WEALTH INEXHAUSTIBLE. A HISTORY OF AMERICA'S MINERAL INDUSTRIES TO 1850, 1985, M. H. Hazen and R. M. Hazen, Van Nostrand Reinhold Company, New York, 459 pp., $42.50.

Margaret and Robert Hazen have employed their skills as a historian and a mineralogist, respectively, and their experience in writing about the history of geology, into a volume that will interest several audiences. The book's chapters deal with pre-1850 U.S. mining activities for six mineral commodities (gold, copper, lead-zinc-silver, iron, coal, and salt); a final chapter covers "other" resources, including some metals, agricultural products, building materials, and industrial minerals.

The chapters on each mineral commodity contain three parts: a descriptive text and footnotes, a bibliography of pre-1850 writings on the subject, and facsimile reprints of some of these early writings. About 20 percent of the book's pages are devoted to the bibliographies and index and about 40 percent each to the authors' text and to the reprints.

The authors' accounts of early mining for each mineral are clearly written and understandable to a non-technical audience. These stories of pre-1850 activities are short (20-25 pages), well-illustrated with maps and line drawings from early writers, and contain numerous footnotes (75-85 per chapter) to both early and recent references that will delight those whose mineral-exploration tendencies extend to literature search. Parenthetical references are also made to the companion reprints that follow each chapter.

The bibliographies are a valuable source of information, providing those interested in mining history with references on hundreds of diverse topics such as an address on the theological aspects of mining (Worcester, 1849), reports on the mineral kingdom from The Monthly Repository and Library of Entertaining Knowledge (1834), and an article on the Blue Mountain, Pennsylvania, quicksilver mine in The Friend, A Religious and Literary Journal (1839). Several journals that are listed might not be well known to geologists searching for historical background on a certain area, for example, The Minerva; or Literary, Entertaining, and Scientific Journal, The New England Farmer, and Niles' Weekly Register. These periodicals contain regular notes on the fledgling mining industry in the United States in the early 1800's. For each chapter, there are about 7 to 15 pages of bibliography containing about 150 to 300 author or journal headings. Each heading, in turn, refers to from 1 to 10 articles or reports. Although the bibliographic sections account for only one-fifth of the book's length, they may be the major reason that this volume would be a valuable addition to a geologist's bookshelf, especially if one views the obscurity of these references as a situation that should be corrected.

The facsimile reprints are reproduced in their original typeface and prefaced by an editors' note. They are a useful addition to the other material in the book because they give the reader a "feel" for contemporary outlook and writing style. However, several arguments could be made against the inclusion of the reprints in the book because they are more technical and detailed than the authors' narrative. In addition, the reproductions are in a few cases difficult to read because of smears in the original typeset material and some small type sizes. Taking parts of the material out of context has also reduced its usefulness, as in the missing footnote on page 129 of the reprint of Douglass Houghton's Fourth Michigan geological report.

Whether one reads around or through the pre-1850 reprints, this book is, like some of the works it cites, a storehouse of entertaining knowledge. Mineral-resource trivia buffs will revel in facts like U.S. salt production in 1832 (1,652,985 bushels--or 330,597 barrels); why a chaldron (coal weight) may represent 2,940, 2,880, 3,360, or 2,500 to 2,700 pounds; and how the iron ore, flux, fuel, and power for 19th century South Jersey iron production were all renewable resources. Frederick Overman (1850) provides food for thought in his statement (p. 300) that "A bushel of dry coal, for instance, will weigh eighty-five pounds; but the same coal, when wet, will weigh only eighty pounds." Finally, the pivotal role of Obadiah Gore in the Pennsylvania anthracite industry in 1768 should spark the same interest in mining history students as baseball fans ascribe to such unsung heroes as Harry Steinfeldt, the forgotten third baseman in the Tinker-to-Evers-to-Chance Chicago Cubs' infield of 1906-1910, which was immortalized by Grantland Rice.

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THE DARK ABYSS OF TIME. THE HISTORY OF THE EARTH AND THE HISTORY OF NATIONS FROM HOOKE TO VICO, Paolo Rossi. Translated by Lydia G. Cochrane. Published by the University of Chicago Press, 1984, xvi + 338 pp. Notes, Bibliography, Index, $35.00.

Paolo Rossi, Professor of Philosophy at the University of Florence, has had two previous works translated into English, Francis Bacon: From Magic into Science, and Philosophy, Technology, and the Arts in Early Modern Era.

Rossi has developed the present volume from the conviction "that a historiography attuned simultaneously to scientific theories, to philosophies, and to currents of ideas has a precise function," as indeed he has his earlier works. It is a form of research which does not fit entirely into the history of philosophy nor into the history of science, but has nonetheless become a respected tradition in recent times among historians of science.

The "Abyss" is divided into three general parts, "The Earth, Time, and Shells," "The Ages of Human History," and "Barbarism and Language", which are further segmented into 36 chapters. Rossi sets out to describe the shattering impact on European though of the discoveries in the natural sciences that one by one challenged the established chronology of the history of the earth derived from ancient biblical sources. The realization reached by scholars in the seventeenth and eighteenth centuries that time in fact had stretched long into the past

far beyond man's recorded history as did space, shocked religion and science as much as had the Copernican revolution of the sixteenth centure. The concept that the earth was of considerable antiquity was startling and disturbing and led to heated debates among philosophers and scientists. The iconoclastic influences reanged from the account of the Chinese civilization of the Jesuit Martino Martini which brought into question the established view that the Hebrews were the first possessors of human wisdom, to the contemplation of "the dark abyss of time" by Count Buffon. Rossi directs his attention particularly to Giambattista Vico and his Scienza nuova or "New Science" which laid the foundation for an autonomous and historically based history of man. Rossi seeks to link the earth sciences with the emerging social sciences and the basis fro the concept of evolution.

Supplemented with 18 pages of notes, a comprehensive bibliography of 34 pages, and a full index, the availability of this important work in English provides a valuable resource for historians of philosophy and of the natural sciences.

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GEOLOGISTS AND IDEAS: A HISTORY OF NORTH AMERICAN GEOLOGY, Ellen T. Drake and William M. Jordan, editors, The Geological Society of America Inc.: The Decade of North American Geology Project series, pp. x + 525

Everyone interested in the history of American geology should get a copy of this book and place it by their bedside or fireside: they will be guaranteed hours of happy browsing, both entertaining and instructive. For the three dozen essays contained in this substantial volume really do offer something for everyone. The early history of American geology is given a good airing for example, in Dwight E. Mayo's account of early mountain-building theory, and his analysis of the rise and fall of the geosyncline notion; but those who like their history recent will particularly appreciate Paul D. Lowman Jr.'s account of 'Geology From Space: A Brief History of Orbital Remote Sensing' (an excellently illustrated piece in a book with quite exceptional visual appeal). Readers for whom history is essentially biography will enjoy the numerous accounts of late nineteenth century pioneer geologists, not all of whom were as tetchy and egoistical as Robert Dott, Jr., shows James Hall to have been, but many of whom are shown to have been figures of genuine importance and influence: I particularly enjoyed George Merk's balanced and shrewd assessment of the stratigraphical work of E.O. Ulrich and (more recently) Leo F. Laporte's sensitive analysis of George Gaylord Simpson and continental drift ('Wrong for the Right Reasons'). But institutional history also gets a good look-in. Brian J. Skinner and Barbara L. Narendra offer a rousing overview of Yale's contributions to American geology, just as Ellis L. Yochelson rightly stresses the Smithsonian's importance as a national repository.

Nor is the more personal side neglected. J. Tuzo Wilson offers a warm autobiographical memoir, fitting his early researches into a wider history of ideas about the Canadian Shield, and - adding further period colour - a hitherto unpublished autobriographical fragment ('Notes of a packer in the Idaho-Montana line survey, summer of 1899', by Ross R. Brattain) reminds us how one of the cardinal skills of a geologist of the last century lay in his ability to understand mule psychology. The sheer richness and diversity of American geology, the individuality, not to say eccentricity, of its early heroes are themes which come over loud and clear from the abundance of original and substantial research which graces this volume - a testament to the serious interest which North American geologists are currently showing in their own past. Set in conjunction with Two Hundred Years of Geology in America, ed. Cecil J. Schneer (1979), the present volume confirms that the facts of the development of North American geology are now being very ably recorded.

Something more is needed, however, which the present volume hardly sets out to supply. Amidst the detailed studies of individual fieldworkers, specific problems (cave theories, quantitative geomorphology, etc.) and particular locations, I feel the absence of some wider connecting essays, posing the more fundamental problems which historians of North American geology need to tackle. Not least, the whole question of the independence and autonomy of American Geological science must be posed. When did American geology become, to all intents and purposes, separate from European geology? What were the gains and losses of that gradual independence? How far did the special features of the American landscape shape American geological thinking? We can readily see the notions of isostacy and the geosyncline as influenced by the native terrain, as, plausibly, was Davis's geomorphology; but how much further should such 'environmental determinism' be pressed? Moreover, should we in any case be thinking of North American geology as if it were an entity? Or should we stress the degree to which, in turn, it was fragmented and divided against itself. Arguably East Coast geology long continued to have more affinities with European geology than with the geology of the moving frontier.

Numerous other large questions suggest themselves. Particularly in the light of recent studies of British geology (e.g. by Martin Rudwick), the emergence of geology as an occupation and a profession in America surely needs further work and would provide many rewards. In Britain, the passing of the gentleman amateur and the rise of academic geology in the late Victorian period seems to have ushered in a period of dull conformity: did the same happen across the Atlantic? And not least, the role of geology in economic development still remains little researched. Were geologists genuinely useful in the growing utilization of natural resources? Or was 'utility' essentially a flag of

convenience under which the science sailed, guaranteeing status and funds?

Few of these broad issues get any real consideration in this collection, though several authors provide much raw material which could be brought to bear. But thanks to this volume, the facts of American geology are now much more fully known than heretofore.

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OIL ON THEIR SHOES--PETROLEUM GEOLOGY TO 1918, 1985. Ellen Sue Blakey, The American Association of Petroleum Geologists, Tulsa, Oklahoma. 192 p. $38

This book describes the search for oil prior to 1918, as told from diaries, letters, personal interviews, and occasionally from published accounts of early geologists. Ellen Sue Blakey, an Oklahoma historian with ties to numerous people in the petroleum industry, has organized a large amount of material into a lively, readable 62-chapter book, nicely spiced with humor. In the first chapter she writes of a contemporary Nebraska journalist describing a geologist: "If you see a man walking down the street with oil on this shoes, where it shouldn't be, and no oil on his hair, where it should be, that's an oil man...Have pity on him. He's just as lonesome as he looks. He'd love to tell you everything he knows, but he doesn't know how." (Perhaps that particular journalist did not know how to ask the right questions).

The six introductory chapters discuss the myths and legends surrounding petroleum geologists and give brief sketches of historical uses of oil from natural seeps and the emergence of th subject as a science. The remaining chapters are almost entirely short vignettes describing incidents and accidents in the lives of various American geologists from the early days of oil hunting in the 1830s to the end of the First World War. A great many of the stories center on geologists' attempts to convince non-geologist oil hunters that the scientific method could be employed to find oil. The stories are generally in chronological order, but their settings jump from place to place. This technique works here, because it captures the mostly unsystematic approach to early oil hunting.

The stories take place mostly in the United States, but there are also fascinating accounts from South America and the Middle East. Because the words are mostly taken directly from the sources, they vary in amount of detail and often reflect the learned tendency of most geologists to write in matter-of-fact prose. Therefore, the great excitement and sometimes hair-raising drama of particular incidents is commonly understated. We are indebted to such geologists such as Kessack Duke White and Charles Walter Hamilton who did not succumb to the oil-prospect-report style when describing their adventures.

The the text constitutes really less than half of the book, including a short bibliography but no index. The numerous excellent photographs document how much geology has changed and where it has remained almost the same; only the clothing styles reveal the differences between past and present geologists examining an outcrop. On a social level, some photos say more than the text. For example, on p. 22 is a photo of geologists dressed in formal attire for an unnamed occasion (when was the last time you saw any geologist dressed in black tie?). Group photos on pages 7 and 186 show young children with their fathers. Women were not permitted to do field work with men until the late 1960s, yet all group pictures of geology students of the early 1900s shown women students.

Because the quality of the photographic reprodution is so exceptional, a brief explanation is in order. In reproducing the photos, no negative was used; the original prints were laser-scanned, enhanced for maximum detail, then printed as duotones. This technique actually improves the quality while retaining the inherent character of the old photograph. The book's relatively high cost is reflected in the large number of photographs reproduced, but the pictures alone make this book worth the price.

Typographical errors are few. Organizational problems do occur where photographs may not relate to the adjacent text; for example, a series of pictures from K.D. White's Opon River expedition in South America are on p. 125-128 and 136-137, but the trip itself is not described until p. 166-167. And why was it necessary to reproduce the same picture of an oil distillery on p. 93 and also on p. 108? Also, I was a little surprised to see no biographical sketch of the author on the inner flap of the dust jacket.

These, however, are minor quibbles. This book is a treasure-trove for all geologists to enjoy, not just those in the oil business. So much personal history of early geologists has already been lost that we are indebted to the author for ensuring that at least some of the exciting tales of the pioneer petroleum geologists will live on. She promises two more books in this series, explaining in the preface that the history of petroleum geology is too vast to cover a single volume. We hope the wait is not too long.

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THE GEOLOGY OF CHINA, 1986, Yang Zunyi, Cheng Yuqi, and Wang Hongtzen, Oxford University Press, Oxford Monographs on Geology and Geophysics, No. 3, 303 p., $55.00.

"This is not a history of geology, but is a comprehensive summary of the geology of the most populous country in the world. The book is divided into four sections of

background: stratigraphy, magmatic and metamorphic rocks of China, and geotectonic development of China. Within the first section, history of geology in the country is accorded three pages in the double column format. It is just enough information to make one hope that much more information on the development of geology in that country will be forthcoming.

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THE RESOLUTION JOURNAL OF JOHANN REINHOLD FORSTER 1772-1775, 1982. Hoare, Michael E. (ed.), The Hakluyt Society, series II, vol. 152-155. Hardbound 8 3/4" x 5 1/2", 831 p. Available from The Hakluyt Society, c/o The Map Library, The British Library, Great Russell Street, London WC1B 3DG, England. 40 pounds sterling, postage included.

Forster was the naturalist on Captain Cook's second voyage and is generally credited as being the person who directly influenced von Humbolt to pursue a career in science. His name is known to geologists as the author of the 1768 An Introduction to Mineralogy; although primarily a zoologist, Forster was a contributor in many fields of natural history. The editing of this formerly unpublished journal is by the author of the biography of Forster and it is evident that this brilliant, enthusiastic, hard working, tactless scientist was Dr. Hoare's hero. 122 pages of introductory matter tell us a great deal of Forster and his son George who accompanied him on the voyage, set the stage for the journals proper, and summarize his later life. These journals are beautifully reproduced with many, but not excessive, footnotes. As noted, for only about a quarter of the 1100 day voyage was Forster in sight of land, let alone off the ship. Accordingly, geologic observations are both scattered and slim. Nevertheless, Forster did contribute ideas on islands, and on volcanoes and volcanism. He was the first scientific observer to cross the Antarctic circle and he wrote on the formation of the ice. For those interested in eighteenth century voyages, this is an invaluable contribution. Forster wrote in English, but he liberally sprinkled his writing with Latin and Greek, all of which have been translated and annotated. It is the editor's belief that Forster has never received proper due for the considerable effort he expended and the observations he made. This journal certainly bears out his contention. Assembling Forster's contributions to geology from these notes, and tracing the evolution of his ideas, will be a great pleasure, thanks to the editor's considerable labor.

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WEALTH INEXHAUSTIBLE. A HISTORY OF AMERICA'S MINERAL INDUSTRIES TO 1850, 1985. Margaret Hindle Hazen and Robert M. Hazen, editors, Van Rostrand Reinhold Company, 459 p., $42.00.

This book includes Preface, Contents, Introduction, seven chapters, an Epilogue composed of notes and a Reference section. The chapters are topical: gold; copper; lead, zinc and silver; iron; coal; salt; and others. Each chapter contains several articles which introduce the reader to original eighteenth- and nineteenth-century publications on the subject of mining, including facsimile reprints of early writings. Twenty-one eighteenth- and nineteenth-century authors make their appearance in this volume. Of these, the nineteenth-century contribution of the ancestral Rensselaer Polytechnic Institute, then known as the Rensselaer School, is overwhelming. Although Founding Father Stephen Van Rensselaer is not among the authors his second cousin Jeremia Van Rensselaer has his classical "essay on salt" published as an excerpt. Jeremia Van Rensselaer is a much neglected figure in American geology, even though he wrote one of the first textbooks in geology in North America, published in 1825. The Rennselaer Center of Applied Geology, one of my current affiliations, has been named after this pioneer. This affiliation is often mistaken as representing Stephen Van Rensselaer whose contribution was in the fields of philanthropy, politics, government, and the military. Other contributors include J. C. Booth and Douglas Houghton, both alumni of the Rensselaer School and L. C. Beck and Ebenezer Emmons, former professors of this school. Founder Amos Eaton is not among the authors but features prominently in the bibilography. G. W. Featherstonhaugh, Amos Eaton's detractor, has included in this volume some pages of his "Excursion through the Slave States".

In the Introduction the authors relate the rise of the American mining industry, which by the time of the revolution, at least in the iron industry, compares favorably to the British industry in terms of both quantity and quality of pig and bar iron produced. However, they emphasize a sad story of mining in America: wastes of life and fortunes spent on dreams. Yellow copper pyrite was often mistaken for gold, black shale for coal, and mica was taken as gold or silver; "The facility with which the public allows itself to be deceived, in regard to everything connected with mining, is remarkable." remarked J. D. Whitney. Yet some individuals amassed fortunes which perpetrated further cycles of mining failures.

In their preface the editors remind us that many American cities received their names through their mining connection;

examples include, among others, Galena, Salina, Copper Harbor, Cement City, Coal Valley, and Iron Mountain.

The facsimiles are easy to read and their included figures show up well, except the paper by Featherstonhaugh which is overly reduced and strained my eyes.

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A SHORT HISTORY OF GEOMORPHOLOGY, 1985. Tinkler, Keith J., Barnes and Noble Books, Totowa, New Jersey, 5 1/2" x 8 1/2, 317 p., $25.00 hardbound.

A short history possibly deserves a short review. In that vein, one may write that this is a fine book and definately worth the cost. Physically, the book is offset from typescript. There are relatively few figures and they contribute little to the text. On the other hand, the text itself just sparkles; this book is exceptionally well written.

Any history of geomorphology must go over the same ground (pun?) as those which preceeded it. The author acknowledges his debt to others, but manages to bring a new perspective to some of the topics. The twelve chapters are linked into five parts and the part treating the time from W. M. Davis to developments since 1960 is particularly interesting. In the earlier sections, the influence of Lyell on the acceptance/rejection of sea ice as a major force provides a new perspective. James Hall, the renouned paleontologist, is revealed as one who wrote on rivers and erosion during his early days. Perhaps everyone at heart longs to interpret the landscape.

By typing it himself and otherwise keeping costs down, Keith Tinkler has put this intellectual treat within pocketbook range of nearly everyone. If you are interested in the discussions about the forces which shaped the surface of the earth, you should have this book. If you are not interested but start reading this work, you will become interested in the subject.

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YELLOWSTONE: A WILDERNESS BESIEGED, 1985, Bartlett, Richard A., University of Arizona Press, Tucson, AZ, 6" x 9", 436 p, $24.95, hardbound.

Yellowstone is the oldest national park in the world and its formation brought a new concept of preserving nature to the fore. This book does not treat of the geologic history of the park, but rather how the area has fared for more than a century. (In an earlier book, the author considered Nature's Yellowstone). The fifteen chapters consider five major aspects: the visitors to the park; those who run concessions for visitors; the various administrators who have had to deal with both visitors and those who prey on them; the interplay of defenders and spoilers of the park concept; and finally the sheer impact of hordes of visitors on the park environment. In a narrow sense this may not be a history of geology, but it is certainly the history of place which is geologically important. Even more, it is the history of what has happened to a grand idea. The style of writing is smooth and easy to follow and the insights one gains by following the methodology of the author can be applied to interpretation of other major areas of the landscape which have historical significance.

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CORRECTION

We would like to call your attention to a typographical error which occurred in the last issue of Earth Sciences History (V. 4, No. 2, 1985). In Pamela M. Henson's review of John Langdon Brook's book entitled, JUST BEFORE THE ORIGIN , p 197, line 10, paragraph 4, line 10 should read "However, the argument is unconvincing...." rather than "convincing".

NOTE

James Hall, Class of 1832

On April 30, 1986 I received an invitation to attend the Rensselaer Alumni Association's reunion described as a salute to Faculty. The invitation was addressed as follows:

"Dear Professor:

On commencement day the alumni of Rensselaer Polytechnic Institute will return to Troy for Reunion '86. It is a custom which began in 1869 when James Hall, class of 1832 convened the Association of Graduates" (underlining mine).

In this letter there is no explanation as to the identity of this James Hall, and I feel certain that almost none of the Faculty to whom this letter was addressed had previously heard of James Hall. His fame, it seems, is that he established the custom of reunion of Rensselaer graduates. James Hall who received all his degrees from Rensselaer was the most influential American geologist ever. Our first issue of Earth Sciences History for 1987 will be devoted to him.

Gerald M. Friedman
Editor
Earth Sciences History

INTERESTING PUBLICATIONS

Bassett, Michael, 1985, "Transition rocks and grainwacke-the Silurian and Cambrian systems through 150 years: Episodes, v. 8, p. 231-235.

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CALENDAR

1986

June 15-18 - AAPG Annual Convention (with Divisions: SEPM, EMD and DPA), Atlanta, GA. General Chairman: Howard Cramer, Emory University, Dept. of Geology, Atlanta, GA 30322, (404)727-6491.

July 2-23 - Geology of Australia, field trip. Contact: Dorothy LaLonde Steller, Cypress College, Cypress, CA 90630, (714)826-2220.

July 4-12 - Permian & Permo-Triassic boundary in the western Tethyan realm (northern Italy & northern Yugoslavia), mtg. & field trip, Brescia, eastern South-Alpine, Karawanken, Project 203, Intl Geological Correlation Program & Italian Geological Society. Contact: G. Cassinis, Dipartimento di Scienze della Terra, Sezione geologico-paleontologica, Universita degli Studi, Strada Nuova 65, Pavia 27100, Italy.

July 7-11 - Geocongress, by Geological Society of South Africa and Council for Scientific & Industrial Research, Johannesburg. Contact: CSIR, Box 395, Pretoria, South Africa 0001.

July 13-18 - Intl Mineralogical Association, mtg., Stanford, CA. Contact: I.M.A., Box 183, Stony Brook, NY 11790.

Aug. 12-15 - North American Paleontological Convention, Boulder, CO. Field Trips: Cretaceous micropaleontology of the Pueblo-Rock Canyon area, Colorado; Sedimentology & paleontology of fluvial systems-tertiary Ft. Union and Wasatch formations, Powder River Basin, Wyoming-Montana; Ordovician biostratigraphy & paleoecology on the Western passive margin; Late Jurassic to Early Cretaceous land biota; Pennsylvanian biofacies & paleoenvironments of the Minturn Formation, central Colorado Basin; Trace-fossil biofacies of the Ordovician & Cretaceous, Front Range, Colorado. Contact: J. Michael Parrish, Museum Annex, Hunter Building, Campus Box 315, University of Colorado, Boulder, CO 80309, (303)-492-8069. Registration fee: $85.

Aug. 15-17 - Friends of the Pleistocene, Midwestern Cell, mtg., Lawrence, Kansas. Contact W. C. Johnson, Dept. of Geography, University of Kansas, Lawrence, KS 66045, (913)864-5143.

Aug. 17-22 - Fourth Circum-Pacific Energy Minerals Conference, Singapore. General Chairman: Allen Hatley, Murexco Petroleum Inc., Glen Lakes Tower, Suite 1550, 9400 North Central Expressway, Dallas, TX 75231, (214)696-3463.

Aug. 25-29 - Intl Sedimentological Congress, Canberra, Australia. Contact: Graham Taylor, Geology Dept., School of Applied Sciences, Canberra College of Advanced Education, Box 1, Belconnen, A.C.T. 2616, Australia.

Aug. 27-31 - Intl. Sedimentological Congress, Canberra, Australia. This Congress will include a session devoted to the historical and philosophical aspect of sedimentology. Contact: Dr. Gerald M. Freidman, Rensselaer Center of Applied Geology, P.O. Box 746, Troy, NY 12181 who is the International Convenor or Dr. Barry S. Cooper, the Australian Convenor, c/o-S.A. Dept. of Mines and Energy, P.O. Box 151, Eastwood, South Australia 5063.

Aug. 27-31 - 12th International Sedimentological Congress, Canberra, Australia. This Congress will include a session devoted to the historical and philosophical aspects of sedimentology. Contact: Dr. E. Yochelson, Room E-501, U.S. National Museum, Washington, D.C. 20560 or Dr. Barry Cooper, c/o-S.A. Dept. of Mines and Energy, P.O. Box 151, Eastwood, South Australia 5063.

Sept. 17-20 - American Institute of Professional Geologists, ann. mtg., Keystone, CO. Contact: Larry Anna, Bass Enterprises, 1512 Larimer, Suite 1000, Denver, CO 80202, (303)-571-1314.

Sept. 17 OR 24 - 200th Anniversary Celebration of the Societat der Bergbaukunde (oldest society of mining engineers), Austrian Academy of Sciences, Vienna, Austria in connection with the Austrian National Committee for the World Mining Congress. Contact: Min. Rat Dip.-Ing. Mag. A. Weiss; Bundesministerium fur Handel, Gewerbe und Industrie; Stubenring 1; A-1010 WIEN.

Sept. 26-28 - Society of Economic Paleontologists & Mineralogists, mid-year ann. mtg., Raleigh, N.C. Contact: Charles Nittrouer, Dept. of Marine, Earth & Atmospheric Sciences, North Carolina State University, Raleigh, NC 27695, (919)737-3711.

Sept. 27-Oct. 6 - Geology of the Grand Canyon, float trip. 3 introductory mtgs. Sept. 9, 16, & 23, Rohnert Park, CA. Contact: Terry Wright, Geology Dept., Sonoma State University, Rohnert Park, CA 94928, (707)664-2334. Fee:$688.

Oct. 5-11 - World Energy Conference, Cannes, France. Contact: U.S. National Committee, World Energy Conference, Suite 615, 1620 Eye St., NW, Washington, D.C. 20006, (202)331-0415.

Oct. 30-Nov. 1 - Permian Rocks of the Mid-Continent, mtg. & field trip, Ponca City, OK. Contact: William A. Morgan, Conoco Inc., 1000 S. Pine, Ponca City, OK 74603, (405)767-2853.

Oct. 31-Nov. 2 - Pacific Cell, Friends of the Pleistocene, field trip, southern Death Valley. Topic: Quaternary deformation. Contact: B. W. Troxel, 2961 Redwood Road, Napa, CA 94558, (707)253-7083.

Nov. 2-6 - Society of Exploration Geophysicists, ann. mtg., Houston, Texas. Contact: Sally Shank, SEG, P.O. Box 3098, Tulsa, OK 74101, (918)743-1365.

Nov. 10-13 - Geological Society of America, ann.mtg. (with associated societies: Cushman Foundation, Geochemical Society, Geoscience Information Society, Mineralogical Society of America, National Association of Geology Teachers, Paleontological Society, Society of Economic Geologists), San Antonio, TX. Contact: Jean Kinney, GSA Headquarters, Box 9140, Boulder, CO 80301, (303)447-2020.

1987

Feb. 9-11 - Sinkholes & the environmental impacts of karst, mtg. & field trip, Orlando, FL, by the Florida Sinkhole Research Institute. Topics: Geology & engineering of karst areas with emphasis on sinkholes & practical aspects. Hydrogeology & environmental problems. Intl examples of applied karst geology & hydrology. Engineering considerations. Abstracts deadline: Aug. 15. Contact: Barry F. Beck, University of Central Florida, Orlando, FL 32816.

April 13-16 - European Union of Geosciences, biennial mtg., Strasbourg, France. Contact: William Lowrie, Institut fur Geophysik, HPP P 5, ETH Honggerberg, CH-8093 Zurich.

Aug. 31-Sept. 5 - 11th International Carboniferous Conference. More information to come.

September - IV International Congress on the History of Oceanography, Hamburg, West Germany. The following topics are proposed: History of international cooperation; Experiences in interdisciplinary research; Economic aspects in and their influence on marine research; Scientific and technical assistance in marine research. Further suggestions are welcome. Contact: Deutsche Gesellschaft fur Meeresforchung, - ICHO-IV-, Bundesstrasse 55, D-2000, Hamburg 13, FGR. Please send items to: R. Laudan, Center for the Study of Sciences in Society, VPI & SU, Blackburg, VA 24061, USA.

1988

Sept. 12-16 - International Symposium on "Engineering Geology as related to the Study, Preservation and Protection of Ancient Works, Monuments and Historical Sites" sponsored by the Greek Committee of Engineering Geologists, the official group for Greece of the International Association of Engineering Geologists (IAEG), Athens, Greece, mtg., field trip and post-symposium excursions to historical sites and archaeological monuments with Engineering Geology interest through continental Greece, Crete and the islands (Peloponnese, Knossos, Athos, etc.). Official languages of the Symposium: English, French & Greek. Papers should be presented in English or French. Contact: Professor P. Marinos, University of Thrace, Geotechnical Department, 67100, Xanthi, Greece.