

# GSA NEWS & INFORMATION

Monthly Newsletter of  
The Geological Society of America

VOLUME 7, NUMBER 12

DECEMBER 1985

## What Has GSA Done for You in 1985?

by Faith Rogers

Journals, books, meetings and conferences, research grants, and other products and activities have kept the growing GSA membership informed and supported and the headquarters staff busy in 1985. The emphasis is on increasing membership and expanding GSA services to the geoscience community.

### Publications

Issues of both the *GSA Bulletin* and *Geology* were larger this year, to accommodate the increasing number of manuscripts submitted to each journal (up about 10%) and to avoid backlogs. *Geology* contained 896 pages plus the annual indexes, and the *Bulletin* had 1608 pages plus the annual indexes—a record total of 2504 pages of science. On average, *Bulletin* articles are published 5 to 6 months after acceptance, and *Geology* articles are in print about 2-1/2 months after acceptance.

GSA also published one Memoir, six Special Papers, and three maps/charts in 1985. Time from acceptance to publication ranged from five to eleven months.

The Decade of North American Geology (DNAG) project produced its first Special Volume and 11 Continent-Ocean Transects this year. The project, commemorating the centenary of the Geological Society of America (in 1988) will comprise 28 volumes in the series *The Geology of North America*, a 6-volume Centennial Field Guide set, 4 Centennial Special Volumes, 23 Continent-Ocean Transects, and 7 Continent-Scale Maps. Publication of this synthesis of the geology and geophysics of North America and the adjacent ocean regions will continue through 1988. A full-color 12-page prospectus, designed by the GSA Production Department, describes the DNAG publications and how to order them; it was mailed in September.

*GSA News & Information* totaled 240 pages this year. The newsletter included a growing classified ads section, begun in response to requests from members for this service.

A redesigned and updated GSA publications catalog went to all members and to other potential customers in October.

### Meetings

Almost 10,000 geoscientists attended GSA scientific meetings in 1985—the annual meeting, in Orlando, Florida, and the six section meetings, in Vancouver, British Columbia; Boise, Idaho; DeKalb, Illinois; Fayetteville, Arkansas; Lancaster, Pennsylvania; and Knoxville, Tennessee. Each of these meetings included technical sessions, poster sessions, and exhibits.

Two 1985 Penrose Conferences offered opportunities for in-depth study and discussion for about 75 participants at each. The

1985 conferences were *Geomorphic and Stratigraphic Indicators of Neogene-Quaternary Climatic Change in Arid and Semiarid Environments*, at Lake Havasu, Arizona, in April; and *Terranes in the Circum-Atlantic Paleozoic Orogens*, at Halifax, Nova Scotia, in May-June.

### Research Grants

GSA research grants funded 144 proposals in 1985. Competition for the \$119,650 budget was stiff: 523 proposals were received.

### Employment Service

The computerized GSA Employment Service data file listed 384 employment applicants and sent printouts to 53 employers this year. GSA members pay \$25 (\$50 for nonmembers) to be listed in the file for one year, and employers pay \$125 for printouts of applicants in one or two specialties (\$45 for each additional specialty) or \$350 for a printout of the entire applicant file. As it does every year, GSA conducted the Employment Interview Service at the 1985 Annual Meeting, scheduling interviews of prospective employees and employers at Orlando.

### Membership

GSA membership had increased 10% above the 1984 level as we went to press at the end of October. The Society now has more than 15,500 members. The second phase of the membership drive began in fall 1985.

### Foundation

Now in its fourth year, the GSA Foundation continues to support Society programs and activities. The Foundation had received \$318,658 from 442 donors by the end of October, as we went to press. Of these, 241 GSA members qualified for the Foundation's 2nd Century Club by giving \$25 or more. About half the donations to the Foundation arrive in the last three months of the year. Totals higher than the 1984 figures of 879 donors and \$592,591 from all sources (individuals, corporations, other foundations, and government) are expected.

### What Is Ahead for GSA?

A growing membership and increased resources for ongoing and special projects to promote the science of geology are major goals as GSA approaches its centennial celebration in 1988. The many of you who volunteer your time and support make attainment of these goals possible. Stay tuned: the best is yet to come.



THE GEOLOGICAL SOCIETY OF AMERICA

# 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)



## CENTENNIAL NEWS

by Allison R. (Pete) Palmer

### Organizational Phase of DNAG Now Completed

In mid-November, those involved in the mineral deposits section of the DNAG synthesis volume on *Economic Geology: U.S.*, under the leadership of Dick Taylor of the USGS had an organizational meeting in Denver. This meeting not only completed the organization of this volume, it also marked the completion of the organizational phase of the DNAG Project. All books and maps are now in preparation or production.

Well over 1000 geologists and geophysicists are involved in some aspect of map compilation or chapter writing for the synthesis volumes, field guides, and wall maps that make up the components of the DNAG project. Just about 4-1/2 years ago, the Project got underway with a meeting of the individuals who had agreed to be organizers and editors for the synthesis volumes of *The Geology of North America*. Since then, the volume editors have produced *Perspectives in Regional Geological Synthesis*; the DNAG Time Scale has appeared in wallet, page, and wall-size editions; 16 organizational workshops and 12 Final Coordinating Conferences have been held for volumes of *The Geology of North America* that are being produced by GSA and that required such meetings; 4 organizational workshops have been held for the compilers of the four-map series on neotectonics of North America; and compilation is about complete for the southeastern quadrant of the new *Geologic Map of North America*. Nearly half of the 23 Continent/Ocean Transects have been received for production, and 8 of these have been

printed. The first book, *Geologists and Ideas: A History of North American Geology*, was published in October.

The brochure on standing orders that you received earlier this fall gives all the details about the products of this massive international effort and offers some very attractive purchase options for individuals and organizations.

To those of you who have contributed, or are contributing, your best efforts to make each of the components of this project worthy of the Centennial of your Society, my special thanks as we move into the wrap-up phase of the DNAG Project. We will really have something to celebrate at the Centennial banquet in 1988 and the International Geological Congress in 1989! The volumes of *The Geology of North America*, the 1:5,000,000 scale maps of the continent, and the Continent/Ocean Transects around the continental margins will be on display as examples of international and interdisciplinary cooperation and coordination in the creation of a comprehensive synthesis of knowledge about the geology and geophysics of the North American plate and adjacent areas; through the *Centennial Field Guides*, a good bit will be added about the ground truth for these syntheses in the areas of each of GSA's six sections; and the richness of the geologic/geophysical fabric of North America will be enhanced by *Centennial Special Volumes* from most of GSA's topical Divisions. This is truly a monumental effort.

Merry Christmas or Happy Hanukkah to all!

### Application Deadline for Penrose Conference Extended

The deadline for submitting letters of application to attend the Penrose Conference on Miocene Reconstruction of Southern California has been extended to **January 15, 1986**. Letters outlining (1) experience of the prospective participant in the topic, (2) areas in which the prospective participant might expect to contribute, and (3) reasons for wanting to attend should be sent to A. Eugene Fritsche, Department of Geological Sciences, California State University, Northridge, CA 91330.

See November 1985 *GSA News & Information* for a detailed description of this Penrose Conference, to be held May 30-June 4, 1986 in Oxnard, California.

### Center for Field Research Offers Private Grants

The Center for Field Research has identified geological field research as a priority for EARTHWATCH support and invites proposals for funding consideration. More than \$3 million will be awarded in 1986 and 1987 to 200 projects in the sciences and humanities throughout the world; grants range from \$7500 to \$100,000. All funds are derived from the contributions of participating volunteers selected from the EARTHWATCH membership (20,000); all projects supported must therefore need both funds and direct field assistance to be eligible.

Application procedure: Preliminary proposals should be submitted 18 months before the intended project date; exceptions will be made in some cases. Upon favorable review, a Full Proposal will be promptly invited. Decisions for funding are made on a monthly basis. For further information, contact Karen McGlathery, Assistant Director, Center for Field Research, 10 Juniper Road, Box 127, Belmont, MA 02178; (617) 489-3030.

Vol. 7, no. 12 *GSA News & Information* December 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.

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 Larson; Production Assistants: Joan E. Manly and June E. Thomas.

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

**Correction:** The American Geological Institute Minority Participation Program scholarships recently awarded (see *GSA News & Information*, October 1985, p. 194) are for the 1985-1986 academic year. February 1, 1986 is the deadline for applications for the scholarships for the 1986-1987 academic year.



## Final Announcement

# NORTHEASTERN SECTION, GSA, 21st Annual Meeting Kiamesha Lake, New York March 12-14, 1986

The Northeastern Section of the Geological Society of America will meet March 12-14, 1986, at the Concord Resort Hotel in Kiamesha Lake, New York, together with the Eastern Section of the Society of Economic Paleontologists and Mineralogists, the Northeast Section of the Paleontological Society, and the Eastern Section of the National Association of Geology Teachers. The meeting is sponsored by the State University of New York, College at Oneonta, with assistance from SUNY, College at Cortland, and the New York State Museum and Science Service and Geological Survey.

Local Committee: Chairman—P. Jay Fleisher, Earth Science Department, State University College, Oneonta, NY 13820; (607) 431-3707; Technical Program—Duane Wohlford, SUNY, Oneonta, (607) 431-3707; Symposia—Robert Fakundiny, New York State Geological Survey, Albany, NY, (518) 474-5816; Registration—Peter Muller, Kim Kucharski Muller, SUNY, Oneonta; Treasurer—Brent K. Dugolinsky, SUNY, Oneonta; Exhibits—John Fauth, SUNY, Cortland; Audiovisual—James Ebert, SUNY, Oneonta; Housing and Transportation—James Bugh, SUNY, Cortland; Poster Sessions—Graham Heaslip, SUNY, Cortland; Special Events and Security—Paul Butler, SUNY, Oneonta; Student Awards—Robert T. Simmonds, SUNY, Oneonta; Science Theater—M. Ira Dubins, SUNY, Oneonta.

### REGISTRATION

Registration is required for all those attending technical sessions, symposia, poster sessions, exhibits, and special events. **ADMISSION TO ALL MEETING FUNCTIONS IS BY BADGE ONLY.**

*Preregistration:* You are urged to register at the reduced rate to aid the local committee in making final plans. *Preregistration forms, with payment, must be postmarked no later than February 14, 1986.* Return the completed registration form with check or money order in U.S. currency to Registration, NE GSA, Earth Science Department, SUNY, College at Oneonta, Oneonta, NY 13820-1380.

Those planning to attend the Short Course/Field Trip must preregister and may pick up badge and materials at any time during normal on-site registration hours, plus Friday evening, March 14, and Saturday morning, March 15, prior to field trip departure. Refunds for canceled preregistration will be made in full until March 1, 1986. After this date no refunds will be made, except for oversubscription.

*On-Site Registration:* The registration and information desk will be located in the lobby/promenade area of the Concord Resort Hotel. Badges and other material may be picked up according to this registration schedule:

Wednesday, March 12: 9 a.m. to 10 p.m.

Thursday, March 13: 7 a.m. to 7 p.m.

Friday, March 14: 7 a.m. to 2 p.m.

### WELCOMING PARTY

A Welcoming Party consisting of hot hors d'oeuvres and open bar will be held from 6 to 9 p.m. on Wednesday, March 12. Admission is free to Concord guests. GSA registrants who are not guests of the Concord may purchase a party ticket, which includes dinner to follow, at the reduced rate of \$23, plus 7% tax. Tickets will be available at the Concord Cashier's Window in the lobby area.

### TECHNICAL PROGRAM

General technical sessions are scheduled as oral presentations and poster sessions from Wednesday afternoon, March 12, through Friday afternoon, March 14. All sessions will be held at the Concord Resort Hotel. A Short Course/Field Trip will commence with a Friday evening seminar, March 14, followed by an all-day Saturday field excursion, March 15.

### SYMPOSIA

- 1. Geochronology and Stratigraphy of Precambrian Rocks of Eastern North America:** In Commemoration of the New York State Geological Survey Sesquicentennial. Douglas G. Mose, Department of Geology, George Mason University, Fairfax, VA 22030.
- 2. Cyclic and Episodic Deposition of the Siluro-Devonian of the Northern Appalachians:** In Commemoration of the New York State Geological Survey Sesquicentennial. Carlton E. Brett, Department of Geological Sciences, University of Rochester, Rochester, NY 14627; Gordon C. Baird, Department of Geology, SUNY, College at Fredonia, Fredonia, NY 14063.
- 3. James Hall and the Products of His Factory:** In Commemoration of the New York State Geological Survey Sesquicentennial. Robert Fakundiny, New York State Geological Survey, New York State Museum and Science Service, State Education Department, Albany, NY 12230; Ellis L. Yochelson, E-501 Museum of Natural History, Washington, DC 20560.
- 4. Facies Origin and Age of Diamicts in the Northeast.** G. Gordon Connally, GGC, Inc., 468 W. Ferry Street, Buffalo, NY 14213.
- 5. Contaminant Source Characterization and Elimination: The Key to Aquifer Restoration?** Stan Seenstra, Xenon Environmental Corporation, 845 Harrington Court, Burlington, Ontario L7N 3P3, Canada.
- 6. Practical Species Concepts in Colonial and Other Invertebrates.** Thomas E. Boltam, Geological Survey of Canada, 601 Booth Street, Ottawa 5, Ontario, Canada; Colin W. Stearn, Department of Geological Sciences, McGill University, Montreal, Quebec H3A 2A7, Canada.
- 7. Comparative Tectonics of Northern Appalachian Basement Massifs.** Nicholas M. Ratcliffe, U.S. Geological Survey, MS 925, National Center, Reston, VA 22092; James B. Thompson, Jr., Department of Geological Sciences, Harvard University, 24 Oxford Street, Cambridge, MA 02138.
- 8. The Stratigraphic Significance of Shallowing-Up Cycles.** Charlotte J. Mehrtens, Department of Geology, University of Vermont, Burlington, VT 05401.

(continued)

## Northeastern Section Meeting (continued from p. 220)

9. **Depositional Processes Interpreted from Bedforms in Clastic Rocks.** Kathleen M. Gerety, Department of Geology, Smith College, Northampton, MA 01063.
10. **Precious Metals in Polymetallic Sulfides in Eastern North America.** Walter A. Anderson, State Geologist of Maine, Maine Geological Survey, Department of Conservation, State House Station 22, Augusta, ME 04333.
11. **Determining P-T Trajectories of Metamorphism in the Northern Appalachians.** Peter Robinson, Department of Geology and Geography, University of Massachusetts, Amherst, MA 01003; F. S. Spear, Department of Geology, Rensselaer Polytechnic Institute, Troy, NY 12181; R. J. Tracy, Department of Geology & Geophysics, Yale University, New Haven, CT 06511.

## SPECIAL EVENTS

1. **American Institute of Professional Geologists (AIPG) Colloquium—Careers in the Geosciences**  
Panel discussion by representatives from consulting, industry, a government agency, and research. Brief presentations will include current status of career opportunities, employer expectations at entry level, how best to prepare for entry-level employment, what looks good on a student's resume, and the value of a graduate education; to be followed by informal group and/or one-on-one conversation; keg provided by AIPG. Wednesday, March 12, 8:30 to 10 p.m., Spartan Room.
2. **NAGT Special Poster Session—Classic Field Sites for Teaching Earth Science in the Northeast**  
Following the DMAG program to outline classic research sites, the NAGT Eastern Section has initiated a state-by-state exposé on accessible and protected geologic training sites, from parks to campuses. These sites cover most geologic disciplines and field activities. Thursday, March 13, 9 to 11:45 a.m. and 1:45 to 4:30 p.m., Spartan Room.
3. **American Geological Institute (AGI) Public Forum—Geology, Environment and Public Policy**  
This forum will address environmental problems of the northeastern United States which are intrinsically geological and for which legislation may be written. Several preselected questions concerning timely problems will be prepared and submitted, in a round-table discussion, to a panel of experts knowledgeable about the importance of earth science information in public policy decisions. The panel will consist of representatives from the geoscience community and the media and will include elected and appointed officials at the state and federal level. Friday, March 14, 9:30 to 11:30 a.m., Spartan Room.
4. **Reunions**  
Arrangements for college and university reunions can be made by contacting Paul Butler, Earth Science Department, State University College, Oneonta, NY 13820-1380 before February 1, 1986. It is hoped that many regional campuses will be interested in participating.

## SHORT COURSE/FIELD TRIP

**Geometry and Mesoscopic Structures of a Fold-Thrust Belt.** Examples from the Hudson Valley, New York (organized by

Stephen Marshak, University of Illinois; Peter Geiser, University of Connecticut; Gautam Mitra, University of Rochester):

This course will introduce current concepts concerning thin-skinned fold-thrust belts, including styles of folding, geometry of fault arrays, and formation of cleavage. A three-hour colloquium Friday evening, March 14, will be followed by a full-day Saturday field trip, March 15, to examine outcrops of deformed Silurian and Devonian strata in the Hudson Valley fold-thrust belt in the Catskill/Kingston area. The program is intended to be of value both to geologists interested in thin-skinned structural geometries and northern Appalachian tectonics, and to instructors from northeastern colleges who wish to find new outcrops for teaching. The trip will depart from and return to the Concord.

Registration fee: \$25; includes transportation and road log.

## SOCIETY MEETINGS

**Northeastern Section, GSA Management Board Meeting,** Wednesday, March 12, 8:30 to 10 p.m. (location to be announced in *Abstracts with Programs*).

**Northeastern Section, GSA 1986 and 1987 Local Committees Meeting,** Thursday, March 13, 9:15 to 10:15 p.m., Headquarters Suite.

**SEPM Business Meeting and Presidential Address** to follow symposia, Thursday, March 13, 5:40 to 6:40 p.m.

**Paleontological Society Business Meeting** to follow symposia, Thursday, March 13, 11:45 a.m. to 12:30 p.m.

**NAGT Business Meeting and Luncheon,** Thursday, March 13, 12:30 to 1:30 p.m., in a Concord dining hall (location to be announced in *Abstracts with Programs*). Non-Concord guests may purchase tickets at Cashier's Window for \$14.

**GSA Northeastern Section Annual Banquet,** Thursday, March 13, 7 to 9 p.m., Concord dining room.

## EXHIBIT SPACE

Exhibits will be in the Little Club Room, which is centrally located and near the technical session rooms and the poster session area. Single 8' x 10' booths will be available to educational and nonprofit institutions for \$90 and to commercial exhibitors for \$180. For additional information, contact John Fauth, Geology Department, SUNY, College at Cortland, Cortland, NY 13045, (607) 753-2815.

## PROJECTION EQUIPMENT

All slides must be 2" x 2" and fit a standard 35-mm carousel tray. Only one projector and 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.

## SCIENCE THEATER

Two separate science theaters are planned, one for films and another for video tapes. Times, days, and locations will be included in registration materials.

## STUDENT AWARDS

The Northeastern Section will award \$100 and a certificate to the student who presents the paper judged best and \$50 and a certificate for the runner-up. Both oral and poster session presentations will be eligible. 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.

(continued on p. 222)

**Northeastern Section Meeting** (continued from p. 221)

**SPOUSE/GUEST ACTIVITY**

Provided sufficient interest exists, a charter bus excursion to New York City on Thursday, March 13, for a Broadway show, shopping, museums, or sightseeing will be arranged. The tour will depart from the Concord at 8:30 a.m., will include a box lunch for Concord guests, and will return about 6:30 p.m. A minimum of 30 persons is required for a round trip fare of \$15 per person. To express interest and receive information about show tickets and museum activity, contact Paul Butler, Earth Science Department, State University College, Oneonta, NY 13820-1380 by January 15, 1986.

**ENTERTAINMENT AND FACILITIES**

Guests of the Concord may attend a nightly entertainment show in the Concord's main nightclub. The Concord also has a wide assortment of facilities available for use, including swimming pool, health club, weight room, sauna, indoor tennis, and game room.

**TRANSPORTATION**

*From J. F. Kennedy and LaGuardia Airports:* There is daily Short Line Bus Service to and from metropolitan airports. To contact this service at the airport, pick up the red phone on the ground transportation level and advise them you are waiting for the Flight Catcher bus. Your destination will be Monticello, New York. At the Monticello Terminal you may call the Concord Service Desk (794-4000) for the complimentary house car. The trip takes about 3-1/2 hours.

*Public Transportation:* There is daily Short Line Bus Service to and from the New York City metropolitan area. Check in advance for the schedule. Upon arrival at the Monticello Terminal, call the Concord Service Desk (794-4000) for the house car to the hotel. There is no charge for the house car. The bus trip takes two hours. Short Line Buses also service Binghamton, Rochester, Buffalo, and New England.

*Limousine Service:* This service picks up twice daily at New York airports and New York City (Bronx, Brooklyn, Manhattan, and Queens) and brings guests directly to the Concord Resort Hotel. A private limousine is available for other times. There are special charges for golf bags and skis. Prepaid reservations are required. Call (212) 424-3600 for reservations.

*Car Rental:* Major car rental agencies are located at the airports and metropolitan New York City. Avis, Budget, and National cars have drop-off stations close to the Concord Resort Hotel. The complimentary house car will pick up guests at car drop-off centers in Monticello.

*By Air:* Sullivan County International Airport in White Lake, six miles west of Monticello, has charter service with connections available to major airlines, domestic and foreign carriers in New York City and Albany airports.

*Drive Yourself:* Route 17 is a controlled-access, divided highway with a legal speed of 55 mph. Beginning at the Thruway Exit 16 in Harriman, Route 17 stretches westward to Lake Erie. Take Exit 105 from Route 17 to Kiamesha Lake and the Concord Hotel. Free valet parking is available at the Concord. The Concord Main Entrance is located only one mile from Route 17.

**HOUSING**

See the accompanying housing form to make reservations at the Concord Resort Hotel, or contact Jim Bugh, Geology Department, SUNY, Cortland, NY 13045, (607) 753-2815, for a list of alternative accommodations.

**Non-Concord Guest Meals.** A moderately priced and convenient cafeteria is located within the Concord Resort Hotel. Non-Concord guests who wish to purchase Concord dining room tickets may do so at the Cashier's Window, Lobby Area. Prices (per meal) include gratuity (subject to minor adjustment), plus 7% tax: breakfast, \$9; lunch, \$14; dinner, \$20 (Thursday banquet, March 13); Welcoming Party and Dinner, \$23 (Wednesday, March 12; reduced rate supported by GSA Northeastern Section).

**HOUSING FORM**

**Northeastern Section, GSA, March 12-14, 1986, Concord Resort Hotel**

**DEADLINE FOR RESERVATIONS: FEBRUARY 12, 1986**

<b>Rates</b> (include three meals/day)	<b>Per person, per day</b>	
Concord Towers .....	\$75.00	<input type="checkbox"/>
Exec. Rooms—2 baths, TV, air-cond. ....	65.00	<input type="checkbox"/>
Superior—pvt. bath, TV, air-cond. ....	59.00	<input type="checkbox"/>
Standard—TV, air-cond. ....	53.00	<input type="checkbox"/>
Student Rate (4 in room) per person .....	40.00	<input type="checkbox"/>

The above rates are based on two persons in each room, from after lunch on Wednesday until after lunch on Friday, including six meals. Registrants during this period will receive a \$7 total credit (GSA Northeastern Section supported) toward rates for combined 2-day registration (Wednesday and Thursday nights).

Child under 16 in same room as both parents .....	38.00	<input type="checkbox"/>
Adult as 3rd or 4th occupant in room .....	45.00	<input type="checkbox"/>
Single occupancy .....	add 50%	<input type="checkbox"/>

Same rates apply to Short Course/Field Trip participants staying until Saturday morning.

*Gratuities:* We will add \$9.20 per person, per day to each person's bill to cover gratuities for dining room staff and chambermaids. Bellman and other service personnel are NOT included in this figure.

NOTE: All rates and amounts are subject to 7% New York State and County tax.

This reservation must be accompanied by a deposit of \$25.00 per person. Make checks payable to the Concord Resort Hotel. Mail Housing Form with check to: Convention Reservation Dept., Concord Resort Hotel, Kiamesha Lake, NY 12751. Deposits are refundable up to 72 hours prior to arrival.

Please make reservations for \_\_\_\_\_ person(s)

Name \_\_\_\_\_

Home Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_

Business Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_

Occupants' Names \_\_\_\_\_

Arrival Date \_\_\_\_\_ Departure \_\_\_\_\_

All reservations must be received by **February 12, 1986**, or they will be subject to refusal.





## CORDILLERAN SECTION, GSA, 82nd Annual Meeting Los Angeles, California March 25-28, 1986

The Cordilleran Section of the Geological Society of America will meet at California State University, Los Angeles, March 25-28, 1986. The meeting will be hosted by the Department of Geology and will be held jointly with the Paleontological Society, Pacific Coast Section. Local Committee: Chairmen—Terry E. Davis and Richard W. Hurst, Department of Geology, California State University, Los Angeles, CA 90032, (213) 224-3388; Program—Gary A. Novak, CSULA; Field Trips—Perry L. Ehlig, CSULA; Treasurer—Martin L. Stout, CSULA; Audiovisual—Robert J. Stull, CSULA; Registration—Dee D. Trent, Citrus College.

### REGISTRATION

Preregistration will be by mail. On-site registration will take place on Monday, March 24, 1986, from 12 to 9 p.m. at the Pasadena Hilton; on Tuesday, March 25, from 7:30 a.m. to 5 p.m. at California State University, Los Angeles (CSULA), and for the duration of the meeting at CSULA. Preregistration fees will be \$40 for GSA members—professional, \$55 for non-GSA members—professional, \$10 for GSA Student Associates, and \$20 for other students. On-site registration will be \$50—GSA professionals, \$65—non-GSA professionals, \$15—GSA Student Associates, \$25—other students. One-day registration will be \$35 for all professionals, and \$15 for all students. Please take advantage of the lower preregistration rates. **PREREGISTER BY FEBRUARY 21, 1986.** Requests for refunds will be honored if received no later than March 3, 1986, however, a \$10.00 handling fee will be charged. No refunds will be given after March 3, 1986.

### TECHNICAL SESSIONS

Technical sessions will begin on Tuesday, March 25, 1986, at 1 p.m. and end on Friday, March 28, 1986, at noon.

### SYMPOSIA

1. **Episodicity of Quaternary Processes.** R. Weldon, M. Stout.
2. **Landfill Leachate Monitoring.** G. Brown.
3. **Landslide/Landslide Mitigation.** A. Keene, J. Slosson.
4. **Cordilleran Metamorphism.** G. Ernst.
5. **Nonmetallic Mineral Deposits.** J. Childs, A. Barth.
6. **Cal Crust.** T. Henyey, E. Frost.
7. **Southern California Neotectonics.** T. Rockwell.
8. **Subaqueous Volcaniclastic Rocks: Processes and Products.** E. Brooks.
9. **Mojave Desert Xenolith Suite of the Lower Crust and Upper Mantle.** J. Noller.
10. **Environmental Biogeochemistry.** R. Hurst, T. Davis.
11. **Tertiary Geology of the Southwestern Cordillera.** J. Nielson-Pike, A. Glazner.
12. **Neogene Tectonics of the Basin-Range.** B. Troxel, L. Wright, M. Reynolds, M. Carr.
13. **Hydrogeology of the Los Angeles Groundwater Basin.** P. Saint, R. Bean.
14. **History of California Geology.** D. Steller. Sponsored by the GSA History of Geology Division.
15. **Archeological Geology.** J. Erickson.
16. **Nature of the Crust in Southern California.** K. Howard, W. Hamilton.
17. **Damage and Damages; Ground Failures in the Urban Setting.** E. Chase.
18. **Mesozoic of Baja California.** C. Busby-Spera, J. Boles.
19. **Paleomagnetism: Southern Cordillera.** S. Lund, D. Champion.

20. **San Andreas Fault System: Distribution, History, Palinspastic and Paleogeographic Reconstructions.** J. C. Matti, R. E. Powell, R. J. Weldon.
21. **Geology of the Peninsular Ranges.** D. Morton, V. Todd.
22. **Early Multicellular Life.** L. Ritterbush.
23. **Health, Safety, and Stress in the Field.** D. Truslow.  
Sponsored by the Association for Women Geoscientists, Los Angeles Chapter.
24. **Pelona and Related Sheets.** P. Ehlig, G. Haxel.

### PROJECTION EQUIPMENT

Equipment will be provided for 2" × 2" slides and single projectors only. Please bring your own loaded carousel trays, identified with your name and title of presentation.

### FIELD TRIPS

Field trip registrants are required to be preregistered for the meeting. Field trip registration is on a first-come basis. If a trip is oversubscribed or canceled, the field trip fee will be refunded. *Preregistration for field trips must be received by February 21, 1986, accompanied by full payment.*

All trips start and end at parking lot C, California State University, Los Angeles (CSULA), unless otherwise specified. Participants must provide their own transportation to starting and from ending points of the trips.

Trip fees include field trip transportation and guidebook unless otherwise specified. The fee may also include meals and lodging as specified by the following abbreviations: B—breakfast; L—lunch; D—dinner; ON—overnight lodging. Trips are listed below by starting times. Additional details will be provided on information sheets sent to registrants.

For further information, contact designated leaders or Field Trip Chairman, Perry Ehlig, Department of Geology, California State University, Los Angeles, Los Angeles, CA 90032, (213) 224-3388.

### Premeeting Trips

1. **Detachment Faults in Sierra Santa Rosa, Baja California.** Gordon Gastil, San Diego State University. One day; Friday, March 21. Departs from entrance monument at San Felipe at 8 a.m. and returns at 6 p.m. Participants must arrange their own four-wheel-drive vehicle and lunch.

Middle to Late Miocene volcanic and nonmarine clastic strata resting on Mesozoic granitic rocks have been tilted and rotated on listric normal faults since the start of the Pliocene. Uplift and erosion provide exposures to a depth of several kilometres. The

(continued on p. 226)



# HOUSING INFORMATION

## Cordilleran Section, GSA, March 25-28, 1986

### HOTELS (located in Pasadena)

Pasadena Hilton (Host Hotel)  
Holiday Inn Pasadena

### Alternate Hotels

Information regarding other hotels and motels in the Pasadena area can be obtained by calling the Pasadena Convention Bureau at (818) 795-9311.

### Reservation Coordinator

Pasadena Convention Bureau  
Attn: GSA Cordilleran Section Coordinator  
300 E. Green St.  
Pasadena, CA 91101

### NO TELEPHONE REQUESTS

### Housing Requirements

First night's deposit must be received by February 24, 1986. Personal check will be accepted with major credit card or check guarantee card. VISA, MasterCard, American Express accepted.

### Hotel Rates (per night)

	Singles	Twins	Doubles
Pasadena Hilton	\$70	---	\$80
Holiday Inn Pasadena	\$64	---	\$74

### HOTELS/MOTELS

- Holiday Inn
- Pasadena Hilton

### POINTS OF INTEREST

- PASADENA CENTER and Convention Bureau
- City Hall
- Norton Simon Museum
- Rose Bowl
- Wrigley Mansion
- Pacificulture-Asia Museum
- Jet Propulsion Laboratory
- California Institute of Technology
- Huntington Library and Gardens
- State & County Arboretum
- Santa Anita Race Track

### Hotel Facilities

All hotels are full-service hotels with coffee shops, lounges, restaurants, and recreation facilities.

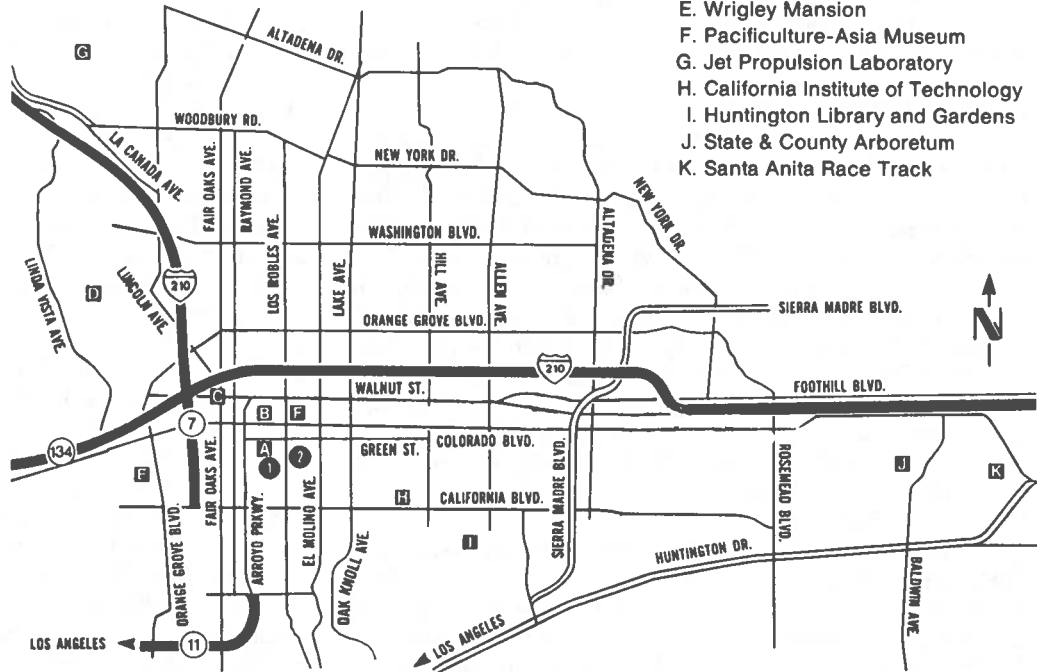
### Transportation from Local Airports

All hotels are serviced by the Airport Bus (Los Angeles International Airport) and the Pasadena Shuttle (Burbank Airport).

### Transportation to California State University

Bus schedules will be available at the main desk of each hotel. California State University, Los Angeles, is located approximately 5 miles south of Pasadena.

Avis Rent-a-Car and National Car Rentals will offer GSA participants a reduced convention rate.



**IMPORTANT: COPY THIS FORM, fill in the desired information, and mail immediately. Please PRINT or TYPE. Use only one form per room. I will attend the 1986 Geological Society of America Cordilleran Section Meeting.**

Person to receive confirmation:

Name \_\_\_\_\_ Area Code and Phone No. \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Arrival Date and Time \_\_\_\_\_ Departure Date \_\_\_\_\_ Method of Travel \_\_\_\_\_

Room Occupied by (list all occupants in room) \_\_\_\_\_

Accommodations Desired:  Single  Double (1 Bed)  Twin (2 Beds)  Suite  Other

Hotel/Motel Preference: (1st, 2nd, 3rd choice) 1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_

If none of the above is available at the time your request is received, you will be assigned as near as possible to your original rate and location choice.

A deposit for the first night's lodging must accompany this request for reservation. This will be credited to your account and will assure reservation being held. Cancellation or alteration of this reservation must be made at least 10 days prior to date of arrival; otherwise deposit will be forfeited.

Mail this information together with your deposit to:

**PASADENA CONVENTION BUREAU, 300 East Green Street, Pasadena, CA 91101 — Phone (213) 795-9311**

Please make your check payable to HOUSING BUREAU. You will receive early confirmation which also is a receipt for your deposit. Room rates are confirmed. Please retain top half of this form.

### **Cordilleran Section Meeting** (continued from p. 224)

process is probably continuing as detached rocks slide toward the Gulf of California.

Limit: 10 vehicles; Fee: \$10 for informal guidebook.

**2. Mesozoic Evolution of the Southern Inyo, Argus and Slate Ranges, and Geological Evolution of Truckee Mountain and Vicinity, Central Panamint Range.** G. C. Dunne, California State University, Northridge; B. P. Wernicke, Harvard University; K. V. Hodges, MIT; J. D. Walker, University of Kansas. Three and one-half days, four nights. Departs 5 p.m., Friday, March 21; returns 11 a.m. Tuesday, March 25. Depart Los Angeles and Las Vegas; return Los Angeles.

The first part, led by Dunne to the southern Inyo Mountains and the Darwin Plateau, will examine Mesozoic and older rocks containing compressional structures that document the polyphase evolution of Sierran batholith wall rocks from Early Triassic through Late Cretaceous. Then Wernicke, Hodges, and Walker will lead the group through the Truckee Mountain area, central Panamint Range, touching upon Mesozoic history but emphasizing the geometry and kinematics of large-scale Cenozoic Extensional tectonism. Prepare for moderate hikes and possible cold, windy weather.

Limit: 35; 3L, 4ON; Fee: \$170

**3. Selected Urban Landslides, Southern Orange County, California.** L. R. Cann and J. H. Hansen, Leighton & Associates; G. F. Stoney, Irvine Consulting Group; P. Davis, Medall, Worswick & Associates; G. A. Nicoll, G. A. Nicoll & Associates. One day; Saturday, March 22. Departs 7:30 a.m.; returns 6 p.m.

This trip will visit noteworthy landslides in the Forester Ranch area, San Juan Capistrano, ancient landslides of the Avenida Pico area and the recently activated Verde Canyon landslide, San Clemente, landslides of the Laguna Niguel area, and the Blue Bird Canyon landslide, Laguna Beach. Covers geologic and geomorphic setting, three-dimensional geometry, age relationships, and stabilization methods. Efforts will be made to view corrective grading in progress.

Limit: 40; 1L; Fee: \$45

**4. Hydrogeology of Owens Valley—Mono Basin: Volcanic and Alluvial Aquifer Management in an Arid Environment.** P. K. Saint, California State University, Fullerton; M. L. Blevin, Los Angeles Department of Water and Power; W. Hutchinson, Inyo County Water Department. Three days, two nights. Departs 7:30 a.m. Saturday, March 22; returns 6 p.m. Monday, March 24. Prepare for possible cold, windy weather.

This trip will follow the Los Angeles Aqueduct from the spreading basins in Tujunga Wash and aquifer systems in the San Fernando Valley through the western Mojave Desert and Owens Valley to Mono Lake in the eastern Sierra Nevada. In the Owens Valley we will compare the well fields in alluvial fans with those in lava fields and discuss the effect of pumping on spring discharge and phreatophytes. In the Long Valley Caldera we will examine volcanism and hydrothermal activity and in Mono Basin study the effect of fracture systems on the tufa towers and of glaciation on lake distribution.

Limit: 40; 3L, 2 ON; Fee: \$150

**5. Stratigraphy and Structure of Miocene Sections of the Mojave Desert Detachment Terrane: Kingman, AZ to Barstow, CA.** J. Nielson-Pike, USGS; A. Glazner, University of North Carolina; R. Hazlett, Pomona College; M. Knoll, University of Texas; C. Miller, Vanderbilt University. Three days, two nights. Departs 8 a.m. Saturday, March 22; returns 10 p.m. Monday, March 24. Prepare for hikes of as much as three miles over steep terrain and for possible cool, windy weather.

Equivalent sections of Oligocene(?) to Miocene volcanic and sedimentary rocks will be examined along a traverse from the west edge of the Colorado Plateau to the west edge of Miocene detachment faulting via the Mojave Mountains, Turtle Mountains, Mopah Range, Ship or Little Piute Mountains, and Cady Mountains. Emphasis will be on depositional environments, stratigraphy, variable lithology and tilting by detachment faulting.

Limit: 40; 3L, 2 ON; Fee: \$180

**6. Geologic Setting of Gold and Silver Mineralization in Southeastern California and Southwestern Arizona: Role of Tertiary Detachment Tectonics and Mesozoic Magmatism.**

E. Frost, San Diego State University; P. Drobeck, Western United States Mining Co.; B. Hillemeier, Fischer-Watt Mining Co.; G. Haxel, USGS; R. Tosdal, USGS; S. Keith, MagmaChem. Three and one-half days, three nights. Departs Yuma at 8 a.m. Saturday, March 22. Travel from Los Angeles or AGS meeting in Tucson available on Friday afternoon by prearrangement. Return to Los Angeles at 11 a.m. Tuesday, March 25.

Detachment faults of mid-Tertiary age and their associated upper- and lower-plate deformation are widely exposed in the lower Colorado River terrane. These and other extensional phenomena are overprinted on the Mesozoic Chocolate Mountains thrust system, the Orocopia Schist, and a variety of magmatic bodies. Large quantities of gold and silver mineralization are localized in this area; many of the deposits are along elements of the detachment system. On this trip we will address the structural setting of the mineralization; the leaders will present a breadth of opinion on the structural, geochemical, and magmatic histories of this important region. The trip will include short hikes to key outcrops in the south Chocolate, Cargo Muchacho, and Trigo Mountains.

Limit: 60; 3L, 2D, 3 ON; Fee: \$160

**7. Agua Blanca Fault, Baja California.** T. K. Rockwell, San Diego State University; D. L. Schug, Woodward Clyde Consultants; M. Hatch, San Diego State University; F. Suarez, CICESE. Two days, one night. Departs from CICESE in Ensenada, Baja California, 9 a.m. Saturday, March 22; returns to Ensenada, 6 p.m. Sunday, March 23.

Participants will view and discuss recent and ongoing work on the Agua Blanca fault. The trip will include stops in Valles Agua Blanca and Santa Tomas and the coast near Punta Banda. Emphasis will be on sense and rate of displacement. Deformation of marine terraces relating to faulting will also be addressed.

Limit: 40; 1B, 2L, 1D, 1 ON; Fee: \$120

**8. Middle Tertiary Extensional Tectonics and Regional Sedimentation Patterns of the Central Mojave Desert, California.** R. K. Dokka, Louisiana State University; M. O. Woodburne, University of California, Riverside. Three days, three nights. Starts 3 p.m. Saturday, March 22; returns 12 noon, Tuesday, March 25.

This trip will visit exposures of rooted detachment faults, multiple generations of rotated high-angle normal faults, a transform fault separating oppositely polarized half-grabens, and a breakaway fault and dike swarm of the Central Mojave Extensional Complex. Special emphasis will be on key exposures of extension-related syntectonic sedimentary deposits at Daggett Ridge and the Rodman, Alvord, and Cady Mountains. Stratigraphic and paleontologic localities are used to illustrate changes in regional sedimentation, paleogeography, volcanism, and ecology through time. Prepare for a few short, but strenuous hikes over rugged terrain and for possible cool, windy weather.

Limit: 25; 3L, 3 ON; Fee: \$160

(continued)

**Cordilleran Section Meeting** (continued)

**9. Peninsular Ranges Batholith, Southern California.**

D. M. Morton and V. R. Todd, USGS, Menlo Park. Two days, one night. Departs 8 a.m. Sunday, March 23; returns 6 p.m. Monday, March 24.

The first day deals with the structure and lithology of five diverse plutons of intermediate composition in the north-central Peninsular Ranges batholith. We will cover modes of emplacement ranging from forceful to passive, level of exposure from shallow to deep, mineralogic character from homogeneous to zoned, and structure from massive to complex. The second day includes a west-to-east traverse across the batholith in San Diego County. We will cross a suture or terrane boundary marked by lithologic, isotopic, age, and metamorphic contrasts in batholithic and host rocks. This boundary divides the batholith into a deformed western part of I-type granitoids, gabbro, and metavolcanic wall rocks and an eastern part of S-type granitoids and metasedimentary rocks. Both parts are intruded by little-deformed trondhjemitic plutons. We will discuss the geochemistry, source rock types, mode of emplacement, and tectonic setting of these batholithic rocks.

Limit: 45; 1B, 2L, 1D, 1 ON; Fee: \$110

**10. Neotectonics in the Area between the Central and Western Transverse Ranges, Southern California.**

P. L. Ehlig, California State University, Los Angeles; W. R. Cotton, William Cotton & Associates; R. Saul, and H. Weber, California Division of Mines and Geology; A. E. Seward, A. E. Seward Engineering Geology, Inc.; R. S. Yeats, Oregon State University. One day; Sunday, March 23. Departs 8 a.m.; returns 6 p.m.

This trip will traverse an area of unusually rapid deformation between the northern part of the San Fernando Valley and the San Andreas fault. We will examine evidence of Quaternary folding and faulting and major changes in paleogeography. Stops include outcrops of the Bishop Tuff in the Saugus Formation near Magic Mountain and a deep trench across the San Gabriel fault showing Holocene displacement. Discussion will focus on the relationship between observed features and deep-seated structures such as the Santa Susana thrust and San Gabriel fault and the extent to which tectonism poses geologic hazards for land development.

Limit: 40; 1L; Fee: \$40

**11. Geology and Hydrology of Catalina Island, Southern California.**

P. Davis, Medall, Worswick & Associates; S. Dickey, Southern California Edison Co. One day; Monday, March 24. Departs 7:30 a.m.; returns 9:30 p.m.

After a one-and-a-half hour boat ride across Catalina Channel, we will examine Miocene porphyry intrusions into the Catalina Schist and then board a bus for an inland tour of the island's diverse geology and fauna. We will discuss the island's geomorphic evolution and ponder its lack of substantiated marine terraces. Part of the trip will focus on the problem of developing an adequate water supply for the island's inhabitants. We will dine overlooking Avalon Harbor before departing for the mainland.

Limit: 30; 1L, 1D; Fee: \$65

**12. Geology of Upper Mill Creek and Santa Ana Canyon, Southern San Bernardino Mountains, California.**

P. M. Sadler. One day; Monday, March 24. Departs 7:30 a.m.; returns 6 p.m.

The Miocene-Pliocene Mill Creek and Santa Ana Canyon basins flank the San Gorgonio Massif north of the active trace of the San Andreas fault. Each basin has complex provenance that contrasts with local terranes and includes Pelona Schist from the San Gabriel Mountains. We will focus on a reevaluation of the

Mill Creek Formation in terms of a strike-slip basin with an active south flank and on the Santa Ana Sandstone as it relates to the position and timing of orogenesis in the San Gabriel and San Bernardino Mountains.

Limit: 40; 1L; Fee: \$35

**13. Active Landslides along the Pacific Coast Highway in the Pacific Palisades-Malibu Area, Los Angeles County/County.**

A. G. Keene, Los Angeles County Department of Public Works; J. E. Slosson, Slosson & Associates, Van Nuys. One day; Monday, March 24. Departs 8 a.m.; returns 6 p.m.

This trip will visit active landslides involved in litigation amounting to several hundred millions of dollars. All slides are reactivated Quaternary slides except Las Flores Mesa landslide. Rocks involved range from Late Cretaceous to Pleistocene in age. We will discuss geology as mapped by the USGS and the relationship of rainfall, sewage disposal, and other factors to landslide activation. We will also cover geotechnical data, building code application and implementation, remedial methods, and complications from litigation.

Limit: 45; 1L; Fee: \$35

**Postmeeting Trips**

**14. Stratigraphy and Structure of Metamorphic Framework Rocks, Lake Isabella Area, Southern Sierra Nevada.**

J. B. Saleeby, California Institute of Technology; C. Busby-Spera, University of California, Santa Barbara. Two and one-half days; two nights. Departs 1:30 p.m. Friday, March 28; returns 7:30 p.m. Sunday, March 30.

Attention will focus on metamorphic framework rocks informally termed Kings sequence or Kernville series. Emphasis will be on (1) shelfal strata known to be early Mesozoic in age, (2) prebatholithic vs. synbatholithic deformation, (3) age and structural-stratigraphic settings of Mesozoic metavolcanic rocks, and (4) early movement history along the Kern Canyon fault. Prepare for moderate hikes and mild to cold, rainy weather.

Limit: 25; 2B, 2L, 2D, 2 ON; Fee: \$140

**15. Mojave Desert Xenolith Suites: Malapai Hill and Dish Hill.**

R. J. Stull, California State University, Los Angeles; H. G. Willshire and J. S. Noller, USGS, Menlo Park. One and one-half days; one night. Departs 2 p.m. Friday, March 28; returns 9 p.m. Saturday, March 29.

Xenolith suites will be examined at the well-known localities at Dish Hill and Malapai Hill in the Joshua Tree National Monument area, southern California. Dish Hill, one of three Pliocene vents accessible to the public, contains kaersutite and pyroxene megacrysts and is one of the best localities in the southwestern United States to observe kaersutite/peridotite relationships.

Limit: 20; 1L, 1 ON; Fee: \$90

**16. Landslides of the Palos Verdes Peninsula, California.**

A. G. Keene, Los Angeles County Department of Public Works; P. L. Ehlig, California State University, Los Angeles. One day; Saturday, March 29. Departs 7 a.m.; returns 4 p.m.

The trip will visit the active Point Fermin, Portuguese Bend, Flying Triangle, and Bluff Cove landslides, all large modified block glides in the Miocene marine Monterey Formation. Discussion will focus on landslide mechanics, the role of rainfall, ground water, and land development of slide activation, and stabilization measures underway on the 250-acre Portuguese Bend landslide. Prepare for a downhill hike of 2 miles in fresh marine air, and bring a camera for unusual pictures of ground failure features.

Limit: 40; 1L; Fee: \$35

(continued on p. 228)

### **Cordilleran Section Meeting** (continued from p. 227)

**17. Hydrogeology of the Los Angeles Basin in Relation to Waste Disposal Sites.** P. K. Saint, California State University, Fullerton; G. A. Brown, LeRoy Crandall & Associates. One day; Saturday, March 29. Departs at 7:30 a.m.; returns at 6 p.m.

Trip participants will examine the hydrogeology of the San Gabriel Basin, Whittier Narrows, Chino Basin, Santa Ana Canyon, and Coastal Basin. We will visit several landfills, including BKK, Puente Hills, Stringfellow Quarry, and Riverside landfill, to examine the leachate monitoring and control systems, landfill operations, and methane recovery systems. We will also visit the groundwater recharge basin in the Whittier Narrows and Santa Ana Canyon and discuss the hydrogeologic relationship of the Puente and Chino Hills with the ground water basins.

Limit: 40; 1L; Fee: \$40

**18. Neotectonics of the Elsinore Fault, Southern California.** T. K. Rockwell, San Diego State University; D. L. Lamar, Lamar-Merfield & Associates; D. E. Millman, Exxon; R. McElwain, San Diego State University; C. T. Pinault, Chevron; P. Vaughan, University of Colorado, Boulder; Two days; one night. Departs 8 a.m. Saturday, March 29; returns 7 p.m. Sunday, March 30.

Participants will examine evidence for long-term rates and sense of slip at sites along the northern, central, and southern parts of the fault. We will examine trench exposures showing rupture and liquefaction features produced by several late Holocene earthquakes at Glen Ivy, near Corona, and amount of slip per event at Coyote Mountain near Ocotilla. We will visit areas previously considered problematic, including Sawtooth Ridge and Tierra Blanca Mountains. Be prepared for hiking.

Limit: 40; 1B, 2L, 1D, 1 ON; Fee: \$130

**19. Valmy Formation, Baja California.** G. Gastil, San Diego State University; C. Lothringer, Union Oil Exploration; J. Reed, Occidental Petroleum Exploration; F. Suarez, CICESE. One day; Saturday, March 29. Departs 8:30 a.m. from American side of border at Tecate; returns to Tecate at 5:30 p.m. Participants must provide their own transportation.

We will examine allochthonous strata of Ordovician age in Mesozoic(?) flysch at Rancho San Marcos. The section includes pure quartzite, bedded chert, and minor carbonate rocks dated by conodonts of Arenigian age, all resting on olistostromal melange within a thick sequence of thick- to thin-bedded sandstone and interbedded pelite deposited in a submarine fanlike system. The sequence has undergone greenschist grade metamorphism and is intruded by Cretaceous plutons.

Limit: 40; Fee: \$10 for informal guidebook.

### **SHORT COURSE**

**Seawater Chronostratigraphy Using Strontium Isotopes.** This course will review the development of the method that employs analysis of the strontium isotopic composition of authigenic marine carbonates as a means of dating and correlating nonfossiliferous marine sediments. Analytical techniques, precision and limits of stratigraphic resolution will be discussed, using case studies of regions studied over the past seven years (Coastal Monterey Formation, Kettleman Hills and San Juan Basin, New Mexico). The final synthesis will propose additional applications of the method which include the timing of fracturing of reservoir rocks. For further information, contact Richard W. Hurst or Terry E. Davis, (213) 224-3388.

### **BUSINESS MEETING**

The Cordilleran Section of GSA will hold its business meeting luncheon at CSULA at noon on Wednesday, March 26, 1986.

### **EXHIBITS**

Exhibits will be in the University Gymnasium, where poster sessions will also be conducted. A single commercial booth (approximately 10' x 10') will cost \$400. Noncommercial and educational booths will cost \$200. For further information, contact Terry E. Davis or Richard W. Hurst at CSULA, (213) 224-3388.

### **COCKTAIL PARTY**

An informal cocktail party (cash bar) will be held for all registrants at the Pasadena Hilton in the International Ballroom on Tuesday, March 25, 1986, from 7:30 to 10:00 p.m.

### **CORDILLERAN SECTION BANQUET**

An evening buffet dinner is scheduled Thursday, March 27, 1986, in the International Ballroom of the Pasadena Hilton, beginning at 7 p.m. Space will be available for a maximum of 350 attendees. The keynote speaker will be James Zumberge, geologist and president of the University of Southern California.

### **SPOUSE/GUEST ACTIVITIES**

Self-guided visits to interesting shopping areas can be planned together with tours of the Queen Mary and Spruce Goose display in Long Beach, the Huntington Gardens/Museum in Pasadena, Universal Studios, Rodeo Drive in Beverly Hills, and television programs in Hollywood-Burbank. Additional information and costs will be published in *Abstracts with Programs*.

### **HOUSING AND TRANSPORTATION**

The headquarters hotel for the Cordilleran Section meeting will be the Pasadena Hilton. Accommodations are also available at the Pasadena Holiday Inn and other local hotels and motels. The Pasadena Hilton and the Pasadena Holiday Inn are serviced by the Airport Bus (from Los Angeles International Airport) and the Pasadena Shuttle (from Burbank Airport).

Bus shuttle service will be available from the Hilton and Holiday Inn to the California State University, Los Angeles (CSULA) campus on a regular basis between 6 a.m. and 6 p.m. Detailed schedules will be available during registration at the hotel and at the CSULA campus. Both Avis and National car-rental agencies will offer GSA registrants reduced car-rental rates during the meeting. Specific details will be published in *Abstracts with Programs*.

### **STUDENT TRAVEL SUBSIDIES**

For the third consecutive year, the Cordilleran Section will be providing travel subsidies for GSA Student Associates presenting papers at the Los Angeles meeting. The basic requirements for eligibility are GSA Student Associate membership in the Cordilleran Section as of January 1, 1986, and presentation of a paper at the Los Angeles meeting.

Application forms and information are available from GSA Campus Representatives in the Cordilleran Section, or from Bruce Blackerby. Send completed applications to Bruce Blackerby, Department of Geology, California State University, Fresno, CA 93740.

APPLICATION DEADLINE IS JANUARY 31, 1986. Students will be notified of their awards prior to the preregistration deadline.

### **LOW-COST MOTELS FOR STUDENTS**

The local organizing committee is providing a list of low-cost motels in the vicinity of CSULA. For more information, call or write Michele Miyazono at the CSULA Geology Dept., (213) 224-3719 or (213) 224-3388.



**REGISTRATION FORM**

Cordilleran Section, GSA, 82nd Annual Meeting, March 25-28, 1986, Los Angeles, California

**IMPORTANT**

- 1. Full payment must accompany registration.
2. Your check will be your receipt. Copy this form for your records.
3. Preregistration deadline: MUST BE POSTMARKED NO LATER THAN February 21, 1986.
4. No refunds after March 3, 1986.

**FOR OFFICE USE ONLY**

M.O. #
Personal check
Other check
Issued by
Amount

Please print or type:

Name last first middle

Registered as: Professional Student Spouse/Guest

Spouse/Guest name

Affiliation (abbreviate for badge)

Professional address

City State Zip

Phone: Business Residence

GSA Member Speaker GSA Student Associate Session Chairperson

**FEES**

Preregistration (before February 21, 1986)

Table with 2 columns: Fee description and Amount. Rows include Professional, GSA Member (\$40), Professional, non-GSA Member (\$55), GSA Student Associate (\$10), Other Student (\$20), Spouse/Guest (NC).

Registration (after February 21, 1986)

Table with 2 columns: Fee description and Amount. Rows include Professional, GSA Member (\$50), Professional, non-GSA Member (\$65), GSA Student Associate (\$15), Other Student (\$25), Spouse/Guest (NC), One-day Registration, Professional (\$35), One-day Registration, Student (\$15), Annual GSA Banquet (March 27) (\$13), Short Course: Seawater Chronostratigraphy using Strontium Isotopes (Professional \$45, Student \$10).

**Field Trip Preregistration**

All field trip participants must also preregister for the meeting.

Table with 3 columns: Field Trip number, Description, and Amount. Lists 19 field trips with descriptions like 'Detachment Faults in Sierra Santa Rosa' and amounts ranging from \$35 to \$170.

Total Fees Enclose check or money order, U.S. funds, payable to Cordilleran Section, Geological Society of America

Send completed registration form and full payment to GSA Cordilleran Section, Dept. of Geology, California State University, Los Angeles, CA 90032

## NEW GSA MEMBERS

The following 448 Members have been elected to Membership by Council action during the period from February 1, 1985, through August 30, 1985 (\* indicates transfer from Student Associate to Member).

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Imelda G. Academia*<br/>Janet A. Adams<br/>Hernando Aguilera<br/>Mary K. Aigner*<br/>Nairn R. Albert*<br/>Joseph T. Allen, Jr.<br/>Philip Allen*<br/>Peter A. Almendinger<br/>Ricardo Alonso<br/>Fred J. Anders<br/>John P. Anderson<br/>Michael T. Angelich*<br/>Michelle P. Aparisi*<br/>Douglas A. Archibald<br/>Ronald R. Atkian<br/>Ann Marie Aubry<br/>Nina L. Baghai<br/>Thomas C. Bakewell<br/>Arthur L. Ballard<br/>Mark J. Bange<br/>Christopher C. Barton<br/>Thomas P. Bath<br/>Lynne M. Baumgras<br/>Robert J. Bayer<br/>Richard L. Beam*<br/>Sarah Beanland<br/>David W. Beaty<br/>Thomas E. Bell<br/>Joanne M. Benante*<br/>Ruric E. Bendio<br/>Thomas A. Billman, Jr.*<br/>James L. Bischoff<br/>Maxwell B. Blanchard<br/>Robert E. Blattert<br/>Peter K. Blomquist<br/>William L. Boettner<br/>Michael S. Bonkowski<br/>Theresa L. Born<br/>Roland H. Brady III*<br/>Nathan H. Brewer<br/>Elisabeth M. Brouwers<br/>Stephen R. Brown<br/>Frederick C. Brunstein<br/>Michael B. Bryant<br/>Alvin L. Burch<br/>Cathy J. Busby-Spera<br/>Charles R. Butts<br/>J. Suzanne Bywaters*<br/>Thomas J. Callmeyer*<br/>Thierry Calmus<br/>Harry W. Campbell<br/>Richard C. Caprio, Jr.<br/>Diane H. Carlson*<br/>Philip J. Carpenter<br/>Ruth A. Carraher<br/>Miguel Carrillo-Martinez<br/>Gary W. Casper<br/>Gregory A. Castrey<br/>Henry S. Chafetz<br/>Mark A. Chapman*<br/>Douglas W. Charlton<br/>Eric D. Chase<br/>Hsien S. Chen<br/>Conduff G. Childress, Jr.<br/>Jessie J. Chiu<br/>Ram N. Choudhary<br/>Michael J. Chrzastowski<br/>Frank J. Chuchla<br/>John T. Clark<br/>Michael D. Clark<br/>Bradford M. Clement*<br/>Peter J. Cochrane*</p> | <p>Susan T. Coker<br/>Steven R. Colabufu<br/>James E. Conrad<br/>Jonathan P. Cooper<br/>Lisa A. Corathers<br/>Andrew B. Core<br/>Kevin J. Cornwell*<br/>Carol L. Cotten<br/>Robert M. Coughlin<br/>John H. M. Cox*<br/>Michael D. Crabtree<br/>Harrison R. Crecraft<br/>William R. Cronoble<br/>Thomas W. Crosby<br/>Raymond C. Culotta<br/>Ben B. Curry<br/>Mark A. Dagal*<br/>Herbert G. Davis<br/>Claude S. Dean<br/>Thomas C. Deane*<br/>Michel G. Debiche*<br/>Marc J. Defant<br/>Arnoud J. De Feyter<br/>Mark L. De Jarnette<br/>Michael D. Dermitzakis<br/>Vernon De Ruyter<br/>Neil P. Derynck<br/>Marc Deschamps<br/>C. S. De Witt<br/>John W. Dickerson*<br/>Kostantinos Dimopoulos<br/>David E. Dougherty<br/>Joe S. Downey<br/>Lawrence G. Doyle III<br/>Brian Lee Dozier<br/>James W. Dryden<br/>Gregory T. Duecker<br/>Hugo T. Dummett<br/>John Dunbier<br/>Raymond J. Eckert, Jr.<br/>Steven H. Edelman*<br/>Igor Effimoff<br/>John E. Elks<br/>Duncan W. Elliott<br/>John G. Elliott<br/>Deborah L. Elliott-Fisk<br/>Kenneth R. Engh*<br/>Jeffery L. England<br/>Scott M. Erdmann<br/>Marc C. Ericksen<br/>Robert P. Evans<br/>Ralph K. Farrar<br/>John A. Farre<br/>Gregory A. Fasano<br/>Thomas E. Ferraro<br/>Ismael Ferrusquia-Villafranca<br/>Alex T. Feucht<br/>Daniel L. Feuerbach<br/>Duncan M. Fitz Gerald<br/>Thomas H. Flor<br/>George A. Ford<br/>E. Dwayne Fortune*<br/>Charles D. Foss<br/>Morgan S. Foxx<br/>Matthew Franey<br/>Curtis J. Freeman<br/>Eric G. Frost<br/>Wayne A. Fuller*<br/>Thomas E. Fumal<br/>Kevin P. Furlong<br/>Harry V. Gabbert, Jr.</p> | <p>Jay D. Gale<br/>Ronald E. Gallagher<br/>John D. Gallinatti*<br/>Rofy L. Galloway<br/>Robert A. Gastaldo<br/>Malu Gawthrop<br/>Thomas E. Gill*<br/>Robert M. Goering<br/>Bruce L. Golden<br/>Jeffrey J. Gottula<br/>John R. Gould*<br/>David E. Grabber<br/>Martin P. Granica<br/>David C. Greene*<br/>Reinhard Greiling<br/>Alicia P. Grimes*<br/>Ronald L. Grubbs<br/>Juan A. Guerrero<br/>Levent Gulen*<br/>Patricia L. Gunsch*<br/>Gary E. Guthrie<br/>Gunnar Haeggmark<br/>Matthew F. Hagemann*<br/>Thomas I. Hall<br/>Patrick D. Hallett<br/>Charles L. Hamilton<br/>Bernold M. Hanson<br/>Matthew B. Harding*<br/>Francis G. Harper<br/>Toshiaki Hasenaka<br/>Walter A. Hasenmueller<br/>Stanley C. Hatfield*<br/>Kevin A. Hayden<br/>Richard P. Heberton<br/>Kelsey A. Helton<br/>Steven J. Hendrick<br/>James R. Herring<br/>J. Stewart Hollingsworth<br/>Dean E. Holly<br/>Robert J. Hooper*<br/>John S. Hornafius<br/>Dwight A. Hornbacher*<br/>Kenneth W. F. Howard<br/>H. Brad Hubbard<br/>Iris Gatchell Hubbard<br/>Frank J. Huhn<br/>Gloria G. Hunsberger*<br/>Douglas R. Hurcomb<br/>Nobuhiro Imoto<br/>Harold Leslie James<br/>Mark D. Jancin<br/>Helen E. Jenkins<br/>Michael W. Jennings<br/>Claudia C. Johnson*<br/>William C. Johnson<br/>Anthony W. Jones<br/>Matthew M. Jones<br/>Anthony W. Jordan<br/>Timothy C. Kania<br/>Isaac R. Kaplan<br/>Robert Karlin*<br/>Keith L. Katzer*<br/>Susan V. Kay<br/>W. Terrance Kay<br/>Terry D. Keegan<br/>David B. Kelley<br/>Kenneth A. Kelley<br/>William R. E. Kelly<br/>Michael B. Kendrick<br/>John E. Kennedy<br/>Douglas C. Kent<br/>Bahrawar Khan</p> | <p>Jonathan J. Kim<br/>Michael L. Kincer*<br/>Albert D. Kirwan<br/>Christopher J. Kittredge*<br/>Thomas R. Kleeberg<br/>Ingrid Klich<br/>Daniel J. Knuth<br/>George F. Kokkoros<br/>Robert P. Kopp<br/>Linda S. Kost*<br/>Jane Kozinski*<br/>Jerry E. Kubal<br/>Elizabeth T. Lafferty<br/>John M. Lambie<br/>James A. Lang<br/>Rolf V. Lange<br/>Andris Lapins<br/>Gary G. Lash<br/>E. Dean B. Laudeman<br/>Lance J. Lawhon<br/>Joon D. Lee<br/>June L. Legler*<br/>Anne P. LeHuray<br/>R. Lee Leininger<br/>Ralph R. Leon*<br/>James S. Leones<br/>William P. Leskee<br/>Mark R. Longden*<br/>Robert P. Lowell<br/>Thomas J. Lowry<br/>Ralph C. Loyd<br/>Elizabeth Luke<br/>Sherman P. Lundy<br/>Mitchell W. Lyle<br/>Ian D. Macfarlane<br/>Andrew D. Magee<br/>D. Scott Magorien<br/>Florian Maldonado<br/>Michael D. Malone<br/>John G. Malpas<br/>Joseph E. Manduke III<br/>William P. Mann<br/>Charles E. Martin<br/>Dale M. Mathews<br/>Richard G. McCain<br/>Ben A. McCarthy<br/>William F. McClenney<br/>Henry J. McCoy<br/>William T. McCrary, Jr.<br/>Michael C. McFarland<br/>Steven L. McMillin<br/>W. Mark McNay*<br/>H. Jay Melosh<br/>Robert J. Melvin<br/>Julie S. Menack*<br/>Leo P. Mercy<br/>Eric W. Meyer<br/>Eddie R. Mignardot*<br/>Raymond D. Milejczak<br/>Donna L. Miller<br/>Randall C. Mills*<br/>Nicolaas Molenaar<br/>Donald W. Moore<br/>Rosalie C. Moore<br/>Hyland B. Morrow<br/>Gerald A. Morton<br/>Thomas F. Moslow<br/>James B. Murowchick*<br/>Thomas M. Murphy<br/>Chris Natenstedt<br/>Patrick L. Neat<br/>David F. Nelligan</p> | <p>Bruce H. Nickelsen<br/>Elizabeth A. Nixon<br/>Robert B. Noble*<br/>Lori Lewis Nunn<br/>Joan L. Oberholtzer<br/>Phil L. Oberlander<br/>Michael J. O'Brien<br/>Thomas E. O'Connor<br/>Linda A. Oliver<br/>Jorge E. Ordonez C.<br/>Gerald T. O'Regan<br/>John P. Osolin<br/>Joel P. Padgett<br/>Jeffrey G. Paine<br/>David L. Palmerton, Jr.<br/>Mark E. Panni<br/>Samuel V. Panno<br/>Sandra L. Parker<br/>Stuart F. Parker, Jr.*<br/>Jeffrey A. Parsons<br/>Kenneth C. Parsons<br/>Mark J. Pate<br/>Abner F. Patton<br/>Nancy F. Pease<br/>Pamela C. Peebles<br/>F. A. Petersen<br/>Richard R. Peterson, Jr.<br/>Fred M. Phillips<br/>James G. Phillips<br/>Steven R. Pinette<br/>W. Michael Pittard*<br/>Walter E. Pittman, Jr.<br/>Michael Planert<br/>James C. Pol<br/>Robert S. Poling<br/>Marin A. Popoff*<br/>Harry H. Posey*<br/>William A. Poupis<br/>Laura J. Powers-Couche*<br/>Gilbert Prichonnet<br/>Doug V. Prose<br/>Jerome T. Prosser<br/>Terri L. Purdy<br/>Mary B. Rafalowski<br/>Elwood C. Raley<br/>Penelope Kay Ramos<br/>Donald R. Rampe<br/>Peter B. Read<br/>Thomas R. Reburn<br/>Richard R. Redfern<br/>William H. Reed<br/>John W. Reese<br/>Michael M. Relf*<br/>Rick Rendigs<br/>Arthur P. Reymier<br/>Sara E. Rhoades<br/>Benjamin J. Rice<br/>Susan L. Richardson<br/>W. Tod Richie<br/>Cynthia L. Ricks<br/>Katherine L. Rodgers<br/>Rene Rodriguez<br/>Lisa Rowles-Hall<br/>Gail S. Russell<br/>Gregory R. Rzonca<br/>Steven W. Sabo<br/>Anne Blount Sanford<br/>Frank S. Scavo<br/>Mark T. Schmidt*<br/>David A. Schoderbek<br/>William A. Schoenborn<br/>Linda L. Schultz</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## New Members (continued)

Janette H. Schuster\*  
William C. Schwab  
Walfried M. Schwerdtner  
Debra J. Shapiro  
Miles G. Shaw  
Sara L. Shearer  
Richard J. Shepard  
David M. Sherman  
John C. Sherrill  
Steven B. Shirey\*  
Gary B. Sidder\*  
Andrew Simon  
Lawrence S. Sims  
Vernon Singhroy  
Scott A. Slagley  
Clyde L. Smith  
Diane R. Smith

Donald R. Smith  
Melvyn Smith  
Susan L. Smith  
William Smith  
Edward M. Snyder  
Theodore H. Sobieski\*  
Anthony D. Socci  
K. Karl Spalvins  
Douglas E. Spicuzza  
George M. Staff  
John A. Stamatakos  
Roderick G. Stanley  
James R. Stark  
Warham A. Stejer  
Andrew J. Stevenson  
Keith L. Stoffel  
James M. Stonehouse

Richard N. Strom  
Kermit Studley  
Ward T. Sumner  
Frederick A. Sundberg  
Monte M. Swan  
David A. Swauger  
Frank R. Sweet III  
Zbigniew A. Szybinski  
Louis H. Taylor  
Anthony J. Tesoriero  
John A. Thackrey  
Margaret A. Thomas  
Carol J. Thurmond  
Peter Thy  
Richard P. Tollo  
Kenneth N. Trotman  
William C. Tucker  
Mark E. Unruh  
Jose J. Valdes

Martha G. Van de Werken  
Richard J. Van Emburgh  
Jeffrey D. Vann  
Laurel K. Vedder  
Pedro E. Velez  
Dan E. Verwoert  
Greg S. Vick  
Debrah M. Volturmo  
Robert D. Wainwright  
Sarah K. Walen  
H. Jesse Walker  
Robert C. Walter  
Fred W. Warnaars  
J. Dean Warner  
Charles P. Watson  
Kenneth A. Weber  
John R. Webster  
Raymond J. Wehr

Marcia K. Weinland  
Gregory R. Wessel  
Robert C. West  
Steven A. Whisman  
John H. Whitmer  
Lynda B. Williams\*  
Nancy E. Williams  
George N. Wilson, Jr.  
Scott L. Wing  
John D. Winter  
Roderick D. Woods, Jr.\*  
Gerald W. Yahne  
Paul J. Yarka  
Warner D. Young  
Susan Wygant Young\*  
Ronald L. Zawislak  
Elizabeth A. Zbinden\*

## NEW GSA STUDENT ASSOCIATES

Listed are 511 Student Associates who became affiliated with the Society during the period from February 1, 1985, through August 30, 1985.

Jennifer A. Abrahams  
Spafford C. Ackerly  
Barry L. Acosta  
Mark Adams  
Jordy Z. Adamson  
David S. Adlis  
Gerardo D. Aguirre-Diaz  
Malcolm B. Albery  
Mead A. Allison  
Eric D. Anderson  
Eric E. Anderson  
Charalampos Apostolou  
Michael L. Archibald  
Daniel V. Arrington  
Eliot A. Atekwana  
Jeffrey W. Bader  
Joseph A. Baer  
Michael M. Bailey  
Linda J. Baker  
Mary J. Baker  
Robert Whitney Baker  
Mark J. Bamberger  
James P. Bannon  
Carol L. Barber  
Henry B. Barker  
Wendell L. Barner  
Benjamin K. Barnes  
John D. Barnes  
Debbie R. Barr  
Fredrick J. Barrett  
Richard L. Bartel  
Edward L. Basham  
Loretta A. Bauchiero  
Dennis A. Bauer  
Claude K. Beagarie  
Sherrill L. Beard  
David M. Bednar, Jr.  
Stephen J. Bedosky  
Md. Ekram H. Belal  
Michael E. Berndt  
Bradley W. Bird  
Russell B. Bird  
Barbara Bloomfield  
Joel D. Blum  
Patricia A. Bobeck  
Jose V. Bonilla  
James H. Borovich  
Brian W. Bottom  
Michael E. Botts  
Mark W. Bowman  
Mimi A. Boxwell

Laura B. Brachfeld  
Brian K. Brady  
David E. Brailey  
Alexander G. Bray  
Kelly N. Bringham  
R. Jerry Britt, Jr.  
Jeffrey W. Brooks  
Mark C. Brooks  
Fred Brown  
Steven E. Brown  
Jonathan R. Bryan  
James D. Bryant  
Paul K. Buchanan  
R. M. Fadjari M. Budijanto  
Scott J. Bunn  
Fred E. Burke  
Steven M. Burrows  
Mary-Louise Byrne  
Carrie Campen-Bell  
Denny J. Cantrell  
Thomas R. Carney  
Catharine A. Carson  
Mitch V. Casteel  
Paterno R. Castillo  
Alvin T. Chapman, Jr.  
Charles B. Chase  
Ramon Chavez-Quirarte  
Jeff R. Chiarenzelli  
John W. Christensen, Jr.  
Gong S. Chung  
Jeffrey B. Clark  
Jeffrey A. Clayton  
Craig M. Cobb  
Michael P. Collins  
Roger D. Congdon  
Janice Conlan  
James N. Connelly  
Kevin M. Connors  
Pamela Cooley  
Jeffrey D. Corrigan  
William C. Cospelich  
J. Mitchener Covington  
Timothy L. Cox  
George W. Crouse  
Susan H. Crowe  
Robert P. Czaja  
Margaret Z. Dahlen  
Deborah M. Daigle  
Andrea M. Dakoski  
Suzanne Dalton  
Hamid Davaei-Markazig

Kayvon Davar  
David J. Davies  
David A. Davis  
Linda C. Davis  
Nancy Lee A. Dellamonte  
Suleyman Demirpolat  
James E. Denmark  
A. Scott Denning  
Jordeane L. Dent  
Lori A. De Remer  
Andrew P. De Wet  
David S. Diamon  
Cymantha Diaz  
Carol J. Di Julio  
Ross A. Dimmick  
C. Burton Dixon  
Diane E. Donovan  
Rebecca J. Dorsey  
Gregory J. Dozer  
David S. Draper  
Mary L. Droser  
Frederick B. Dugan  
Mary Anne Duncan  
Sandra J. Dunn  
Richard D. Dunning  
Douglas K. Dvoracek  
Ginger L. Eberhart  
John E. Eberlin  
Donald D. Edds  
Mark W. Elison  
Art D. Ettliger  
Mark W. Evans  
Joseph H. Fabish  
Mark R. Farr  
Martin D. Favero  
Paul D. Favret  
Daniel W. Fears  
Patrick F. Felling  
Thomas J. Fennick  
Edward S. Feragen  
James D. Fielder  
Allan J. Filipov  
Steve T. Finch  
David J. Finelli  
Daniel S. Fisher  
David G. Fisher  
Len Fishkin  
Robb H. Fishman  
John J. Fitzgerald  
Delane P. Fitzpatrick  
Stanley F. Flagel

Karl H. Fleischmann  
Daniel W. Foss  
Amy C. Frankenburg  
Daniel L. Frederick  
Helen B. French  
Christopher J. Fridrich  
Robert P. Frischhantz  
Donna M. Fuss  
Joan L. Gabelman  
Deborah E. Gaines  
Susan Garbini  
Charles L. Gardner  
Wendy J. Gerstel  
Vincent F. Giampaolo  
Dan L. Gillespie  
Dianna M. Gimon  
Tracy A. Glassburn  
David H. Glicksberg  
Robin E. Goad  
Dorothy I. Godfrey-Smith  
Mark A. Gonzalez  
Virgle R. Goodgame, Jr.  
Glenda A. Gosnell  
Ted M. Grabowski  
Daniel A. Graff  
Richard C. Graham  
Michael W. Grant  
Charles J. Greig  
Mark S. Groszos  
Paul W. Grover  
Virginia C. Gulick  
Larry V. Haas  
Thomas L. Hafele  
Earl Sven Hagen  
Kenneth Alan Hagler, Jr.  
Raimund J. C. Hahn  
Karen B. Haley  
Steve A. Hallem  
Anita K. Halwani  
Karen J. Hamrick  
Jacquelyn E. Hams  
William C. Haneberg  
James P. Hanson  
Cheryl J. Hapke  
James C. Hare  
Glen E. Harrington  
Donald R. Harris  
Dana H. Harrison  
Lee F. Haymon  
David S. Heberly  
Jo Ann B. Hegre

Timothy A. Hemker  
Barry L. Henderson  
Barbara A. Henke  
Juan C. Herguera  
Lee Higgins  
Kenneth M. Hinkel  
Brian D. Ho  
Maki Hoashi  
Joanne L. Hoffard  
Patricia A. Hogg  
Michael W. Howell  
Mary S. Hubbard  
Kenneth W. Hudnut  
Teedra B. Hudson  
Andrew T. Hunt  
Paula J. Hunt  
Robert B. Hunter  
Douglas F. Hurlbut  
William C. Hutchings  
Teresa A. Imm  
Gary W. Jacobs  
Matt J. Janowiak  
Pamela E. Jansma  
Craig McHugh Jarchow  
Rodney M. Jasmer  
Robert R. Jaye  
Richard D. Jenkins  
David J. Jennings  
Eric A. Jerde  
John L. Jirikowic  
Theodore P. Jochems  
Heidemarie G. Johnson  
Ken G. Johnson  
David D. Johnston  
Matthew A. Johnston  
Joanne B. Jones  
Peter A. Kahn  
Richard L. Kanaskie  
Karen A. Katrinak  
Brian G. Kaye  
Carol S. Kazmer  
Kerry L. Keen  
Steven L. Kenitz  
Nazrul I. Khandaker  
Tara Kheradyar  
Douglas E. Kier  
Jong-Yeol Kim  
Lisa A. Kitchen  
Philip A. Klein  
James H. Knapp  
(continued on p. 232)



## New GSA Student Associates (continued from p. 231)

Matthew J. Knight  
 Ronald J. Kofron  
 Steve C. Kornder  
 Winifred T. Kortemeier  
 Michael G. Kozar  
 Jean M. Kozul  
 James W. Kradyna  
 Melanie E. Kreutzberger  
 John I. La Fave  
 Stephen C. Laffey  
 Mary M. Lahren  
 Bart J. Lampport  
 Richard P. Langford  
 Craig A. Lass  
 Priscilla R. Laurin  
 Linda E. Leard  
 Raymond C. Lee  
 George B. Le Febre  
 Jeffrey A. Lehmann  
 Sharon A. Lehn  
 Pamela Leschak  
 Tracy Lewis  
 Christina J. Lief  
 Robert A. Linder  
 Timothy H. Ling  
 George G. Lingenfelter  
 Ron C. Linton  
 Jeffrey S. Loen  
 Denece Lord  
 Mark C. Lucas  
 Michael J. Luessen  
 Karen M. Lumino  
 Ariadne M. Lytwyn  
 John A. Macaluso  
 R. Douglas Maier  
 Eduardo E. Maluassi  
 Dirk S. Mammen  
 Anthony J. Mancini  
 Curtis R. Manley  
 Pablo Marcet  
 Barry Marcus  
 Jacob Margolis  
 Gorki Mariano  
 Mercedes A. Martinez-Pietri  
 Joe B. Matulevich  
 Stephen A. Mazza  
 Timothy J. McCaffery  
 Patrick J. McCarthy  
 Bryan J. McConnell  
 V. Alexander S. McCord  
 Michael R. McDonough

Robert S. McElwain  
 Deborah A. McFarlane  
 John A. McKenney  
 Richard B. McKinney  
 Karen L. McRee  
 Joseph A. McReynolds  
 Shekhar R. Melkote  
 Mark G. Mellott  
 Anne S. Meltzer  
 Elizabeth J. Miller  
 Erick W. Miller  
 Thomas W. Miller  
 Mark D. Millsop  
 Webster N. Mohriak  
 John I. Monks  
 Richard B. Montgomery  
 Judy E. Moore  
 Robert E. Morency, Jr.  
 Kevin J. Moss  
 Carol M. Mount  
 Kurt E. Neher  
 Douglas S. Neves  
 Brian K. Nickel  
 Thelma L. Niles  
 Estella A. Nkwate  
 Paul D. Norian  
 Gregory T. Norrell  
 William K. O'Connor  
 Linda S. O'Hirok  
 Patrick M. Okita  
 John D. O'Leary, Jr.  
 Randolph F. Olms  
 Dennis J. O'Neill  
 William L. Osborn  
 Vicki L. Ozaki  
 William C. Pack  
 Timothy S. Pagano  
 Lawrence E. Palmere  
 Arnie W. Park  
 R. Vance Parker  
 Michael T. Parpounas  
 Michael R. Perkins  
 David E. Petroy  
 Silvio Pezzopane  
 James S. Phelps, Jr.  
 Jean G. Pier  
 Margaret L. Plank  
 Michael C. Pope  
 Suzanne W. Porter  
 Suzanne Prestrud  
 Janet M. Puckett

Eric J. Pyle  
 Marlis D. Quimby  
 Aaron S. Rachlin  
 Jeffrey P. Raffensperger  
 Michael S. Raimonde  
 Phillip J. Rarey  
 Vincent J. Realmuto  
 Mary E. Rebone  
 James B. Reed  
 Patty Rehn  
 Jeffrey W. Reynolds  
 Robert M. Reynolds  
 Gregory P. Richard  
 Lee R. Riciputi  
 Timothy D. Riemer  
 M. Lee Ringland  
 George C. Rinke  
 Danielle L. Ritter  
 Donald H. W. Robbins  
 Keith E. Roberson  
 Randall M. Roberts  
 Anthony C. Robinson  
 Francis W. Robinson  
 Donald T. Rodbell  
 John H. Rodgers  
 Toby A. Roessler  
 Nora A. Rooney  
 Stephanie L. Ross  
 Joseph F. Ryan  
 Michael C. Ryan  
 Kenneth J. Salt  
 Brian S. Sandberg  
 Craig A. Sandefur  
 Connie S. Sasala  
 David A. Sawyer  
 Deborah C. Saxton  
 Ted M. Sayre  
 Michael J. Schaefer  
 Scott Schillereff  
 Birger Schmitz  
 Robert A. Schoepke  
 Kenneth M. Schreuder  
 Richard A. Schultz  
 Pamela A. Scowen  
 Geoffrey O. Seltzer  
 Stephen G. Shank  
 Christopher W. Shaw  
 Gerald S. Shaw  
 Barbara Moths Sheffels  
 David N. Shirley  
 Mark R. Shonberg

William R. Short, Jr.  
 Julianna M. Shultz  
 Perry Song-Tse Shyr  
 Martin E. Siem  
 Elisabeth L. Sikes  
 Steven R. Silva  
 Sharon L. Silver  
 Stephen J. Silverman  
 Stephen J. Simpson  
 Jill K. Singer  
 Dennis M. Smith  
 Thomas E. Sneer  
 Larry G. Snider  
 Eleanour A. Snow  
 Peter K. Snyder  
 Susan H. Solheid  
 Hosny El-Desouky Soliman  
 Eric L. Sonnenthal  
 Susan E. Spangler  
 A. H. Spitz  
 Neptune Srimal  
 Paul E. Stackelberg  
 John F. Stamm  
 Thomas R. Stanton  
 Ross A. Steenson  
 Ralph J. Stegen  
 John K. Stephens  
 Scott D. Stihler  
 Lars P. Stixrude  
 Dave C. Stoll  
 Bryan W. Stone  
 Charles D. Stone  
 Gregory W. Stone  
 Katherine B. Straus  
 Philip R. Sturm  
 Anne A. Sturz  
 Gregg A. Swayze  
 Daniel L. Szymanski  
 Robert C. Tacker  
 Jill E. Tagudin  
 Toru Takeshita  
 Lindsay C. Taliaferro III  
 Paul A. Tanner  
 John A. Tarduno  
 Bruce D. Taterka  
 Charlene D. Taylor  
 Wanda J. Taylor  
 David J. Tercek  
 Brion D. Theriault  
 Stephanie L. Thliveris  
 Derek J. Thorkelson  
 L. Harvey Thorleifson  
 Thomas T. Thornburgh

David James Thorne  
 David G. Tingey  
 Maria Tobia  
 Brad S. Tompa  
 Richard A. Trapp  
 Heather E. Trim  
 Li Tsang  
 Ted R. Turner  
 Anne G. Udalyo  
 David T. Upton  
 Kevin M. Urbanczyk  
 Steven J. Uzmann  
 R. Kelly Vance  
 Tajma E. Vaughns  
 James K. Wada  
 Kim A. Waldron  
 David A. Walker  
 Richard G. Walker, Jr.  
 E. Brett Waller  
 Tim P. Walsh  
 Elmira Wan  
 Jeffrey B. Warner  
 Barbara J. Waugh  
 Michael J. Weaver  
 Jo Ann T. Weber  
 Carl F. Wellstead  
 Christopher W. Wenczel  
 Regina Werry  
 Richard W. Whitaker  
 Bryan L. Whitcomb  
 James D. L. White  
 Nicholas J. White  
 John D. Whiting  
 Glenn R. Wiedenhoef  
 Paul K. Wieg  
 Michael E. Wilcox  
 Thomas M. Will  
 Kathleen Marie Williams  
 Scott K. Williams  
 John Thomas Wilson  
 William L. Wingle  
 Diana M. Woods  
 Stephen M. Yanicak  
 Lee Chong Yew  
 Paul L. Younger  
 Zintars Z. Zadins  
 Paul D. Zahn  
 Maria I. Zapata  
 Borys Zayachivsky  
 Richard E. Zehner  
 E. Lynn Zeigler  
 Mark D. Zeigler

## NEW GSA FELLOWS

The following 25 candidates were elected to Fellowship by Council action at the October 1985 meeting.

Richard W. Allmendinger  
 Walter A. Anderson  
 Edward C. Beutner  
 Arthur A. Bookstrom  
 Jean Dercourt

William J. Elliott  
 Robert H. Fakundiny  
 Robert H. Fickies  
 Donald F. Heinrichs  
 Eiler L. Henrickson

Carroll Ann Hodges  
 F. D. Holland, Jr.  
 Raymond L. Joesten  
 James O. Jones  
 Teresa E. Jordan

Isaac R. Kaplan  
 Eva B. Kisvarsanyi  
 John P. Lockridge  
 Esther R. Magathan  
 William M. Oriel

Robert M. Owen  
 Elaine R. Padovani  
 Gary L. Raines  
 Stephen Self  
 Henry H. Wilson

## PEOPLE

GSA Fellow **Mark F. Meier** has been honored by the International Glaciological Society with its highest award, the Seligman Crystal. Meier, formerly of the U.S. Geological Survey at Tacoma, Washington, became director of the Institute of Arctic and Alpine Research and professor of geological sciences at the University of Colorado, Boulder, in November.

Member **John F. Wosinski**, Corning Glass Works, Corning, New York, has received the ASTM Award of Merit.

## IN MEMORIAM

Alexander K. Baird  
 Claremont, California  
 July 6, 1985

Bruce H. Harlton  
 Tulsa, Oklahoma

Edgar S. Driver  
 Wexford, Pennsylvania  
 August 20, 1985

John R. Henderson, Jr.  
 Englewood, Colorado  
 June 1985



# 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.



Geological Society of America  
3300 Penrose Place • P.O. Box 9140  
Boulder, Colorado 80301  
(303) 447-2020

---

## THE GEOLOGICAL SOCIETY OF AMERICA

---

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

## National Research Council Seeks Applications for Senior and Postdoctoral Research Associateships

The National Research Council announces the 1986 Resident, Cooperative, and Postdoctoral Research Associateship Programs for research in the sciences and engineering to be conducted in behalf of 25 federal agencies or research institutions, whose laboratories are located throughout the United States. The programs provide Ph.D. scientists and engineers of unusual promise and ability with opportunities to perform research on problems largely of their own choosing yet compatible with the research interests of the supporting laboratory.

Approximately 350 new full-time Associateships will be awarded on a competitive basis in 1986 for research in chemistry, earth and atmospheric sciences; engineering and applied sciences; biological, health, and behavioral sciences; mathematics; space and planetary sciences; and physics. Most of the programs are open to both U.S. and non-U.S. nationals and to both recent Ph.D. degree recipients and senior investigators.

Awards are made for one or two years; senior applicants who have held the doctorate at least five years may request shorter tenure. Stipends for the 1986 program year will begin at \$26,350 a year for recent Ph.D.s and be appropriately higher for senior Associates.

Reimbursement is provided for allowable relocation costs and for limited professional travel during tenure. The host laboratory provides the Associate with programmatic assistance including facilities, support services, necessary equipment, and

travel necessary for the conduct of the approved research program.

Deadlines for applications are January 15, 1986, April 15, 1986, and August 15, 1986. Initial awards will be announced in March and April (July and November for the two later competitions), followed by awards to alternates later.

Information on specific research opportunities and federal laboratories, as well as application materials, may be obtained from the Associateship Programs, Office of Scientific and Engineering Personnel, JH 608-D3, National Research Council, 2101 Constitution Ave., N.W., Washington, DC 20418; (202) 334-2760.

### Memorial Preprints

The following memorial preprints are now available, free of charge, by writing to GSA, P.O. Box 9140, Boulder, CO 80301.

*Edgar Herbert Bailey*, by M. C. Blake and J. W. Barnes

*Robert F. Black*, by Campbell Craddock

*Robert E. King*, by Robert L. Fuchs

*Frank Stephen Parker*, by John E. Kilkenny

*Raymond Elliott Peck*, by Clayton H. Johnson

*George Gaylord Simpson*, by Everett C. Olson

*Robert Wallace Webb*, by Robert M. Norris

*George Willard White*, by J. S. Scott, P. R. Shaffer,  
and S. M. Totten

## GSA OFFICERS AND COUNCILORS FOR 1986

**W. Gary Ernst**, President  
Los Angeles, California

**Jack E. Oliver**, Vice-President  
Ithaca, New York

**Robert L. Fuchs**, Treasurer  
Denver, Colorado

**Brian J. Skinner**, Past-President  
New Haven, Connecticut

### 1984-1986 COUNCILORS

Charles J. Mankin  
James W.H. Monger  
Geoffrey G. Snow  
William A. Thomas

### 1985-1987 COUNCILORS

Samuel S. Adams  
David E. Dunn  
Melvin C. Schroeder  
Lee J. Suttner

### 1986-1988 COUNCILORS

David L. Jones  
C. Barry Raleigh  
E-An Zen  
Mary Lou Zoback

## Don't Miss Out on Section Abstracts with Programs

Last year, most GSA members sent in their annual dues payment before the November 30 deadline, and the publications they ordered continued to arrive on schedule.

This year, the timing is even more critical because section meeting *Abstracts with Programs* will be mailed to members early in 1986. If your dues payment is received at headquarters before mid-December, you will still receive on time any *Abstracts with Programs* you order for the section meeting you plan to attend. Please use the 1986 dues and publications selection form mailed to you earlier. Dues for 1986 are \$62 for Members and

Fellows and \$32 for Students (the same as 1984 and 1985). Don't miss this tax deduction for 1985!

Even more important, don't miss out on **special member discounts** on the landmark Decade of North American Geology books and maps that GSA began publishing this year. These works on the geology and geophysics of North America are a collection that no serious earth scientist will want to be without!

If you have any questions, please call or write the Membership Department, P.O. Box 9140, Boulder, CO 80301, (303) 447-2020.

## MEETINGS

### 1985

**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 Sci-

ences 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.

(continued on p. 236)

# GEOLOGIC Classroom & Field Aids

An essential and handy 5" x 7½" flip chart with 115 color chips giving precise rock colors for all geologic purposes. Provides numerical designations for *hue*, *value*, and *chroma*. Form and arrangement based on Munsell system; color names based on ISCC-NBS system.

Compiled by  
Chart

## ROCK COLOR CHART

Rock-Color  
Committee of

GSA, USGS, AAPG, SEG, and AASG. With text, mask, & envelope.

Each ..... \$12.00

A new chronostigraphic and numeric time scale in three forms for class and field use. Includes magnetic reversal stratigraphy and estimates of unities of certain- assigned Paleozoic and Mesozoic numerical ages, with sources cited. Prepared by GSA's Decade of North American Geology project.

## GEOLOGIC TIME SCALES

8½" x 11", 3-hole drilled, on heavy stock,  
package of 50 ..... \$ 8.00  
Wallet-size vinyl cards, package of 25 ..... \$ 6.00  
Wall-size poster, 30" x 36", on heavy, durable stock,  
rolled, in tube, each ..... \$ 8.50

Check, money order (in U.S. funds), or MC/Visa accepted. Colorado residents add sales tax. We pay surface postage on prepaid orders.



Order today from:  
GSA Publication Sales  
P.O. Box 9140  
Boulder, CO 80301 • (303) 447-2020

## THE GEOLOGICAL SOCIETY OF AMERICA

**MEETINGS** (continued from p. 235)

**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.

**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.

**32nd Institute on Lake Superior Geology**, April 29-May 4, 1986, Wisconsin Rapids, Wisconsin. Information: Jeffrey K. Greenberg, Wisconsin Geological Survey, 3817 Mineral Point Rd., Madison, WI 53705; (608) 263-7385.

**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.

**49th Annual Northeastern Friends of the Pleistocene meeting and field trip**, May 23-25, 1986, Fort Kent, Maine. Information: J. S. Kite, Dept. of Geology and Geography, University of West Virginia, Morgantown, WV 26506; (304) 293-5603.

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

**6th International Conference on Geochronology, Cosmochronology 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.

**Fourth International Kimberlite Conference**, August 10-15, 1986, Perth, Western Australia. Information: J. D. Lewis, Geological Survey of Western Australia, Mineral House, 66 Adelaide Terrace, Perth, Western Australia.

**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.



**MEETINGS** (continued)

**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.

**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.)

**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.

**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. (Abstracts due March 1, 1986.)

**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.

**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.

(continued on p. 239)

*New*

**THE GSA SEAL  
NOW A HUSKY,  
SOLID-BRASS  
BELT BUCKLE  
FOR FIELD OR EVERYDAY WEAR**



The distinguished GSA seal rendered as a husky, solid-brass belt buckle. This gold on black DynaBuckle® is a deeply etched casting, 2-3/4" diameter, slightly curved for comfort, for belts to 1-7/8" wide at buckle loop, and has an angled adjusting tooth.

**A GREAT GIFT IDEA \$9.75**  
member discount will apply

**WEAR ONE  
ORDER YOURS TODAY!**

Check, money order (in U.S. funds), or credit cards below accepted. Credit card users must provide their full name, card name, card number, and expiration date. Colorado residents add sales tax. We pay surface postage on prepaid orders.

MasterCard \* VISA \* American Express \* CHOICE  
Carte Bleue \* Barclay Card \* Access  
EuroCard \* Standard Bank Card



GSA Publication Sales  
P.O. Box 9140  
Boulder, CO 80301 • (303) 447-2020

**THE GEOLOGICAL SOCIETY OF AMERICA**

# CLASSIFIED ADVERTISING

Ads (or cancellations) for the February issue must reach the GSA office by December 15. Contact Advertising Department (303) 447-2020.

Per line per issue	1x	3x	6x	12x
<b>Situations Wanted:</b>	\$1.25	\$1.10	\$ .95	\$ .85
<b>Positions Open:</b>	\$3.00	\$2.64	\$2.28	\$2.04
<b>Consultants:</b>	\$3.00	\$2.64	\$2.28	\$2.04
<b>Services &amp; Supplies:</b>	\$3.20	\$2.81	\$2.43	\$2.17

Code number \$2.75 extra.

Agencies and organizations may submit purchase order or payment with copy. Individuals must send prepayment with copy. To determine cost, count 44 characters per line, including all punctuation and blank spaces.

To answer coded ads, use this address:  
Code # . . . . , GSA News, P.O. Box 9140, Boulder, CO 80301.

All coded mail will be forwarded within 24 hours of arrival at GSA News office.

## Situations Wanted

**Earth Scientists seeking employment or change in position!** Now you can advertise your availability, qualifications, and goals in this column each month for a very modest investment. You will reach more than 13,500 earth scientists through these pages -- the very people who are most likely to need your skills. Blind box numbers available for privacy. See above for rates, details, and closing dates.

## Positions Open

### 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.

### ECONOMIC GEOLOGIST — FACULTY POSITION

**Hunter College, City University of New York**  
Position, fall 1986. Rank and salary open. Advanced or starting scientist to assume an aggressive role in developing a research and teaching program in economic geology, including linkages

with remote sensing, mathematical modeling, and geostatistical data analysis.

Candidate will teach undergraduate geology, strengthen existing doctoral program and help develop focused MA program. Proven extramural funding ability required for advanced-level appointment. Experience with government, industry, and foreign nations also helpful. Ph.D. required at time of appointment. Send vitae, publications, names of at least three referees to Dr. Alan H. Strahler, Chair, Geology & Geography Dept., Hunter College, CUNY, 695 Park Ave., New York, NY 10021. Closing date Jan. 15, 1986. Equal Opportunity 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.

### 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.

### RESEARCH ASSOCIATE POSITION UNIVERSITY OF SOUTH CAROLINA

A one-year position beginning anytime after September 1, 1985 with research emphasis on stable isotope geochemistry applied to paleoceanography. Carbonate diagenesis or biogeochemical processes. Applicant should possess a Ph.D. in geology, chemistry or oceanography and have the ability to establish his/her own research program as well as interface with on-going research in the department of geology or marine science program. A clear statement of research

goals and three references should be sent to: Dr. Douglas F. Williams, Department of Geology and Belle Baruch Institute for Marine Biology and Coastal Research, University of South Carolina, Columbia, SC 29208. The University of South Carolina is an affirmative action/equal opportunity employer. Deadline Dec. 1, 1985.

### SEDIMENTOLOGY/BIOSTRATIGRAPHY/MARINE GEOLOGY, RICE UNIVERSITY

The Department of Geology and Geophysics, Rice University, expects to fill a tenure track faculty position in Sedimentology/Marine Geology. We are especially interested in individuals with strong backgrounds in either micropaleontology/biostratigraphy or carbonate sedimentology, whose research would complement ongoing programs in the Department. We are a field oriented department. Sedimentologic studies are presently underway in Alaska, portions of the western U.S., Peru, and we are continuing a major program in Antarctic Marine Geology. We anticipate increased research efforts in the Gulf of Mexico/Caribbean region, in conjunction with the Ocean Drilling Project. The Department houses modern facilities for geophysical data processing, grain size analysis, stable isotope studies, both major and minor elemental determination and our sea-going capabilities include "state of the art" high frequency seismic reflection equipment.

This position may be filled at the Assistant Professor or Associate Professor level. The successful applicant will be expected to participate in both graduate and undergraduate teaching as well as develop a program of significant research.

Applicants should submit their resumes, including a list of teaching and research projects, bibliography and the names of three references, to: Dr. Albert Bally, Chairman, Department of Geology and Geophysics, Rice University, Houston, Texas, 77251-1892. The deadline for applications is January 31, 1986. Rice is an equal opportunity affirmative action employer.

### LOZIER ARCHITECTS/ENGINEERS ROCHESTER, NEW YORK

Seeking aggressive HYDROGEOLOGIST with B.S. and M.S.; minimum five years experience in hazardous waste sites and site assessment projects. Should be conversant with applicable Federal Regulations and field safety procedures. The position offers the right individual an opportunity to direct our firm's geology projects and assist in expanding our client base. We offer an exciting work environment with rewards commensurate with responsibility and performance, as well as an excellent fringe benefits package and career opportunities. Send resume in confidence to: Leonard E. Bower P.E., Vice-President Operations, 600 Perinton Hills, Fairport, NY 14450.

### UNIVERSITY OF BERGEN, NORWAY NORDIC MINISTERIAL COUNCIL'S VISITING PROFESSORSHIP IN PETROLEUM GEOLOGY

Subject to final official agreement, the Geological Institute in the University of Bergen is able to offer a position as Visiting Professor in Petroleum Geology for a period of up to 9 months. The professor should be a person with recognised expertise in some field of Earth Sciences of importance to the oil industry. Fields of especial interest include: organic geochemistry, basin tectonics and modelling, seismic stratigraphy, structural geology, sedimentary petrography and well-log interpretation.

The professor would be expected to take part in the activities of the geological and geophysi-

cal institutes, interact with ongoing research project and give occasional lectures and/or short courses both in Bergen and in the Nordic Universities. He would, however, expect to have time for his own research.

The starting date and duration of the appointment are negotiable but an early start is desirable and a minimum duration of 3 months is required. This position is likely to be available on a regular basis in the future. Anyone who may be interested in the position in the course of the next two to three years is also encouraged to make preliminary contact at the stage. Help with the costs of travel is available and a salary on the professorial scale is payable.

Interested persons should write, in the first instance, to Prof. J.D. Collinson, Geologisk Institut, Avd. A, Allegt. 42, 5014 Bergen University, Norway, indicating their area of interest and their availability.

## Consultants

**MEETING COORDINATORS.** Western Experience offers 15 years experience in coordinating all types and sizes of Earth Science meetings. If you need help with a conference or workshop call or write Lois Elms for more information. Phone (303) 449-3352. Address 2450 Central Ave., P2, Boulder, CO 80302.

## Services & Supplies

**FOR SALE: PRECISION CONTROLLED FLUID INCLUSION CRUSHING STAGES.** For details write M.K. Latham Enterprises, 10250 Sunwood, Houston, TX 77041.

**GEOLOGY BOOKS!** Check our listings for the latest arrivals in sedimentary petrology, structure, geochemistry, and mineralogy. Compare and save! All of our books are sold at discount prices. Call today for your free catalog: **TOLL-FREE 1-800-742-2677.** Remember, all of our books are backed by a guarantee of 100% satisfaction. Geoscience Resources, 2990 Anthony Road, Burlington, NC 27215.

**Need a geologist?** The Texas A&M University Geology Department's 1985-86 Graduate Student Resume Book is now available, free, to organizations that are recruiting M.S. and Ph.D. level geologists. For more information, contact Vince Cronin, Geology Department, Texas A&M University, College Station, Texas 77843, (409) 845-3145.

## MEETINGS (continued from p. 237)

### 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.

**Miocene Reconstruction of Southern California**, May 30-June 4, 1986, Oxnard, California. Information: Peter W. Weigand, Dept. of Geological Sciences, California State University, Northridge, CA 91330; (818) 885-3541.

**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

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

### 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.

**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.

**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. (Abstracts due April 30, 1986.)

**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.)

## 1986 GSA ANNUAL MEETING

NOVEMBER 10-13

SAN ANTONIO, TEXAS

SAN ANTONIO CONVENTION CENTER

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

A new GSA Special Paper by A.M.C. Şengör, the product of his long-standing interest in Tethyan problems.

With this work, Şengör hoped to fill an important gap he saw in the regional tectonic literature of Eurasia, namely a synthetic overview of the early history of the Alpine-Himalayan mountain ranges and its expected implications for the "Tethyan paradox," first brought into focus by Alan Smith of Cambridge.

GSA Special Paper 195: *The Cimmeride Orogenic System and the Tectonics of Eurasia*, by A.M. Celâl Şengör, 8½" × 11", paperback, 91 pages, illustrated, with subject & author indexes and one folded map insert. ISBN 0-8137-2195-4, CIP, paperback . . . \$17.00.

# The Cimmeride Orogenic System and the Tectonics of Eurasia

A. M. Celâl Şengör



  
**SPECIAL PAPER**  
**195**

" . . . a bold, brilliant synthesis of the present knowledge for the Cimmeride orogenic system, together with its affected adjacent areas . . . excellent paper."

J. J. Gallagher, Jr.,  
AAPG Bulletin

Check, money order (in U.S. funds), or credit cards below accepted. Credit card users must provide their full name, card name, card number, and expiration date. Colorado residents add sales tax. We pay surface postage on prepaid orders.

MasterCard \* VISA \* American Express \* CHOICE  
Carte Bleue \* Barclay Card \* Access  
EuroCard \* Standard Bank Card



Order today from:  
GSA Publication Sales  
P.O. Box 9140  
Boulder, CO 80301 • (303) 447-2020

## THE GEOLOGICAL SOCIETY OF AMERICA

### INSIDE \_ \_ \_

Northeastern Section 1986 Meeting .....	p. 220
Cordilleran Section 1986 Meeting .....	p. 224
New GSA Members, Student Associates, Fellows .....	p. 230



**THE GEOLOGICAL SOCIETY OF AMERICA**  
3300 Penrose Place • P.O. Box 9140  
Boulder, CO 80301

**SECOND CLASS**  
**Postage Paid**  
at Boulder, Colorado  
and at additional mailing office