



VOLUME 7, NUMBER 11

NOVEMBER 1985

LEADERSHIP TALENT SEARCH IS ON FOR 1987

by Faith Rogers

Finding leaders for GSA is the job of the Committee on Nominations, and the committee wants your help. Needed are names of GSA members qualified to serve as vice-president, treasurer, or councilor of the Society.

GSA is managed by three officers—president, vice-president, and treasurer—and the Council, all elected by the voting membership at the annual corporate meeting. The Executive Committee—currently the president, vice-president, treasurer, a Council member-at-large, and normally the past president—acts for the Council between its regular meetings in the spring and fall.

Qualifications

Nominees for officer or councilor must be GSA Members, Fellows, or Honorary Fellows and must be at least 21 years old. Previous GSA service, especially on committees, is helpful because it promotes familiarity with the workings of the Society. The Committee on Nominations attempts to compile a list that is an equitable mix of nominees in industry, government, and academia, in geographic location, and in geological discipline.

Positions To Be Filled for 1987

Vice-President. GSA's vice-president serves on the Executive Committee and fills in for the president when necessary. The vice-president serves for one year and then normally is elected president for the following year. As past-president, this officer continues to be a member of the Executive Committee for yet another year. The 1985 vice-president of GSA (1986 president) is W. Gary Ernst, University of California, Los Angeles.

Treasurer. The treasurer of GSA collects and disburses all Society funds except those for which other provisions have been made in the bylaws and rules or resolutions of the Council. The treasurer keeps records of all financial transactions of GSA and submits an annual report of financial activities to the Council. Treasurers are elected for one-year terms but may be reelected annually for as long as they are willing to serve. GSA's current treasurer is Robert L. Fuchs, Caland Petroleum Corp., Denver.

Councilor. GSA's governing body, the Council, consists of 12 councilors, elected for three-year terms. Four councilors will be elected for 1987-1989, replacing the four whose terms end in 1986. Councilors for 1984-1986 are Charles J. Mankin, James W.H. Monger, Geoffrey G. Snow, and William A. Thomas; 1985-1987 councilors are Samuel S. Adams, David E. Dunn, Melvin C. Schroeder, and Lee J. Suttner. The newly elected councilors for



GSA's officers and councilors (here part of the 1983 Council) have much to discuss and decide upon at the spring meeting at headquarters.

1986-1988 are David L. Jones, C. Barry Raleigh, E-an Zen, and Mary Lou Zoback.

Nominations

Nominations for officers and councilors are sent to GSA headquarters, where a list is compiled for the Committee on Nominations. The committee meets each spring and decides on two nominees for each open Council position and three nominees for the office of vice-president. The names are presented to the Council at its spring meeting and the slate is determined for presentation to the voting membership. Ballots go to the voting GSA membership before the annual corporate meeting, at which the officers and councilors are elected.

How To Nominate

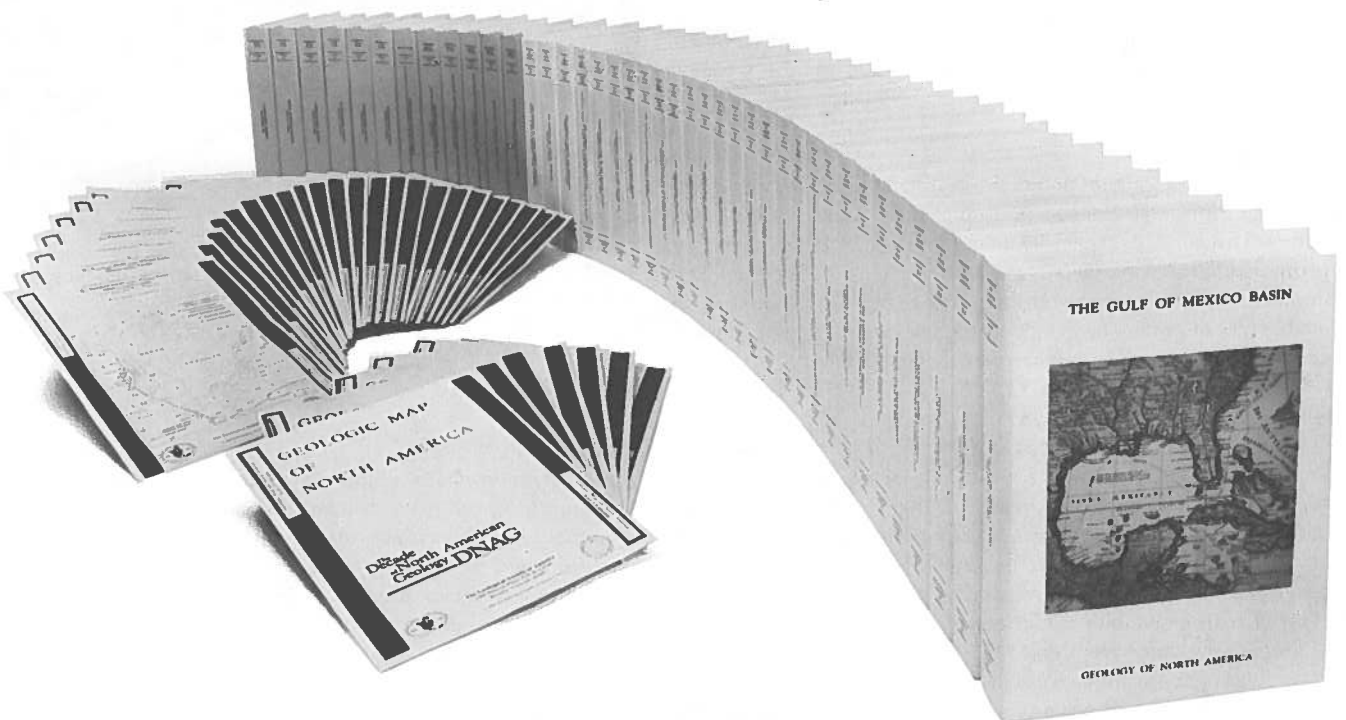
To nominate a GSA member for GSA vice-president, treasurer, or councilor, include basic data and a description of the qualifications of the person for the position recommended. Send nominations to

Administrative Department
Geological Society of America
P.O. Box 9140
Boulder, CO 80301

Nominations for 1987 officers and councilors must be received at GSA headquarters no later than February 17, 1986.

The Decade of North American Geology DNAG

If you have not yet received your personal prospectus describing this new synthesis of the geology of North America and adjacent ocean regions, call us today! Limited time-payment offers expire February 28, 1986.



The Decade of North American Geology (DNAG) publications will include 28 volumes of geology, 6 field guides, 4 special volumes, 23 continent-ocean transects, and 7 continent scale geologic maps of North America. The project is sponsored by the Geological Society of America to celebrate its centennial decade, 1980-1989. Publications will appear throughout the decade.



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These publications are funded, in part, by the Geological Society of America Foundation.



CENTENNIAL NEWS

by Allison R. (Pete) Palmer

Neotectonic Map (s.s.) Organized

Leadership for the last of the four Neotectonics map (seismicity, thermal aspects, stress, neotectonics s.s.) has now been identified, and compilation is under way. Dave Schwartz of the U.S. Geological Survey at Menlo Park brought together his team of compilers on October 21 in Denver for an organizational and planning meeting. This will be the first attempt to depict the geologic action in our present "geologic instant" for the entire North American plate at a 1:5 million scale.

DNAG Publication Notes

Centennial Field Guides

Texts for Centennial Field Guide sites have begun to pour in from the volume editors. If all outstanding texts for a Field Guide are now in hand (a goal set last spring), that Field Guide should be available at the GSA Section meetings in spring 1986.

Transects

Ten of the 23 Continent/Ocean Transects have been printed since May and are now available for individual

sales. Fulfillment of standing order requests will begin in January.

The Geology of North America

On the basis of mid-September information, all of the parts of *The Western North Atlantic Region* should now be at GSA and in the final production process (galleys, page proofs, index, and myriad other details). Springtime publication of this volume, the vanguard of the 28-volume series, looks probable.

Centennial Special Volumes

By now, all history of geology buffs should know of the publication in October of *Geologists and Ideas: a History of North American Geology*, edited by Ellen Drake and Bill Jordan as a Centennial contribution of GSA's History of Geology Division. Congratulations to the editors and authors on a job well done, and thanks to the GSA staff, and to typesetters, indexers, and printers for efficient completion of the many tasks needed to get this book ready for the GSA Annual Meeting. The last of the chapter texts was received at GSA in May.

Miocene Reconstruction of Southern California To Be Explored at Upcoming Penrose Conference

A GSA Penrose Conference, "Miocene Reconstruction of Southern California," will be held May 30-June 4, 1986, in Oxnard, California. Conveners are A. Eugene Fritsche and Peter W. Weigand, both at Department of Geological Sciences, California State University, Northridge; Roy K. Dokka, Department of Geology, Louisiana State University, Baton Rouge; and Judith Terry Smith, Palo Alto, California.

Previous to our ideas of large-scale fault movements and plate tectonics, Miocene paleogeographic reconstructions in the southern California area were simple and straightforward. Since the advent of the concepts of plate tectonics and paleomagnetism, researchers have been able to divide southern California into small structural blocks or microplates and compress them, extend them, translate them, or rotate them into several configurations. A single model that is consistent with all available data has yet to

be conceived, however. This search for a model that is acceptable to structural geologists, stratigraphers, paleontologists, petrologists, and paleomagnetists alike is hampered because no single researcher has time to comprehend the wealth of data that exists in each of the disciplines. The conveners of this conference believe that bringing together researchers from these various disciplines to exchange their knowledge and ideas will speed progress toward a unified paleogeographic reconstruction of the Miocene of southern California.

Discussion will be limited to paleogeographic reconstruction of the Miocene in the area of southern California from lat 36°N to the Mexican border. Emphasis will be on the interaction of disciplines and will include formal talks, working groups, a one-day field trip, and ample discussion time. The conference will honor Mason L. Hill, a pioneer in the understanding of southern California geology.

Prospective participants should send a letter of application which outlines (1) their experience in the topic, (2) areas in which they might expect to contribute, and (3) their reason for wanting to attend the conference to A. Eugene Fritsche, Department of Geological Sciences, California State University, Northridge, CA 91330, by **15 December 1985**. The registration fee, including food, lodging, and field trip, has not yet been established.

Students who have a research interest in Miocene paleogeography are encouraged to apply. Financial support is available to subsidize half of the registration fee for up to five students.

Vol. 7, no. 11 GSA News & Information November 1985

GSA NEWS & INFORMATION (ISSN 0164-5854) is the monthly newsletter of The Geological Society of America, Inc., P.O. Box 9140, Boulder, Colorado 80301. Second-class postage rates paid at Boulder, Colorado and additional mailing office.

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*Advertising: Contact James R. Clark or Ann H. Fogel (303) 447-2020.

International Palaeontological Association Seeks Listings for Directory

Plans are being made for the fifth edition of the *Directory of Paleontologists of the World*, to be published by the International Palaeontological Association (IPA) in time for distribution at the 27th International Geological Congress, Washington, D.C., 1989. Formal notification and timings will be issued in 1986; requests for

information from individual paleontologists and paleontological associations will be distributed throughout 1987 and 1988 with a deadline of December 1988 for receipt of data. Computerization of data will proceed through 1988, and final preparation of text and publication will occur in 1989.

The directory is intended to provide the most complete listing possible of all the active paleontologists of the world. IPA expects to obtain data from paleontological societies and organizations of all kinds as well as from individual paleontologists. Paleontological groups and individuals who are not members of IPA or who do not regularly receive the journal or newsletter of an IPA Corporate Member should contact the *Directory* editor or IPA secretariat during 1987-1988 to insure inclusion in the *Directory*. Suggestions and advice from all interested parties are welcome.

Copies of the fourth edition of the *Directory* are still available from R. E. Grant (same address as editor, below) for U.S. \$7 (to individual members of national paleontological societies or sections) or U.S. \$10 (all others).

Send comments or suggestions to

Rex A. Doescher,
Directory Editor
Department of Paleobiology
E-207 Natural History
Smithsonian Institution
Washington, DC 20560

or William A. Oliver, Jr.
Secretary-General, IPA
U.S. Geological Survey
E-305 Natural History
Smithsonian Institution
Washington, DC 20560.

1986 GSA ANNUAL MEETING

NOVEMBER 10-13

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SYMPOSIA PROPOSALS DUE JANUARY 2, 1986

For 1986 information, please contact

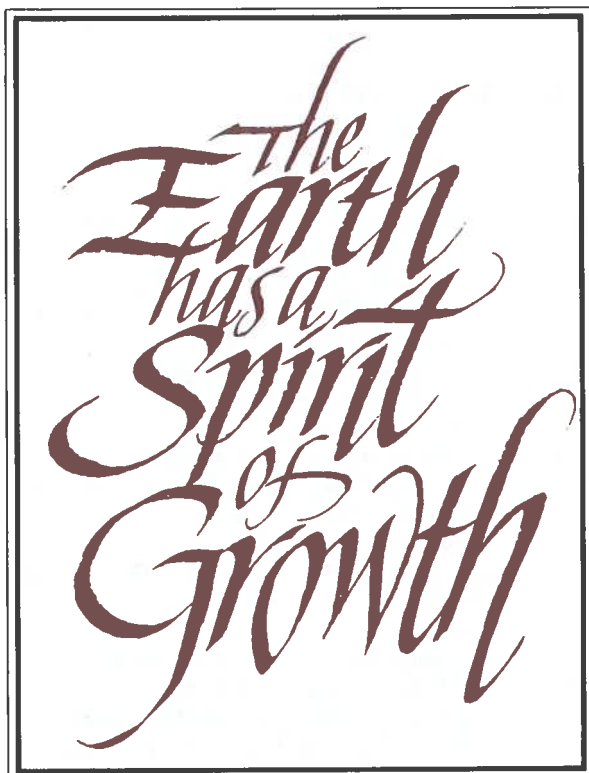
John C. Maxwell, Chairman or Eric R. Swanson, Co-Chairman
Dept. of Geological Sciences Div. of Earth & Physical
University of Texas at Austin Sciences/Geology Program
Austin, TX 78712 University of Texas
(512) 471-5172 at San Antonio

San Antonio, TX 78285
(512) 691-4455

For general information on symposia participation, please contact

Sue Beggs, Meetings Manager
GSA, P.O. Box 9140, Boulder, CO 80301
(303) 447-2020

HELP YOUR SOCIETY TO WIN AGAIN



Last year we set a goal to increase GSA membership by 5% in the first phase of our major membership campaign. But you and other members rallied for the occasion and helped us achieve an incredible 10% growth!

The "Mug-A-Member" membership campaign was a winner literally as well. The Geological Society of America has received two major communication awards for its 1984 major membership campaign. In June, the Society received the 1984 Gold Key Award for Advertising Excellence for a Multi-Media Campaign under \$50,000. The Gold Key Award is the top award of the Colorado Chapter of the Business and Professional Advertising Association. In September GSA was again honored for its "promotional publicity." The Public Relations Society of America/Colorado Chapter awarded our membership campaign its highest award, the Gold Pick Award. Each GSA member who sponsored a new member should take a bow!

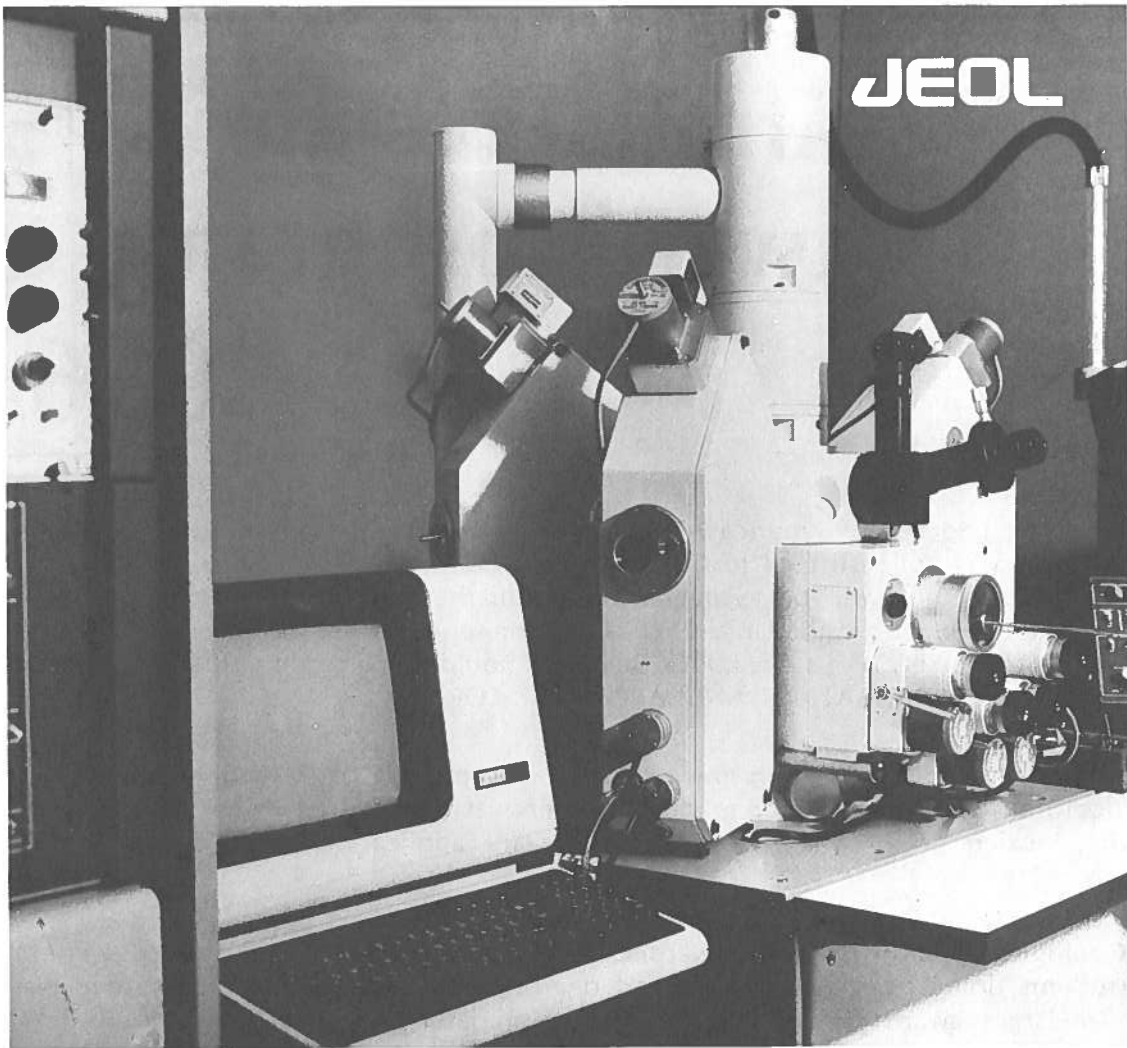
The theme of the 1985 membership campaign is Leonardo da Vinci's statement: "The Earth has a spirit of growth." This year the Society hopes to gain additional members from industry, government, and the private sector.

Tell your colleagues about GSA and encourage them to "Grow with Us." You can obtain membership applications and "Grow with Us" brochures from Membership Coordinator Clara Hodgson at (303) 447-2020 or P.O. Box 9140, Boulder, CO 80301.

With your support and personal involvement, GSA will continue to grow and meet the needs of the earth sciences community.



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Annual research awards program

1986

The Geological Society of America will continue its annual research awards program in 1986. Eligibility is not restricted to GSA members. New application forms for 1986 and detailed requirements will be available this fall in the geology departments of most colleges and universities in the United States or upon request from the Executive Director, the Geological Society of America, P.O. Box 9140, Boulder, Colorado 80301. PLEASE USE ONLY THE 1986 APPLICATION AND APPRAISAL FORMS.

The primary role of the research grant program is to provide partial support of master's and doctoral thesis research for graduate students at universities in the United States, Canada, Mexico, and Central America. If necessary, applications may be submitted in Spanish or French.

The Geological Society of America awarded \$120,000 in grants in 1985. The awards went to 144 students doing research for advanced degrees. The average amount awarded was \$834. The largest award was \$1,300, but there is no predetermined maximum amount.

Confidential evaluations from two faculty members are required from master's and doctoral candidates and must accompany applications submitted. PLEASE USE THE "APPRAISAL OF APPLICANT" FORMS, WHICH ACCOMPANY THE 1986 APPLICATION FORMS.

Applications will also be accepted for the Harold T. Stearns Fellowship(s). These grants are awarded periodically in support of research on one or more aspects of the geology of Pacific Islands and of the circum-Pacific region. They are distinct from the GSA Penrose research grants and are restricted in their use to the particular region. The awardee(s) will be selected by the Research Grants Committee. Applications must be postmarked by **February 15**. Application forms are the same as those used for the Penrose research grants.

The Committee on Research Grants will meet in March to evaluate applications and award grants. In April, all applicants for grants will be informed of the committee's actions by the Executive Director of the Geological Society of America.

**ALL APPLICATIONS MUST BE SUBMITTED ON THE 1986 FORMS
AND POSTMARKED BY FEBRUARY 15, 1986**

(PLEASE POST)

Southeastern Section Awards Student Research Grants

GSA's Southeastern Section has awarded research grants to the following students: S. J. Bedosky, Florida State University, for "Recent Sediment Deposition in the Apalachicola Delta and Bay, Florida"; Laura L. Burnett, University of Georgia, for "Formation of Sediment from Weathering of a Granite in a Humid Subtropical to Temperate Climate, Georgia"; Steven L. Collins, University of North Carolina, for "Sedimentary Tectonics of the Monongahela and Dunkard Groups (Pennsylvanian-Permian) Ohio, Pennsylvania, West Virginia"; Laura E. Cummins, Florida State University, for "Geochemistry, Mineralogy, and Origin of Mesozoic Diabase Dikes of Virginia"; Kenneth Finkelstein, Virginia Institute of Marine Science, for "The Late Quaternary Stratigraphy, Sedimentology, and Depositional Setting of a Dual-Barrier Island Complex, Cape Charles, Virginia"; Jonathan Forstrom, University of Georgia, for "Predicting Low Streamflows from Modeled Recharge in Small Piedmont Basins"; David Giacomini, University of North Carolina, for "Geology of the Trenton Limestone in the Pine Mountain Overthrust Sheet of Southwestern Virginia and Northeastern Tennessee"; Mark S. Groszos, Florida State University, for "Geology of Part of the Murphy Group in the Murphy Syncline in North-central Georgia"; Joseph A. McReynolds, College of William and Mary, for "The Stratigraphy and Origin of Upper Tertiary Gravels in the Richmond, Virginia, Area"; Dennis

Ray Owen, University of Tennessee, for "Geochemical Trends in the Central Tennessee Zinc District (Mascot and Kingsport Formations)"; Keith E. Roberson, University of Alabama, for "The Post-Knox Unconformity, Alabama Appalachians"; Anthony C. Robinson, University of Tennessee, for "Environments of the Chilhowee Group at Pigeon River Gap, Cocke County, Tennessee."

This is the fourth year that the Southeastern Section has conducted a student grants program. The average amount of the grants this year was \$366. To be eligible for an award, a student must be attending a college or university in the Southeastern Section geographic area and be a Student Associate of GSA. The program is supported by interest on investments, surplus funds from section meetings, and private contributions.

Information and applications for 1986 grants can be obtained from

Stephen H. Stow
Oak Ridge National Laboratory
P.O. Box X
Oak Ridge, TN 37830.

Completed applications are due by March 1, 1986. The final decision on awards will be made in April 1986.

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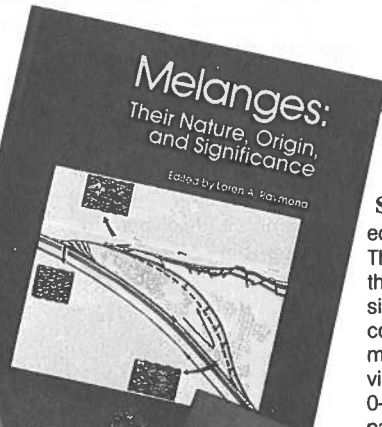
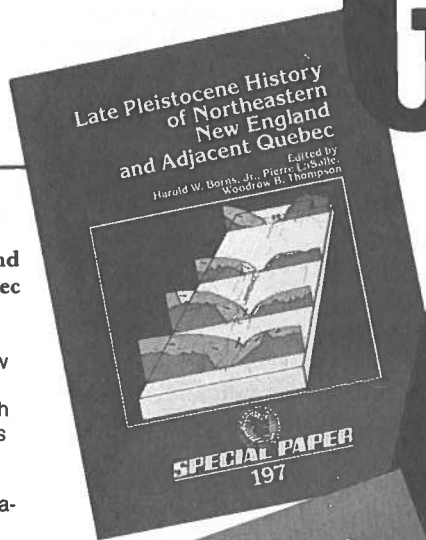
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SPECIAL PAPERS

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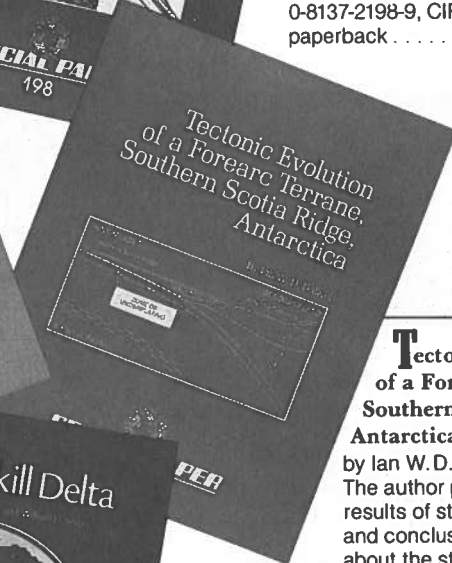
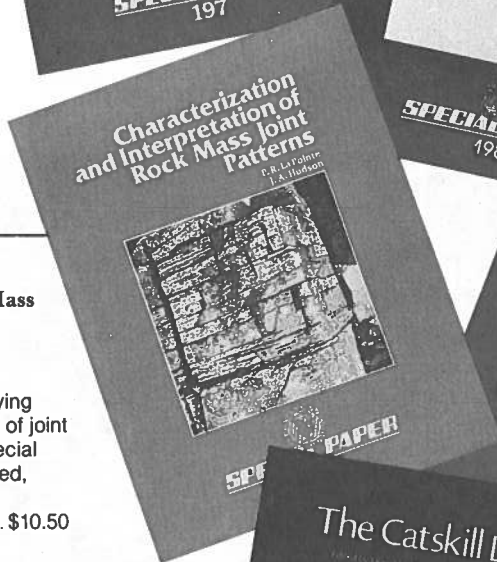
GSA

Late Pleistocene History of Northeastern New England and Adjacent Quebec
 edited by Harold W. Borns, Jr., Pierre LaSalle, and Woodrow B. Thompson, 1985
 13 papers dealing with the timing and models for the late Wisconsinan deglaciation of New England and adjacent Quebec. Special Paper 197, x + 159, illustrated, ISBN 0-8137-2197-0, CIP paperback \$22.50



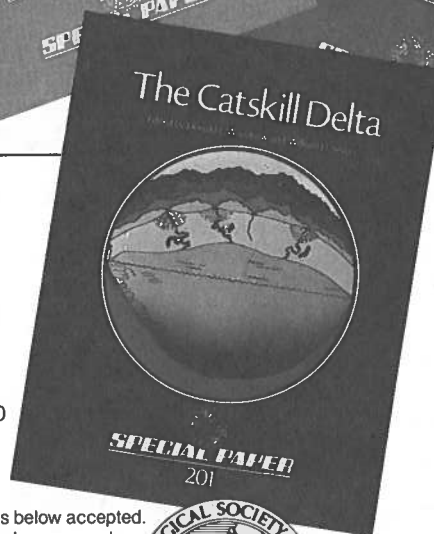
Melanges: Their Nature, Origin, and Significance
 edited by Loren A. Raymond, 1984
 This volume provides images of the nature of melanges, discussion of possible origins, and comments on the significance of melanges. Special Paper 198, vi + 170, illustrated, ISBN 0-8137-2198-9, CIP paperback \$22.00

Characterization and Interpretation of Rock Mass Joint Patterns
 by P. R. La Pointe and J. A. Hudson, 1985
 New techniques for quantifying and analyzing the geometry of joint patterns are developed. Special Paper 199, viii + 37, illustrated, ISBN 0-8137-2199-7, CIP paperback \$10.50



Tectonic Evolution of a Forearc Terrane, Southern Scotia Ridge, Antarctica
 by Ian W. D. Dalziel, 1984
 The author presents the results of structural studies, and conclusions are drawn about the structural evolution of the forearc terrane and the tectonic evolution of the southern Scotia Ridge. Special Paper 200, vi + 32, illustrated, ISBN 0-8137-2200-4, CIP paperback \$ 9.00

The Catskill Delta
 edited by Donald L. Woodrow and William D. Sevon, 1985
 The authors of the 18 chapters present either new ideas involving plate tectonics, paleogeography, and depositional models or sedimentologic and paleobiologic concepts not emphasized until recent years. Special Paper 201, viii + 246, illustrated, ISBN 0-8137-2201-2, CIP paperback \$32.00



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The GSA Membership Department must receive your 1986 dues payment by *November 27, 1985*, to get your name onto the computer lists for timely delivery of the journals and other publications.

If you have any questions or did not receive your 1986 dues statement from headquarters, call the GSA Membership Department, (303) 447-2020.

IN MEMORIAM

Roland F. Beers
Manchester, Vermont
July 9, 1985

Harold W. Burke
Los Altos, California
April 6, 1985

Charles A. Carlston
Arlington, Virginia
May 25, 1985

Alfred W. Chidester
Reston, Virginia
August 5, 1985

Bertrand T. Denis
Ste-Foy, Quebec
July 15, 1985

Carl E. Dutton
Madison, Wisconsin
August 24, 1985

Harold E. Enlows
Corvallis, Oregon
August 8, 1985

V. Stephen Papezik
St. John's, Newfoundland
June 23, 1984

Mary E. Russell
Bellevue, Washington
June 22, 1985

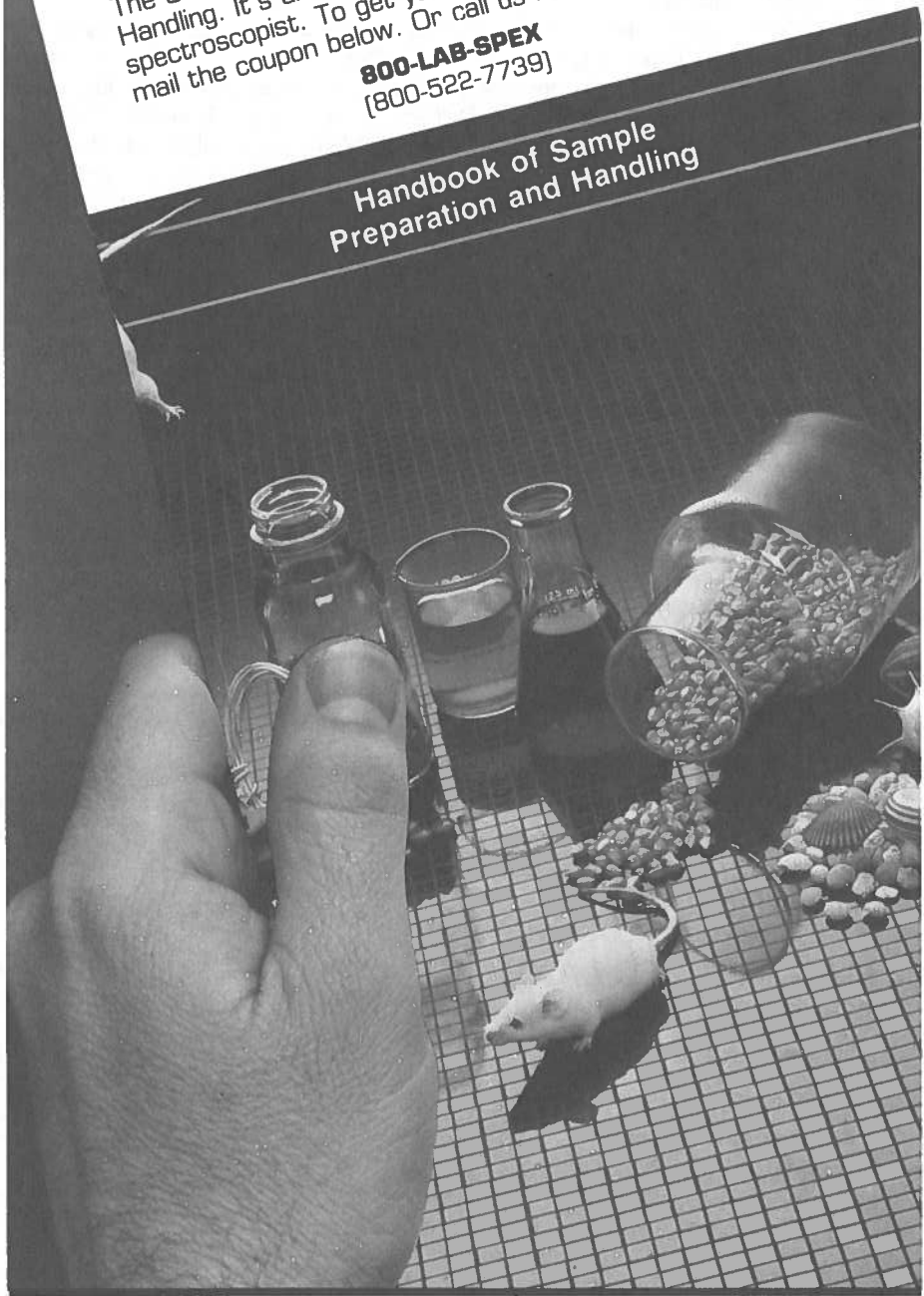
Francis P. Shepard
La Jolla, California
April 25, 1985

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News from GeoRef

GeoRef Covers 200 Years of North American Geology

Earth scientists and information specialists searching the GeoRef (Geological References) database on DIALOG or CAN/OLE can now access North American geological references from 1785 to the present. The addition of 40,322 references from the *Bibliography and Index of North American Geology* (1785-1918) increases the size of the database to more than one million citations and greatly simplifies the task of researchers seeking early geological literature. (Photocopies of documents cited may be ordered through the GeoRef Document Delivery Service.)

References from 1785-1960 are currently searchable only on DIALOG and CAN/OLE. System Development Corporation (SDC) plans to reload the database later this year and make the pre-1961 citations available at that time. In the process of adding the final segment of the North American backfile, DIALOG has also removed duplicate references that were introduced when overlapping bibliographies were added to the database. SDC will remove duplicates as well when they reload GeoRef.

The early references include the works of Hayden, Wheeler, Gilbert, Powell, and many other earth scientists who contributed to the original descriptions and interpretations of North American geology. Many of the newly added citations will also delight history-of-geology buffs. For example, Thomas Jefferson's memoir on certain Virginia fossils from 1799 is cited, as are the original journals of the 1802 Lewis and Clark expedition.

The most recent addition is part of an ongoing effort to incorporate early major bibliographies in the database. GeoRef's

international coverage runs from 1967 to the present, and work is already underway to add the *Bibliography and Index of Geology Exclusive of North America* (1933-1966). The backfile project is funded jointly by the American Geological Institute and the U.S. Geological Survey.

1985 GeoRef Serials List and KWOC Index Available

The new addition of the *GeoRef Serials List and KWOC Index* includes more than 9,500 earth-science serials that have been cited in the GeoRef database since 1967. The list is arranged alphabetically by title and provides the complete title, abbreviated title, CODEN or ISSN (or both), and country of publication for each entry. Many entries also include notes on variant titles, CODENs, or ISSNns. (CODENs and ISSNns are standardized codes for serials; both may be searched online.)

The KWOC (key words out of context) Index enables a user to identify a serial quickly by any significant word in the title. Each key title word appears as a separate entry to the left of the title in which it occurs. For example, Canada has 138 entries, energy 175, engineering 242, mineral 276, and water 416.

Serials account for roughly 75% of the more than one million references in GeoRef, and approximately 4,000 different serials are currently scanned each year. Inclusion of a serial in the GeoRef Serials List does not necessarily mean that it has been covered each year from 1967 to 1985, however. Questions on which issues of a particular serial have been included in GeoRef should be addressed to the AGI library.

(continued on p. 211)

GSA REVIEWS IN ENGINEERING GEOLOGY VI MAN-INDUCED LAND SUBSIDENCE

Edited by Thomas L. Holzer

Every earth scientist should be keenly interested in the timely and important subject of this GSA volume. Land subsidence has been caused by man in at least 37 states of the U.S.A. It affects an aggregate area of more than

MAN-INDUCED LAND SUBSIDENCE



EDITED BY THOMAS L. HOLZER

40,000 km² and may cost the nation as much as \$100 million annually.

This review includes nine papers in three categories: (1) Fluid withdrawal from porous media; (2) Drainage of organic soil; and (3) Collapse into man-made and natural cavities.

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News from GeoRef (continued from p. 210)

GeoRef has provided the CONSER Abstracting and Indexing Project with a copy of the new Serials List. Titles from the GeoRef list are being compared with those in the CONSER database. A note is being added to each matching record to indicate that the serial is indexed in GeoRef. This information will then be available online in the OCLC system. (CONSER is operational only through OCLC.)

MEETINGS

1985

Oceans '85: Ocean Engineering and the Environment, November 12-14, 1985, San Diego, California. Information: Oceans '85, P.O. Box 6830, San Diego, CA 92106.

Eastern Oil Shale Symposium, November 18-20, 1985, Lexington, Kentucky. Information: Connie S. Blakemore, Institute for Mining and Minerals Research, University of Kentucky, P.O. Box 13015, Lexington, KY 40512-3015.

Geological Society of Malaysia Petroleum Geology Seminar, December 6-7, 1985, Kuala Lumpur, Malaysia. Information: Michael Leong, Dept. of Geology, University of Malaya, Kuala Lumpur 22-11, Malaysia; telephone 03-577036.

American Geophysical Union Fall Meeting, December 9-13, 1985, San Francisco, California. Information: American Geophysical Union Fall Meeting, 2000 Florida Ave., N.W., Washington, DC 20009; 800-424-2488.

1986

American Geophysical Union and American Society of Limnology and Oceanography Ocean Sciences Meeting, January 13-17, 1986, New Orleans, Louisiana. Information: Ocean Sciences Meeting, American Geophysical Union, 2000 Florida Ave., N.W., Washington, DC 20009; 800-424-2488.

6th Offshore South East Asia Conference, January 28-31, 1986, Singapore. Information: D. H. Morgan, SEAPEX OSEA Committee, Marathon Petroleum Exploration, Ltd., P.O. Box 227, Tanglin Post Office, Singapore 9124.

International Volcanological Congress, February 1-9, 1986, New Zealand. Information: John A. Gamble, Victoria University, Private Bag, Wellington, New Zealand.

Second Annual McKelvey Forum—USGS Research on Energy Resources, February 5-6, 1986, Denver, Colorado. Information: Pam Jackson, TRAC, P.O. Box 6100, Denver, CO 80206; (303) 393-7061.

Geotechnical and Geohydrological Aspects of Waste Management Symposium, February 5-7, 1986, Fort Collins, Colorado. Information: Eighth Annual Symposium on Geotechnical and Geohydrological Aspects of Waste Management, Geotechnical Engineering Program, Civil Engineering Dept., Colorado State University, Fort Collins, CO 80523; (303) 491-6081.

Eighth Australian Geological Convention, February 16-21, 1986, Adelaide, South Australia. Information: L. C. Barnes, P.O. Box 292, Eastwood, South Australia 5063, Australia; telephone 274 7580; Telex AA 88692.

Symposium on Engineering Geology and Soils Engineering, February 26-28, 1986, Boise, Idaho. Information: Spencer H. Wood, Dept. of Geology and Geophysics, Boise State University, Boise, ID 83725; (208) 385-1631.

The *GeoRef Serials List and KWOC Index* is available in hard copy and microfiche from the Customer Service Department, American Geological Institute, 4220 King Street, Alexandria, VA 22302; phone (703) 379-2480 or (800) 336-4764. Paper copy (\$95) consists of 1,913 unbound, prepunched, 8½ × 11 inch pages printed on both sides. A set of microfiche (\$20) includes 38 fiche (25 × reduction).

Symposium on Geochemistry of the Earth Surface and Processes of Mineral Formation, March 16-22, 1986, Granada, Spain. Information: R. Rodriguez Clemente, National Museum of Natural Sciences, c/o Jose Gutierrez Abascal, 2, 280006 Madrid, Spain; telephone (91) 2.62.25.13.

Fourth Federal Sedimentation Conference, March 24-27, 1986, Las Vegas, Nevada. Information: Doug Glysson, U.S. Geological Survey, 412 National Center, Reston, VA 22092; (703) 860-6834.

The Global Ocean: Its Chemistry and Resources, March 24-29, 1986, Woods Hole, Massachusetts. Information: P. A. Meyers, Oceanography Program, University of Michigan, 2455 Hayward Ave., Ann Arbor, MI 48109; (313) 764-0597.

Geochemistry and Mineralisation of Proterozoic Volcanic Suites, April 2-5, 1986, Nottingham, England. Information: Tim Pharaoh, Deep Geology Research Group, British Geological Survey, Keyworth, Nottingham NG12 5GG, England.

International Symposium on Coal and Coal-bearing Strata, April 8-11, 1986, London. Information: A. C. Scott, Geology Dept., Chelsea College, 552 King's Road, London SW10 0UA, England.

Experimental Mineralogy and Geochemistry: Applications to Petrology and Ore Deposits, April 17-19, 1986, Nancy, France. Information: A. Weisbrod, E.N.S.G., B.P. 452, 54001 Nancy Cedex, France.

International Symposium on Environmental Geotechnology, April 21-24, 1986, Allentown, Pennsylvania. Information: H. Y. Fang, Geotechnical Engineering Div., Dept. of Civil Engineering, Lehigh University #13, Bethlehem, PA 18015; (215) 861-3549 or 3520.

Geological Association of Canada—Mineralogical Association of Canada Annual Meeting, May 19-21, 1986, Ottawa, Ontario. Information: J. A. Donaldson, Dept. of Geology, Carlton University, Ottawa, Ontario K1S 5B6, Canada; (613) 231-2630.

American Association for the Advancement of Science National Meeting, May 25-30, 1986, Philadelphia, Pennsylvania. Information: AAAS Meetings Office, 1333 H St., NW, Washington, DC 20005; (202) 326-6400.

Third International Conference on Geoscience Information, June 1-5, 1986, Adelaide, Australia. Information: Secretary, Organising Committee 3ICGI, Australian Mineral Foundation, PB97, Glenside, South Australia 5065, Australia.

Geology of the Bahamas, Third Symposium, June 6-10, 1986, San Salvador, Bahamas. Information: H. Allen Curran, Dept. of Geology, Smith College, Northampton, MA 01063; (413) 584-2700, ext. 3943.

27th U.S. Symposium on Rock Mechanics, June 23-25, 1986, University, Alabama. Information: Howard L. Hartman, Dept. of

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Meetings (continued from p. 211)

Mineral Engineering, University of Alabama, P.O. Box 1468, University, AL 35486; (205) 348-6578.

6th International Conference on Geochronology, Cosmo-chronology and Isotope Geology, June 30-July 4, 1986, Cambridge, England. Information: Organising Committee, Sixth International Conference, Dept. of Earth Sciences, University of Cambridge, Downing St., Cambridge CB2 3EQ, England.

Geocongress '86, July 7-11, 1986, Johannesburg, South Africa. Information: Symposium Secretariat, S. 339, CSIR, P.O. Box 395, Pretoria, Republic of South Africa 0001.

International Field Conference on Proterozoic Geochemistry, July 13-19, 1986, central Colorado. Information: K. C. Condie, Dept. of Geoscience, New Mexico Institute of Mining and Technology, Socorro, NM 87801.

Deep Seismic Reflection Profiling of the Continental Lithosphere, July 15-17, 1986, Cambridge, England. Information: Bullard Laboratories, Madingley Rise, Madingley Rd., Cambridge CB3 0EZ, England.

Third International Humic Substances Society Meeting, August 4-8, 1986, Oslo, Norway. Information: Egil Gjessing, Norwegian Institute for Water Research, P.O. Box 333, Blindern Oslo 3, Norway, or Wesley L. Campbell, IHSS Standards & Reference Committee, 5293 Ward Rd., Arvada, CO 80002; (303) 236-3615.

Fifth International Symposium on Water-Rock Interaction,

August 8-17, 1986, Reykjavik, Iceland. Information: Halldor Armannsson, Orkustofnun — National Energy Authority Grensasvegur 9, 108 Reykjavik, Iceland.

Energy Resources in Asia, August 11-14, 1986, Hong Kong. Information: Asian Research Service, G.P.O. Box 2232, Hong Kong. (Abstracts due March 11, 1986.)

Basins of Eastern Canada and Worldwide Analogues, August 13-15, 1986, Halifax, Nova Scotia. Information: Secretary, Dept. of Oceanography, Dalhousie University, Halifax, Nova Scotia, Canada B3H 4J1.

Circum-Pacific Energy and Mineral Resources Conference, August 17-22, 1986, Singapore. Information: Allen G. Hatley, c/o Gaffney, Cline & Assoc., P.O. Box 76309, Dallas, TX 75379.

International Association on the Genesis of Ore Deposits Seventh Symposium, August 18-22, 1986, Lulea, Sweden. Information: Inger Wallin, Centek Conference, S-951 87 Lulea, Sweden. (Abstracts due November 30, 1985.)

Third U.S. National Conference on Earthquake Engineering, August 24-28, 1986, Charleston, South Carolina. Information: James E. Beavers, Martin Marietta Energy Systems, Inc., Bldg. 9733-4, M/S 2, P.O. Box Y, Oak Ridge, TN 37831.

International Symposium on Large Rock Caverns, August 25-28, 1986, Helsinki, Finland. Information: International Symposium on Large Rock Caverns, Technical Research Center of Finland, Lehtisaarentie 2, SF-00340 Helsinki, Finland; telephone 358-0-4566172; Telex 122972 vttha sf.

(continued on p. 213)

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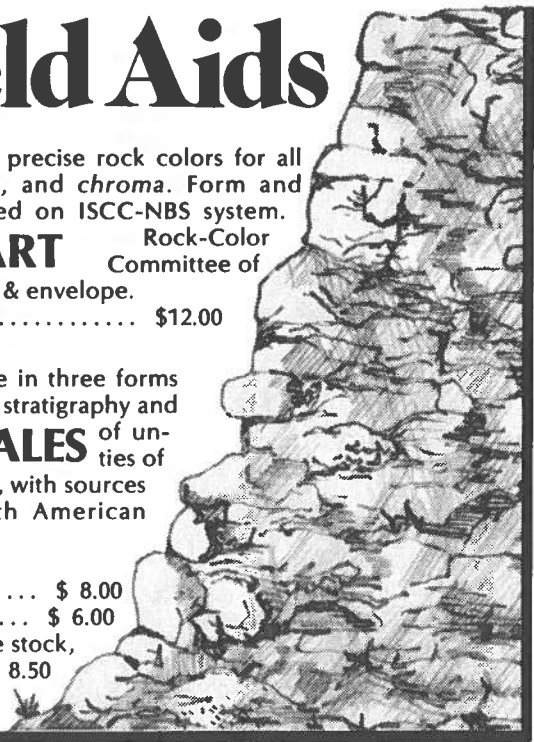
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International Symposium on Remote Sensing for Resources Development and Environmental Management, August 25-29, 1986, Enschede, Netherlands. Information: Secretariat Symposium Commission VII, ISPRS, c/o ITC, P.O. Box 6, 7500 AA Enschede, Netherlands; Telex 44525.

Second International Conference on Paleoceanography, September 7-12, 1986, Woods Hole, Massachusetts. Information: W. A. Berggren, Dept. of Geology & Geophysics, Woods Hole Oceanographic Institution, Woods Hole, MA 02543.

1986 International Gas Research Conference, September 8-11, 1986, Toronto, Ontario. Information: 1986 International Gas Research Conference, c/o Gas Research Institute, 8600 West Bryn Mawr Ave., Chicago, IL 60631; (312) 399-8300, Telex 253812 or 503802.

International Association of Hydrogeologists Congress, September 8-15, 1986, Karlovy Vary, Czechoslovakia. Information: A. Zaporozec, AIH, 3817 Mineral Point, Rd., Madison, WI 53705.

Society of Economic Paleontologists and Mineralogists Third Annual Midyear Meeting, September 26-28, 1986, Raleigh, North Carolina. Information: Chuck Nittrouer, Dept. of Marine, Earth and Atmospheric Sciences, North Carolina State University, Raleigh, NC 27695. (Abstracts due April 1, 1986.)

International Conference on Coastal Engineering, November 9-14, 1986, Taipei, Taiwan. Information: Billy L. Edge, Cubit Engineering Limited, 207 East Bay St., Suite 311, Charleston, SC 29401.

GEOLOGICAL SOCIETY OF AMERICA Annual Meeting—November 10-13, 1986, San Antonio, Texas.

GSA 1986 Penrose Conferences

Southern Oklahoma Aulacogen, March 23-28, 1986, Quartz Mountain State Park, Oklahoma. Information: M. Charles Gilbert, Dept. of Geology, Texas A&M University, College Station, TX 77843; (409) 845-2464 or 845-2451.

Reefal Development in a Terrigenous Province, May 17-21, 1986, Veracruz, Mexico. Information: Paul R. Krutak, ARCO Exploration Co., P.O. Box 51408, Lafayette, LA 70505; (318) 264-4452.

Migmatites and Crustal Melting, June 8-13, 1986, Amherst, Massachusetts. Information: Robert J. Tracy, Dept. of Geology and Geophysics, Yale University, New Haven, CT 06511; (203) 436-3539.

Sections

Northeastern, March 12-14, 1986, Kiamesha Lake, New York

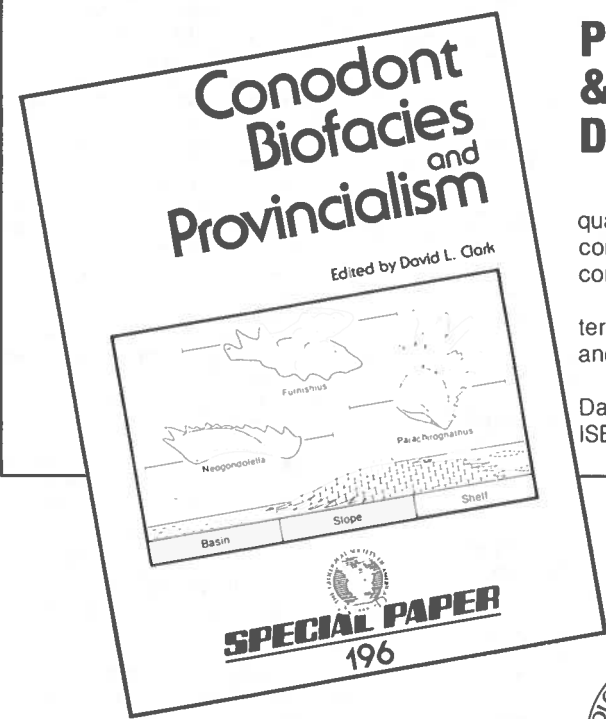
Cordilleran, March 25-28, 1986, Los Angeles, California

South-Central/Southeastern, April 2-5, 1986, Memphis, Tennessee

North-Central, April 24-25, 1986, Kent, Ohio

Rocky Mountain, April 30-May 2, 1986, Flagstaff, Arizona

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Meetings (continued from p. 213)
1987

Hawaii Symposium on How Volcanoes Work, January 19-23, 1987, Hilo, Hawaii. Information: Robert Decker, U.S. Geological Survey, MS 910, 345 Middlefield Rd., Menlo Park, CA 94025.

Canadian Reef Research Symposium, January 27-30, 1987, Banff, Alberta, Canada. Information: Canadian Reef Research Symposium, University of Calgary, Conference Office, 2500 University Dr. N.W., Calgary, Alberta T2N 1N4, Canada.

Coastal Sediments '87, May 12-14, 1987, New Orleans, Louisiana. Information: Nicholas C. Kraus, USAE Waterways Experiment Station, Coastal Engineering Research Center, P.O. Box 631, Attn. WESCR-P, Vicksburg, MS 39180-0631.

Second International Symposium on the Devonian System, August 17-20, 1987, Calgary, Alberta, Canada. Information: 2nd Int. Symp. on the Devonian System, Canadian Society of Petroleum Geologists, #505, 206 - 7 Ave. S.W., Calgary, Alberta T2P 0W7, Canada; (403) 264-5610.

Sixth International Congress on Rock Mechanics, August 31-September 3, 1987, Montreal, Quebec, Canada. Information: J. Franklin, Dept. of Earth Sciences, University of Waterloo, Waterloo, Ontario N2L 3G1, Canada.

XI International Congress of Carboniferous Stratigraphy and Geology, September 7-11, 1987, Beijing, China. Information: Yang Jingzhi, Nanjing Institute of Geology and Paleontology, Academia Sinica, Nanjing, China. (Abstracts due March 15, 1986.)

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GEOCHEMIST AND STRUCTURAL GEOLOGIST

The Department of Geological Sciences at Lehigh University is seeking to fill two tenure-track positions at the Assistant Professor level for Fall 1986. The successful candidates will be expected to conduct an active research program, supervise graduate students, and teach both undergraduate and graduate-level courses in their fields of expertise. The two positions are as follows:

Low Temperature Aqueous Geochemist. Expertise in water/rock reactions is preferred, but highly qualified individuals in other areas of low-temperature geochemistry will be considered. Course offerings should include introductory geochemistry, groundwater geochemistry, and geochemical techniques.

Structural Geologist. Interest in tectonics with an emphasis on field investigations is preferred, but highly qualified individuals in other areas of structural geology/tectonics will be considered. Course offerings should include introductory structural geology, plate tectonics, and structural field techniques.

Please send application (with research interests), curriculum vitae, and the names of three references to: Dr. Bobb Carson, Chairman, Department of Geological Sciences, Williams Hall #31, Lehigh University, Bethlehem, PA 18015. Applications received after December 15, 1985, cannot be guaranteed full consideration. Lehigh University is an AA/EEO employer.

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STATE GEOLOGIST INDIANA GEOLOGICAL SURVEY

The Indiana Department of Natural Resources and the Department of Geology, Indiana University, invite applications and nominations for the position of State Geologist and Director of the Indiana Geological Survey. This will be a joint appointment between the two organizations and the successful candidate will also hold a professional rank in Indiana University. The State Geologist must have skills in administering the Geological Survey and have the capacity to foster and maintain communication and cooperation among the Geological Survey, the Department of Natural Resources, other governmental agencies and the public. The successful applicant must have a broad knowledge of geology and mineral resources, possess an appreciation of Survey research and services, and agree in principle with long-range Survey goals. The position demands a commitment to research and public service excellence. The State Geologist should possess an advanced degree in geology.

The Department of Natural Resources and Indiana University are affirmative action/equal opportunity employers and they encourage applications from women and minority candidates. A nomination must include a brief outline of the nominee's qualifications and include his or her current address and telephone number. Applications should include a letter of application, a complete resume, and 5 references with telephone numbers. To be assured of consideration, nominations must be received by November 30, 1985, applications by December 31, 1985. The starting date for the appointment will be July 1, 1986. All communications should be with: N. Gary Lane, Chairman, Search Committee for State Geologist, Department of Geology, Indiana University, Bloomington, IN 47405.

MINERAL PHYSICIST

The Department of Geology at Indiana University, Bloomington, has an opening for a tenure track position in mineral physics. Preference will be given to candidates with a background in electron microscopy. The successful applicant will be expected to initiate a research program to develop graduate courses in his/her specialty and to participate in undergraduate teaching. Primary consideration will be given to applicants at the assistant professor level but outstanding

persons at more advanced levels will also be considered. As an equal opportunity/affirmative action employer, Indiana University strongly encourages applications from women and minority candidates. Interviews will be held at AGU, San Francisco. To be sure of consideration, please have a resume and three letters of recommendation sent by December 31, 1985 to Professor N. Gary Lane, Chairman, Department of Geology, Indiana University, Bloomington, Indiana 47405.

ORGANIC GEOCHEMISTRY INDIANA UNIVERSITY

The Department of Geology at Indiana University, Bloomington seeks applicants for a tenure-track faculty appointment in organic geochemistry or closely related aspects of sedimentary geochemistry. Applicants are sought primarily at the level of assistant professor, but more senior persons may be considered. Candidates should be well qualified to teach at the undergraduate and graduate level in the Department of Geology and to develop a strong research program. Active research programs and excellent facilities exist on the campus in the related fields of biogeochemistry, isotopic and low-temperature geochemistry, microbiology, sedimentology and stratigraphy, and organic chemical analysis.

As an equal opportunity/affirmative action employer, Indiana University strongly encourages applications from women and minority candidates. The department will begin reviewing applications on October 1, 1985 and will continue until a suitable candidate is appointed, but to be sure of fullest consideration applicants should respond no later than December 31, 1985. Send resume, statement of research interests, reprints, and names of at least three references to Prof. N. Gary Lane, Chairman, Department of Geology, Indiana University, Bloomington, IN 47405.

HYDROGEOLOGIST OR HYDROLOGIST

The Department of Geology at Indiana University, Bloomington, has an opening for a tenure track position in hydrogeology. We are interested in candidates with a strong background in quantitative hydrology with research interests in the physical aspects of ground water flow. The successful applicant will be expected to teach undergraduate and graduate physical hydrology courses with a strong emphasis on the modeling of ground water flow. Primary consideration will be given to applicants at the assistant professor level but outstanding persons at more advanced levels will also be considered. As an equal opportunity/affirmative action employer, Indiana University strongly encourages applications from women and minority candidates. Interviews will be held at AGU, San Francisco. To be sure of consideration, please have a resume and three letters of recommendation sent by December 31, 1985 to Professor N. Gary Lane, Chairman, Department of Geology, Indiana University, Bloomington, Indiana 47405.

STRUCTURAL GEOLOGY/HYDROGEOLOGY

Applications are invited for 2 tenure-track positions to begin Sept. 1986. The Ph.D. is required for appointment at the asst. prof. level. Research interests should be in the areas of structural geology and tectonics of the western U.S., geologic hazards, groundwater geology of the arid west, hydrogeochemistry as related to groundwater and waste disposal, basin analysis, or engineering geology. Application deadline is Dec. 15, 1985. Detailed descriptions of these positions are available from the Dept. of Geology, Utah State University, Logan, Utah 84322-0705. USU is an equal opportunity/affirmative action employer.

INVERTEBRATE MACROPALEONTOLOGISTS

The U.S. Geological Survey (USGS), Geologic Division, Branch of Paleontology and Stratigraphy,

announces two vacancies for research geologists in invertebrate macro-paleontology. The first position is directed toward study of lower and/or middle Paleozoic rocks and the second is to investigate Mesozoic rocks. Applicants must have a Ph.D. or equivalent experience and must be U.S. citizens. Prefer field-oriented researchers with several years experience and demonstrated interest in biostratigraphic studies. Prefer specialization in established biostratigraphically useful fossil group(s). Duties include conduct of biostratigraphic investigations and original research on fossil macroinvertebrates throughout the U.S. Position, salary, and grade negotiable based on career experience (salary range \$31,619 to \$67,940 per annum, GS-12 to GS-15). The Paleozoic position will be located in Denver, CO, or Menlo Park, CA. For further information contact: PALEOZOIC—A.G. Harris, USGS, U.S. Natl. Mus., E-503, Washington, D.C. 20560 (tel.: 202-343-3495); MESOZOIC—N.F. Sohl, same address (tel.: 202-343-8098).

Application must include Standard Form 171 (SF-171), Personal Qualifications Statement, available from above address or any federal personnel office, and a complete list of publications. Applications must be received by A.G. Harris (Paleozoic) or N.F. Sohl (Mesozoic) by January 15, 1986. The USGS is an Equal Opportunity Employer.

AUBURN UNIVERSITY

The Department of Geology announces the availability of a tenure-track position at the Assistant or Associate Professor level starting September 16, 1986. The successful applicant will be expected to teach introductory courses, courses in his/her specialty at the undergraduate and graduate levels, and to supervise M.S. students. We are seeking a practically oriented mineralogist-geochemist who has a strong interest in both teaching and research. The Department has 9 faculty and approximately 20 graduate students. Research facilities include XRD and AA; TEM/SEM with EDAX and ICAP are available on campus. Please send letter of application, statement of teaching and research interests and capabilities, transcripts, and 3 letters of recommendation to: Chairman, Mineralogy Search Committee, Department of Geology, Auburn University, Auburn, AL 36849. Deadline is January 15, 1986. Auburn University is an Affirmative Action/Equal Opportunity employer.

UNIVERSITY OF SOUTH CAROLINA

The department of geology anticipates a tenure-track position will be available in geophysics starting August 1986. The rank and salary are open and subject to negotiation by the successful applicant with the Dean. Applicants in all areas of geophysics will be considered. Current areas of interest in geophysics in the department are: seismology, explorational and regional geophysics, tectonophysics. Prior to 31 December

1985 send a detailed resume include C.V., publications and any other pertinent information as well as the names and addresses of three references to: I. Lerche, Department of Geology, University of South Carolina, Columbia, S.C. 29208. The University of South Carolina is an equal opportunity, affirmative action employer.

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