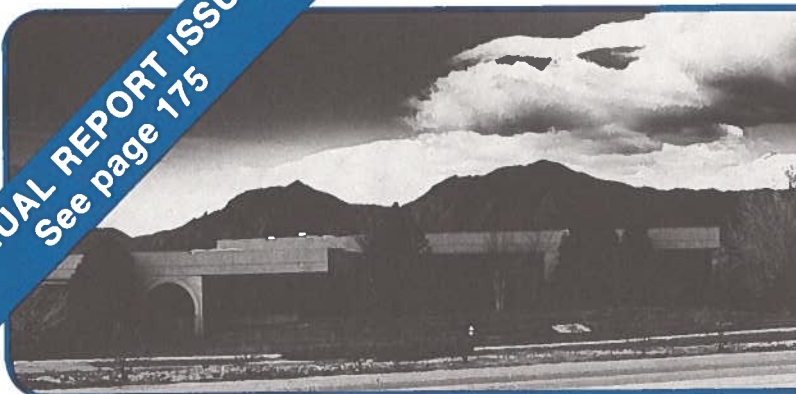


ANNUAL REPORT ISSUE
See page 175



GSA NEWS & INFORMATION

Monthly Newsletter of
The Geological Society of America

VOLUME 8, NUMBER 9

SEPTEMBER 1986

San Antonio Welcomes You to the 1986 GSA Annual Meeting

Welcome to San Antonio, the International City of Texas.

We are delighted to host the GSA 1986 Annual Meeting in our city, known for its charm and history. San Antonio is a city with character and many cultures. It is the perfect meeting place in November; days are warm and evenings are cool. The friendly people who provide the music, host the restaurants, and serve you in the shops and marketplaces are part of the tenth most populous metropolitan area in the United States. Challenging technical sessions by day can be followed by enjoyable activities with a Mexican flavor by night.

San Antonio's quiet, south-of-the-border charm is enhanced by the beauty of its River Walk and tropical gardens that are the setting for the historical memories associated with the Alamo and the settlement of Texas, now celebrating its Sesquicentennial year. A newly renovated San Antonio Convention Center will be the site for the technical sessions, registration, exhibits, science theater, and employment service. Most of the hotels are only a short walking distance from the meeting activities.

The 1986 Annual Meeting is hosted by a committee composed of representatives from the University of Texas at San Antonio and at Austin, Texas A&M University, St. Mary's and Baylor universities, the Bureau of Economic Geology, local geologists, and friends.

Twenty premeeting and postmeeting field trips have been planned. Participants may select from a wide variety, including such areas as Big Bend, Davis Mountains, El Paso Border region, Texas coast, Devils River region, and Edwards Plateau of Texas, Ouachita Mountains of Arkansas, and Arbuckle Mountains of Oklahoma.

Twenty-eight symposia will address such diverse topics as shelf sedimentation, circum-Atlantic terranes, carbonate aquifers, Precambrian of the Gulf-Caribbean region, eustatic sequences, sequence stratigraphy, Rio Grande rift, fluids in crustal process, paleontology, and granites and migmatites. The program begins unofficially on Sunday, November 9, starts officially on Monday, November 10, and continues through the week until Thursday, November 13. More than 1200 oral and poster presentations are scheduled, providing a diversity of controversial and timely sessions.

GSA is sponsoring seven short courses, Seawater Chronostratigraphy, Microcomputers, Fossil Radiolaria, Rock Mechanics, Computer Graphics, Glacial-Marine Sedimentation, and Contaminant Hydrogeology. Other courses, forums, and workshops are being offered by societies associated with GSA.

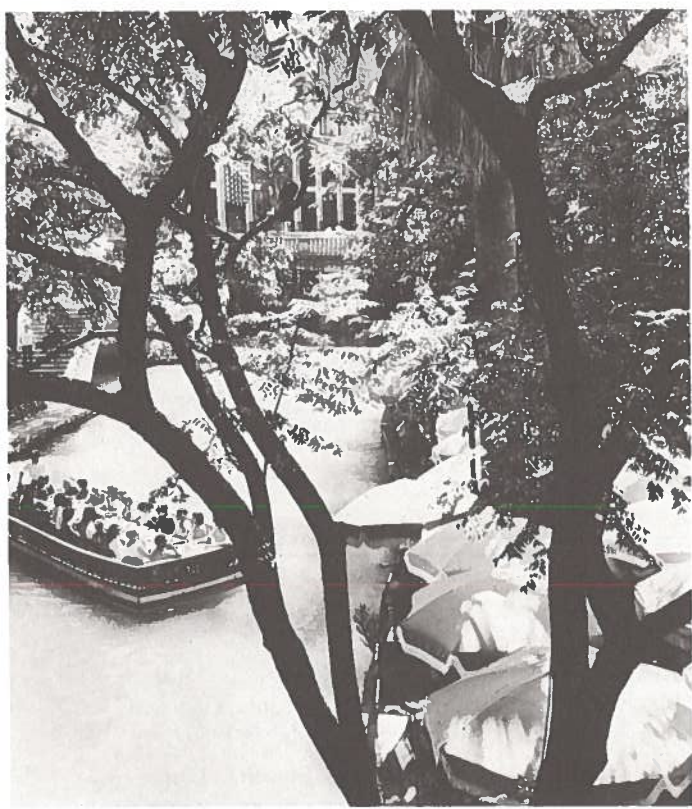
An array of special events is available, including the traditional welcoming party, alumni night, and a first-time-ever student forum.

Burros and Burritos, the Wednesday evening special event night, offers mariachis and country-western music as the background for dancing, dancers, and all-you-can-eat Tex-Mex food and drink.

Guests will have had the opportunity to register for tours of the Spanish Missions, the famous King William District, caverns, museums, the Botanical Garden, The University of Texas at San Antonio Institute of Texas Cultures, and the unique shops of El Mercado (the famous north-of-the-border Mexican marketplace).

This is my opportunity to give my deepest thanks to all the members of the Local Committee for their dedication, hard work, and initiative. Their efforts have provided a superb Annual Meeting for the members of GSA. Please give them your thanks when you see them at the meeting. It has been a privilege and pleasure to serve as General Chairman of the 1986 Local Committee.

James O. Jones
General Chairman



Paseo del Rio, San Antonio

1986 Annual Meeting Local Committee



Left to right: John C. Maxwell, James O. Jones, Marilyn Jones, Melvin C. Schroeder, Don R. Lewis, Weldon W. Hammond, William G. Ellis, Eric R. Swanson, Berry Sutherland, Alan P. Morris, E. G. Wermund, David Fitzgerald, Stuart J. Birnbaum.

1986 ANNUAL MEETING • SAN ANTONIO • NOVEMBER 10-13
PREREGISTRATION DEADLINE: OCTOBER 10
FOR MEETING INFORMATION CONTACT 303/447-2020
GSA HEADQUARTERS

GSA ANNUAL MEETING, SAN ANTONIO

ANNOUNCEMENT OF FULL-DAY SYMPOSIA ON SUNDAY, NOVEMBER 9, 1986

Symposium #10: "Microbial Contributions and Transformations in the Sedimentary Record," sponsored by the Geochemical Society.

Symposium #26: "Mineralization in Restricted Basins," sponsored by the Society of Economic Geologists.

CORRECTION

Wallace Hansen, GSA's new Map and Chart editor (July 1986 *GSA News & Information*), is a member of the Association of **Engineering** Geologists and has been editor of the *Association of Engineering Geologists Bulletin*.

In Memoriam

Donald W. Ash
Powell, Ohio
May 21, 1986

Henry V. Beck
Manhattan, Kansas
May 11, 1986

Wayne E. Hall
Denver, Colorado

John W. Harrington
Spartanburg, South Carolina
April 23, 1986

David E. Ogren
Atlanta, Georgia
May 5, 1986

Steven S. Oriol
Denver, Colorado
July 6, 1986

PEOPLE

GSA Fellow **Thomas W. Fluhr**, Liberty, New York, retired chief geologist for the New York City Board of Water Supply, has been awarded the New York State Geological Survey's James Hall Medal, for significant contributions to the earth sciences in New York.

Member **John H. Foster** has been named vice-president and general manager for Hydrotech Consultants, Inc., Irvine, California.

The Canadian Society of Petroleum Geologists awarded its R.J.W. Douglas Medal to GSA Fellow **Eric W. Mountjoy**, McGill University, for outstanding contributions to the understanding of sedimentary geology in Canada.

Member **Michael E. Shiang**, Baton Rouge, Louisiana, has been promoted to Associate of Geraghty & Miller, Inc., ground-water consultants.

Fellow **Alvin Van Valkenburg, Jr.**, Tucson, Arizona, has been awarded the John Price Wetherill Gold Medal by the Franklin Institute for his role in developing the diamond anvil pressure device.

Vol. 8, no. 9 GSA News & Information September 1986

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.

Prepared from contributions from the staff and membership. Executive Director: F. Michael Wahl; Managing Editor: Faith Rogers; Associate Editor: Lee Gladish; Director of Communications: Nancy A. Reed; Production and Advertising Manager: James R. Clark; Marketing/Advertising Assistant: Ann H. Fogel; Assistant Production Manager: Meredith L. Larson; Production Assistants: Mona T. Gonzales and Joan E. Manly.

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



CENTENNIAL NEWS

by Allison (Pete) Palmer

Southeastern Section Field Guide

Final pages for this volume are ready to go to the printer as this is being written. Shipping only awaits the imminent arrival of the index. The book should be printed about the time you receive this issue of *News & Information*, in time for fall field trips. Represented in this book are 113 authors and co-authors, spread among 30 universities, 8 state surveys, 7 corporations, 3 federal agencies, and 2 museums. Thanks to all for a book in which your section can take great pride, and thanks again to Tony Neathery for bringing it to completion.

The Western North Atlantic Region

The co-editors of this volume, Brian Tucholke and Peter Vogt, were at GSA headquarters July 9, 10, and 11 to go over the preliminary chapter dummies and iron out any final problems before the texts go to the typesetter for preparation of the final camera-ready page proofs. The editors brought with them the text for the Introduction, the final chapter to be written. They also reviewed copy-editing of the two other chapters that had not yet been typeset. The book text should be ready to go to the printer some time in August. The publication target for this book is now the GSA 1986 Annual Meeting in San Antonio. It will be a close race, because color separation of the two most complex color plates, which takes about 5 months to complete, only began in May when copy for these last two plates was received from the volume editors.

Citations of DNAG Book Chapters and Transects

Now that the first 2 major books are imminent and 11 Continent/Ocean transects are printed, the following format has been established for citing the book chapters or individual transects:

The Western North Atlantic Region

Srivastava, S.P., and Tapscott, C.R., 1986, Plate kinematics of the North Atlantic, in Vogt, P.R., and Tucholke, B.E., eds., *The western North Atlantic region: Boulder, Colorado, Geological Society of America, The Geology of North America, v. M., p. xxx-yyy.*

Southeastern Section Field Guide

Dever, G.R., Jr., and Barron, L.S., 1986, Red River Gorge Geological Area (Daniel Boone National Forest) and Natural Bridge State Park, east-central Kentucky, in Neathery, T.L., ed., *Southeastern Section of the Geological Society of America: Boulder, Colorado, Geological Society of America, Centennial Field Guide, v. 6, p. 43-46.*

Transects

Cowan, D.S., and Potter, C.J., compilers, 1986, B-3 Juan de Fuca spreading ridge to Montana thrust belt: Boulder, Colorado, Geological Society of America, Centennial Continent/Ocean Transect no. 9, 3 sheets with text, scale 1:500,000.

DNAG Customer Newsletter

The Marketing department is now preparing the third quarterly DNAG Customer Newsletter to go to the more than 1100 subscribers for complete or partial sets of DNAG products, and to all geology department heads, DNAG authors, and GSA campus, industry, and government representatives. The Customer Newsletter is another source, besides this column, for current information on the status of the DNAG project. Copies of the previous two newsletters, or a free subscription to future issues, can be obtained by writing to *DNAG News*, Box 9140, Boulder, Colorado 80301.

Progress on Other Volumes

Centennial Field Guides. As of July 1, 267 chapters had been received for the four Centennial Field Guides whose deadline date for receipt of chapters at GSA was July 1. Those 133 texts that have not yet been delivered represent outstanding geologic sites that were chosen from among many more that were submitted. The authors have a responsibility to those colleagues whose proposals were not selected to complete their commitments.

Geology of North America. Only 6 of the 30 overdue chapters listed in the *July News & Information* (written in mid-May) had been received by early July: the final 2 for *The Western North Atlantic Region* by Peter Vogt and Brian Tucholke; 1 for *The Caribbean Region* by Jim Case and others; and 3 chapters for *The Atlantic Continental Margin: U.S.* by John Grow and others, Leonardo Seeber and John Armbruster, and Mike Steckler and others.

The deadline for submittal of reviewable manuscripts for *The Eastern Pacific Region* was July 1. Notification of this deadline was mailed in late February, well past original author agreements of July 1985, and subsequent promises of "end of October" and "end of the year." Chapters still to be received, exclusive of the introductory and wrap-up chapters, include:

Data chapters: Gravity/Geoid—Tony Watts; Sediment Thickness—Jerry Winterer.

Section on active spreading regime processes: Juan de Fuca—Paul Johnson; East Pacific Rise/Galapagos—chapter on Transform Faults—Jeff Fox.

Section on off-axis features: Aging Lithosphere—Leroy Dorman; Plateaus—Jerry Winterer and Bill Sliter.

Section on the continental margin: Gulf of Alaska—Roland von Huene; Central California—Dave McCulloch; Guatemala—Roland von Huene.

Cordilleran time-slice chapters were also due by July 1 (long past original promises, and re-promised by this date in March). Still to be received are chapters by Lee Silver, Elizabeth Miller, Dave Miller, Jason Saleeby, and Bob Christiansen and Bob Yeats. Each one of these chapters

(continued on p. 168)

Southeastern Section (continued from p. 168)

Abstracts Coordinator or Stephen J. Culver
Geological Society of America Dept. of Geological Sciences
P.O. Box 9140 Old Dominion University
Boulder, CO 80301 Norfolk, VA 23508
(303) 447-8850 (804) 440-4301

Symposium abstracts should be sent to the appropriate coordinator. Technical and poster-session abstracts and suggestions for additional symposia should be sent to

Stephen J. Culver
Dept. of Geological Sciences
Old Dominion University
Norfolk, VA 23508
(804) 440-4301

One original and five copies must be submitted.

ABSTRACTS ARE DUE NOVEMBER 5, 1986

PROJECTION EQUIPMENT

Equipment will be provided for 2" x 2" slides, which must fit a 35 mm carousel tray. Overhead projectors will not be available. Please bring your own loaded carousel trays, if possible.

EXHIBITS

Exhibits representing education, research, and industry will be on display at the meeting site. For further information, contact

Joseph H. Rule
Dept. of Geological Sciences
Old Dominion University
Norfolk, VA 23508

DETAILED INFORMATION

Information concerning registration, accommodations, and activities will appear in a future issue of *GSA News & Information* and as part of *Abstracts with Programs* for 1987.

Inquiries, additional information, requests, or suggestions should be addressed to

Randall S. Spencer or Thomas H. Dunham
Dept. Geological Sciences Dept. Geological Sciences
Old Dominion University Old Dominion University
Norfolk, VA 23508 Norfolk, VA 23508

Symposium To Address How Volcanoes Work

A symposium, *How Volcanoes Work*, will commemorate the 75th anniversary of the founding of the Hawaiian Volcano Observatory. The symposium, convened by Robert Decker, Joseph Halbig, Reginald Okamura, and Thomas Wright, will be held in Hilo, Hawaii, January 19-25, 1987.

Sessions will focus on conceptual models of how rift, subduction, and intraplate volcanoes work; internal and deep structure of volcanoes; dynamics of magma chambers and of intrusion and eruption processes; exploration of submarine volcanoes; earthquakes and tremors related to volcanism; monitoring active volcanoes; and forecasting volcanic eruptions. Four days of meetings will alternate with three days of field trips to volcanoes on the Island of Hawaii.

The symposium is jointly sponsored by the U.S. Geological Survey, the University of Hawaii at Hilo, the International Association of Volcanology and Chemistry of the Earth's Interior, the Circum-Pacific Council for Energy and Mineral Resources, the Hawaii Institute of Geophysics, the American Geophysical Union,

Southeastern Section Awards Student Research Grants

GSA's Southeastern Section has awarded research grants to the following students: *Roger C. Brewer*, University of Tennessee, for "Structure and Petrology across the Eastern-Western Blue Ridge Boundary, Western North Carolina"; *Richard A. DeJong*, Emory University, for "A Comparison of Laboratory Models and Mathematical Models of Near Surface Fracture Flow"; *Mark W. Fischer*, University of Tennessee, for "Sedimentology of the Lower Silurian Clinch Sandstone along Clinch Mountain, Northeastern Tennessee"; *Andrew T. Fisher*, University of Miami, for "Heat Flow and Hydrothermal Circulation through Young Oceanic Sediments and Crust"; *Pliny Jewell*, University of South Florida, for "Morphodynamics of the Cape Romano Shoals"; *Theresa A. Kalaghan*, Virginia Polytechnic Institute and State University, for "Analysis of Shear Zones and Deformation Mechanisms in the Striped Rock Granite, Southwest Virginia"; *Anthony J. Martin*, University of Georgia, for "Paleoenvironments of the Shellmound and Mannie Shale Members, Sequatchie Formation (Upper Ordovician), Georgia and Tennessee"; *Joseph F. Matlock*, University of Tennessee, for "Sand Bodies of the Mascot-Jefferson City Zinc District, East Tennessee"; *Lyle Phillips*, University of Georgia, for "The Evolution, Depths of Equilibration, and Magmatic Conditions of the Needles Range Ash Flow Tuff Formations: Southwest Utah"; *James F. Renner*, University of Georgia, for "Very Low-Grade Metamorphism of the Rockmark Slate, Polk County, Georgia"; *Michael F. Smith*, University of Florida, for "Isotope and Trace Element Systematics of a Fossil Hydrothermal Vent System in the Galapagos Rift"; *David L. Violette*, Auburn University, for "Event Stratigraphy of the Eutaw Formation (Upper Cretaceous)"; *Lawrence J. Weber*, University of Tennessee, for "Depositional History of the Upper Conasauga Group (Nolichucky Shale and Maynardville Formation) in East Tennessee."

This is the fifth year that the Southeastern Section has conducted a student grants program. The average amount of the grants this year was \$292. 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.

An announcement for the 1987 Grants Program will appear in the November issue of *GSA News & Information*.

the Geological Society of America, and the World Organization of Volcano Observatories.

Information on registration: Hawaii Symposium on How Volcanoes Work, Western Experience, 2369 Carriage Circle, Oceanside, CA 92056; telephone (619) 722-0027. The registration deadline is November 1, 1986.

Southeastern Section Speakers Program Set

The GSA Southeastern Section has a new list of speakers available for the 1986-1987 academic year. Seventy speakers representing more than 25 colleges and universities are offering 122 talks on topics ranging from coal to tectonics. Otto C. Kopp, University of Tennessee, has organized the program and keeps track of its progress.

For the List of Speakers write or call GSA Membership Department, P.O. Box 9140, Boulder, CO 80301; (303) 447-2020.

PRELIMINARY ANNOUNCEMENT AND CALL FOR PAPERS
SOUTH-CENTRAL SECTION, GSA, 21st Annual Meeting
Waco, Texas
March 30-31, 1987

The **South-Central Section** of the Geological Society of America will meet at the Convention Center in Waco, Texas, together with the Pander Society and the South-Central Section of the National Association of Geology Teachers. The meeting is sponsored by Baylor University.

CALL FOR PAPERS

Papers are invited for presentation in technical sessions as well as symposia. The format for technical sessions will allow 15 minutes for presentation and 5 minutes for discussion. Papers of regional interest to geologists in the south-central United States and of special interest in regard to the symposia topics listed below, as well as those of general geological interest, will be considered for the program.

SYMPOSIA

The following symposia have been organized or are in the final stages of organization. For further information, contact the convener(s) of individual symposia.

- 1.* **Pander Society Symposium: Conodont Biozones—Evolutionary or Environmental Control.** Robert Grayson, Geology Department, Baylor University, Waco, TX 76798, and Glen Merrill.
- 2.* **Paleoecology of Mesozoic Reptiles.** James O. Farlow, Department of Earth and Space Sciences, Indiana University—Purdue University, Fort Wayne, IN 46805.
- 3.* **Southern Oklahoma Aulacogen.** William G. Brown, Geology Department, Baylor University, Waco, TX 76798.
- 4.* **Edwards Limestone-Dominated Landscape—Form, Process, and Evolution.** O. T. Hayward, Geology Department, Baylor University, Waco, TX 76798.
- 5.* **Hydrogeology Symposium: Edwards Aquifer Problems.** Joe Yelderman, Geology Department, Baylor University, Waco, TX 76798.
6. **Stratigraphic and Structural Development of the East Texas Basin.** H. H. Beaver, Geology Department, Baylor University, Waco, TX 76798, and Chris Hayward.
7. **Late Paleozoic Sedimentary Facies—Relationship Between Cyclic Sedimentation and Diagenesis.** Robert Grayson, Geology Department, Baylor University, Waco, TX 76798.

For general information on symposia, contact William G. Brown or Robert Grayson, Symposia Chairmen
Geology Department
Baylor University
Waco, TX 76798

*Field trips are planned with these symposia.

ABSTRACTS

Abstracts are limited to 250 words and must be submitted camera-ready on the official 1987 GSA abstract form, available from

Abstracts Coordinator
Geological Society of America
P.O. Box 9140
Boulder, CO 80301
(303) 447-8850

or
Don F. Parker
Geology Department
Baylor University
Waco, TX 76798
(817) 755-2361

Send abstracts to be considered for technical sessions to the Technical Program Chairman,

Don F. Parker
Geology Department
Baylor University
Waco, TX 76798
(817) 755-2361

Send abstracts to be considered for symposia directly to the convener or to

William G. Brown
Geology Department
Baylor University
Waco, TX 76798

Acceptance or rejection of all abstracts will be based on review by the Technical Program Committee. Abstracts will be judged on the basis of scientific merit, informative content, readability, and relevance to geologic problems. There is no limit to the number of abstracts that may be submitted, but no more than two abstracts bearing an individual's name as the first author will be accepted for the program. No author should give more than one oral presentation. Authors will be notified of acceptance during January 1987.

ABSTRACTS MUST BE RECEIVED BY NOVEMBER 7, 1986

STUDENT PAPERS

Students are encouraged to submit abstracts. The South-Central Section will present three cash awards (\$200, \$100, and \$50) for the best student papers. To be eligible and judged, an abstract must be written exclusively by a student and must be designated on the abstract form as a student paper. The oral presentation must also be given by the student.

PROJECTION EQUIPMENT

All slides must be 2" x 2" and fit in a standard 35 mm carousel tray (80 slide only). Only one projector and screen will be provided in each session. Overhead projectors will not be available. Please bring your own loaded carousel tray, if possible. Limited trays will be available at the meeting.

EXHIBITS

Exhibits will be adjacent to technical session rooms. The cost of booths for educational and nonprofit institutions will be reduced. For further information contact

Harold H. Beaver, Exhibit Chairman
Geology Department
Baylor University
Waco, TX 76798
(817) 755-2361

(continued on p. 171)

South-Central Section (continued from p. 170)

SPECIAL EVENTS

A welcoming party will be held on the evening of March 29. The National Association of Geology Teachers, Pander Society, and South-Central GSA annual luncheons will be held on Monday and Tuesday, and the annual banquet will be held on Monday evening, March 30.

A special guest and spouse program is being planned to feature areas of regional and historic interest.

DETAILED INFORMATION

Information concerning registration, accommodations, and details of activities will appear in a future issue of *GSA News & Information* and as a part of *Abstracts with Programs* for 1987. Requests for additional information and suggestions should be addressed to the General Chairman

Rena M. Bonem, Geology Department
Baylor University, Waco, TX 76798
(817) 755-2361

PRELIMINARY ANNOUNCEMENT AND CALL FOR PAPERS NORTHEASTERN SECTION, GSA, 22nd Annual Meeting Pittsburgh, Pennsylvania March 4-7, 1987

Commemorating the bicentennial of the University of Pittsburgh and the sesquicentennial of the Pennsylvania Geological Survey, these organizations are joined by the Pittsburgh Geological Society, the Carnegie Museum of Natural History, Slippery Rock University, and Indiana University of Pennsylvania in hosting the **Northeastern Section** of the Geological Society of America meeting at the Pittsburgh Hilton Hotel. Meeting with the Northeastern Section will be the Eastern Section of the Society of Economic Paleontologists and Mineralogists, the Northeastern Section of the Paleontological Society, and the Eastern Section of the National Association of Geology Teachers.

CALL FOR PAPERS

Papers are invited for presentation at oral and poster sessions as well as symposia. Fifteen minutes for presentation and five minutes for discussion will be the format for the technical sessions. Papers of regional interest to geologists in the northeastern United States as well as those of general geological interest will be considered for the program. Poster papers are encouraged. Every attempt will be made to assure that oral and poster sessions will not conflict with related technical sessions. Abstracts for symposia should be submitted directly to the appropriate convener.

SYMPOSIA

The following symposia have been organized or are in the final stages of organization. For further information, contact the conveners of individual symposia.

1. **Frontiers in Pennsylvania Geology.** Sponsored by the Pennsylvania Geological Survey in honor of the 150th Anniversary of its founding. William D. Sevon, Pennsylvania Geological Survey, P.O. Box 2357, Harrisburg, PA 17120.
2. **Palynology in the Northeast.** J. Richard Jones, Dept. of Geology and Planetary Sciences, University of Pittsburgh, Pittsburgh, PA 15260.
3. **Boston Basin and Adjacent Avalon Terrains of South-eastern New England.** Anthony D. Succi, Dept. Geological Sciences, Ohio University, Athens, OH 45701.
4. **Predator-Prey Relationships as Shown by Fossils.** Sponsored by the Northeastern Section of the Paleontological Society. Jean M. Berdan, U.S. Geological Survey, Paleo. & Strat. Branch, E-501, National Museum of Natural History, Washington, DC 20560.
5. **Abandoned Mine Lands—Problems and Solutions.** Richard E. Gray, GAI Consultants, Inc., 570 Beatty Rd., Pittsburgh, PA 15146.
6. **The Hydrodynamics and Sedimentology of a Back-BARRIER Lagoon—Salt Marsh System, Great Sound, New Jersey.** Sponsored by Eastern Section SEPM. Gail M. Ashley, Dept. of Geological Sciences, Rutgers University, New Brunswick, NJ 08903.

7. **Vertebrate Paleontology and Paleoecology of the Northeast.** David Berman, Carnegie Museum of Natural History, 4400 Forbes Ave., Pittsburgh, PA 15213.

SPECIAL POSTER SESSION

More Classic Field Sites for Teaching Earth Science in the Northeast. Sponsored by the Eastern Section of the National Association of Geology Teachers. Brian Tormey, Pennsylvania State University—Altoona Campus, Altoona, PA 16603.

ABSTRACTS

Abstracts are limited to 250 words and must be submitted camera-ready on the official 1987 GSA abstract form, available from

Abstracts Coordinator
Geological Society of America
P.O. Box 9140
Boulder, CO 80301
(303) 447-8850

or Jack Donahue
Dept. of Geology &
Planetary Science
University of Pittsburgh
Pittsburgh, PA 15260

Send one original and five copies of abstracts to be considered for technical sessions and poster sessions to the Technical Program Chairman: Jack Donahue, Dept. of Geology & Planetary Science, University of Pittsburgh, Pittsburgh, PA 15260. Symposia abstracts (one original and five copies) are to be sent directly to the convener whose name appears following the symposium title (above).

Acceptance or rejection of abstracts (other than symposia) will be based on review by the Technical Program Committee. Abstracts will be judged on the basis of scientific merit, informative content, readability, and relevance to geologic problems of the Northeast. There is no limit to the number of abstracts that may be submitted, but no more than two abstracts bearing an individual's name as first author will be accepted for the program. No author may give more than one oral presentation. Authors will be notified of acceptance during November 1986.

ABSTRACTS ARE DUE OCTOBER 14, 1986

(continued on p. 172)

Northeastern Section (continued from p. 171)

STUDENT PAPERS

Students are encouraged to submit abstracts. Awards will be made for outstanding student papers presented in the technical sessions. To be eligible and judged, an abstract must be written exclusively by a student and must be designated on the abstract form as a student paper.

PROJECTION EQUIPMENT

All slides must be 2" x 2" and fit a standard 35 mm carousel tray. Only one projector and one screen will be provided in each of the technical sessions. Overhead projectors will not be available. Please bring your own loaded carousel tray, if possible.

EXHIBITS

Exhibits, with 8' x 10' booths, will be near the technical session rooms. A reduced rate will be available for educational and nonprofit institutions. Coffee break service will be located in the Exhibit Hall during the meeting week. For complete Exhibit Program and Directory information, contact

Northeastern GSA-MEMS

One Northgate Square

2 Garden Center Drive

P.O. Box 270

Greensburg, PA 15601

or

Telephone via national toll-free number

(800) 343-5129 (outside Pennsylvania)

(800) 441-1674 (in Pennsylvania)

SHORT COURSES

One short course, **Thermochronology—Application of Geochronology and Isotope Geology to the Solution of**

Tectonic Problems, by John F. Sutter, U.S. Geological Survey, will be offered on Wednesday, March 4, 1987.

Others interested in offering a short course should contact the chairman as soon as possible: Maurice Deul, Dept. of Geology & Planetary Science, University of Pittsburgh, Pittsburgh, PA 15260; (412) 624-4707.

SPECIAL EVENTS

A welcoming party will be held at the Hilton Hotel, Wednesday evening, March 4, 1987. A reception in Dinosaur Hall and the Hillman Hall of Minerals at the Carnegie Museum of Natural History is scheduled for Thursday, March 5, 1987. The Northeastern Section GSA annual banquet will be a luncheon on Friday, March 6, 1987, and will include brief commemoratives for the University of Pittsburgh and Pennsylvania Geological Survey anniversaries. A postmeeting two-hour boat trip on the Three Rivers is scheduled, weather permitting, on Saturday, March 7, 1987. The Association for Women Geoscientists will hold a breakfast.

Guest activities are plentiful in the "most livable city" in the USA. Registrants will receive a list.

DETAILED INFORMATION

Information concerning registration, accommodations, and activities will appear in a future issue of *GSA News & Information* and as part of *Abstracts with Programs* for 1987. Requests for additional information or suggestions should be addressed to the General Chairman:

Michael Bickerman

Dept. of Geology & Planetary Science

University of Pittsburgh

Pittsburgh, PA 15260

(412) 624-4712

Seventh and Eighth Rocky Mountain Coal Scholarships Awarded

The Rocky Mountain Coal Scholarship Committee selected two recipients in March for a scholarship jointly awarded each year by the Symposium on the Geology of Rocky Mountain Coal and the Coal Geology Division of GSA. This year two \$500 Scholarships were awarded. One went to Thomas Demchuk of Edmonton, Alberta, and the other went to Jeffrey W. Martin of Raleigh, North Carolina.

Demchuk's thesis is titled "Palynostratigraphy of the Paleocene strata of west-central and southern Alberta," Martin's thesis is titled "Compositional variations associated with depositional environments of some western U.S. coals."

Area of Study

The Rocky Mountain Coal Scholarship Program was established to further interest in and research on coal within the Rocky Mountain and northern Great Plains coal provinces by providing scholarship funds for field and laboratory expenses, books, and tuition. Funding for the program comes from surplus money accumulated by the Symposium on the Geology of Rocky Mountain Coal. These funds have been invested in the Geological Society of America Foundation, and the interest now forms the basis of the scholarship. There is, however, no assurance of the amount of the funds or that funds will be available every year.

Coal research pertaining to coal in the states or provinces of Arizona, Alberta, British Columbia, Colorado, Idaho, Montana, New Mexico, North Dakota, Utah, Saskatchewan, South Dakota,

and Wyoming is considered for support. Applicants for the scholarship must be currently enrolled in a graduate program (M.S. or Ph.D.) at a private or state college or university. The main theme of an applicant's research must be an aspect of coal research, and the research must pertain to coal in the states or provinces listed above (the institution where the research is being conducted need not be in the listed states or provinces). Although the applicant must be involved in coal research, he or she need not be a geology major.

Application and Award

Scholarship applications can be obtained from the Geological Society of America, P.O. Box 9140, Boulder, CO 80301, or from Gary B. Glass, chairman of the Coal Scholarship Committee, c/o Geological Survey of Wyoming, Box 3008, University Station, Laramie, Wyoming 82071. The deadline for applications for next year's scholarship is *February 1, 1987*.

A committee composed of two ad hoc members of the Symposium on the Geology of Rocky Mountain Coal and two GSA Coal Geology Division members screens applications and selects the most appropriate proposal by May 1. At the time of selection, scholarship monies are transferred directly to the grantee by the GSA Foundation. When the scholarship winner's research is complete, one copy of the dissertation or thesis should be sent to the Chairman of the Rocky Mountain Coal Scholarship Committee.

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 edited by William E. Bonini, Robert B. Hargraves, and Reginald Shagam, 1984

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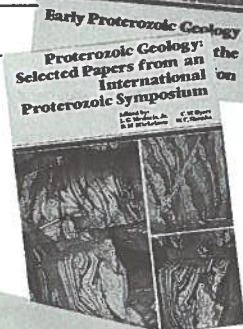


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 edited by L. G. Medaris, Jr., C. W. Byers, D. M. Michelson, and W. C. Shanks, 1983

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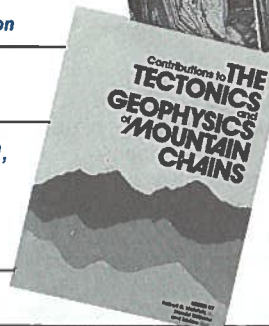


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Contributions to the Tectonics and Geophysics of Mountain Chains
 edited by Robert D. Hatcher, Jr., Harold Williams, and Isidore Zietz, 1983

Subjects covered include regional geology and tectonics of the Appalachian orogen; comparisons with the Caledonides, Mauritanides, Alps, and the North American Cordillera; and the application of the mechanical principles to the solution of structural problems; and the utilization of the technique of reflection seismology, as well as data from aeromagnetic and gravity studies, to interpret large-scale problems in the tectonics of mountain chains.

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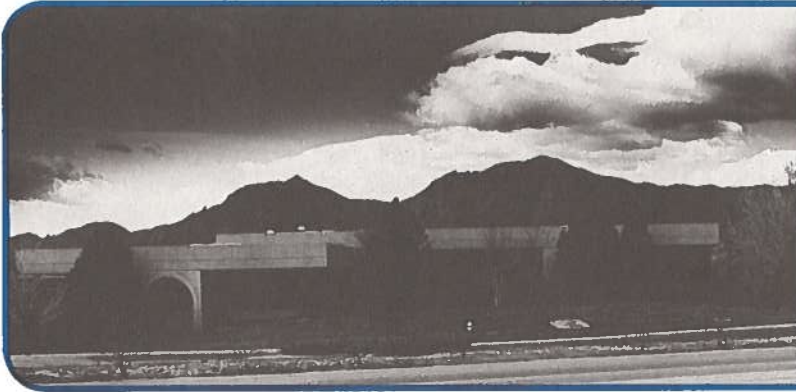


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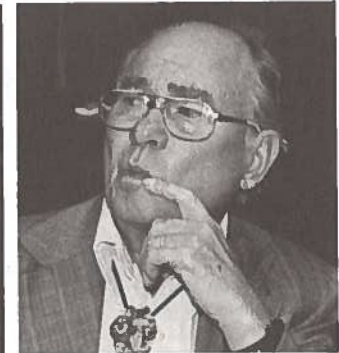
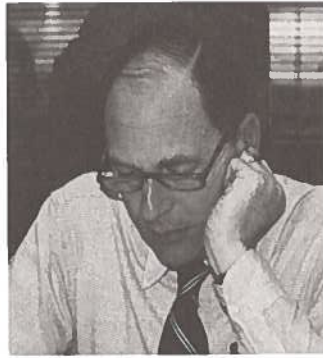
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1985 ANNUAL REPORT



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Report of the President

by Brian J. Skinner

The past year, like its predecessor, was one of smooth sailing. The Society needs and deserves a few such after the shoals of previous years. It was a pleasant and progressive year, one in which the seeds of hard labor past came to fruition, but also a year when hard work present started some exciting new programs.

Topping the list of products resulting from labors past were the first publications from the Decade of North American Geology (DNAG). Surely the career of every geologist has been or will be influenced by this remarkable cooperative venture to assess and record our understanding of the geology of North America. The first volume and the first transects were available for inspection and purchase at the 1985 Annual Meeting. Future volumes, transects, and maps will be appearing at a rate that boggles the mind. Pete Palmer, overseer of the DNAG publishing venture, is performing wonders. The Society's publishing activities have now grown so large that it has become cost-effective for us to build and staff our own storage and distribution warehouse. During the year, a 2½-acre tract was purchased in a new industrial park about three miles from the headquarters building. A 10,600-square-foot storage and distribution facility was designed and erected, and is now in operation. The money formerly paid for storage to others more than pays the costs for the new facility.

The most sensitive barometer by which to gauge reactions to the affairs of the Society is the size and rate of growth of the membership. A few short years ago membership size was static. I might have expected to write an apologetic line saying that in these times of decimation in employment ranks and of reduced enrollment in college courses, one could hardly expect membership growth. The news is otherwise. The membership drive that started in September 1984 produced a growth rate approaching 10% per annum and has now raised the total membership of the Society to 16,267. There are many positive features about our expanding membership. One encouraging factor is the large number of students who are joining and the high percentage who transfer to regular membership after graduation. Another positive feature is financial. A larger membership means lowered unit costs for publications; more readers mean more interest on the part of advertisers who wish to tell about their wares in the pages of the journals. A tangible result of lowered unit costs and rising income is the membership fee. It has not been raised for the past three years.



When I was vice-president, in 1984, word was received at headquarters that officials in Boston had canceled our five-year-old agreement to hold the 1985 Annual Meeting in the Haines Convention Center. The center was to be shut for repairs and renovations. Suitable convention sites are usually booked at least five—and preferably six—years ahead. In 1986, plans are being made for the 1993 Annual Meeting! Only one possibility was available for the 1985 meeting on such short notice: the still-unfinished and therefore untested convention center in Orlando, Florida. Only one week was available in the time window the Society prefers for its annual meetings. The Council grabbed the opportunity, and our efficient and resourceful headquarters staff immediately changed direction and started a new, hurry-up set of plans. Under the direction of Tony F. Randazzo, an efficient local committee swung into action; the result was a smooth-running, well-attended meeting. The response tells you something about our members. They really do care about the Society. When this crisis arose, much of the burden fell on a small group of members who live in Florida. They could not possibly have foreseen how the actions of some Boston politicians were going to change their lives so suddenly. When called on, these members responded with enthusiasm. We are all indebted to them for their good citizenship and unselfish efforts.

The same kind of spirit and loyalty displayed by the Orlando committee can be seen in many of the Society's activities. Section meetings, division activities, the many committees, longer term ventures such as DNAG and the regular publications, all run as well as they do because members so willingly volunteer their time, effort, and good judgment. It's a tremendous privilege to be president of such a spirited and responsible organization. Thanks for allowing me to do so.



Report of the Executive Director by F. Michael Wahl

The year 1985 was again a good one for the Society as we experienced continued growth and quality development in all areas of operations and activities. Highlights of the year included continued expansion of our publications programs, a steady increase in membership, the launching of an extensive marketing and prepublication sales program for all Decade of North American Geology (DNAG) products, completion of a computerized accounting system, the formation of a new Division of Sedimentary Geology, the beginning of construction on a new GSA warehouse, and improved operational efficiency through extension of our computer operations.

Financially, we finished the year slightly on the down side in the operations category, primarily because of lower annual meeting revenue than anticipated and higher membership expenses in the services category. In our publication programs and other budget categories, however, we finished the year under budget, thus offsetting the annual-meeting revenue shortfall.

On the positive side, during 1985 there was a substantial increase in the capital appreciation of our securities as market prices again rose near the end of the year.

Headquarters Staff

The dedicated service of our headquarters employees was again in evidence as operations in all categories continued to run smoothly. Computerization of daily operations is now a way of life, and all departments continue to find new ways to do more things through this remarkable capability.

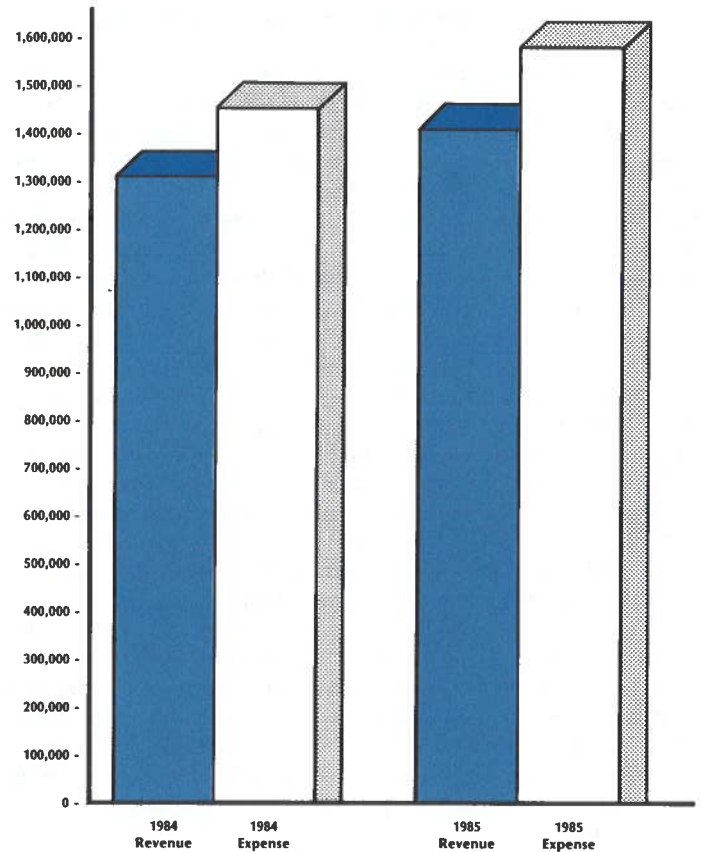
With the addition to the staff of Don Hansen as manager of buildings, grounds, and security, our property and facilities are in the best condition ever. Other new staff appointments during the year included Rick Nelson as assistant books editor to handle the ever-increasing flow of DNAG manuscripts, Joan Manly as a trainee in the production department to replace June Thomas (retiring in 1986), and Dave Hawkins as supervisor of computer operations.

Publications

The year 1985 was, again, one that saw continued improvement in the publications programs of the Society. The number of pages of science published in both the *Bulletin* and *Geology* continued to increase, the *Bulletin* from 1536 pages in 1984 to 1664 pages in 1985—a net increase of 128 pages. For *Geology*, the increase was from 768 pages in 1984 to 928 pages in 1985—a net increase of 160 pages. There was also a 40-page increase in the size of *GSA News & Information*. With continued increases in membership and higher circulation requirements, it was necessary to again increase pressruns for our monthly journals and for *GSA News & Information*.



Publications Revenue and Expense Comparisons 1984 and 1985



New Books, Maps, and Other Publications. Eight new books were published, totaling 1256 pages. These included seven Special Papers and one Memoir. In addition, five volumes of the *Treatise on Invertebrate Paleontology* were reprinted. The average annual growth increase in pages for new GSA books published over the last six years is 13%. Three new maps were published during the year.

In the *Abstracts with Programs* series, a total of six volumes were produced for the section meetings, plus a single volume for the 1985 Orlando Annual Meeting. Page total for this series was 804, compared with 752 in 1984.

Both revenue and expense figures for the Society's publications program increased during the year as compared with 1984. Revenue received from dues for member periodicals again fell short of actual periodical costs, but revenue received from non-member subscriptions and page-charge contributions showed an increase. As in past years, the subsidy of member periodical costs from endowment investment income was used to balance the difference between publication revenue and expense.

The first publications of the Decade of North American Geology project were received in 1985; these are listed in the DNAG section of this report.

Membership

The membership of the Society at the end of 1985 numbered 16,267 as compared with 15,362 at the end of 1984. Of this increase, 72% were in the Member category, and 32% were Student Associates. The number of students transferring to regular membership during the year was the largest in the history of the Society and continued the high retention rate of 1984. Another notable statistic for the year was a continued decrease in the loss of Fellows and Members from the Society—remarkable, considering the poor economic conditions that existed in many employment sectors during the year.

In October, we launched the second phase of our membership campaign, one that was designed to increase membership in the

MEMBERSHIP STATISTICS SINCE 1972

Year	Fellows	Members	Students	Honorary Fellows	Totals
1972	3293	5289	873	49	9504
1973	3332	5452	1871	46	10,701
1974	3327	5975	2917	44	12,263
1975	3347	6438	2224	45	12,054
1976	3334	6771	2377	45	12,527
1977	3282	6972	2095	42	12,391
1978	3251	7208	1903	42	12,404
1979	3237	7306	1874	42	12,459
1980	3229	7500	1834	40	12,603
1981	3214	7633	1828	43	12,718
1982	3199	7901	2243	43	13,386
1983	3164	7922	2871	44	14,001
1984	3182	8422	3713	45	15,362
1985	3143	9074	4001	49	16,267

industrial, governmental, and self-employed sectors. By the end of the year, we had added 196 regular members as a direct result of this drive, and the numbers continued to increase as we entered 1986.

Employment Service Program

During 1985 the Employment Service program operated at a level below that of each of the previous four years. As may be seen from the accompanying statistical comparison, the total number of employers using the system on a year-round basis remained the same in 1985 as in 1984; however, the number using only the annual meeting interview service declined. The total number of positions advertised at the annual meeting increased substantially over 1984, as did the total number of positions available. The number of applicants attending the annual meeting remained the same, while the total number of applicants participating in the program throughout the year showed a decrease. The number of applicants who were employed as a result of participation in the program remained essentially the same.

EMPLOYMENT SERVICE STATISTICS

	1981	1982	1983	1984	1985
Employers					
Year-round	57	43	32	27	27
Annual Meeting	77	41	42	39	33
Total	134	84	74	66	60
Positions					
From year-round employers	57	43	32	27	27
From Annual Meeting employers	165	70	71	61	111
Total	222	113	103	88	138
Types of positions					
Academic					
Year-round	19	33	16	9	14
Annual Meeting	95	54	50	46	39
Industry					
Year-round	32	8	12	16	10
Annual Meeting	58	10	8	11	32
Government and other					
Year-round	6	2	4	2	3
Annual Meeting	12	6	13	4	40
Total no. of applicants at Annual Meeting	309	263	231	218	218
Total no. of applicants	474	527	422	404	352
Total no. of applicant successes (joined year before)	41	22	8	20	19

Meetings

Although registration in Orlando was lower than anticipated, the meeting was certainly a success in all other categories. A grand total of 1419 papers were presented in volunteered, poster, and symposia sessions. The number of abstracts volunteered for the meeting totaled 1388, and of these 1178 were accepted. An additional 241 papers were presented in symposia.



Only eight field trips materialized out of the 12 proposed, but these were attended by 250 registrants. GSA sponsored five of its own short courses, and an additional eight courses and workshops were sponsored by GSA divisions and associated societies. Both the "Future Employment Opportunities in the Geological Sciences" forum and the Geology and Public Policy forum on the "Perspectives on the Management and Disposal of Hazardous Waste" were well attended by interested audiences.

The science theater added extra appeal by providing releases of segments of the new Planet Earth television series, and the annual meeting exhibit was the best ever for GSA. A total of 179 booth spaces were filled by 133 exhibitors, and the overall display was enhanced by the magnificent Orlando facility. Technical session presentations were greatly enhanced by the use of two screens and two projectors. Most speakers adapted well to this double system.

In summary, Dr. Anthony Randazzo and members of his local committee are to be commended for taking on this major responsibility at such a late date when we were prohibited from holding the 1985 Annual Meeting in Boston as planned.

A total of 5455 registrants attended GSA section meetings during 1985, at which 1629 papers and posters were presented in 181 half-day sessions. This represents a 27% increase in the number of papers presented and a 17% increase in the number of half-day scientific sessions compared with 1984.

1985 SECTION MEETING STATISTICS

Section and meeting location	Total registration	No. of papers presented	No. of half-day sessions
Cordilleran Vancouver, B.C.	1747	337	37
Rocky Mountain Boise, Idaho	631	293	30
North-Central DeKalb, Illinois	529	226	30
Northeastern Lancaster, Pennsylvania	1242	293	31
South-Central Fayetteville, Arkansas	468	200	23
Southeastern Knoxville, Kentucky	838	280	30

Penrose Conferences for 1985

The Society sponsored two Penrose Conferences in 1985:

Geomorphic and Stratigraphic Indicators of Neogene-Quaternary Climatic Change in Arid and Semiarid Environments; April 14-19, 1985; Conveners: John C. Dohrenwend, Leslie D. McFadden, Stephen G. Wells; location: Lake Havasu, Arizona.

Terranes in Circum-Atlantic Paleozoic Orogens; May 27-June 2, 1985; Conveners: J. Duncan Keppie, R. David Dallmeyer; location: Halifax, Nova Scotia.

Research Grants

The Committee on Research Grants awarded a total of \$119,650 for the support of research in 1985. This sum included \$100,000 from Penrose Endowment income, \$8750 from industrial donations, and \$4786 in contributions to the GSA Foundation. Earnings from the Harold T. Stearns Fund and the Arthur L. Day Fund totaled \$4650. In all, a total of 144 proposals were selected for funding from the 523 proposals received. Of the 144 proposals funded, 109 were for Doctoral research and 35 were for Masters research. The average grant was \$834, and the award rate was 28% of the proposals received.

Recipients of specialized Society awards in 1985 were as follows:

Robert K. Fahnestock Memorial Research Award

Dorothy J. Merritts, University of Arizona

Harold T. Stearns Fellowship Awards

Pamela B. Barnard, University of Maryland, College Park

Lee Dolores DiTullio, Brown University

Rebecca J. Dorsey, Princeton University

James P. Hibbard, Cornell University

John Anthony Tarduno, Stanford University

Gladys W. Cole Memorial Research Award

Athol D. Abrahams, State University of New York, Buffalo

Decade of North American Geology

The developmental phase of the Decade of North American Geology (DNAG) was largely completed by the end of 1985. All organizational meetings had been held for all volumes of *The Geology of North America* and Final Coordinating Conferences had been held for four more volumes: *The Arctic Region*, *The Eastern Pacific Region*, *The Precambrian: Conterminous U.S.*, and *Groundwater Hydrogeology*. Chapter texts were being received for 12 volumes of *The Geology of North America* and all six volumes of *Centennial Field Guides*. Two volumes, *The Western North Atlantic Region* and the *Centennial Field Guide: Southeastern Section* were nearly completed. Compilation was under way for all seven major 1:5,000,000-scale maps of North America that will be distributed by GSA. Eleven Continent/Ocean Transects were received for color separation and printing during the year.

Publications of the DNAG Project finally began to appear in 1985. These included *Geologists and Ideas: A History of North American Geology*, edited by Ellen Drake and Bill Jordan as a Centennial contribution from the History of Geology Division, and seven Continent/Ocean Transects: four from eastern Canada, one from western Canada, one from the Pacific margin of Alaska, and one from California.



Medal and Award Winners for 1985

Penrose Medal: *Rudolf Trümpy*
Day Medal: *J. Freeman Gilbert*
Archaeological Geology Division Award: *Karl W. Butzer*
Gilbert H. Cady Award (Coal Geology Division):
Gordon H. Wood, Jr.
E. B. Burwell Award (Engineering Geology Division):
Lawrence D. Dyke
George P. Woollard Award (Geophysics Division):
Charles L. Drake
History of Geology Award (History of Geology Division):
Cecil J. Schneer
O. E. Meinzer Award (Hydrogeology Division): *John A. Cherry*
G. K. Gilbert Award (Planetary Geology Division): *Walter Alvarez*
Kirk Bryan Award (Quaternary Geology and Geomorphology
Division): No award given in 1985
Structural Geology and Tectonics Division Best Paper Award:
John G. Ramsay and Martin I. Huber

Honorary Fellowships for 1985

Mircea Sandulescu
Institute of Geology and Geophysics
Bucharest, Romania
Krzysztof Ludwik Birkenmajer
Institute of Geological Sciences
Polish Academy of Sciences
ul. Senacka 3, 31-002 Krakow, Poland
Martin F. Glaessner
Department of Geology
University of Adelaide
Box 498, G.P.O.
Adelaide, South Australia 5001
Henno Martin
Geologisch-Palaeontologisches Institut
Goldschmidtstrasse 3
D-3400 Gottingen, West Germany

GSA Committees, 1985

Executive Committee

B. J. Skinner, President and Chairman, W. G. Ernst, Vice-
President, M. G. Wolman, Past President, R. L. Fuchs, Treasurer,
C. J. Mankin, Budget Officer of the Executive Committee

Audit Committee

G. A. Thompson, Chairman, C. J. Mankin, S. S. Adams,
Conferee: R. L. Fuchs

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Surdam, G. A. Thompson

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Barber, J. S. Scott

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E. A. Elliott

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Washburn, G. A. Davis, R. D. Hatcher, Jr., D. B. Stewart

Subcommittee on Arthur L. Day Medal Award

M.L.B. Crawford, Chairman, A. J. Naldrett, R. L. Armstrong, R.
Van der Voo, L. B. Gustafson, D. S. Stakes, K. K. Turekian

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Wilson, R. A. Berner, C. B. Raleigh

Committee on Investments

A. Reso, Chairman, W. B. Heroy, Jr., W. E. Seibert, Jr., T. W.
Stern, R. J. Vidale, Ex Officio: R. L. Fuchs, Treasurer

Committee on Membership

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Baars, D. C. Haney, C. A. Sancetta

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Mathez, J.W.H. Monger

Committee on Penrose Conferences

G. W. Viele, Jr., Chairman, J. W. Horton, Jr., K. Burke, R. J.
Moiola

Program Review Committee

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J. F. Tull, 1985 JTPC Chairman; J. C. Maxwell, 1986 JTPC
Chairman; C. G. Chase, 1987 JTPC Chairman (term begins at
summer 1985 JTPC meeting)

Committee on Publications

W. A. Thomas, Chairman and Editor of the *Bulletin*, M.L.B.
Crawford, J. M. Aaron, G. Faure, R. D. Hatcher, Jr., Editor of
the *Bulletin*; E. M. Moores, Editor of *Geology*; C. Craddock,
Editor of *Memoirs and Special Papers*; J. C. Reed, Jr., Editor of
Maps and Charts; Conferee: F. M. Wahl, Executive Director

Committee on Research Grants

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Brimhall, Jr., S. Mosher, Conferee: J. F. Hays, Continuing

Treatise on Invertebrate Paleontology Advisory Committee

J. T. Sprinkle, Chairman, B. F. Glenister, F. M. Wahl, Continuing

Ad Hoc Committee on Minorities in the Geosciences

E. C. Schwarzman, Chairman, C. A. Baskerville, L. A. Fernandez,
D. A. Lopez, C. F. Shearer

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Dengo, C. L. Drake, J. C. Guerrero, J. F. Hays, D. J. McLaren,
R. A. Price, J. C. Reed, Jr., G. P. Salas, L. T. Silver, J. O. Wheeler,
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A. R. Palmer, D. V. Roberts.





Report of the Treasurer by Robert L. Fuchs

In 1985, GSA had positive financial results overall although several categories exhibited negative year-to-year comparisons. The report of the Society's independent auditors, Touche, Ross & Company, including financials for the six GSA Sections indicates total assets as of December 31, 1985, of \$15,969,740, up 12.9% from 1984's \$14,138,826. Liabilities and deferred revenues at the end of 1985 were \$2,087,390, resulting in net worth of \$13,882,350, an increase of 10.7% over 1984's net worth of \$12,534,886. The Society's working capital (current assets less current liabilities) decreased by 36.9% from \$2,946,002 at the end of 1984 to \$1,859,796 at the end of 1985.

Increases in assets and net worth were principally the result of good performance in the portfolio of the Penrose Endowment Fund. During 1985 a very strong stock market provided the Society with both realized and unrealized gains in equities and bonds. In addition, holdings managed by the largest of GSA's money managers, Reich and Tang, Inc., were converted into the Reich and Tang Equity Fund, a transaction that triggered the realization of gains for book purposes. The decrease in working capital was due to a high percentage of endowment assets in equities rather than cash at year end and the use of cash to build a new publications warehouse.

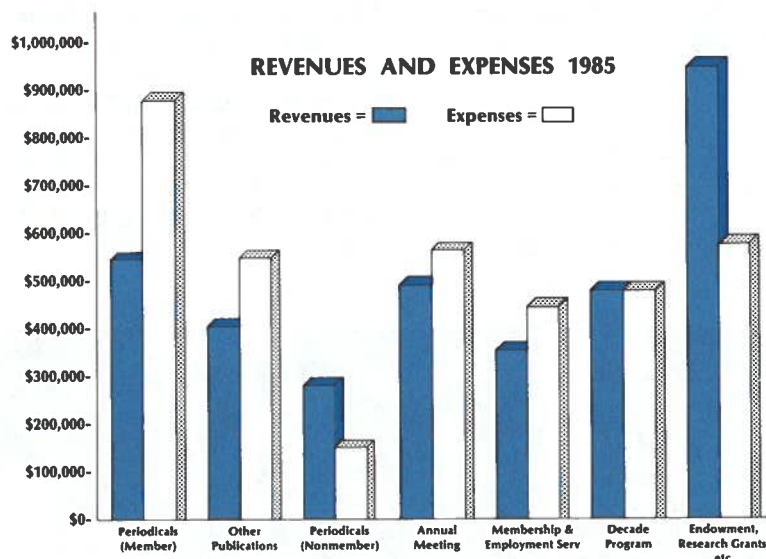
Revenue and support items totaling \$3,513,895 were less than expenses by an amount of \$130,736, as compared to 1984's surplus of \$287,934. This net change of \$418,670 was caused by shortfalls in two categories. Annual meeting revenue was down by \$211,464, or 30%, due to lower attendance. Investment income (dividends and interest) declined \$146,721, or 16%, due to lower interest rates. On the positive side, contributions doubled to \$40,446, and net investment gains were up two-and-one-half-fold, to \$1,437,754.

In the accompanying diagram we have allocated revenues and expenses into the appropriate major sectors of the Society's activities. Support was required in Member Periodicals, Other Publications, Annual Meeting, and Membership and Employment Service. Support was provided by Nonmember Periodicals and Endowment. Costs of the Decade Program are reimbursed by the GSA Foundation. In this analysis we have placed general and administrative costs in the Endowment category. The diagram clearly displays the important role played by the Penrose Endowment Fund in subsidizing the many activities and services of GSA.

An important undertaking from the financial standpoint is the Decade of North American Geology series of publications. Supported by the GSA Foundation, this project is a major investment for the Society from the standpoint of its role as publisher of the series. Initial marketing results have exceeded goals, and over the life of the project, financial viability seems assured. However, short-term cash-flow swings and the variability of Foundation contributions mean that the Society could be required to provide interim financial support from time to time. As a result, GSA's investment policy is moving in a more conservative direction.

As an example of this policy trend, the Society has funded a new publications warehouse directly out of its investment capital. The effect of this is twofold: long-term operating-cost savings as compared to rented space, and the conversion of some of the gains made in the equity portfolio during the 1985-1986 bull market into real property.

Investment management changes made in 1984 continue to provide positive results. While investment income declined 16% because of falling rates, this was more than offset by the large increase in net investment gains. Further, at the end of the first quarter of 1986, the value of the Penrose Endowment Fund had appreciated 20% during the preceding twelve months, reaching a new all-time high.





THE GEOLOGICAL SOCIETY OF AMERICA

Annual research awards program

1987

The Geological Society of America will continue its annual research awards program in 1987. Eligibility is not restricted to GSA members. New application forms for the current year and detailed requirements are available each fall in the geology departments of colleges and universities offering graduate degrees in earth sciences. Forms are mailed annually to GSA Campus Representatives and department secretaries and chairmen in the United States and Canada. They are also available upon request from the Research Grants Administrator, Geological Society of America, P.O. Box 9140, Boulder, Colorado 80301. PLEASE USE ONLY THE 1987 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 \$146,000 in grants in 1986. The awards went to 168 students doing research for advanced degrees. The average amount awarded was \$871. The largest award was \$1,500, 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 1987 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 April 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 1987 FORMS

AND POSTMARKED BY FEBRUARY 15, 1987

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Geochemistry of Waters in Sedimentary Basins To Be Discussed at Penrose Conference in March 1987

A GSA Penrose Conference, "Geochemistry of Waters in Deep Sedimentary Basins," will be held March 16-20, 1987, at the Casa Sirena Resort, Oxnard, California. Conveners are Jeffrey S. Hanor, Department of Geology, Louisiana State University, Baton Rouge, LA 70803; Yousif K. Kharaka, U.S. Geological Survey, Menlo Park, CA 94025; and Lynton S. Land, Department of Geology, University of Texas, Austin, TX 78713-7909.

Saline waters in sedimentary basins constitute an important type of water in Earth's crust and a significant reservoir of dissolved solids. These waters play a major role in all the physical and chemical processes that occur in sedimentary basins, including the transport of material for mineral diagenesis and for accumulations of metals and fuels of tremendous economic value, and structural deformation.

Our understanding of the origin and evolution of these waters and the processes that modify their chemical and isotope compositions have increased considerably in recent years as the result of improved sampling and analytical techniques, increased application of stable and radioactive isotopes, and improvements in and increased use of complex geochemical models, including

solute transport models. We now realize that these fluids are much more dynamic and their interactions with rocks and sediments more complex than previously believed. Also, the discovery of high concentrations of reactive organic species has led to a new field of organic-inorganic interactions and developed a bridge between aqueous fluids and those of organic origin.

The objectives of this Penrose Conference are to summarize recent advances and identify new problem areas involving the saline waters that characterize sedimentary basins. We will invite leading sedimentary, metamorphic, and economic petrographers, mineral- and water-oriented geochemists, hydrologists, and structural geologists who are currently active in this field of research. The preliminary list of sessions includes (1) recent developments in theory, methods of sampling, analysis and data reduction; (2) controls on major-ion concentrations; (3) organic-inorganic interactions; (4) stable and radioactive isotopes; (5) trace constituents (elements and gases) in saline brines; (6) geochemical modeling; (7) hydrologic and hydrogeochemical modeling; and (8) role of brines in the evolution of the crust.

In order to allow ample time for open discussions, we encourage multiple "mini-presentations" and/or poster sessions from attendees. Also, except for a few keynote speakers, oral presentations will be limited to 20 minutes or less.

Prospective participants should send a letter of application to one of the conveners listed above by **November 15, 1986**. The application should include (1) their experience and sessions of interest, and (2) a title and short abstract for those desiring oral and/or poster presentations. The registration fee, including food, lodging, and a half-day field trip to sample fluids from a nearby oil/gas field is approximately \$550. For a limited number of subsidized graduate students, the fee will be \$275.

GSA Switches to National Car Rental Agency

All GSA members may now enjoy better car rental discounts through National Car Rental. The GSA agreement with National became effective August 1, 1986. Your National card was mailed to you with your 1987 dues statement. If you did not receive this new card, please let us know. The agreement with our previous car rental agency, Avis, was in effect only until July 31, 1986. If you have any questions, contact GSA headquarters (303-447-2020) or National Car Rental (800-CAR-RENT).

Application for participation in a Penrose Conference

Title of Penrose Conference _____

Your name and title _____

Organization _____

Mailing address _____

Street or P.O. Box

City and State

Zip Code

Telephone number _____

Area Code

Number

Field of interest _____

Please state briefly what your interest and experience have been with regard to the conference topic.

GSA Announces Award Winners for 1986

The 1986 award winners announced by the GSA council at its May 1986 meeting are as follows:

Archaeological Geology Division Award

William R. Farrand
Department of Geological Sciences
University of Michigan
Ann Arbor, Michigan 48109

Gilbert H. Cady Award (Coal Geology Division) (Awarded biennially; no award in 1986.)

E. B. Burwell Award (Engineering Geology Division)
James F. Quinlan
Box 8
Mammoth Cave, Kentucky 42259
Ralph O. Ewers
Department of Geology
Eastern Kentucky University
Richmond, Kentucky 40475

George P. Woollard Award (Geophysics Division)

Drummond H. Matthews
Department of Geophysics
University of Cambridge
Bullard Laboratories, Madingley Road
Cambridge CB3 0EZ, England

History of Geology Division Award

Ursula B. Marvin
Smithsonian Astrophysical Observatory
60 Garden Street
Cambridge, Massachusetts 02138

O. E. Meinzer Award (Hydrogeology Division)

T. N. Narasimhan
Earth Sciences Division
Lawrence Berkeley Laboratory
One Cyclotron Road
Berkeley, California 94720

G. K. Gilbert Award (Planetary Geology Division)

Ralph B. Baldwin
6190 South Gatehouse Drive, S.E.
Grand Rapids, Michigan 49506

Kirk Bryan Award (Quaternary Geology & Geomorphology Division)

Ronald I. Dorn
Department of Geography
Texas Tech University
Lubbock, Texas 79409
Theodore M. Oberlander
Department of Geography, 501 ESB
University of California
Berkeley, California 94720

Structural Geology & Tectonics Division Best Paper Award

Daniel M. Davis
Seismology Department
Lamont-Doherty Geological Observatory
Columbia University
Palisades, New York 10964
John Suppe
Department of Geological and Geophysical Sciences
Princeton University
Princeton, New Jersey 08540
F. Anthony Dahlen
Department of Geological and Geophysical Sciences
Princeton University
Princeton, New Jersey 08540

1987 Annual Meeting Technical Program Information

<i>Technical Program Chairman</i> Clement G. Chase Department of Geosciences University of Arizona Tucson, AZ 85721 (602) 621-2417	<i>Technical Program Co-Chairman</i> J. Dale Nations Department of Geology Northern Arizona University Flagstaff, AZ 86011 (602) 523-2931
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or

General Chairman
William R. Dickinson
Department of Geosciences
University of Arizona
Tucson, AZ 85721
(602) 621-4051

For general information on symposia participation, please contact

Sue Beggs, Meetings Manager
GSA, P.O. Box 9140, Boulder, CO 80301

1987 GSA Annual Meeting October 26-29 Phoenix, Arizona

SYMPOSIA PROPOSALS DUE JANUARY 1, 1987

The Technical Program Chairmen for the 1987 GSA Annual Meeting have announced a theme statement, which follows. Persons planning symposia or other technical program activities should keep this theme in mind as they look ahead to the Phoenix program.

The Southern Cordillera: Insights and Problems

The geologic wonderland of the Southern Cordillera includes the southern Rocky Mountains, the Colorado Plateau, much of the Basin and Range province, the Cordilleras of Mexico, and the Rio Grande rift. Recent research efforts have gained fresh insights and raised new questions about crustal origins and structure, ore provinces, regional facies, magmatism, intracontinental deformation, plateau uplift, and landscape evolution within this fascinating region. The Phoenix meeting of the Geological Society of America provides an ideal forum to air these and related topics from all standpoints of our science. Symposia and contributions directed toward this theme are especially encouraged.

MEETINGS

1986

Iberian Terranes and Their Regional Correlation, September 1-6, 1986, Oviedo, Spain. Information: E. Martinez-Garcia, Dept. de Geotectónica, Facultad de Geología, Universidad de Oviedo, 33005 Oviedo, Spain.

International Conference on Landscapes of the Southern Hemisphere, September 2-7, 1986, Adelaide, South Australia. Information: Jon Firman, C/-S.A. Dept. of Mines and Energy, P.O. Box 151, Eastwood, S.A. 5063, Australia.

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.

The 1985 Mexico Earthquakes—Factors Involved and Lessons Learned, September 19-21, 1986, Mexico City, Mexico. Information: Elizabeth Yee, American Society of Civil Engineers, 345 East 47th St., New York, NY 10017; (212) 705-7496.

Society for Organic Petrology Third Annual Meeting, September 22-24, 1986, Lexington, Kentucky. Information: Nancy Hopper, OISTL, University of Kentucky, Lexington, KY 40506; (606) 257-2837.

Oceans '86 Conference and Exposition, September 23-25, 1986, Washington, D.C. Information: Oceans '86, Suite 500, 2000 Florida Ave., N.W., Washington, DC 20009; (301) 279-4700.

National Association of Geology Teachers East-Central Section Annual Meeting, September 26-28, 1986, Muncie, Indiana. Information: Harlan H. Roepke, Dept. of Geology, Ball State University, Muncie, IN 47306; (317) 285-8266.

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.

17th Annual Binghamton Geomorphology Symposium on Aeolian Geomorphology, September 27-28, 1986, Guelph, Ontario. Information: William G. Nickling, Dept. of Geography, University of Guelph, Guelph, Ontario, Canada N1G 2W1; (519) 824-4120.

Geothermal Resources Council Annual Meeting, September 29-October 1, 1986, Palm Springs, California. Information: Geo-

(continued on p. 188)

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THE GEOLOGICAL SOCIETY OF AMERICA

Meetings (continued from p. 187)

thermal Resources Council, P.O. Box 1350, Davis, CA 95617; (916) 758-2360.

American Association of Petroleum Geologists Eastern Section, October 2-4, 1986, Ann Arbor, Michigan. Information: Paul A. Catacosinos, Dept. of Geology, Delta College, University Center, MI 48710; (517) 686-9252.

Association of Engineering Geologists 29th Annual Meeting, October 5-9, 1986, San Francisco, California. Information: Alan D. Tryhorn, 1986 AEG Annual Meeting, GeoResource Consultants, Inc., 851 Harrison St., San Francisco, CA 94107; (415) 777-3177.

Symposium on Water Problems of National Concern, October 16-17, 1986, Washington, D.C. Information: Helen Klose, American Institute of Hydrology, P.O. Box 14251, St. Paul, MN 55114; (612) 379-1030.

New Mexico Geological Society Fall Field Conference, October 16-18, 1986, Truth or Consequences, New Mexico. Information: Russ Clemons, New Mexico State University, Las Cruces, NM 88003; (505) 646-2708.

Kansas Geological Society 38th Annual Field Conference, October 17-18, 1986. Information: D. F. Merriam, Dept. of Geology, Wichita State University, Wichita, KS 67208; (316) 689-3140.

Cretaceous-Tertiary Boundary Mass Extinctions Conference, October 18, 1986, Laporte, Indiana. Information: Sherman P. Kanagy II, Purdue University North Central, I-80 and 421 S, Westville, IN 46391; (219) 785-2541, ext. 254.

American Association of Stratigraphic Palynologists Annual Meeting (with Congrès Internationale du Microflore Paléozoïque), October 29-31, 1986, New York, New York. Information: Dan Habib, Graduate School of City University of New York, 33 West 42nd St., New York, New York 10036; (212) 790-4218.

NSF Announces New Proposal Deadlines

The National Science Foundation's Division of Earth Sciences has recently announced new deadlines for submission of proposals to its programs. Previously the Division accepted for evaluation proposals submitted at any time during the year—although preferred "target dates" were sometimes announced. In the future, proposals received after the announced deadlines may be returned unreviewed or, in some cases, be held over for the next review cycle some six months later. Proposals received at the Foundation after the deadline dates will not be eligible for consideration at the subsequent panel meeting. Deadline dates for the coming year are August 15, 1986, and January 15, 1987.

Future GSA Annual Meeting Sites

Phoenix	October 26-29	1987
Denver	October 31-November 3	1988
St. Louis	November 6-9	1989
Dallas	October 29-November 1	1990
San Diego*	October 21-24	1991
Cincinnati	October 26-29	1992
Boston	October 25-28	1993

*Changed from 1990.

Society of Economic Paleontologists and Mineralogists Mid-Continent Section Annual Field Conference, October 30-November 1, 1986, Ponca City, Oklahoma. Information: William A. Morgan, Conoco, Inc., 1000 S. Pine, Ponca City, OK 74603; (405) 767-2853.

17th Annual Underwater Mining Institute, November 2-5, 1986, Biloxi, Mississippi. Information: Underwater Mining Institute, University of Wisconsin Sea Grant Institute, 1800 University Ave., Madison, WI 53705.

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. Information: Meetings Dept., GSA, P.O. Box 9140, Boulder, CO 80301; (303) 447-2020.

National Symposium on Surface Mining, Hydrology, Sedimentology, and Reclamation, December 8-12, 1986, Lexington, Kentucky. Information: Donald H. Graves, T.P. Cooper Building, University of Kentucky, Lexington, KY 40546-0073; (606) 257-2906.

International Society for Reef Studies Annual Meeting, December 12-14, 1986, Marburg, West Germany. Information: Heinrich L. Zankl, Dept. of Geology, Inst. für Geologie und Palaontologie, Lahnberg, D-3550, Marburg, West Germany.

GSA 1986

Annual Meeting, November 10-13, 1986, San Antonio, Texas

Penrose Conferences

Synsedimentary Tectonics, September 7-12, 1986, Durango, Colorado. Information: William A. Thomas, Dept. of Geology, University of Alabama, University, AL 35486; (205) 348-1880.

Laramide Beneath the Prairies, October 13-17, 1986, Rapid City, South Dakota. Information: Alvis L. Lisenbee, Dept. of Geological Engineering, South Dakota School of Mines, Rapid City, SD 57701; (605) 394-2463 or 2461.

Archaeological Geology: Environmental Siting and Material Usage, December 6-11, 1986, Saint Simons Island, Georgia. Information: Charles J. Vitaliano, Dept. Geology, Indiana University, 1005 East Tenth Street, Bloomington, IN 47405; (812) 335-1407.

1987

Palaeoenvironment of East Asia—2nd International Conference, January 9-14, 1987, Hong Kong. Information: E.K.Y. Chen, Centre of Asian Studies, University of Hong Kong, Hong Kong.

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.

International Symposium on Granites and Associated Mineralizations, January 21-31, 1987, Salvador, Brazil. Information: Augusto J. Pedreira, ISGAM, SME-CPM, Rua Ceara, 3-Pituba, 40.000, Salvador, Bahia, Brazil.

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.

Sinkholes and the Environmental Impacts of Karst—2nd Multidisciplinary Conference, February 9-11, 1987, Orlando,

Meetings (continued)

Florida. Information: Barry F. Beck, College of Engineering, University of Central Florida, Orlando, FL 32816.

18th Annual Lunar and Planetary Science Conference, March 16-20, 1987, Houston, Texas. Information: Pamela Jones, 3303 NASA Rd. 1, Houston, TX 77058; (713) 486-2150.

7th Biannual Petroleum Conference of Turkey, April 6-10, 1987, Ankara, Turkey. Information: Necdet Pamir Türkiye, Petrolleri A.O. Üretim Grubu Müdafaa Cad. No: 22 Bakanliklar, Ankara, Turkey; telephone 17 91 60/453-553.

Phanerozoic Ironstones and Related Deposits, April 7-8, 1987, Sheffield, England. Information: Gordon Taylor, Dept. of Science, Luton CHE, Park Square, Luton LU1 3JU, England.

Analysis of Naturally Fractured Reservoirs, May 4-8, 1987, Snowbird, Utah. Information: Jane Rider, AAPG Education Dept., P.O. Box 979, Tulsa, OK 74101-0979; (918) 584-2555.

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.

Coastal Lowlands Symposium: Geology and Geotechnology, May 25-27, 1987, The Hague, Netherlands. Information: Coastal Lowlands Symposium, c/o CONGREX, Keizersgracht 610, 1017 EP Amsterdam, The Netherlands; Telex NL-14527.

Geological Association of Canada-Mineralogical Association

of Canada Annual Meeting, May 25-27, 1987, Saskatoon, Saskatchewan. Information: W. O. Kupsch, Dept. of Geological Sciences, University of Saskatchewan, Saskatoon, Saskatchewan S7N 0W0, Canada; (306) 966-5696.

Second Symposium on the South Atlantic Evolution, July 23-25, 1987, Rio de Janeiro, Brazil. Information: Dimas Dias-Brito, PETROBRAS/CENPES, Ilha do Fundão, Quadra 7, Rio de Janeiro - 21.910 - Brazil; and P. Y. Berthou, Laboratoire de Géologie des Bassins Sédimentaires, Tour 14-15 4eme ETAGE 4, Place Jussieu, 75252 Paris, Cedex 05, France.

4th International Congress of the Regional Committee on Pacific Neogene Stratigraphy (affiliated with IUGS) and joint meeting of **IGCP Project 246**, July 29-31, 1987, Berkeley, California. Information: Charlotte Brunner, Chairperson of Organizing Committee, Dept. of Paleontology, University of California, Berkeley, CA 94720.

International Symposium on Erosion and Sedimentation in the Pacific Rim, August 3-7, 1987, Corvallis, Oregon. Information: 1987 Corvallis Symposium, Conference Coordinator, College of Forestry, Oregon State University, Corvallis, OR 97331; (503) 754-2004.

XVI Pacific Science Congress, August 20-30, 1987, Seoul, Korea. Information: Choon Ho Park, XVI Pacific Science Congress, K.P.O. Box 1008, Seoul 110, Korea; telephone (2) 733-4478; Telex ILSKOR 23881. (Abstracts due December 31, 1986.)

(continued on p. 190)

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The Department of Geological Sciences, University of Tennessee-Knoxville invites applications for a tenure track position in geophysics (Assistant Professor level) to be filled January, 1987, or as soon thereafter as possible. Applicants should have a Ph.D. degree, and interest in initiating a strong research program in crustal structure and tectonics, and both graduate and undergraduate teaching. Preference will be given to applicants with interests in seismic reflection profiling and

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Meetings (continued from p. 189)

International Congress on Geology, Structure, Mineralization, and Economics of the Pacific Rim, August 26-29, 1987, Queensland, Australia. Information: C/-Aus. IMM Congress Secretariat, P.O. Box 731, Toowong 4066, Queensland, Australia.

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.

Society of Economic Paleontologists and Mineralogists Fourth Annual Midyear Meeting, September 11-14, 1987, Austin, Texas. Information: SEPM, P.O. Box 4756, Tulsa, OK 74159; (918) 743-9765.

GSA 1987

Section Meetings

Northeastern Section, March 4-7, Pittsburgh, Pennsylvania
Southeastern Section, March 26-27, 1987, Norfolk, Virginia
South-Central Section, March 30-31, 1987, Waco, Texas
North-Central Section, April 30-May 1, 1987, St. Paul, Minnesota
Rocky Mountain Section, May 2-4, 1987, Boulder, Colorado
Cordilleran Section, May 20-22, 1987, Hilo, Hawaii

Penrose Conferences

Geochemistry of Waters in Deep Sedimentary Basins, March 16-20, 1987, Oxnard, California. Information: Yousif K. Kharaka, U.S. Geological Survey, Water Resources Division, M.S. 427, 345 Middlefield Rd., Menlo Park, CA 94025; (415) 323-8111, ext. 2523.

Late Quaternary Sea Level: The Marine and Terrestrial Record, April 6-12, 1987, Ferry Reach, Bermuda. Information: James L. Carew, Dept. of Geology, College of Charleston, Charleston, SC 29424; (803) 792-5589.

The Construction of Geological Cross Sections: Techniques, Assumptions, and Methods, May 3-8, 1987, Rosendale, New York. Information: Peter A. Geiser, Dept. of Geology and Geophysics, University of Connecticut, Storrs, CT 06268; (203) 486-4432 or 4433.

Glacial Facies Models, May 3-8, 1987, Manitoulin Island, Ontario. Information: Nicholas Eyles, Carolyn H. Eyles, Physical Sciences Division, University of Toronto, Scarborough, Ontario M1C 1A4, Canada; (416) 284-3336.

Paleoenvironmental Interpretation of Paleosols, September 11-17, 1987, Warm Springs Indian Reservation, central Oregon. Information: Gregory R. Retallack, Dept. of Geology, University of Oregon, Eugene OR 97403-1271; (503) 686-4573.

Annual Meeting, October 26-29, Phoenix, Arizona

BUREAU OF ECONOMIC GEOLOGY

The Bureau of Economic Geology, The University of Texas at Austin, is recruiting two Ph.D. research scientists with specializations in Structural Geology.

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Deadline for application: September 25, 1986. Appointment will begin in January, 1987.

Send a resume, brief description of teaching and research interest, transcripts and three letters of recommendation to: Dr. Florentin Maurrasse, Department of Geology, Florida International University, Tamiami Campus, Miami, FL 33199. Florida International University is a member of the state university system and an affirmative action/equal opportunity employer.

HYDROGEOLOGIST-STANFORD UNIVERSITY

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solite transport in permeable media, simulation of regional-scale groundwater hydraulics or groundwater systems, or paleohydrology of sedimentary basins, as examples. We will be glad to send potential applicants information about ongoing programs at Stanford in applied hydrogeology (groundwater and pollution management), civil engineering (fate and transport of contaminants in groundwater), geothermal and petroleum reservoir simulation, and sedimentary basin evolution, and about our interactions with the groundwater hydrology program at the nearby U.S. Geological Survey. Please submit by November 1, 1986: a resume, a brief statement of teaching and research interests, and names of four references to: Prof. Marco T. Einaudi, Dept. of Applied Earth Sciences, Stanford University, Stanford, CA 94305. Stanford University is an Equal Opportunity Employer and encourages applications by qualified women and minorities.

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Applicants with curriculum vitae and names of three referees should be sent to: Dr. C.R. Barnes, Head, Centre for Earth Resources Research, Department of Earth Sciences, Memorial University of Newfoundland, St. John's, Newfoundland, Canada A1B 3X5. Telephone: (709) 737-8143.

DEPARTMENT OF GEOLOGY AND GEOPHYSICS

UNIVERSITY OF CALIFORNIA, BERKELEY

Subject to final budgetary approval, the Department is authorized to make two faculty tenure track appointments, with effective date July 1, 1987, at the junior or senior level. Interested and qualified candidates who are engaged in innovative research in one of the following fields are encouraged to apply: radiogenic isotope geochemistry; basin evolution (including sedimentology, organic geochemistry and hydrogeology); igneous petrology; metamorphic petrology.

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