



## GSA NEWS & INFORMATION

Monthly Newsletter of  
The Geological Society of America

VOLUME 8, NUMBER 12

DECEMBER 1986

### GSA Grants Fund Wide Variety of Research

In 1933, shortly after inception of the GSA research grants program, you had to be an experienced professional geologist to get a grant from the Society. Today, most GSA grants go to graduate students, and some of the sections and divisions give grants for specialized work.

#### General Grants

The purpose of the general research grants 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. Applicants need not be members of GSA. (Applicants for the Cole award, however, must be GSA Fellows; see below.) The Society awarded \$146,000 in grants in 1986, to 168 students doing research for advanced degrees. The average amount awarded was \$871; the largest award was \$1500.

To apply for one of these grants, you must fill out an application form, available from GSA Campus Representatives, from geology departments in the United States and Canada, or from GSA headquarters (Research Grants Administrator, Geological Society of America, P.O. Box 9140, Boulder, CO 80301). Evaluations from two faculty members are required for master's and doctoral candidates. The deadline for applications for the 1987 research grants program is February 15, 1987. Applications must be submitted on 1987 forms. The GSA Committee on Research Grants evaluates all applications and at its early spring meeting at GSA headquarters chooses those to be funded. Grants are awarded in April.

#### Specialized Grants

The Robert K. Fahnestock Award is a grant given to the applicant with the best proposal in sediment transport or related aspects of fluvial geomorphology.

The Harold T. Stearns Fellowship Award is earmarked for research on the geology of the Pacific islands and the circum-Pacific region.

You can indicate on the general research grants application form that you also want to be considered for the Fahnestock or Stearns grants. The application deadline is February 15.

The Gladys W. Cole Memorial Research Award is given for investigation of the geomorphology of semiarid and arid terrains in the United States and Mexico. Applicants must be GSA Fellows between 30 and 65 years old who have published one or

more significant papers on geomorphology. The application form for this grant is different from the one for the general grants; it is also available from GSA headquarters (address above).

#### Section Grants

GSA's Southeastern Section began its student grants program six years ago. Applicants must be GSA Student Associates and must be attending a college or university within the geographical boundaries of the Southeastern Section (Virginia, West Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana). Grants are awarded for both graduate and undergraduate research. Applications for these grants can be obtained from Stephen H. Stow, Oak Ridge National Laboratory, P.O. Box X, Oak Ridge, TN 37830. The deadline for 1987 applications is March 1, 1987. The grants will be awarded in late March.

The North-Central Section began awarding student grants in 1985. Applicants must be attending a college or university in the North-Central Section geographic area (Ohio, Indiana, Illinois, Missouri, Nebraska, Iowa, Minnesota, Wisconsin, Michigan, Manitoba, western Ontario). Grant recipients are selected from applicants for the general research grants program (applications available from GSA headquarters; see address under General Grants). Deadline for 1987 applications is February 15, 1987.

#### Division Grants

The Coal Geology Division of GSA and the Symposium on the Geology of Rocky Mountain Coal jointly sponsor scholarships for research on coal in the Rocky Mountain and northern Great Plains coal provinces. Applicants must be master's or doctoral candidates doing research on coal in Arizona, Alberta, British Columbia, Colorado, Idaho, Montana, New Mexico, North Dakota, Utah, Saskatchewan, South Dakota, or Wyoming. However, the college or university where applicants are doing the work need not be in those states or provinces. Applications for Rocky Mountain Coal Scholarships can be obtained from GSA (address under General Grants) or from Gary B. Glass, c/o Geological Survey of Wyoming, Box 3008, University Station, Laramie, WY 82071. The deadline for 1987 applications is February 1, 1987.

GSA's Quaternary Geology and Geomorphology Division  
(continued on p. 230)

### GSA Grants (continued from p. 229)

established its J. Hoover Mackin Research Grants in 1974 to support graduate student research on Quaternary geology or geomorphology. Applications for this grant are available from the secretary of the division, Richard F. Madole, U.S. Geological Survey, Box 25046, MS 966, Denver, CO 80225. The deadline for applications for 1987 is February 15, 1987. Grant awardees are announced in April.

The Structural Geology and Tectonics Division awarded its first grant for outstanding student research this year. This newly established grant will be awarded annually to an applicant for the general GSA research grants who is working on structural geology or tectonics. Applicants must be master's or doctoral candidates. Applications for this grant are available from GSA headquarters (address under General Grants) and for 1987 must be submitted by February 15, 1987.

More GSA divisions will probably award student grants in the future. Watch for announcements in your division newsletter.

### Have You Paid Your 1987 Dues?

Last year, most members remitted their annual dues payment before the November 30 deadline. As a result, they received their GSA publications without delay. This year, the timing is again critical because all section meeting *Abstracts with Programs* will be mailed to members early in 1987. If we do not receive your dues payment before mid-December, you may not receive that much-needed *Abstracts with Programs* in time for the section meeting you plan to attend. Remember, back orders take 6 to 8 weeks to reach you! Please use the 1987 dues and publications selection form mailed to you earlier. Dues for 1987 are \$70 for Members and Fellows and \$32 for Student Associates.

Don't miss this tax deduction for 1986!

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

### Divisions, Section Announce Grant Awardees

The GSA Structural Geology and Tectonics Division presented its first annual award for an outstanding student research proposal, submitted to the GSA Research Grants Program, to Mary S. Hubbard, of Massachusetts Institute of Technology. The award of \$1000 was for her research project titled "Thermal Evolution and Structure of an Intraplate Subduction Zone: The Main Central Thrust, Eastern Nepal."

The North-Central Section of GSA awarded six research grants to students in the section this year. The awards, to support field work leading to a thesis or dissertation completion, went to students who submitted applications to the GSA Research Grants Program. The recipients and the titles of their research projects are Robert S. Cox, University of Michigan, "Phylogeny of Homalozoan Echinoderms and the Origin of Chordates"; Evan Karl Franseen,

### Discount Subscription Rates for *Geoarchaeology*, *Neotectonics* Available to GSA Division Members

Members of GSA's Archaeological Geology Division or Quaternary Geology and Geomorphology Division can subscribe to *Geoarchaeology* Volume 2 (1987; four issues) for \$48, half the full list rate (outside the U.S., add \$19 for air mail delivery).

Members of the Geophysics Division, the Quaternary Geology and Geomorphology Division, and the Structural Geology and Tectonics Division can subscribe to *Neotectonics* Volume 1 (1987; four issues) for \$48, compared to the full rate of \$96 (outside U.S., add \$22 for air mail delivery).

Division members who want to take advantage of these special rates should send their orders with payment directly to Periodicals Division, GSA87, John Wiley & Sons, P.O. Box 836, Bound Brook, NJ 08805, and identify themselves as GSA members of the particular division. These offers are for division members' personal use, not for institutional subscriptions.

### GSA Members Offered Special Subscription Rate for *Geological Magazine*

GSA members can subscribe to *Geological Magazine* for 1987 for \$65, a discount of more than 60% from the regular price of \$173. The rate for GSA Student Associates is \$33 when they supply proof of student status.

*Geological Magazine*, published since 1864, covers the whole field of earth sciences and includes scientific correspondence and book reviews. It is published six times a year. Subscriptions are on a calendar-year basis.

GSA members who want to subscribe to *Geological Magazine* at the reduced rate should send their orders with payment (check, VISA, or MasterCard), to Harry Florentine, Cambridge University Press, 32 East 57th St., New York, NY 10022. Be sure to identify yourself as a GSA member.

University of Wisconsin—Madison, "Sedimentology and Diagenesis of a Miocene Reef Complex, Las Negras Area, Southeast Spain"; Brian T. Huber, Ohio State University, "Late Cretaceous Foraminiferal Biogeography of the Circum-Antarctic"; Carolyn M. Knight, Western Michigan University, "Gravity and Magnetic Modeling of Midcontinent Rift Structure in Central Michigan Basin"; David Pivnik, University of Akron, "Basin Morphology and Depositional Model for the Giddings Brook Slice of the Taconic Allochthon"; and Joyce Christine Alexis Riter, Ohio State University, "Mineralogical, Geochemical, and Petrologic Analysis of the Proterozoic Anorthosite-Charnockite-Granulite Province of Rogaland/Vest-Agder, Southwest Norway."

The Quaternary Geology and Geomorphology Division awarded two Mackin grants for student research in 1986. Master's degree candidate Mark A. Gonzalez, University of Wisconsin—Madison, received a grant for "Fluvial Geomorphology, Geochronology, and Paleoclimatology of Paddock Creek, Little Missouri Badlands, Southwestern North Dakota." Two Ph.D. candidates were selected to share the other Mackin grant: Dorothy I. Sack, University of Utah, for "Geomorphology of Alluvial Fans in the Bonneville Basin, Utah: Modeling Alluvial Fan Activity"; and Christopher M. Menges, University of New Mexico, for "Systematic and Quantitative Analyses of the Landforms of a Mountain Front within a Basin and Range Landscape in the Northern Rio Grande Rift near Taos, North-Central New Mexico."

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



# CENTENNIAL NEWS

by Allison (Pete) Palmer

## Whatever Happened to Integrity?

Once upon a time, an agreement to do something by a particular date represented a commitment to get that something completed by the agreed-upon date, or at least to make arrangements for an alternate date not too far past the original date if the original agreement was not going to work. The world of business has relied on such agreements. Often these were gentlemen's agreements and represented a moral obligation.

The GSA component of the Geology of North America was organized around such agreements: agreement to participate in the project; agreement to create a chapter of an agreed-upon size ready for review by an agreed-upon date; agreement to review a manuscript in an agreed-upon time; agreement to revise a manuscript in an agreed-upon time; agreement in the case of editors to provide quality control on their volumes, including evaluating the suitability of first submissions and revisions in a timely manner. Most agreements regarding time were made in direct consultation with the individuals involved.

The DNAG Project also offered some rewards: the prestige of being an invited participant in one of the great geological undertakings of the century; no page charges for any contribution; the opportunity to use color in effective illustrations; assistance with drafting if an author had no resources; expenses for participation in both Organizing and Final Coordinating Conferences for a synthesis volume if the author had no appropriate resources; and, for the editors, all logistical details involved in bringing authors together for Organizing and Final Coordinating Conferences, as well as complete handling of the review process including calling the reviewers they recommend, obtaining the reviews, and returning the reviewed manuscripts to the volume editors for their comments before sending the manuscripts back to authors for revision.

At the end of each Organizational Conference, authors' participation in the project was reconfirmed, and the date for the Final Coordinating Conference was chosen by the group of authors present. Reviewable or nearly reviewable manuscripts were to be completed by the Final Coordinating Conference dates. Monthly reminders of this commitment were received by each senior author during the 6 months prior to each Final Coordinating Conference. It was estimated that a year would be needed after a Final Coordinating Conference before the review, revision, and production process for all parts of a book could be completed.

The table of dates for Organizational and Final Coordinating Conferences for volumes of The Geology of North America that are being produced by GSA is given at right, arranged in order of Final Coordinating Conference dates.

One Final Coordinating Conference was held in the spring of 1983, and seven were held in 1984. Thus, eight

volumes were reasonably expected to be finished by the end of 1985. Four volumes had their Final Coordinating Conferences in the first half of 1985 and thus were reasonably expected to have been published by the end of 1986. Of these 12 volumes, one will be published by the end of this year!!

Most delinquent authors have been contacted many times since their Final Coordinating Conferences, and they have picked new completion dates, long since past. The publication schedule announced last fall for the prepublication sale was based on author promises in the summer of 1985. Because of continued delays, new "deadlines," well beyond any author promises, were set earlier this year in order to create an orderly production schedule for all volumes. None of these goals have been met.

Most authors can find some reason for delays, but the cumulative effect of these delays is that a production schedule of 19 volumes, originally spread over 4 years and geared to have the set of The Geology of North America and all other components of the DNAG Project available for the GSA Centennial Celebration in the fall of 1988, is now compressed into 2 years and is causing a serious production crunch at GSA headquarters. Perhaps some authors have not really perceived the implications of their personal delays.

In addition to the volumes mentioned above, we at GSA have seven more to complete for The Geology of North America; five Centennial Field Guides are still to be finished, although at least one, the Northeastern Section

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SCHEDULE OF ORGANIZATIONAL AND FINAL COORDINATING CONFERENCES FOR THE GEOLOGY OF NORTH AMERICA (volumes being produced by GSA)

	Org.	FCC
Western North Atlantic	6/82	4/83
Gulf Basin	1/82	1/84
Atlantic Margin	5/82	3/84
Sedimentary Cover of the Craton	6/82	3/84
Caribbean	1/83	3/84
Appalachian/Ouachita	1/82	5/84
U.S. Cordillera	2/82	12/84
Alaska	4/82	12/84
Precambrian	2/83	2/85
Arctic	1/83	5/85
Groundwater	6/83	6/85
Eastern Pacific	6/83	7/85
Last Deglaciation	5/83	1/86
Surface Water	7/84	1/86
Economic Geology		
Coal	9/84	2/86
Oil and Gas	5/85	4/86
Mineral Deposits	11/85	6/86
Nonglacial Quaternary U.S.	8/85	9/86

**Centennial News** (continued from p. 229)  
 Field Guide, should be in production by the time you read this (we had 98 out of 100 chapters in-house at the end of September); four special volumes by GSA's Divisions are being completed; and there will be a volume to accompany the Continent/Ocean Transects, of which 12 are still to be completed. Seven major map compilations of North America remain to be finished.

All of this adds up to 45 major components of the DNAG Project to be produced by GSA in less than 24 months! (Canada is producing nine more volumes, and two of the North American maps are being produced by the U.S. Geological Survey and the Geological Survey of Canada.) This is a daunting challenge to a production staff that also continues to produce the normal component of *GSA Bulletin*, *Geology*, *News & Information*, *Memoirs*,

*Special Papers*, *Maps and Charts*, and *Abstracts with Programs*.

Very few authors have called to ask for extensions of time. We have had to call them to find out what happened to their promised contributions. Completion of agreements in a timely manner would certainly have helped.

To the 264 senior authors who have completed their chapters, at least to the stage of having manuscripts in review, and to the 124 authors whose revisions have been completed and who are awaiting timely completion of their books, many thanks for your contributions and your patience.

To those authors whose productive lives seem to be at the mercy of budgets, grant proposals, committee assignments, and abstract deadlines, let me know where we can help.

### Going to the Cordilleran Section Meeting? Note These Date Changes and Symposia Additions

Four symposia, in addition to those listed in the preliminary announcement (October 1986 *GSA News & Information*), will be held at the 83rd annual Cordilleran Section meeting in Hilo, Hawaii, May 20-22, 1987:

1. **Structure and Stratigraphy of the Brooks Range, Alaska.** Wes Wallace, University of Alaska; Tom Moore, USGS, Menlo Park.
2. **Seismotectonics of Offshore and Onshore Areas, Central California.** Burt Slemmons, Mackay School of Mines; Lloyd Cluff, Pacific Gas and Electric Co.
3. **Crustal Seismic Profiling in the Southwestern United States I; Results of CALCRUST Investigations.** Eric Frost, University of California, Santa Barbara; David Okaya, Lawrence Livermore Laboratory.
4. **Crustal Seismic Profiling in the Southwestern United States II; Results of Industry Investigations, Implications for Basin Formation and Hydrocarbon Exploration.** Geoffrey Galvan, Phillips Petroleum; Larry Garmezy, Shell Petroleum.

Note also that the meeting dates have been changed from May 18-20 (as stated on the 1987 abstract forms) to **May 20-22**. Abstract deadlines remain the same. Send abstracts to Richard W. Hazlett at the address given on the 1987 forms. The abstract deadline for the 1987 Cordilleran Section meeting is **December 29, 1986**. Abstract forms for 1987 are available from Abstracts Coordinator, Geological Society of America, P.O. Box 9140, Boulder, CO 80301; or call (303) 447-8850.

The final announcement for the 1987 Cordilleran Section will be published in *GSA News & Information* in early 1987.

### PEOPLE

GSA Fellow **Priscilla C. Grew** has been named director of the Minnesota Geological Survey and professor of Geology and Geophysics, University of Minnesota, Minneapolis.

Fellow **Daniel F. Merriam**, Wichita State University, received the American Association of Petroleum Geologists Distinguished Service Award at the AAPG annual meeting in June.

### Geomorphologists Compile International Directory

In September 1985, the British Geomorphological Research Group hosted the First International Conference on Geomorphology, in Manchester, England. It was attended by 675 geomorphologists from 51 different countries. The program included 323 oral and 214 poster presentations, as well as field trips, special lectures, and workshops.

One of the major objectives of the conference was to determine the potential for developing an official international organization for geomorphology. Most in attendance agreed that such an organization was desirable and that the ramifications of establishing one should be explored. A Working Group was formed, and it will report its findings at the Second Conference, which will be held in West Germany in 1989. It was also agreed that, in the meantime, a newsletter be initiated and a World Directory of Geomorphologists be developed.

*International Geomorphology Newsletter*, No. 1, has now been printed, and a questionnaire for the purpose of establishing a directory is being circulated. If you are interested, fill out the form below and mail it to H. J. Walker, Department of Geography, Louisiana State University, Baton Rouge, LA 70803.

### World Directory of Geomorphologists

Family name: \_\_\_\_\_ Telephone: \_\_\_\_\_

Given name: \_\_\_\_\_

Institution address: \_\_\_\_\_

Research interest: \_\_\_\_\_

Technique interest: \_\_\_\_\_

Area/region interest: \_\_\_\_\_



## Final Announcement Northeastern Section, GSA, Annual Meeting

Pittsburgh, Pennsylvania  
March 4-7, 1987



The Northeastern Section of the Geological Society of America will meet at the Pittsburgh Hilton Hotel, Pittsburgh, Pennsylvania, March 4-7, 1987, together with the Eastern Section of the Society of Economic Paleontologists and Mineralogists, the Northeastern Section of the Paleontological Society, and the Eastern Section of the National Association of Geology Teachers. The meeting is sponsored by the University of Pittsburgh, the Carnegie Museum of Natural History, the Pennsylvania Geological Survey, the Pittsburgh Geological Society, Indiana University of Pennsylvania, and Slippery Rock University.

**Local Committee:** *Chairman*—Michael Bikerman, Department of Geology and Planetary Science, University of Pittsburgh, Pittsburgh, PA 15260, (412) 624-4712; *Vice-chairman*—Helen L. Delano, Pennsylvania Geological Survey, 121 S. Highland Ave., Pittsburgh, PA 15206, (412) 665-2155; *Technical Program*—Jack Donahue, University of Pittsburgh, (412) 648-7523; *Technical Review*—Thomas Anderson, University of Pittsburgh; *Symposia*—Edward G. Lidiak, University of Pittsburgh; *Registration*—Donald Watson, Slippery Rock University; *Treasurer*—Mary Ann Gross, Equitable Gas Co., Pittsburgh; *Exhibits*—Harold B. Rollins, University of Pittsburgh; *Publicity*—Mary Dawson, Carnegie Museum of Natural History, Pittsburgh; *Short Course*—Maurice Deul, University of Pittsburgh; *Student Volunteers and Audiovisual*—Fred Park and Joseph Clark, Indiana University of Pennsylvania; *Nontechnical Activities*—Jane L. Freedman, Pittsburgh; *Museum Coordination*—Robert M. West, Carnegie Museum of Natural History, Pittsburgh; *Security*—Mary S. Robison, NUS Corporation, Pittsburgh.

### REGISTRATION

All persons participating in any event of the meeting must be registered, and admission to all activities is by badge only.

*Preregistration:* You are urged to preregister at the reduced rate to aid the local committee in making final plans. Preregistration forms, with payment, must be postmarked no later than **Friday, January 29, 1987**. Complete the registration form and return it with check or money order to **Northeastern GSA-MEMS, One Northgate Square, 2 Garden Center Drive, P.O. Box 270, Greensburg, PA 15601**. For your added convenience, you can register by toll-free telephone in the U.S.: (800) 441-1674 in Pennsylvania, or (800) 343-5129 outside Pennsylvania, using Visa, MasterCard, or American Express. You may also register by telecopier facsimile: (412) 836-6817—simply complete your form and include your credit card number and expiration date. Hotel reservations should be made directly with the Hilton. Please complete the Housing Form and send it to the Hilton at the address shown on the form.

*On-Site Registration:* Registration will be available at the Hilton Hotel, Ballroom Foyer, Mezzanine level during the meeting. Registration times will be Wednesday, March 4, 1987, 4-10 p.m.; Thursday and Friday, March 5 and 6, 7 a.m.-5 p.m., and Saturday, March 7, 7 a.m.-noon.

### TECHNICAL PROGRAM

General technical sessions are scheduled as oral presentations and poster sessions from Thursday morning, March 5, through noon, Saturday, March 7. All sessions will be held in the Hilton Hotel.

### SYMPOSIA

1. **Frontiers in Pennsylvania Geology.** Sponsored by the Pennsylvania Geological Survey in honor of the 150th Anniversary of its founding. William D. Sevon, Pennsylvania Geological Survey, P.O. Box 2357, Harrisburg, PA 17120.
2. **Palynology in the Northeast.** J. Richard Jones, Dept. of Geology and Planetary Sciences, University of Pittsburgh, Pittsburgh, PA 15260.
3. **Boston Basin and Adjacent Avalon Terrains of Southeastern New England.** Anthony D. Socci, Dept. Geological Sciences, Ohio University, Athens, OH 45701.
4. **Predator-Prey Relationships as Shown by Fossils.** Sponsored by the Northeastern Section of the Paleontological Society. Jean M. Berdan, U.S. Geological Survey, Paleo. & Strat. Branch, E-501, National Museum of Natural History, Washington, DC 20560.
5. **Abandoned Mine Lands—Problems and Solutions.** Richard E. Gray, GAI Consultants, Inc., 570 Beatty Rd., Pittsburgh, PA 15146.
6. **The Hydrodynamics and Sedimentology of a Back-Barrier Lagoon-Salt Marsh System, Great Sound, New Jersey.** Sponsored by Eastern Section SEPM. Gail M. Ashley, Dept. of Geological Sciences, Rutgers University, New Brunswick, NJ 08903.
7. **Vertebrate Paleontology and Paleocology of the Northeast.** David Berman, Carnegie Museum of Natural History, 4400 Forbes Ave., Pittsburgh, PA 15213.

### SHORT COURSE

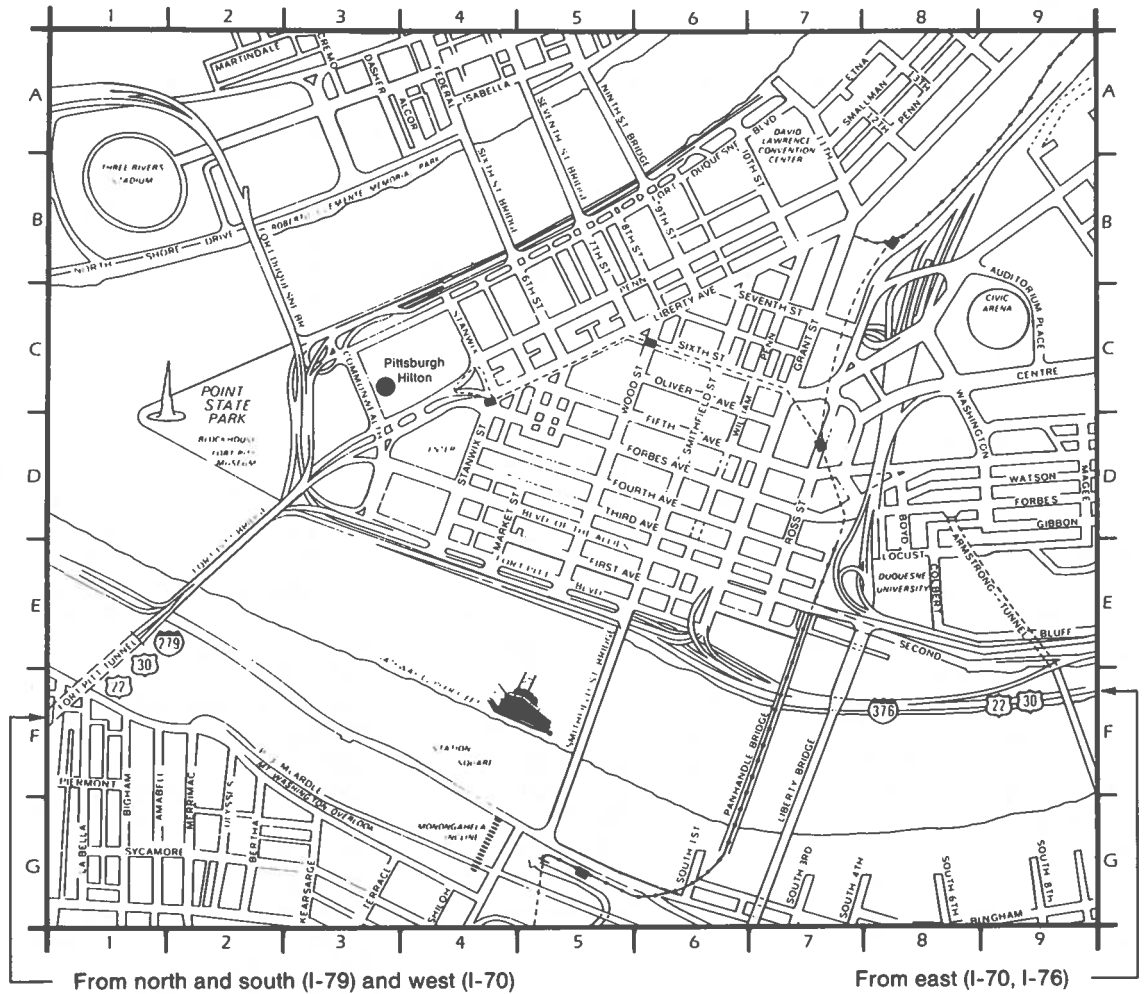
**Thermochronology—Application of Geochronology and Isotope Geology to the Solution of Tectonic Problems.**

*Faculty:* John F. Sutter, Branch of Isotope Geology, U.S. Geological Survey, Reston, VA. This one-day course will be held on Wednesday, March 4, 1987, 8:30 a.m.-5:30 p.m., in room 305 OEH on the University of Pittsburgh campus. Limit: 20 participants. *Note: Preregistration is required for this short course.* Telephone one of the numbers given on the registration form to reserve a place. Fee: \$45, which includes lunch at the Pitt Faculty Club and necessary materials.

This will be an applications-oriented short course aimed at field geologists, showing how various geochronologic and isotopic data can be integrated and brought to bear on tectonic problems. The morning will be spent in reviewing isotopic systematics and generally accepted interpretations of isotopic data. In the afternoon, specific tectonic problems (especially Appalachian) will be examined. Finally, integrated, isotopic approaches to tectonic problems will be discussed.

(continued on p. 235)

# Downtown Pittsburgh



## HOUSING FORM

Northeastern Section, GSA, March 4-7, 1987  
Pittsburgh Hilton Hotel

Name (print) \_\_\_\_\_  
First Middle Last

Confirm to (address) \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Country \_\_\_\_\_

Telephone: business \_\_\_\_\_  
 residence \_\_\_\_\_

Mr.    Mrs.    Mr. & Mrs.    Ms.

Person(s) sharing accommodations:  
 (must complete if sharing room)

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

RATE\* (check one)

Single: \_\_\_\_\_ \$81      Double: \_\_\_\_\_ \$45/person

Triple: \_\_\_\_\_ \$33/person      Quad: \_\_\_\_\_ \$27/person

\*All rates subject to 9% tax. Limited number of triple and quad rooms available for students; please register early to assure availability. For those who wish to arrive early and/or extend their stay these special rates will apply three nights before and after the dates above, subject to availability.

Arrival date \_\_\_\_\_

Hour \_\_\_\_\_ AM/PM

Departure date \_\_\_\_\_

Hour \_\_\_\_\_ AM/PM

All reservations MUST be received by **February 2, 1987**  
 Reservations will be accepted after the cutoff date  
 on a first-come, first-served basis

Note: Check-in time is 3 p.m. Reservations will not be held after 6 p.m. unless the hotel is notified of your exact arrival hour and has received a guaranteed deposit through a major credit card number.

Check-out time is 1 p.m. A luggage holding area will be available for check-out after 1 p.m.

For additional information, call (412) 391-4600.

Mail this form to Pittsburgh Hilton, Gateway Center, Pittsburgh, PA 15222 Attention: Reservations

Use air mail if mailed outside the United States.

## Northeastern Section (continued from p. 233)

### SPECIAL EVENTS

**Welcoming Party.** A welcoming party for all registrants will be held at the Pittsburgh Hilton on Wednesday, March 4, 1987, 7-11 p.m. Reunions will be held in the same area from 9:30 p.m. on. To schedule a reunion, contact Helen Delano at (412) 665-2155.

**Carnegie Museum Reception.** A special reception for all registrants will be held in Dinosaur Hall, Hillman Hall of Minerals, Paleozoic Hall, and the Geology area of the Carnegie Museum of Natural History on Thursday evening, March 5, 5:30-8 p.m. Transportation from the Hilton to the museum and return will be provided.

**Postmeeting Boat Trip.** Get on board one of the Gateway Clipper Fleet boats to see some of the type Pennsylvanian section, as well as Pittsburgh from the water. The cruise will cost \$6.75, will depart from Point State Park, adjacent to the Hilton, on Saturday at 1:30 p.m., and will return to the Hilton at 4 p.m., in plenty of time to get to the airport or other departure points. It is important that tickets for the boat trip be purchased with the meeting registration so that proper plans can be made.

**Annual Banquet.** The annual banquet and business meeting of the Northeastern Section of GSA will be a luncheon on Friday, March 6, 1987, noon to 1:30 p.m., at the Hilton Hotel. Cost: \$15. In honor of the Bicentennial of the University of Pittsburgh and the Sesquicentennial of the Pennsylvania Geological Survey, speakers from these two organizations will make brief presentations.

**National Association of Geology Teachers (NAGT) Special Poster Session: More Classic Field Sites for Teaching Earth Science in the Northeast.** This Thursday, March 5, session, following up on last year's successful start, will offer additional sites. A special one-day registration is offered for earth-science teachers to attend this special session. See the registration form for details.

**NAGT Eastern Section Business Meeting and Luncheon,** Thursday, March 5. The optional luncheon is offered for \$15.

**Paleontological Society Northeastern Section Business Meeting.** This meeting will follow the Paleontological Society symposium.

**Society of Economic Paleontologists and Mineralogists Eastern Section Business Meeting and Presidential Address,** Friday, March 6, after the afternoon technical sessions.

**Association for Women Geoscientists Breakfast,** Friday morning, March 6. Everyone is invited. Cost: \$8.50.

**Spouse/Guest Activities.** Pittsburgh has a large variety of scenic and cultural sites, ranging from the world-famous, such as the Carnegie Museums, Library, and Music Hall and Heinz Hall (home of the Pittsburgh Symphony), to fascinating ethnic areas known only to locals. A Pittsburgh Information Center will be available throughout the meeting to answer questions about the city's attractions, entertainment, sporting events, shopping, transportation, and other concerns. This desk will be staffed by professionals on Wednesday, March 4, 1987, 5-10 p.m., and by volunteers thereafter.

### STUDENT PAPERS

Four cash awards will be made for papers, oral or poster, written and presented exclusively by students.

### PROJECTION EQUIPMENT

All slides must be 2" x 2" and fit into a standard 35-mm carousel tray. Please bring your own loaded tray, if possible, and

label your tray with your name and session. One projector and one screen will be provided in each room. A preview room will be available, and speakers are encouraged to use it to check their slides.

### EXHIBITS

Exhibits will be located in the Ballroom Foyer, Mezzanine level of the Hilton. The exhibit area will be centrally located, and the morning and afternoon coffee breaks will be held in and around the exhibit area. Single or multiple 8' x 10' booths are available to educational and nonprofit institutions for \$225 per booth, and to commercial exhibitors for \$450. The fee includes several on-site services. An Exhibit Directory will be printed for the meeting, and advertising space is available to all interested parties. For further information, contact MEMS, P.O. Box 270, Greensburg, PA 15601, or, by phone, U.S. toll-free numbers (800) 441-1674 in Pennsylvania and (800) 343-5129 outside Pennsylvania; outside the United States, call (412) 836-6813.

### TRANSPORTATION AND PARKING

Pittsburgh is easily accessible by air, rail, and bus from all parts of the United States and Canada. The organizing committee urges use of public transportation rather than driving because of the parking situation in downtown Pittsburgh. Limousine service is available directly from the airport to the Hilton at a nominal charge, and the new Pittsburgh subway serves the bus and railway stations.

Special air fares have been arranged through USAir. To receive this group discount fare, 35% off coach fare, contact the USAir reservation office in your local area, specifying ticketing code BE687C. This special discount is available only through this code. It applies between the dates of March 1 and March 11, and no minimum stay is required.

For travel from Canada, at 30% off coach fare, use ticketing code BC007C. Reservations will be booked in B class; 14-day advance reservation and ticketing are required; minimum stay is 2 days and maximum stay 14 days; the fee for ticket cancellation is \$30 (U.S.).

Make reservations as soon as possible to assure the availability of preferred dates and flight schedules. A USAir representative will be available during the meeting to help with any travel problems.

Those driving to Pittsburgh should use the Pennsylvania Turnpike and/or Interstate highways 79, 279, and 376, following signs to downtown Pittsburgh. The Hilton is located in Gateway Center, across from Point State Park. Parking information and maps will be available at the registration desk and in the meeting program.

### HOUSING

See the accompanying housing form to make reservations directly with the Pittsburgh Hilton. Information on other housing is available through MEMS, P.O. Box 270, Greensburg, PA 15601; Phone toll-free (800) 441-1674 in Pennsylvania or (800) 343-5129 outside Pennsylvania; from outside the United States, call (412) 836-6813.

### WEATHER

Early March weather in Pittsburgh is unpredictable. Be prepared for winter weather, but hope for spring.

### NORTHEASTERN SECTION PREREGISTRATION DEADLINE IS JANUARY 29, 1987

## PREREGISTRATION FORM

**Northeastern Section, GSA, Annual Meeting  
March 4-7, 1987, Pittsburgh, Pennsylvania**

Date Completed \_\_\_\_\_

**IMPORTANT**

1. Full payment must accompany registration.
2. Register one professional or student per form.
3. Your check will be your receipt. Copy this form for your records.
4. Preregistration deadline: **MUST BE POSTMARKED BY JANUARY 29, 1987.**
5. Refund on canceled meeting preregistration will be made in full if we receive notice by February 11, 1987. After that date no refunds will be made.

**OFFICE USE ONLY**

Date received \_\_\_\_\_ Reg. No. \_\_\_\_\_

Amount paid \_\_\_\_\_ Method \_\_\_\_\_

Deposit No. \_\_\_\_\_

**PLEASE PRINT OR TYPE**

Name: \_\_\_\_\_  
last first middle

Registered as: (check one box)  
 Professional  Student  Guest or other nontechnical

If you are speaker, check here

Membership affiliation: (check one or more boxes)  
 GSA  GSA Student Assoc.  SEPM  Paleo. Soc.  NAGT  None

Name for badge: \_\_\_\_\_

Affiliation: \_\_\_\_\_

Professional address: \_\_\_\_\_  
 city \_\_\_\_\_ state \_\_\_\_\_ zip \_\_\_\_\_

Phone: business ( ) \_\_\_\_\_ residence ( ) \_\_\_\_\_

<b>PREREGISTRATION (before January 29, 1987)</b>	
GSA member .....	\$35.00 _____
Other professional .....	\$40.00 _____
Student (see verification requirement below) .....	\$15.00 _____
Guest or other nontechnical .....	\$15.00 _____

<b>REGISTRATION (after January 29, 1987)</b>	
GSA member .....	\$40.00 _____
Other professional .....	\$45.00 _____
Student (see verification requirement below) .....	\$18.00 _____
Guest or other nontechnical .....	\$18.00 _____

Note: Full meeting registration includes Thursday evening reception at Carnegie Museum. Registration for GSA members and for students is partly supported by the GSA Northeastern section.

<b>Special one-day registration, Thursday, March 5, 1987, for high school earth-science teachers only, to view NAGT Poster Session</b>	
Before January 29, 1987 .....	\$12.00 _____
After January 29, 1987 .....	\$18.00 _____
Short Course (limited to first 20 who call 800 number; includes lunch) .....	\$45.00 _____
GSA Luncheon, Friday, March 6, 1987 .....	\$15.00 _____
NAGT Luncheon, Thursday, March 5, 1987 .....	\$ 8.50 _____
AWG Breakfast, Friday, March 6, 1987 .....	\$ 6.75 _____
River Cruise, Saturday, March 7, 1987 .....	\$ 8.00 _____
<i>Abstracts with Programs (Limited number will also be for sale on site.)</i> .....	

**TOTAL FEES** Enclose check or money order, U.S. funds, payable to Northeastern GSA-MEMS ..... \$ \_\_\_\_\_

Student verification: Signature \_\_\_\_\_ business phone ( ) \_\_\_\_\_  
Dept. head or GSA Campus Rep.

**PREREGISTRATION FORMS MUST BE POSTMARKED NO LATER THAN JANUARY 29, 1987**  
 Refund on canceled meeting preregistration will be made if we receive notice by February 11, 1987. After that date, no refunds will be made.

**DEADLINE FOR HOTEL REGISTRATION IS FEBRUARY 2, 1987**

**MAIL COMPLETED MEETING PREREGISTRATION FORM AND FULL PAYMENT TO**  
 Registration, NE GSA-MEMS  
 One Northgate Square  
 2 Garden Center Drive  
 P.O. Box 270  
 Greensburg, PA 15601

Credit Card Payment Accepted For

VISA      MasterCard      American Express  
(circle one)

Card no. \_\_\_\_\_

Exp. date \_\_\_\_\_

Signature \_\_\_\_\_

National Toll-Free  
 Telephone Registration  
 (800) 441-1674 (PA)  
 (800) 343-5129 (Outside PA)

Telecopier Facsimile  
 Registration  
 (412) 836-6817

*If you are registering for the meeting by telephone or by telecopier, you do not need to mail the registration form. The cardholder's copy of the charge card slip will be returned to you for your receipt.*



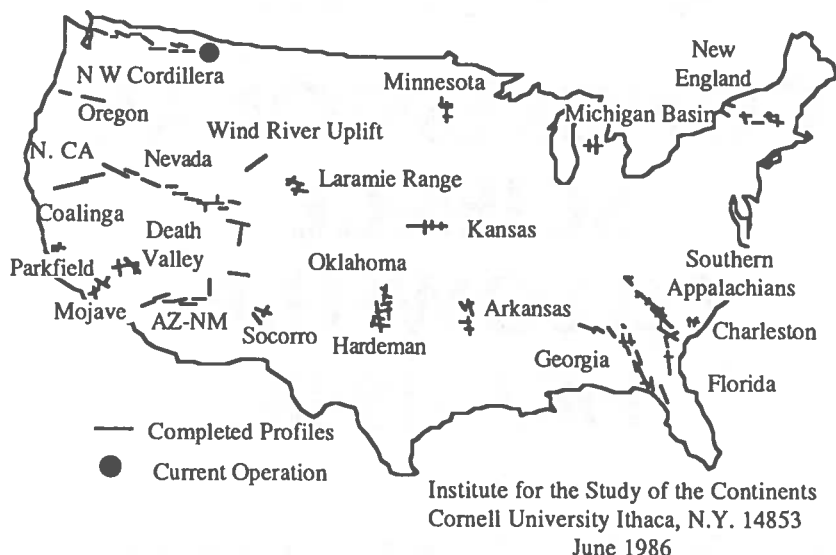
## COCORP Solicits Site Proposals

The accompanying map and table show the sites that have either been surveyed by the Consortium for Continental Reflection Profiling (COCORP) or are ten-

tatively planned to be surveyed in the future, as designated by the COCORP Site Selection Advisory Committee. The committee wants to design future sites so

as to contribute toward building a transcontinental traverse to be completed and presented during the 1989 International Geologic Congress in Washington, D.C. The committee has also recommended that COCORP continue its primary strategy of reconnaissance surveying and has emphasized the continued need for long lines guided by specific geologic problems.

Although the crew is currently scheduled for the next year and a half, COCORP encourages members of the earth science community to submit proposals for future sites. New proposals, as well as those previously received for sites that have yet to be profiled, are evaluated annually by the COCORP committee, and the crew schedule is updated accordingly. For information on how to submit COCORP site proposals, contact S. Kaufman, Executive Director, COCORP, Snee Hall, Cornell University, Ithaca, NY 14853; (607) 255-7165.



### SURVEYED COCORP SITES

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
75		Hardeman Cnty.									Abo Pass	
76										Wind River		
77	Socorro			Parkfield / Coalinga							Wind River	
78				Charleston		Brevard Zone*		Michigan Basin		Southern		
79	Appalachians I*			Wichita-Anadarko		Minnesota		Laramie Range		Kansas MGA*		
80	Southern Appalachians II*				Adirondacks - New England Appalachians I					Anadarko Basin		
81	Ouachitas			Kansas Ext*.		Adirondacks - New England App. II				Kansas Ext*.		
82	Mojave Desert			Utah Basin & Range*			Northern Sierra*			Wasatch Front		
83	Death Valley				Nevada Basin & Range*					Florida-		
84	South Georgia, Pine Mtn. Belt*				Oregon Active Cont. Marg.		NW Cordillera I		NW Nevada			
85	N. Am. - Africa Suture, S. App. Ext*.					NW Cordillera II				Colorado Plateau*		
86	SW Col. Plateau - B & R Transition*					Montana Great Plains				S. Appalachian Ext*.-		

### TENTATIVE FUTURE SITES

87	Mississippi Embayment*	Central Appalachian - Grenville Traverse (Del., Md., Penn. Appalachians, westward extension through Ohio and Illinois)	Missouri -
	App.- Ouachita Junction		Llano Uplift to -
		Williston Basin, Ext. to Minn.	E. Colorado Plateau
88	PC., Ozark Uplift, Forest City Bsn*	Central Gt. Plains to Rocky Mts*	E. Colorado Plateau*
	Texas Gulf Coast	Williston Basin, ext. to Minn.	N. Texas Proterozoic
	Salton Trough, S. Ariz. Core Cmplx.	Idaho Thrust Belt and Extensions	N. Cal. Coast Range
89	Salton Trough, S Ariz. Core Cmplx.	Rocky Mtn. Front - E. Col. Plat*	N. Cal. Coast Range, Gt. Valley*
	N. Texas Proterozoic (Llano to Wich)	N. Col. Plat. - Uinta Mts. - Wind River Ext.	S. Illinois Basin
	Appalachian / Ouachita junction	E. Central Grenville - Michigan Basin Ext.	N. Texas Proterozoic -
90	Appalachian / Ouachita junction	S. Illinois Basin and Fault Systems	
	Ouachita extension to Gulf Coast		
	N. Texas Proterozoic		

(\* portions of first transcontinental traverse)

Subject to annual revision by the COCORP Site Selection Advisory Committee. 2nd and 3rd sites listed in each period in the tentative schedule are alternate choices of Site Selection Advisory Committee.

Geological Society of America



# CONGRESSIONAL SCIENCE FELLOWSHIP 1987-1988

The Geological Society of America invites applications for the 1987-1988 Congressional Science Fellowship. The Fellow selected will spend a year (September 1987-August 1988) on the staff of a member of Congress or a congressional committee advising on a wide range of scientific issues as they pertain to public questions. Guided by the American Association for the Advancement of Science, the Fellow selects a congressional staff position in which he or she can work on major legislative issues.

## CRITERIA

Requirements for the Fellowship include a Ph.D and exceptional competence in some area of the earth sciences, cognizance of a broad range of matters outside the Fellow's particular area, and a strong interest in working on a range of public policy problems.

## AWARD

The GSA Congressional Science Fellowship carries with it a \$25,000 stipend and a limited relocation and travel allowance.

## TO APPLY

Procedures for application and detailed requirements are available in the geology departments of most colleges and universities in the United States or upon request from

Executive Director  
Geological Society of America  
P.O. Box 9140  
Boulder, Colorado 80301  
(303) 447-2020



**Deadline for receipt of all application materials is March 31, 1987**

# FINAL ANNOUNCEMENT

## SOUTHEASTERN SECTION, GSA, Annual Meeting

March 26-27, 1987  
Norfolk, Virginia

The Southeastern Section of the Geological Society of America will meet at the Omni International Hotel (on the waterfront) in Norfolk, Virginia, March 26-27, 1987, together with the Southeastern Section of the Paleontological Society. The meeting is sponsored by Old Dominion University. Local Committee chairmen are Randall S. Spencer and Thomas H. Dunham, Old Dominion University. Technical Program Committee chairman is Stephen J. Culver, Old Dominion University.

### REGISTRATION

All persons participating in any events of the meeting must be registered.

*Preregistration:* You are urged to preregister to aid the local committee in making final plans. **PREREGISTRATION FORMS, WITH PAYMENT, MUST BE POSTMARKED NO LATER THAN FEBRUARY 25, 1987.**

Complete the registration form and return it with a check or money order in U.S. funds, payable to Southeastern GSA. Those planning to go on the field trips must preregister by *February 25, 1987*. Refunds for canceled preregistrations will be made in full until February 25, 1987. After that date no refunds will be made except in the event of cancellation of a field trip.

*On-site Registration:* Registration and pick-up of meeting materials by preregistrants will be from 3 to 8 p.m. on Wednesday, March 25, and from 8 a.m. to 5 p.m. on March 26 and 27. Registration will be held on the Mezzanine of the Omni International Hotel.

### WELCOMING PARTY

A welcoming party for those attending the meeting will be held on Wednesday, March 25, from 8 to 10 p.m. at the Omni International Hotel.

### TECHNICAL PROGRAM

Technical sessions will be scheduled as oral presentations and poster sessions on Thursday, March 26, and Friday, March 27.

### SYMPOSIA

1. **Field Relationships, Petrology, Geochemistry and Significance of Ultramafic Bodies of the Southern Appalachian Piedmont.** Steven K. Mittweide, South Carolina Geological Survey, Harrison Forest Road, Columbia, SC 29210.
2. **Modern Marine Paleontological Analogs.** Patricia Kelley, Department of Geology and Geological Engineering, University of Mississippi, University, MS 38677.
3. **Atlantic Shelf Sediment Origin and Deposition.** Dennis A. Darby, Department of Geological Sciences, Old Dominion University, Norfolk, VA 23508.
4. **Tectonics of the Southern Appalachian Piedmont and Blue Ridge.** Robert C. Milici, Virginia Division of Mineral Resources, Charlottesville, VA 22903, and Lynn Glover III, Department of Geology, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061.
5. **Appalachian Landslides.** Arthur P. Schultz, U.S. Geological Survey, 955 National Center, Reston, VA 22091, and Scott Southworth, U.S. Geological Survey, 927 National Center, Reston, VA 22091.

6. **Geological Factors Related to Indoor Radon.** Douglas Mose, Department of Geology, George Mason University, 4400 University Drive, Fairfax, VA 22030.
7. **Triassic and Jurassic Basins.** Ramesh Venkatakrishnan, Department of Geological Sciences, Old Dominion University, Norfolk, VA 23508.
8. **Late Cenozoic Evolution of the Atlantic Continental Margin: New Jersey to Georgia.** James P. Owens, U.S. Geological Survey, 926 National Center, Reston, VA 22091.
9. **Groundwater in the Piedmont Rocks of the Southeastern United States.** Donald G. Jordan, Water Resources Division, U.S. Geological Survey, 75 Spring Street, Suite 772, Atlanta, GA 30303.

### FIELD TRIPS

Field trip preregistrants must also preregister for the meeting. If a trip is oversubscribed or canceled, the full trip fee will be refunded. *Preregistration for field trips must be received by February 25, 1987, accompanied by full payment.* Trips may be canceled if registration is insufficient. No trip refunds will be made after February 25, 1987. Field Trip Chairman is G. Richard Whittecar, Old Dominion University, Norfolk VA 23508.

### Premeeting Trips

1. **Structural Geology from the Allegheny Front to the Inner Piedmont of Virginia.** Eugene K. Rader, T. M. Gaithwright II, James F. Conley, Robert C. Milici, Arthur P. Schultz, Ramesh Venkatakrishnan.

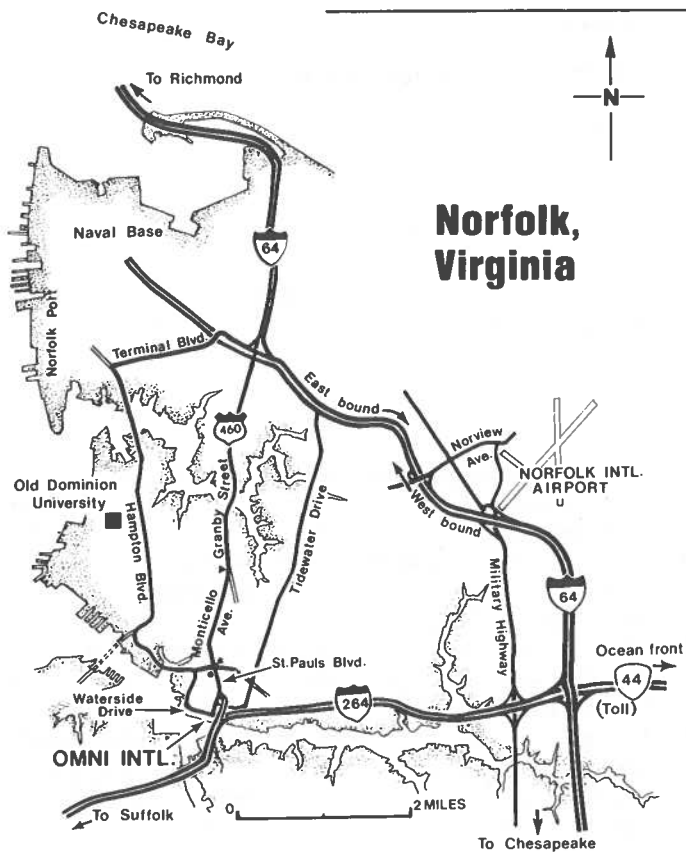
Stops will illustrate structural style at the Allegheny Front, imbricate thrusts east of the front, and windows and horse blocks associated with the Pulaski thrust sheet. Selected stratigraphic units from the late Paleozoic Candler Formation to the Mississippian Price Formation will be examined. Two stops illustrate debris and megablock slides. Some walking will be required.

Departs at 7:30 a.m., March 24, from the Holiday Inn, Lynchburg, Virginia; ends in Lynchburg at 3 p.m., March 25. Limit: 30 to 40. Cost: \$115, including transportation, 2 nights lodging, 1 lunch, and guidebook. Two breakfasts, 1 lunch, and 1 dinner are at additional expense to the participant. Some transportation to Norfolk is available with trip leaders.

2. **Metamorphism and Tectonic Setting of the Northeastern North Carolina Piedmont and Adjacent Virginia.** Edward F. Stoddard, Stewart S. Farrar, John R. Huntsman, J. Wright Horton.

Participants will examine the metamorphic and tectonic evolution of the easternmost terranes of the Piedmont. Stops will illustrate basement rocks of the Raleigh belt in which high-grade Grenville(?) assemblages are overprinted by Paleozoic metamor-

(continued on p. 240)

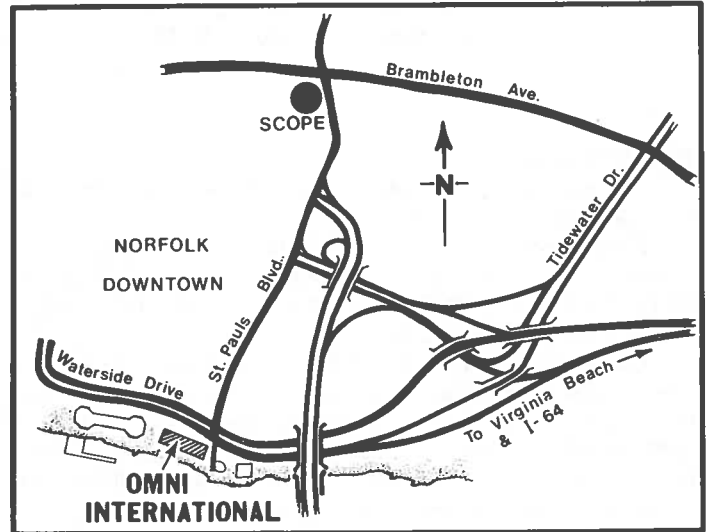


**Southeastern Section** (continued from p. 239)

phism; progressive Paleozoic regional metamorphism in volcanic rocks of the Eastern Slate Belt ranging from lower greenschist to amphibolite facies; local contact effects of upper Paleozoic intrusives; and major tectonic features, including the Hollister and Macon mylonite zones.

Departs Roanoke Rapids, North Carolina, at 8:30 a.m., March 24; ends in Roanoke Rapids at 5 p.m., March 25. Limit: 24.

(continued on p. 241)



**HOUSING FORM**

Geological Society of America  
Southeastern Section, March 26-27, 1987, Norfolk, Virginia

**DEADLINE FOR RESERVATIONS: MARCH 12, 1987**

Please complete only one form for EACH room requested. Confirmation will be sent by the hotel to the person completing this form.

Name \_\_\_\_\_

Arrival date: \_\_\_\_\_ Time: \_\_\_\_\_

Address \_\_\_\_\_

Departure date: \_\_\_\_\_ Time: \_\_\_\_\_

\_\_\_\_\_

Deposit enclosed:

Check # \_\_\_\_\_ Credit Card # \_\_\_\_\_

Phone: business ( ) \_\_\_\_\_ residence ( ) \_\_\_\_\_

Amount \$ \_\_\_\_\_ Expiration Date: \_\_\_\_\_

Type of room requested:

- \_\_\_\_\_ Student \$49 (up to quadruple occupancy)
- \_\_\_\_\_ Single \$62
- \_\_\_\_\_ Double \$72
- \_\_\_\_\_ Parlor Suite \$220
- \_\_\_\_\_ Wet-bar Suite \$280

Type of card:

- VISA
- MasterCard
- American Express
- Diner's Club

(All rates subject to city and state taxes, which currently total 7%)

Cardholder's name: \_\_\_\_\_  
(please print)

Signature: \_\_\_\_\_

Name(s) of additional person(s) sharing room:

Reservations will be held until 6 p.m. unless guaranteed or covered by deposit. Reservations received after 3/12/87 will be accepted on a space-available basis at regular (nonconvention) rates.

\_\_\_\_\_

Mail completed housing form to  
Omni International Hotel  
Reservations  
777 Waterfront Drive  
Norfolk, VA 23510

\_\_\_\_\_

### **Southeastern Section** (continued from p. 240)

Cost: \$60, including transportation, 2 lunches, and guidebook. Lodging on March 24, 1 breakfast, and 1 dinner are at additional cost to the participant. Some transportation to Norfolk is available with trip leaders.

### **3. Tertiary and Quaternary Stratigraphy Across the Fall Zone, Southern Virginia.** Gerald H. Johnson, C. R. Berquist, Lauck W. Ward, Bruce Goodwin, Kelvin W. Ramsey.

The trip focuses upon stratigraphic relationships and depositional environments of Tertiary formations on the upper and middle Coastal Plain between the Pamunkey and James Rivers near Richmond, Virginia. Quaternary fluvial and estuarine sequences will also be investigated.

Departs 8 a.m., March 24, from Ashland, Virginia; ends at the Omni Hotel in Norfolk Virginia, at 5:30 p.m., March 25. Limit: 30. Cost: \$60, including transportation, 2 lunches, and guidebook. Lodging on March 24, 1 breakfast, and 1 dinner are at additional cost to the participant.

### **Postmeeting Trips**

#### **4. Peat Depositional Environments of the North Carolina Coastal Plain.** Lee J. Otte.

Stops will emphasize geomorphological, sedimentological, hydrological, and biological controls over peat accumulation. Modern peat deposition will be compared with coal depositional models. The trip involves extensive walking and sampling in swamps, pocosins, and marshes. Prepare to get very wet and dirty.

Starts at 7 p.m. on March 27 at the Omni Hotel, Norfolk, Virginia, with an orientation program. Departs Norfolk at 7 a.m., March 28; ends in Norfolk at 8 p.m., March 29. Limit: 12. Cost: \$135, including transportation, 1 night lodging, 1 breakfast, 2 lunches, 2 dinners, and guidebook. Lodging on March 27 and breakfast on March 28 are at additional expense to participants.

#### **5. Barrier Island Processes and Environments on the Eastern Shore of Virginia.** George F. Oertel and Stephen P. Leatherman.

Participants will examine several interactive depositional environments of a barrier island system. The trip will begin on pre-Holocene deposits at the Mappsburg Scarp and continue across Holocene back-barrier environments. Stops on Cobb Island will display dune, washover, and spit deposits. Insect repellent and sneakers are recommended. Crab and oyster roast provided.

Departs at 5 p.m., March 27, at the Omni Hotel, Norfolk, Virginia; ends at 7 p.m., March 28, at the Omni in Norfolk. Limit: 16. Cost: \$135, including transportation, tolls, 1 night lodging, 1 lunch, 1 dinner, and guidebook. One breakfast is at additional expense to the participants.

#### **6. Stratigraphy and Paleontology of Pliocene and Pleistocene Deposits of Southeastern Virginia.** Gerald H. Johnson and Lauck W. Ward.

Participants will study selected Pliocene and Pleistocene stratigraphic sections in southeastern Virginia with abundant and diverse marine and nonmarine faunas and floras. Provisions will be made to assist participants wishing to package and ship sediments and fossils to their institutions or businesses.

Departs March 28, 8 a.m., from the Omni Hotel, Norfolk, Virginia; ends March 28, 5 p.m., at the Omni. Limit: 15. Cost: \$35, including transportation, 1 lunch, and guidebook.

#### **7. Geology and Petrology of the Fountain and Rocky Mount Granite Quarries, Easternmost Piedmont, North Carolina.** Richard L. Mauger, Richard K. Spruill, and David P. Lawrence.

At Fountain, participants will see a Cambrian peralkaline metagranite, amphibolite dikes, intrusive metarhyolite, and a Mesozoic mafic dike. The granite contains aegirine, arfvedsonite, and bafertisite, a rare BaFeTi-silicate. Well-exposed Pleistocene fluvial and marine sediments overlie the crystalline rocks. At Rocky Mount, participants will study middle to upper Paleozoic tonalite and granite and their contact relationships. Pegmatite dikes and zones rich in metamict allanite occur locally in the granite. Rocks in both quarries are very fresh, so collecting is encouraged. A Friday evening session in Greenville will provide background information on the quarries and regional geology.

Starts March 27, 8 p.m., in Greenville, North Carolina, with an orientation program. Departs March 28, 8:30 a.m., from Greenville; ends 4 p.m., March 28, near Rocky Mount, North Carolina. Limit: 25. Cost: \$32, including transportation and guidebook. Lodging and meals are at additional expense to participants. Some transportation from Norfolk to Greenville is available with trip leaders.

### **PUBLICATIONS**

Additional copies of *Abstracts with Programs* and the field trip guidebooks may be purchased at the registration desk at the meeting.

### **PROJECTION EQUIPMENT**

All slides used in presentations must be 2" x 2" and fit a standard 35-mm carousel tray and projector. Only one projector and one screen will be provided in each meeting room. Please plan your presentations accordingly, and bring your own loaded carousel tray, if possible.

### **EXHIBITS**

Geological exhibits concerning education, research, and industry will be on display in the exhibits area near the technical sessions and within the poster session area in the Omni International Hotel. Rental fees for exhibit booths range from \$150 to \$350. For further information, contact Joseph Rule, Department of Geological Sciences, Old Dominion University, Norfolk, VA 23508.

### **SPECIAL EVENTS**

All of the meetings listed below will be held at the Omni International Hotel.

**GSA Southeastern Section Management Board Meeting**, Wednesday, March 25, 5:30-7:30 p.m.

**GSA Southeastern Section Campus Liaison Group Breakfast**, Thursday, March 26, 7 a.m.

**GSA Southeastern Section Business Meeting**, Thursday, March 26, 5 p.m.

**GSA Southeastern Section Banquet**, Thursday, March 26, 7:30 p.m.

**Paleontological Society Southeastern Section Luncheon and Business Meeting**, Thursday, March 26, 12 noon, at the Omni International Restaurant.

**Welcoming Party**, Wednesday, March 25, 8-10 p.m.

### **GUEST ACTIVITIES**

An information desk will be maintained in the registration area in the Omni International Hotel. A variety of inexpensive and do-it-yourself tours are available. These include the Chrysler Museum, the world's largest naval base, Revolutionary War homes,

(continued on p. 243)

**PREREGISTRATION FORM**  
**Southeastern Section, GSA Annual Meeting**  
**March 26-27, 1987, Norfolk, Virginia**

**IMPORTANT**

1. Full payment must accompany registration.
2. Register one: professional, student, or guest.
3. Your check will be your receipt. Copy this form for your records. If you wish to receive acknowledgment of your preregistration, please enclose a stamped, self-addressed envelope.
4. Preregistration deadline: **MUST BE POSTMARKED NO LATER THAN FEBRUARY 25, 1987.** Deadline for field trips and guest tour is also February 25, 1987.

For Official Use Only	
M.O.# _____	Personal check _____
Other check _____	Issued by _____
Amount _____	

**Please print or type**

Name \_\_\_\_\_  
last first middle

Registered as:    \_\_\_\_\_ Professional    \_\_\_\_\_ Student    \_\_\_\_\_ Guest

Affiliation \_\_\_\_\_

Professional address \_\_\_\_\_  
 \_\_\_\_\_

Phone: business (    ) \_\_\_\_\_ residence (    ) \_\_\_\_\_

GSA member:    yes    no            Science teacher:    yes    no            Speaker:    yes    no            GSA Student Associate:    yes    no

**PREREGISTRATION (before February 25, 1987)**

GSA member or affiliate .....	\$ 25	\$ _____
Science teacher .....	\$ 10	\$ _____
Non-GSA member .....	\$ 30	\$ _____
GSA Student Associate .....	\$ 9	\$ _____
Non-GSA student .....	\$ 12	\$ _____

**REGISTRATION (after February 25, 1987)**

GSA member or affiliate .....	\$ 30	\$ _____
Science teacher .....	\$ 12	\$ _____
Non-GSA member .....	\$ 35	\$ _____
GSA Student Associate .....	\$ 12	\$ _____
Non-GSA student .....	\$ 15	\$ _____
Guest .....	\$ 10	\$ _____
GSA Southeastern Section Banquet .....	\$ 12	\$ _____
Paleontological Society Luncheon .....	\$ 10	\$ _____

**FIELD TRIP REGISTRATION**

Preregistration deadline for field trips is February 25, 1987. All field trip participants must also preregister for the meeting.

1. Structural Geology from the Allegheny Front to the Inner Piedmont of Virginia .....	\$ 115	\$ _____
2. Metamorphism and Tectonic Setting of the Northeastern North Carolina Piedmont and Adjacent Virginia .....	\$ 60	\$ _____
3. Tertiary and Quaternary Stratigraphy Across the Fall Zone, Southern Virginia .....	\$ 60	\$ _____
4. Peat Depositional Environments of the North Carolina Coastal Plain .....	\$ 135	\$ _____
5. Barrier Island Processes and Environments on the Eastern Shore of Virginia .....	\$ 135	\$ _____
6. Stratigraphy and Paleontology of Pliocene and Pleistocene Deposits of Southeastern Virginia .....	\$ 35	\$ _____
7. Geology and Petrology of the Fountain and Rocky Mount Granite Quarries, Easternmost Piedmont, North Carolina .....	\$ 32	\$ _____

**TOTAL FEES** .....

Enclose check or money order, U.S. funds, payable to **Southeastern Section, Geological Society of America.**

MAIL TO

Dennis A. Darby  
 Department of Geological Sciences  
 Old Dominion University  
 Norfolk, VA 23508

**PREREGISTRATION DEADLINE: FEBRUARY 25, 1987**

**Southeastern Section** (continued from p. 241)

the Botanical Gardens, and the Norfolk Tour. For additional information contact the Norfolk Convention and Visitors Bureau, Monticello Arcade, Norfolk, VA 23510.

**TRAVEL**

Norfolk International Airport is served by a large number of major and regional airlines. The Omni International Hotel can be reached from the airport by airport limousine or taxi. For those who drive, Interstate Highway 64 provides direct access to Norfolk. The Omni International Hotel can be found by exiting Interstate 64 onto U.S. Highway 460 south (Granby Street) and continuing on to Monticello Avenue and then to St. Paul's Boulevard, which terminates at Waterside Drive in front of the Omni.

**HOUSING**

A block of rooms has been reserved at the headquarters hotel, the Omni International Hotel, 777 Waterfront Drive, Norfolk, VA 23510. Rates for this meeting are single \$62, double \$72, parlor suite \$220, and wet-bar suite \$280. A limited number of rooms are available for students at \$49 per day, up to quadruple occupancy. Reservations will be held until 6 p.m. unless guaranteed by one-night's deposit or by approved credit card (VISA, MasterCard, American Express, Diner's Club).

Complete the Housing Form and send it to the Omni International Hotel (address on form).

**ROOM RESERVATIONS MUST BE RECEIVED  
BY MARCH 12, 1987**

**In Memoriam**

Jackson M. Barton  
Tuscaloosa, Alabama  
July 29, 1986

Conrad P. Gravenor  
Windsor, Ontario  
July 26, 1986

Gail F. Moulton  
Boonton, New Jersey

Martin J. Buerger  
Cambridge, Massachusetts

Donuil M. Hillis  
Santa Barbara, California

Aleksandr Peive  
Moscow, USSR

Giancarlo E. Facca  
Oakland, California  
July 23, 1986

Percy Kent  
Nottingham, England  
July 9, 1986

Thomas Thornburn  
Las Vegas, Nevada  
August 3, 1986

**GSA REVIEWS IN  
ENGINEERING GEOLOGY VI  
MAN-INDUCED LAND  
SUBSIDENCE**

Edited by **Thomas L. Holzer**

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

**MAN-INDUCED  
LAND  
SUBSIDENCE**



EDITED BY THOMAS L. HOLZER

40,000 km<sup>2</sup> and may cost the nation as much as \$100 million annually.

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

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**THE GEOLOGICAL SOCIETY OF AMERICA**

## Penrose Conference on Geopolitics Scheduled for July 1987

A GSA Penrose Conference "Geological Decisions for the 21st Century" will be held July 12-17, 1987, at the Sheraton Village Hotel, Steamboat Springs, Colorado. Conveners are Allen F. Agnew, Consultant, Corvallis, Oregon; Charles J. Mankin, Director, Oklahoma Geological Survey, Norman, Oklahoma; Daniel N. Miller, Jr., Consultant, Boise, Idaho; and David A. Stephenson, Associate, Dames & Moore, Phoenix, Arizona.

This conference will attempt to provide insights into critical geological issues having public policy overtones now and anticipated over the next several decades. Participants will reexamine political decisions of the past decade that have affected the geological community and the nation. In addition, selected critical policy decisions that are likely to be forthcoming will be discussed. The focus will be on the political decision-making process and on how earth scientists and related persons can increase geological input to public policy. Issues to be examined include disposal of high-level radioactive waste; both offshore and onshore petroleum and mineral exploration and development on restricted land; water transfers across legal boundaries; liability for catastrophic events in mapped geologic hazard areas; and other pertinent issues that have an impact on public health and well-being.

Specific conference goals are to (1) assess the role of the geological community in addressing the political decision-making process of government; (2) discuss the methodology and the extent to which individuals and groups of scientists can be more effective at interfacing with the political process; (3) identify the

geological issues and policy decisions that will most likely affect the general public into the 21st century; and (4) provide a forum for in-depth discussion among geological and political scientists, environmental and resource-management experts, and legislators.

Leading spokespeople from legislative, geologic, political science, resource economics, and related disciplines will be invited as key speakers. The conference themes will be organized in categories of domestic geopolitical structure; the geologist's responsibilities to society; legal and political aspects of governmental decisions; and continuing education. Individual sessions will be The Political Decision-Making Process; Recent Political Decisions Affecting the Geological Sciences in North America; Research and Technology Transfer; Improving Political Decision-Making Affecting Geological Issues; Issues and Ethics; and Synthesis.

Prospective participants should send a letter of application by **April 1, 1987**, to David A. Stephenson, Associate, Dames & Moore, 7500 N. Dreamy Draw Drive, Suite 145, Phoenix, AZ 85020. The application should include (1) your interest and experience in the topic; (2) specific areas in which you could contribute; (3) a title and short abstract for oral or poster presentations; (4) your expectation for the conference. The registration fee, including meals and lodging, will be about \$450-\$500. Limited support will be available for graduate students with a strong interest in the interdisciplinary aspects of geology in the public forum.

---

### Application for participation in a Penrose Conference

Title of Penrose Conference \_\_\_\_\_

Your name and title \_\_\_\_\_

Organization \_\_\_\_\_

Mailing address \_\_\_\_\_

Street or P.O. Box

City and State

Zip Code

Telephone number \_\_\_\_\_

Area Code

Number

Field of interest \_\_\_\_\_

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





THE GEOLOGICAL SOCIETY OF AMERICA

# Annual research awards program

## 1987

The Geological Society of America will continue its annual research awards program in 1987. Eligibility is not restricted to GSA members. New application forms for the current year and detailed requirements are available each fall in the geology departments of colleges and universities offering graduate degrees in earth sciences. Forms are mailed annually to GSA Campus Representatives and department secretaries and chairmen in the United States and Canada. They are also available upon request from the Research Grants Administrator, Geological Society of America, P.O. Box 9140, Boulder, Colorado 80301. PLEASE USE ONLY THE 1987 APPLICATION AND APPRAISAL FORMS.

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

The Geological Society of America awarded \$146,000 in grants in 1986. The awards went to 168 students doing research for advanced degrees. The average amount awarded was \$871. The largest award was \$1,500, but there is no predetermined maximum amount.

Confidential evaluations from two faculty members are required from master's and doctoral candidates and must accompany applications submitted. PLEASE USE THE "APPRAISAL OF APPLICANT" FORMS, WHICH ACCOMPANY THE 1987 APPLICATION FORMS.

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

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

**ALL APPLICATIONS MUST BE SUBMITTED ON THE 1987 FORMS  
AND POSTMARKED BY FEBRUARY 15, 1987**

# MEETINGS

(Asterisk indicates new or changed information)

## 1986

**Society of Economic Paleontologists and Mineralogists Gulf Coast Section 7th Annual Research Conference**, Shelf Sedimentation, Shelf Sequences, and Related Hydrocarbon Accumulation, December 7-10, Corpus Christi, Texas. Information: Susan Conger Morris, 1422 Hornbrook Dr., Houston, TX 77099; (713) 495-6071.

**American Geophysical Union Fall Meeting**, December 8-12, San Francisco, California. Information: American Geophysical Union, 2000 Florida Ave., N.W., Washington, DC 20009.

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

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

## GSA 1986

### Penrose Conference

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

## 1987

**American Current Research on Fluid Inclusions**, January 5-7, 1987, Socorro, New Mexico. Information: David I. Norman, Dept. of Geoscience, New Mexico Institute of Mining and Technology, Socorro, NM 87801; (505) 835-5404.

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

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

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

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

**Sinkholes and the Environmental Impacts of Karst—2nd Multidisciplinary Conference**, February 9-11, 1987, Orlando, Florida. Information: Barry F. Beck, College of Engineering, University of Central Florida, Orlando, FL 32816.

**Energy-sources Technology Conference**, February 15-19, 1987, Dallas, Texas. Information: American Society of Mechanical Engineers, Meetings Dept., 345 E. 47th St., New York, NY 10017; (212) 705-7057.

**Prospectors and Developers Association of Canada 55th Annual Convention**, March 8-11, 1987, Toronto, Ontario. Information: Susan Sikala, Prospectors and Developers Association, Suite 420, 74 Victoria St., Toronto, Ontario M5C 2A5, Canada; (416) 362-1969.

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

**\*Seismological Society of America Annual Meeting**, March 25-27, 1987, Santa Barbara, California. Information: SSA Headquarters, 6431 Fairmount Ave., Suite 7, El Cerrito, CA 94350; (415) 525-5474.

(continued on p. 247)

## GSA OFFICERS AND COUNCILORS FOR 1987

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MEETINGS (continued)

**\*Workshop to Develop Scientific Drilling Initiatives in the South Atlantic and Adjacent Southern Ocean**, April 6-8, 1987, Woods Hole, Massachusetts. Information: J. A. Austin, Jr., Inst. for Geophysics, University of Texas, 4920 North I.H. 35, Austin, TX 78751.

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

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

**Mathematical Geologists of the United States 1987 Conference**, Emerging Concepts, April 13-15, 1987, Redwood City, California. Information: Harry M. Parker, Fluor Engineering, Inc., 10 Twin Dolphin Dr., Redwood City, CA 94065.

**\*Society of Economic Paleontologists and Mineralogists Permian Basin Section Spring Field Conference**, April 29-May 2, 1987. Information: Chris Chandler, P.O. Box 2990, Midland, TX 79702; (915) 675-0575.

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

**\*Institute on Lake Superior Geology Annual Meeting**, May 11-14, 1987, Wawa, Ontario. Information: E. D. Frey, P.O. Box 57, Wawa, Ontario P0S 1K0, Canada; (705) 856-2396.

**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.

**\*Midwest Friends of the Pleistocene Annual Meeting**, May 15-17, 1987, Mansfield, Ohio. Information: John P. Szabo, Dept. of Geology, University of Akron, Akron, OH 44325; (216) 375-7630.

**International Geoscience and Remote Sensing Symposium**, May 18-21, 1987, Ann Arbor, Michigan. Information: Joan Eadie, Secretariat, University of Michigan Extension Service, Dept. of Conferences and Institutes, 200 Hill St., Ann Arbor, MI 48104-3297. (Abstracts due December 1, 1986.)

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

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

(continued on p. 248)

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**MEETINGS** (continued from p. 247)

**28th U.S. Symposium on Rock Mechanics**, June 29–July 1, 1987, Tucson, Arizona. Information: 28th U.S. Symposium on Rock Mechanics, Special Professional Education, Box 9, Harvill Bldg., University of Arizona, Tucson, AZ 85721; (602) 621-5104 or 621-3054.

**First International Congress, Geochemistry and Cosmochemistry**, June 30–July 6, 1987, Paris, France. Information: C. J. Allegre, Lab. de Géochimie et Cosmochimie, 4 place Jussieu, Tour 14, 3 étage, 75252 Paris Cedex, France; telephone 43.54.84.63.

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

**Tectonic Setting of Layered Intrusives**, July 27–28, 1987, Pretoria, South Africa. Information: Secretary, Indaba Organising Committee, Dept. of Geology, University of Pretoria, Pretoria, South Africa.

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

**5th Magmatic Sulphide Field Conference**, August 3–13, 1987, Zimbabwe. Information: A. Martin, Geological Society of Zimbabwe, P.O. Box 8427, Causeway, Harare, Zimbabwe.

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

**7th International Conference on Basement Tectonics**, August 17–21, 1987, Kingston, Ontario, Canada. Information: Bob Mason, c/o Events Management Inc., 4 Catarqui St., Suite 209, Kingston, Ontario K7K 1Z7, Canada; (613) 547-5093.

**\*Society of Economic Paleontologists and Mineralogists Fourth Annual Midyear Meeting**, August 20–23, 1987, Austin, Texas. Information: SEPM, P.O. Box 4756, Tulsa, OK 74159; (918) 743-9765.

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

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

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

**XI International Congress of Carboniferous Stratigraphy and Geology**, September 7–11, 1987, Beijing, China. Information: Yang Jingzhi, Nanjing Institute of Geology and Paleontology, Academia Sinica, Nanjing, China.

**International Workshop on Computerized Basin Analysis**, September 7–12, 1987, Szeged, Hungary. Information: Laszlo Somos, Geological Survey of Hungary, Pf. 106, H-1442, Budapest, Hungary; telephone (36-1) 634 431; Telex 225 220 mafi h.

**18th Annual Geomorphology Symposium on Catastrophic Flooding**, September 26–28, 1987, Oxford, Ohio. Information: Larry Mayer, Dept. of Geology, Miami University, Oxford, OH 45056; (513) 529-3218.

**International Conference on Geophysical and Geochemical Exploration for Minerals and Groundwater**, September 27–October 1, 1987, Toronto, Ontario. Information: Exploration '87, c/o 222 Snidercroft Rd., Concord, Ontario L4K 1B5, Canada; (416) 669-2280; Telex 06-964570.

**Fifth International Flint Symposium**, September 27–October 2, 1987, Bordeaux, France. Information: 5th International Flint Symposium, Secrétaire General, c/o Michel Lenoir, Institut du Quaternaire, Batiment de Géologie, Avenue des Facultés, Université de Bordeaux I, 33405 Talence Cedex, France.

**Society of Economic Paleontologists and Mineralogists Gulf Coast Section 8th Annual Research Conference**, Paleontological Applications in Petroleum Exploration, December 6–9, 1987, Houston, Texas. Information: Charles L. McNulty, Dept. of Geology, University of Texas, UTA Box 19049, Arlington, TX 76019; (817) 273-2979.

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**1987 ABSTRACT FORM REQUEST**

To: GSA Abstracts Coordinator  
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Please send \_\_\_\_\_ copies of the 1987 GSA abstract form. I understand that the same form may be used for all 1987 GSA meetings—the six Sections Meetings and the Annual Meeting.

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**MEETINGS** (continued)

**GSA 1987**

**Section Meetings**

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

**Penrose Conferences**

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

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

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

**Glacial Facies Models**, May 3-8, 1987, Manitoulin Island, Ontario. Information: Nicholas Eyles, Dept. of Geology, Scarborough Campus, University of Toronto, Scarborough, Ontario M1C 1A4, Canada; (416) 284-3336.

**\*Geological Decisions for the 21st Century**, July 12-17, 1987, Steamboat Springs, Colorado. Information: David A. Stephenson, Dames & Moore, Pointe Corporate Centre, 7500 North Dreamy Draw Dr., Suite 145, Phoenix, AZ 85020; (602) 371-1110.

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

**Cordilleran Metamorphic Core Complexes, Revisited: Implications for Crustal Extension and Shortening in the North American Cordillera**, September 13-18, 1987, Elko, Nevada. Information: Arthur W. Snoke, Dept. of Geology and Geophysics, University of Wyoming, P.O. Box 3006, Laramie, WY 82071; (307) 766-5457.

**Exposed Cross Sections of the Continental Crust**, September 28-October 2, 1987, southeastern Ontario. Information: David M. Fountain, Dept. of Geology and Geophysics, University of Wyoming, Laramie, WY 82071; (307) 766-6299.

**Annual Meeting, October 26-29**, Phoenix, Arizona

**HELP DIRECT GSA'S FUTURE**

The GSA Committee on Nominations requests your help in compiling a list of GSA members qualified for service as officers and councilors of the Society. The committee requests that each nomination be accompanied by basic data and a description of the qualifications of the individual for the position recommended (vice-president, treasurer, councilor).

**NOMINATIONS FOR 1988 OFFICERS AND COUNCILORS MUST BE RECEIVED** at GSA headquarters no later than **FEBRUARY 16, 1987**.

Please send nominations and backup material to  
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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  
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195**

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## Situations Wanted

**GEOLOGIST**, BS, male, some graduate experience. Strong background in theoretical petrology-metamorphic and metasomatic; hydrothermal geochemistry, tectonics, structural analysis. Currently employed in management/supervisory capacity. I seek employment/experience in metallic minerals industry. Excellent verbal/written communication skills, driven worker. Willing to relocate. Excellent resume + refs upon request. Reply code #1036.

## Positions Open

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The Department of Geology at Florida International University invites applications for one full-time tenure-earning position at the Assistant or Associate Professor level in Geophysics. The successful applicant will be expected to teach at the undergraduate and graduate levels, and must have demonstrated an ability to conduct high quality teaching and the potential to establish a vigorous research program. A completed Ph.D. is required.

Deadline for application: January 1, 1987. Appointment will begin in August, 1987.

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

**FACULTY POSITION — GEOLOGY.** Applications are invited for a tenure-track Assistant Professorship to begin August 1987. The applicant must specialize in one of the following areas: 1) Surficial Geology/Groundwater; 2) Geotechnical Geology/Geophysics; 3) Hard Rock Geochemistry/Mineralogy; 4) Marine Sedimentary Geology. The successful candidate will be an effective lecturer in introductory geology, teach upper level courses in his or her own specialty, and will develop a vigorous research program. A Ph.D. is required. The department currently has over \$4 million in external research funding; it will soon move into a new \$11 million building. Excellent research and computing facilities are available. Applicants should forward a resume and the names of three references before January 15, 1987 to: Dr. Michael Bevis, Search Committee Chairman; Dept. of Marine, Earth and Atmospheric Sciences, North Carolina State University, Raleigh, NC 27695-8208. AA/EOE.

### STRUCTURAL GEOLOGIST—STRATIGRAPHER ASSISTANT PROFESSOR

Tufts University has a full-time, tenure-track position as an Assistant Professor of Geology available beginning September 1, 1987. Qualifications of applicants should include the Ph.D. or equivalent degree. Preference will be given to those with teaching experience at the college level and demonstrated research potential. The applicant should be able to fit into a small, well-equipped, undergraduate teaching department where research is expected. The person hired will be expected to teach structural geology, stratigraphy, and related courses, to assist in teaching the elementary courses, to develop his/her own research program, to seek outside funding for that research, and to work with other members of the faculty. Preferred research specialty will be structural geology related to sedimentary terrains but applicants in other related areas will be considered. Applications, including references from three qualified persons, transcripts, and resume, should be sent to Robert L. Reuss, Department of Geology, Tufts University, Medford, MA 02155. Applications will be considered starting December 1986. Tufts University is an OEA/AA employer.

### UNIVERSITY OF SOUTH CAROLINA

The Department of Geology is soliciting applications for an anticipated tenure-track faculty position in Ground Water Hydrology to begin in August, 1987. Areas of related interest within the 23 member department include hydrogeology, low temperature geochemistry, isotope geochronology, and environmental chemistry. The successful candidate is expected to develop a strong research program, and teach graduate and undergraduate courses that complement the existing hydrogeology — low temperature geochemistry areas of specialty.

Send letters of application accompanied by a vita, description of research interests in ground water modeling, and names of three referees to Prof. Frank T. Caruccio, Ground Water Search Committee, Department of Geology, University of South Carolina, Columbia, South Carolina 29208. Closing date for applications is December 31, 1986.

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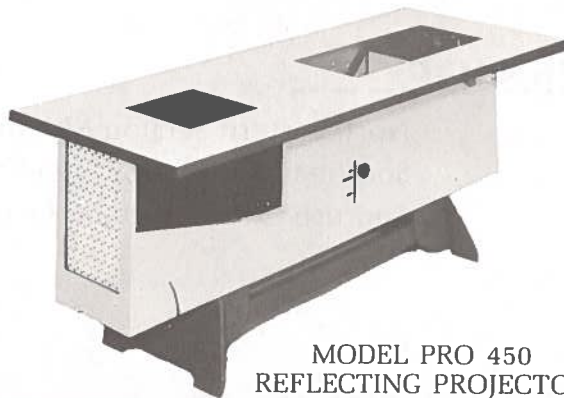
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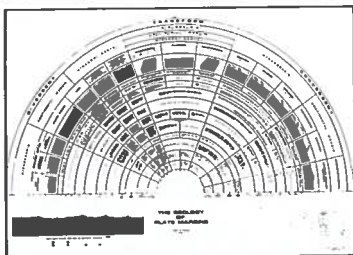
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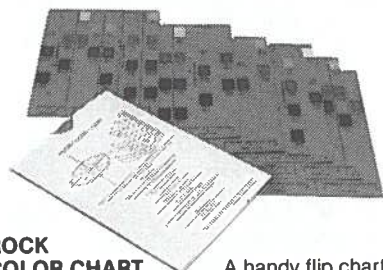
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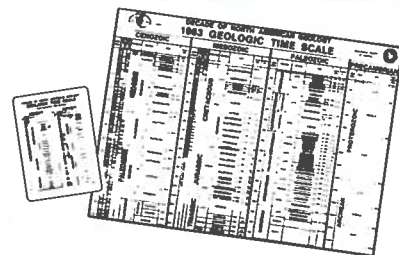
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