in the fossil record much more finely than we were only a few years ago, and that newer work (some of it by these same

authors), is revealing patterns of biotic change that were unanticipated in 1977.

Part III, "Catastrophic processes in the geological record," has four papers on a variety of topics related to extinction. Morner's two papers on the geoid, eustatic sea level change, and extinction are stimulating, if a bit abstract. Webb makes a useful distinction between faunal turnover events that are triggered by environmental deterioration, and those that are triggered by immigration of mixing of faunas, concluding that some of the largest biotic turnovers may result from the combination of the first process followed by the second. Benson presents an intriguing comparison between the Permian/Triassic "event" and the Miocene Messinian salinity crisis that makes one hope there will be a more detailed follow-up on the same topic.

Part IV, "Catastrophes in the real world," is a single article by Emery on human utilization of mineral resources. As might be expected this is the most dated of all the contributions in the volume. A quote from Gretener's paper would have made a better final note: "An arrogant smugness prevails amongst modern societies. This smugness is based on the premise that man has been around for so long that his future is assured, regardless of what he does... As punctuationalists, we cannot possibly share this confidence in the assured continuance of human existence, because it is based on the insufficient yardstick of man's direct experience" (p. 86).

The major parts of this collection are quite distinct, and each part is worth reading for different reasons. Although this volume does not stand as the definitive work on the "new uniformitarianism," it is a valuable marker of the state of our endeavors.

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GEOLOGY EMERGING: A CATALOG ILLUSTRATING THE HISTORY OF GEOLOGY (1500-1850) FROM A COLLECTION IN THE LIBRARY OF THE UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN, 1984, Dederick C. Ward and Albert V. Carozzi, Distributed by the Publications Office, Graduate School of Library and Information Science University of Illinois, 249 Armory Bldg., 505 E. Armory Street, Champaign, IL 61802. (14), 565 pp., illus., \$35.00, paperbound.

The University of Illinois Library has long been recognized as having one of the finest assemblages of geological literature in the United States, thanks in great part to the decades of effort of George W. White. Now we have a published catalogue describing much of those collections.

The introduction to the catalog explains that it covers mostly monographic works, including some offprints from larger works, and from journals. Geological serials, although present in the University of Illinois Library,

are not included. The catalogue is also limited by date as indicated in the title (but with some sensible exceptions).

The introduction to the collection describes highlights in sections by topic, such as theories of the earth, mining and metalurgy, geological mapping and stratigraphy. This section reads like a series of extracts of lectures on the history of geology stitched together with long strings of citations to books, which prohibit the reader from finishing the sentences and getting the gist of the writer's message. However, many readers of users of books never read introductions but delve immediately into the body of the book.

Description of the books is adequate, with attentions given to a full form of the author's name and dates, and often generous and lengthy transcriptions of titles. This saves annotation and gives the reader considerable information on the works. Notes when given, relate to previous ownership, or often to information on translation or journal origin of the text.

The collection abounds not only in first editions but long runs of editions and translations of works, an important percentage (perhaps more than thirty per cent) of the entire collection. This is not mentioned in the introductions, but is significant in suggesting the popularity of some texts, or perhaps their acceptance. Further, translations were sometimes edited or commented on by important scientists who added thereby their own contributions to debates on issues. Since translators or editors are not usually referenced in this catalogue this aspect is not immediately clear.

The item numbers end at 2380, but as cross references in the catalogue are included in the numbering, the net number of titles described is about 2240. 107 pages are devoted to full page reproductions of title pages. The index (but not the cross references) is keyed to the item number.

The index is the weakest link. It does not refer to any material in the introduction. As a topical and geographical index. it does not bring out names not mentioned in the cross references in the catalogue. It does not refer to the few (but interesting) manuscripts described in the catalogue, as manuscripts. One cannot find geological maps easily. However, it does bring out places nicely, as well as the names of museums and collections. The big topics are thoughtfully subdivided, making them less intimidating.

A common complaint of reviewers is value for price, and it should be noted that this work is not available in a hardbound edition. Thus, this \$35.00 paperback, glued, not sewn, with narrow gutter margins, will probably be worn ragged by book-loving geologists, and rebound by libraries into an unusable form very soon.

Although this is a review of the catalogue and not the collection itself, one cannot help remarking on the balance, scope and breadth of the material listed. It joins such fine works

as that edited by John Neu, CHEMICAL, MEDICAL AND PHARMACEUTICAL BOOKS PRINTED BEFORE 1800 IN THE COLLECTIONS OF THE UNIVERSITY OF WISCONSIN LIBRARIES (Madison and Milwaukee, University of Wisconsin Press, 1965). Works such as these have a use far beyond that of listing collections but become permanent reference tools for historians and bibliographers.

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INTERESTING PUBLICATIONS

Ault, James P., Paul, J. Harland, Fleming, John A., Moberg, Eric G., Forbush, Scptt E., Shepard, Ernest S. M. and Crow, Ruth M., 1946, The Work of the Carnegie and Suggestions for Future Cruises Scientific Results of Cruise VII of the Carnegie during 1928-1929, under Command of Captain J. P. Ault. Oceanography-IV.

An account of the last cruise of the ship Carnegie, including the explosion that destroyed it. Publications Office, Carnegie Institution of Washington, 1530 P Street, N.W., Washington, D.C. 20005, \$7 (paper).

Berggren, W. A. and Van Couvering, John A., eds., 1984, Catastrophes and Earth History. The New Uniformitarianism. From symposium, Woods Hole, Mass., June 1977, and Lawrence, Kansas, August 1977. Princeton University Press, Princeton, New Jersey, xii, 465 pp., illus., \$65.00, \$19.50 (paper).

Block, Robert H., 1982 Ph.D. dissertation, The Whitney Survey in California, 1860-74: A Study of Environmental Science and Exploration. UCLA.

Burkhardt, Frederick and Smith Sydney, eds., 1984, The Correspondence of Charles Darwin: A Major New Series, Cambridge University Press, New York.

The Cambridge edition will present the full text of every letter and contain both sides of the correspondence. The letters will be edited according to the principles and practice of modern textual criticism, providing an authentic text without modernization. Darwin's annotations on letters he received will be included as well as the alterations he make in writing his own letters.

Volume 1: 1821-1836. The major portion of letters in this volume concern Darwin's undergraduate years and the voyage of the Beagle. Engagingly written and highly readable, these letters tell a remarkable story of Darwin's self-discovery.

Carozzi, A. V., 1984, Glaciology and the Ice Age. Jour. Geological Education, Vol. 32, pp. 158-170.

Conkin, Barbara M. and Conkin, James E., eds., 1984, Stratigraphy, Foundations and Concepts. Benchmark Papers in Geology, available through Van Nostrand Reinhold, 7625 Empire Drive, Florence, Kentucky 41042, 384 pp., \$45.00.

Stratigraphic works dating from the late 17th through early 20th centuries, along with incisive contemporary editorial comments, demonstrate the development of stratigraphy as the science and art of organizing the world's strata into a chronological succession. Clearly explored are the roles these and other papers have played in laying the foundations and forming the basic concepts of stratigraphy. Extensive data is provided on discovery and the development of principles as well as on such concepts as zones, stages, facies, and disconformities. Petroleum geologists and those working in the fields of stratigraphy, paleontology, and natural science will benefit from this useful guide.

Darwin, Charles. The Structure and Distribution of Coral Reefs. Foreward by Michael T. Ghiselin, 1984. University of Arizona Press, Tuscon, Arizona, (originally published by University of California Press, Berkeley, 1962), 215 pp., illus., \$7.95 (paper).

Dudich, E., 1984, Contributions to the History of Geologic Mapping. Foreward by J. Fulop. Proceedings of the Xth INHIGEO Symposium, Budapest, 1982, Akademiai Kiado, xiv, 442 pp., illus., \$34.00.

Explorer on the Northern Plains: Lieutenant Gouverneur K. Warren's Preliminary Report of Explorations in Nebraska and Dakota, in the Years 1855 - '56 - '57. Schubert, Frank N., ed., 1984. Engineer Historical Studies, Number 2, Historical Division, Office of Administrative Services, Office of the Chief of Engineers, Washington, D.C., xxxiv, 125 p., illus.

Gilliland, William A., 1984, Brief History of the Bureau of Geology, 1850-1983. Informations Series 84-2, Mississippi Department of Natural Resources, Bureau of Geology, Jackson, Mississippi.

Gjertsen, Derek, 1984, The Classics of Science: A Study of Twelve Enduring Scientific Works. Lilian Barber Press, Box 232, New York, New York 10163, 384 p., \$24.95 (cloth), \$15.95 (paper).

Brief Contents: Corpus Hippocraticum; The Elements of Euclid; The Almagest (Ptolemy); De Revolutionibus (Copernicus); De humani corporis fabrica (Vesalius); Siderius nuncius (Galileo); De

- motu cordis (Harvey); Principia (Newton); Systema naturae (Linnaeus); A New System (Dalton); Principles of Geology (Lyell); On the Origin of Species (Darwin).
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- Pyatt, Edward, 1983, The National Physical Laboratory. A History. Heyden, Philadelphia, x, 270 pp., illus. \$48.00.
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- Rupke, Nicolaas A., 1983, The Great Chain of History. William Buckland and the English School of Geology (1814-1849). Clarendon (Oxford University Press), New York, xii, 322 pages, illus., \$45.00.
- Schneer, Cecil J., 1984, The Evolution of Physical Science: Major Ideas from Earliest Times to the Present. University Press of America, Lanham, xvii, 398 p., \$12.75 (paper).
- This volume, originally published by Harper Brothers as The Search for Order presents an historical account of the succession of major developments in science. The basic ideas of physics, chemistry, astronomy, geology and mathematics are set forth as they developed from the days of Greek scientific rationalism to the present.
- Schroder, W., 1984, History of Auroral Research. Catalogue No. 8997-9, Wissenschaftliche Buchgesellschaft, Hindenburgstrasse 11, D-6100 Darmstadt 11, Fed. Rep. of Germany.
- Schroder, W., ed., 1984, Historical Events and people in Geosciences. Selected papers from the IAGA Symposia of the Interdivisional Commission of History during the IUGG General Assembly, Hamburg, 1983. Verlag Peter LANG, Jupiterstrasse 15, CH-3015 Bern, Switzerland.
- Sloss, L. L., 1984, The Greening of Stratigraphy 1933-1983. Ann. Rev. Earth Planet Sci., Vol. 12, pp. 1-10.
- Speakman, Colin, 1982, Adam Sedgwick: Geologist and Salesman, 1785-1873: A Biography in Twelve Themes. Heathfield, East Sussex, U.K., Broad Oak Press, Ltd., 145 pp. \$16.00 (paper)
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- Zernel, John, 1983 Ph.D. dissertation, John Wesley Powell: Science and Reform in a Positive Context. Oregon State University.

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CALENDAR

24 November - Symposium on The History of Geology. To be held at the Geological Museum, London. A joint meeting with the Geological Museum, in association with the 150th anniversary of the Geological Society of Great Britain.

3-7 December - The newly organized History and Heritage of Hydrology Committee of the American Geophysical Union's Hydrology Section will sponsor a half-day symposium on historical aspects of the geological and geochemical study of surface and ground water at the 1984 AGU Fall Meeting in San Francisco. The symposium, "History of Hydrology: Earth Science Aspects," will follow a selected topics-type format. Because this is a first-time effort by the committee, no initial restrictions as to scope have been imposed in order to span a range of interests and to identify a population of individuals with historical interests. Areas of interest include the work of individual scientists, the evolution of concepts, and the development of techniques and methodologies. Persons interested in the symposium may contact Edward R. Landa, (U.S. Geological Survey, 413 National Center, Reston, Virginia 22092; telephone: 703-860-6971).

27-30 December - History of Science Society, Chicago, Illinois. (Tentative) Session on Geology in Europe in the Nineteenth Century. (Mary Jo Nye and David Kitts, History of Science, University of Oklahoma, Norman, Oklahoma).

1985

24 January- "Early Collecting in the Field of Geology" a talk by Dr. H. Torrens, Keele. Presented at evening meeting at the British Museum (Natural History) along with "Knowledge of Natural History as Shown in the Illustrations of Medieval Bestiaries." Mr. B. Yapp, Tewkesbury, and "Alive or Dead: Zoological Collecting in the 17th Century," Dr. Wilma George, Oxford.

9-12 April - The Evolution of the European Lithosphere, 4th Meeting of European Geological Societies, Appleton Tower, University of Edinburgh. Session on the History of the Geological Sciences, Friday, April 12. Keynote address by Prof. G.L.H. Davies, Trinity College, Dublin, Eire (organized by the History of the Geological Sciences Subcommittee of the British National Committee for Geology). Other sessions include: "Evolution of the Mesozoic and Tertiary Basins" and "European Sutures and Oceanic Slices" (Wednesday, April 10); "Molasse Basins of Europe" and "Abortive and Successful Openings of the Atlantic" (Thursday, April 11); and "Heat-flow and Magmatism in Orogenic Belts" (Friday, April 12).

Excursion: Scottish Classical Geology, a general excursion to classical geological sites throughout Scotland (3 days).

For further information: Megs 4, British Geological Survey, Murchison House, West Mains Road, Edinburgh, EH9 3LA, Scotland.

1-8 August - International Union on History and Philosophy of Science, Berkeley, California. (Michelle Aldrich, AAAS, 1976 Massachusetts Avenue, NW, Washington, D.C. 20036).

1985 - Sesquicentennial Virginia Division of Mineral Resources (Robert Milici, Director, VDMR, Box 3667, Charlottesville, VA 22903). Events are being planned for 1985.

1985 - Sesquicentennial Institute of Geological Sciences (Brian Kelk, IGS).

1987

September - IV International Congress on the History of Oceanography, Hamburg, West Germany. The following topics are proposed:

1. History of international cooperation.
2. Experiences in interdisciplinary research.
3. Economic aspects in and their influence on marine research.
4. Scientific and technical assistance in marine research.

Further suggestions are welcome.

(Deutsche Gesellschaft für Meeresforschung, - ICHO-IV-, Bundesstrasse 55, D-2000, Hamburg 13, FRG).

(Please send items to R. Laudan, Center for the Study of Sciences in Society, VPI & SU, Blacksburg, VA 24061, USA.)

NOTICES

TRIBUTE TO EXPLORATION TECHNIQUE

A historical marker recently placed on I-35 in Oklahoma, about 20 miles north of Ardmore marks the birthplace of the reflection seismic technique of oil exploration.

The marker, placed at the first scenic outlook south of exit 51 on I-35, is the 19th in a series of markers co-sponsored by the Oklahoma Historical Society and the Oklahoma-Kansas Oil and Gas Association.

The first pilot seismic survey using the seismic technique took place in July 1921 a few miles from the site of the new marker. From the Mineralogical Association of Canada Newsletter, No. 29.

Commission on the History
and Teaching of Mineralogy

Representatives of about a dozen countries came together as the Commission on the History and Teaching of Mineralogy, towards the end of the I.M.A. meeting in Varna. It was suggested that the commission compile films, literature, and other materials used in the various member countries in the teaching of mineralogy.

D. G. W. Smith
University of Alberta

History of Mineralogy in Canada - Berry Papers

During the last two or three years before his death, Len Berry assembled a very large number of references and much other material related to the history of mineralogy and crystallography in Canada. He was never able to complete this history and these collected papers are now in my hands.

I am willing, with the approval of the MAC Executive, to turn over these valuable papers to any one seriously interested in writing, in the near future, a history of mineralogy (or crystallography) in Canada. Any interested person, please contact me.

Robert B. Ferguson
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R3T 2N2

BRITISH CHALLENGER EXPEDITION LETTERS
DONATED TO UCSD/SCRIPPS INSTITUTION

A series of letters written by a crew member of the famous British Challenger Expedition of 1872-76 has been donated to the archives at UCSD's Scripps Institution of Oceanography in La Jolla, California.

The twenty-three letters, written by Joseph Matkin, a steward's assistant on the nineteenth century voyage of discovery on H.M.S. Challenger, are a gift of his granddaughter, Mrs. Mary Matkin Stone of Downey, California. The letters, together with eight additional letters recently acquired by the British Museum, are the only known surviving letters written by a Challenger crew member.

"We are very fortunate to have received such a valuable resource for American scholars interested in the Challenger Expedition," said Scripps Director William A. Nierenberg. "The letters give us a rare glimpse of shipboard life and the attitudes of the seamen who tended the sails and boilers and manned the dredges on this historic scientific voyage."

A selection of the Matkin letters are now on display in the foyer of the Scripps Library at UC San Diego. The letters were formally presented to the library by Mrs. Stone during reception held on Wednesday, September 19.

Matkin's letters will be conserved in the Scripps Archives for use by academic and historical researchers. The diaries, correspondence, and other records of the scientific staff of the expedition are available to scholars at the British Museum in London and at the University of Edinburgh in Scotland. Little is known about the Challenger crew members, in fact, no record was made of the names of the crew who served on the ship during its historic expedition.

HISTORY, PHILOSOPHY, AND SOCIOLOGY OF
OF SOIL SCIENCE

The ISSS Council has established a new Working Group on the History, Philosophy and Sociology of Soil Science at the suggestion of D. H. Yaalon (Jerusalem, Israel) and a number of colleagues. Though the subject matter naturally encompasses the subjects of all the existing Commissions to comply with the ISSS rules the new WG has been attached to Commission V.

The WG will collect biographical material on prominent soil scientists and their careers in the various countries, and prepare a chronological list of milestones in the development of soil science. It will consider the establishment of biographical archives and historical libraries at some University and/or the ISM. Questions falling within the realm of sociology will include aspects of manpower - the number of soil scientists in the various countries, their training and employment possibilities.

Prof. D. H. Yaalon (Dept. of Geology, Hebrew Univ., Jerusalem, 91000, Israel) will serve as the first chairman of the WG. Prof. E. Schlichting (Hohenheim, West Germany) has consented to serve as chairman after he completes his service with another Working Group. Mr. E. J. B. Cutler (Dept. of Soil Science, Lincoln College, Canterbury, New Zealand) has agreed to serve as Secretary of the WG. Colleagues wishing to contribute actively to the program of the WG are requested to make this known to one of the above members.

WORKING GROUP ON THE HISTORY, PHILOSOPHY AND
SOCIOLOGY OF SOIL SCIENCE NEWSLETTER

The first volume of materials on the History of Pedology, edited by J. Boulaine, has been published as no. 13 of SOLS of the Institut National Agronomique, Paris-Grignon. Prof. J. Boulaine is also collecting material and preparing a volume on V.V. Dokuchaev.

Walter Pittman, Professor of History at the Mississippi University of Women, Columbus, is planning a volume on Eugene V. Hilgard.

Mr. Kevin Stuart, of the University of Hawaii, is preparing a dissertation on the history of ideas in soil science.

Recent numbers of the Bulletin of the International Soil Science Society have included one or two illustrated plates of some historical event in soil science. Additional suitable material is solicited and should be sent to the ISSS office in Wageningen. You may recall that on the occasion of the 50th anniversary of the ISSS in 1974 the entire no. 45 of the ISSS Bulletin was devoted to the history of ISSS activities and its predecessors from 1909.

An excellent chapter on the Origins and Early Evolution of Soil Science in Australia, by C.B. Wells and J.A. Prescott is included in the outstanding volume, Soils: an Australian Viewpoint, Division of Soils, CSIRO and Academic Press, 1983.

Roy W. Simpson is publishing a series of articles on the Historical Aspects of Soil Survey and Soil Classification in the U.S. in Soil Taxonomy news, beginning with no. 6, 1983.

In connection with the 50th anniversary celebrations of the Soil Conservation Service of the USDA, a symposium on the History of Soil and Water Conservation was held in May 1984 in Columbia, jointly organized by the Agricultural History Society, the Soil Conservation Service, USDA, and the Missouri Cultural Heritage Center. Proceedings will be available in 1985.

Douglas Helm, historian of the SCS-USDA, who has prepared several articles on the history of soil conservation, is conducting oral history interviews and building up a reference file on the history of the Soil Conservation Service.

The Missouri State Geological Society and the University of Missouri-Columbia maintain a reference file and collection on Curtis Fletcher Marbut and will be pleased to receive additional material and information for the collection.

A chapter on the Historical Development of Soil Taxonomy by its main originator Guy D. Smith (1907-1981) is included in the multi-authored book Pedogenesis and Soil Taxonomy: Concepts and Applications, published by Elsevier, 1983.

Dr. Yvon Chatelin of ORSTOM-Paris, who in 1979 published the ORSTOM memoir no. 88 on Une Epistemologie des Sciences du Sol, edited in 1982 a volume on the same subject with contributions by Z.Z. Marcos, J. Boulaine, J.P. Miller, ORSTOM, Pedologie vol. 19, no. 1).

The Working Group on the History, Philosophy and Sociology of Soil Science has decided to collect biographical data on outstanding soil scientists of the world. The International Soil Reference and Information Center (ISRIC), previously the International Soil Museum in Wageningen, has agreed to establish the biographical archives on its premises. A call has been issued to all national Soil Science

Societies and other collaborators to collect suitable material in the form of reprints and/or photocopies of already published short and losing biographies, reminiscences, anniversary celebrations, memorials and/or obituaries, together with lists of published works of the founders and leaders of soil science in the respective countries. Preference is given to material in the official languages of the ISSS but material in any language is equally welcome. Please send all suitable material on outstanding soil scientists to Soil Science Archives, ISRIC, P.O. Box 353, 6700 AJ Wageningen, Netherlands. The archives will publish a list of names of those included.

UPPSALA NEWSLETTER

HISTORY OF SCIENCE

Uppsala Newsletter is an occasional publication, with hopefully, at least two issues a year. It is published by the Office for History of Science at Uppsala University, as an attempt to give surveys and information about our field in Scandinavia. Although there is no Scandinavian society for History of Science, we have got correspondents in most university towns and through them we hope to reflect what is going on in actual research.

Our Newsletter will of course use the history of science in a broad sense, including also the history of medicine and history of technology. It will be sent without cost to anyone interested. Inquiries and information should be sent to the Editor.

UPPSALA NEWSLETTER HISTORY OF SCIENCE

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