

# GSA NEWS & INFORMATION

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## GSA Establishes Young Scientist Award

The GSA Council has officially established a new Young Scientist Award, to consist of a gold medal and a cash prize endowed by Dr. and Mrs. Fred A. Donath. The new award was announced by A. W. Bally in his presidential address at the 1988 GSA Annual Meeting, in Denver.

The award will be given to a young (35 years or younger during the year in which the award is to be received) scientist for outstanding achievement in contributing to geologic knowledge through original research that marks a major advance in the earth sciences.

The awardee will be chosen from nominations presented to the Council by a committee appointed for this purpose. The Council hopes to present the first award, to be called the Donath Medal, at the 1989 GSA Annual Meeting, in St. Louis. The 1989 cash prize will be \$10,000. The awardee will also receive a complimentary lifetime membership in GSA and complimentary lifetime affiliation in the GSA division(s) of the medalist's choice.

Nominations for the 1989 award must include

- biographical information
- a summary of the candidate's scientific contributions to geology (200 words or less)

- a selected bibliography (no more than 10 titles)
- supporting letters from five GSA Fellows or Members.

Nominees need not be GSA members. Nominations for the 1989 award must be received at GSA headquarters by **MARCH 15, 1989**. Nominations and supporting material should be sent to

Executive Director  
Geological Society of America  
P.O. Box 9140  
Boulder, CO 80301

The idea for the Young Scientist Award came from the ad hoc Path to the Year 2000 Committee, which met in February 1987 and later presented to Council a report suggesting future activities for GSA.

In his address at the GSA Annual Meeting, 1988 GSA President Bert Bally said, "We thank Fred Donath and his wife for their generosity in endowing this award, which surely will become one of the most prestigious in the earth sciences." Fred Donath is a GSA Foundation trustee.

**A nomination form  
for the Donath Medal  
is on p. 17-18.**



**Mavis and Fred Donath**

# FOUNDATION NEWS

by Robert L. Fuchs

## The Loss of Two Leaders

In 1988 two of the GSA Foundation's first Trustees, Hollis D. Hedberg and Caswell Silver, died. Both men played important roles in the birth and early growth of the Foundation. Each gave extensive time, counsel, and support, without which the Foundation would not have evolved into an important financial adjunct to GSA's role in the promotion of the science of geology.

The obituaries of these men have appeared in *GSA News & Information* and in the national press, as befits scientists of their stature. Rather than repeat those words, I would like to offer my personal reflections and impressions.

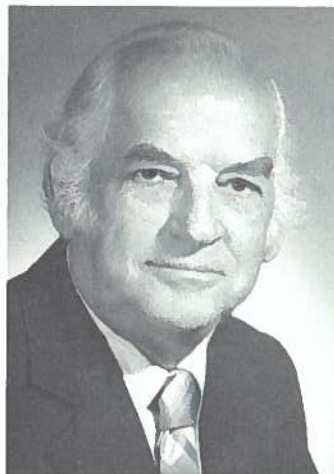
To my way of thinking, Hollis Hedberg was a gentle giant, residing at the top of his profession. The recipient of the most prestigious geological awards—the GSA Penrose Medal and the AAPG Powers Medal—Hollis was never out of touch with the small, day-to-day matters that compose the routine of an organization such as GSA. When I was a young oil company geologist, the name Hedberg conjured up for me a vision of one of the supreme gods at the geologic equivalent of Olympus. As I came to know Hollis personally in later years, I found him to be just the opposite, a kind and caring associate on whom I could rely for sound advice on a myriad of Foundation matters. He was always available and always helpful. Hollis Hedberg was a leader in the earth sciences, but he found the time to be one of the most effective and reliable workers in our Society as well.

I first met Caswell Silver at a geological meeting in Banff in 1971. I learned a lot from him that day, and at every subsequent meeting. My last conversation with Cas was a telephone call, during which I learned about raising sheep in Colorado's San Luis Valley. Caswell Silver undertook many activities, and he excelled at all of them. Petroleum geologist, miner, petroleum engineer, skier, hunter, fisherman, author, benefactor, gourmet, rancher, and foundation chairman—Caswell Silver entered into each of these with intensity and conquered each in turn.

GSA has been fortunate in having Hedberg and Silver as members, contributors, and leaders. The Foundation has been particularly blessed by their commanding presence during its formative years.

## Donath Gift Funds Young Scientist Award

GSA's Young Scientist Award, described in the lead article of this issue of *News & Information*, will be funded by a gift from Dr. and Mrs. Fred A. Donath. Fred Donath is a Foundation Trustee.



Caswell Silver



Hollis Hedberg

The annual Young Scientist Award, consisting of a gold medal (the Donath Medal) and an honorarium of not less than \$10,000 will be financed through the income generated by an endowment fund that is part of the Foundation's GEOSTAR capital campaign. The Donaths have pledged to contribute a total of \$250,000 to this endowment. Fred Donath pointed to his strong identification with GSA during his career (he was Acting Editor at one time) and the medal that he received from Rice University in 1962 as factors that influenced and motivated this gift.

Phil LaMoreaux, Chairman of the Foundation Trustees, acknowledged this gift at the November board meeting in Denver. In thanking Trustee Donath, LaMoreaux said that the award established a goal that can be reached by young scientists with talent and the will to work at their profession. The effect on geology will be far-reaching and long-lasting.

## We Have a 1988 Winner!

The drawer has drawn, and Mark L. Holmes of Seattle has emerged the lucky winner of the Century Challenge 1988 free air travel award. Spotted in the exhibit hall at the Denver Centennial Meeting, Mark said this was the first birthday party (other than his own) from which he walked away with a gift.

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## DNAG NEWS

by Allison R. (Pete) Palmer

Happy New Year! The DNAG Project enters its ninth full year with many products published and many others creeping slowly toward completion. So far, 13 books, 11 Continent/Ocean Transects, and 3 major 1:5,000,000 wall maps have been published. As of this writing (mid-November) many of the 18 additional books being produced by GSA are nearing completion, and several should be in the final wrap-up phase by the end of this month. Several Canadian volumes are also in the final production stages.

This year should see the majority of the volumes and maps published. If you have completed a part for one of the unfinished volumes, keep after your editors to work on the missing pieces. There is strong interest in all DNAG publications within the geological community, as evidenced by record sales at the Centennial meeting in Denver in November. We would like to have as many items as possible available for the attendees at the International Geological Congress this summer. This monumental project deserves the best efforts of all participants.

### International Working Group on Volcanogenic Sediments

A conclusion of the GSA Penrose Conference on Volcanic Influences on Terrestrial Sedimentation (1988) was that advancement of understanding of volcanogenic sedimentation would be enhanced by establishment and function of an informal working group. To establish the group, an ad hoc steering committee (W. J. Fritz; R. S. Hildebrand; R. Iverson; P. Kokelaar [chairman]; T. C. Pierson; G. A. Smith) was formed at the conference. The working group is to comprise researchers of any nation interested in study of any aspect of secondary transport and deposition of volcanoclastic materials in subaerial or subaqueous environments (e.g., transport, deposition, nomenclature, volcanic history, experiment, theory, hazard). Studies concerning primary transport and deposition due to volcanic eruptions are the concern of the IAVCEI Explosive Volcanism Working Group.

Primary objectives of the group will be to promote constructive communication among researchers and to establish consensus on problematic issues. Through questionnaires and periodical newsletters distributed to working group members, lists of researchers and their interests will become available, relevant meetings will be advertised, workshops will be convened, and opinions will be solicited. Activities of the group will be governed by input from the members; the steering committee exists solely to manage this during establishment of the group.

Research workers interested in membership in the International Group Working on Volcanogenic Sediments should notify Peter Kokelaar, Earth Sciences Department, University of Liverpool, P.O. Box 147, Liverpool L69 3BX, England.

*from the*

## GSA BOOKSHELF

### Special Papers

#### LACCOLITHS; MECHANICS OF EMPLACEMENT AND GROWTH

by Charles E. Corry  
(SPE220, \$27.50)

#### THE LATE CRETACEOUS SAN JUAN THRUST SYSTEM, SAN JUAN ISLANDS, WASHINGTON

by M.T. Brandon, Darrel S. Cowan, and Joseph A. Vance  
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## Final Announcement

# Southeastern Section, GSA, 38th Annual Meeting

Atlanta, Georgia  
April 6-7, 1989

The Southeastern Section of the Geological Society of America will meet at the Radisson Hotel in Atlanta. The meeting is sponsored by the Georgia Geologic Survey with the cooperation of Columbus College, Georgia State University, University of Georgia, Georgia Institute of Technology, Emory University, Atlanta Testing and Engineering Co., Golder Associates, New Riverside Ochre Co., and King, Chapman and Broussard.

### 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 MARCH 3, 1989.

Complete the registration form and return it with a check or money order in U.S. funds, payable to *Southeastern Section GSA*. Those planning to go on the field trips must preregister by March 3, 1989. Refunds for canceled preregistration will be made in full until March 3, 1989. After that date no refunds will be made except in the event of cancellation or oversubscription of a field trip.

Reservations for guest trips must also be made by March 3, 1989. Checks are to be made payable to *Guidelines—Atlanta*. No refunds or exchanges will be made after March 3, 1989, unless a tour is canceled due to insufficient registration.

**On-Site Registration:** Registration and pickup of meeting materials by preregistrants will be from 5 to 8 p.m. on Wednesday, April 5, and from 7 a.m. to 5 p.m. on Thursday and Friday, April 6 and 7. Registration will be held at the Lower Level Meeting Room Area of the Radisson Hotel Atlanta.

### TECHNICAL PROGRAM

Technical sessions will be scheduled as oral presentations and poster sessions on Thursday, April 6, and Friday, April 7.

#### Symposia

1. **Geologic Mapping in the Southeastern United States.** Poster session symposium. Michael W. Higgins, U.S. Geological Survey, 6481 Peachtree Industrial Blvd., Doraville, GA 30360; Thomas J. Crawford, Dept. Geology, West Georgia College, Carrollton, GA 30117.

2. **Metallic Ore Deposits in the Southeastern United States.** Robert B. Cook, Dept. Geology, Auburn University, Auburn, AL 36830.

3. **Industrial Minerals in the Southeastern United States.** Sam M. Pickering, Georgia Kaolin Company, Deepstep Office, P.O. Box 1018, Sandersville, GA 31082.

4. **Hydrogeology in the Southeastern United States.** Ram Arora, Dept. Geology, Georgia State University, Atlanta, GA 30303.

5. **Tectonic and Thermal Evolution of the Southern Appalachians.** James A. Whitney, Dept. Geology, University of Georgia, Athens, GA 30602.

6. **Tectonics and Sedimentation of the Southern Appalachians.** Elizabeth A. Gordon, Dept. Geology, University of Georgia, Athens, GA 30602.

7. **Chronostratigraphic Boundaries in the Southeastern United States.** Sponsored by Southeastern Section, Paleontological Society. Thomas W. Broadhead, Dept. Geological Sciences,

University of Tennessee, Knoxville, TN 37916; Johnny A. Waters, Dept. Geology, West Georgia College, Carrollton, GA 30117.

8. **Stratigraphy and Sedimentology of the Murphy Belt.** Timothy E. LaTour, William J. Fritz, Dept. Geology, Georgia State University, Atlanta, GA 30303.

### FIELD TRIPS

The Field Trip Committee is composed of Chairman Howard R. Cramer, Department of Geology, Georgia State University, Atlanta, GA 30303, (404) 651-2272; William J. Frazier, Department of Geology, Columbus College, Columbus, GA 31993, (404) 568-2292; and Timothy Chowns, Department of Geology, West Georgia College, Carrollton, GA 30117, (404) 836-6479.

Field trip preregistrants must also preregister for the meeting. Preregistration will be on a first-come, first-served basis. *Preregistration for field trips must be before March 3, 1989.* Trips may be canceled if preregistration is insufficient. No trip refunds will be made after March 3, 1989, except in the event of cancellation of a trip or oversubscription.

All field trips will depart from and return to the Radisson Hotel in downtown Atlanta unless otherwise indicated. A single-volume guidebook will be prepared except for trips 1 and 2.

### Premeeting

1. **The Pennsylvanian System in Georgia: Stratigraphy, Structure, Paleontology, and Coal Resources.** Thomas J. Crawford, Johnny A. Waters, West Georgia College, Carrollton, GA 30118, (404) 836-6479; William H. Gillespie, U.S. Geological Survey and University of West Virginia, 916 Churchill Circle, Charleston, WV 25314. Two days, April 4 and 5.

The type section of the Raccoon Mountain Member of the Gizzard Formation, the oldest Pennsylvanian in Georgia, will be examined at Sand Mountain. The section at Hale Gap (also on Sand Mountain), which offers exposures of the Upper Pennington (Mississippian), Lower Raccoon Mountain (Pennsylvanian), and a diverse Late Mississippian flora and fauna, will be examined in detail. From the gentle syncline of Sand Mountain the trip proceeds to the more intensely deformed Lookout Mountain to examine the younger members of the overlying Crab Orchard Mountains Formation. Two high-angle reverse faults, splays from the nearly horizontal Lookout Valley fault, are well exposed at several stops. Coal beds are present also. Many Pennsylvanian shales contain well-preserved flora, and one horizon contains a diverse and well-preserved marine invertebrate fauna. Access to collecting sites is anticipated.

Depart from the Radisson in Atlanta at 7 p.m. on April 3. Overnight April 3 and April 4 at the Holiday Inn, Rome, Georgia, (404) 295-1100. An option might be to drive to Rome and leave your car there, to be reclaimed on the return trip to Atlanta on April 5.

(continued on p. 7)

**Southeastern Section** (continued from p. 6)

Return to the Radisson at 7 p.m. on April 5. Limit: 45. Cost: \$93, including lodging and lunches (guidebook will be additional).

**2. Terrane Configurations at the East End of the Pine Mountain Window and Adjacent Piedmont, Central Georgia.**

Robert J. Hooper, University of South Florida, Tampa, FL 33620-5200, (813) 974-2237; Robert D. Hatcher, Jr., University of Tennessee, Knoxville, TN 37996-1410. Two days, April 4 and 5.

The east end of the Pine Mountain window and adjacent Piedmont contains elements critical to the understanding of southern Appalachian orogenesis. Participants will visit exposures in three terranes: the Pine Mountain window, the Piedmont, and the Berner mafic complex, part of the Carolina (Avalon) terrane. Special emphasis will be on the nature and timing of faulting between the terranes. Included will be visits to the Box Ankle fault; the Pine Mountain/Piedmont interface; the Ocmulgee and Dean Creek fault zones, separating the Piedmont and Avalon terranes and representing the only exposed exotic terrane boundary in the southern Appalachians; and the recently discovered Piedmont brittle fault system.

Depart from and return to the Hampton Inn, Forsyth, Georgia, (912) 994-9697. A reception is scheduled for the evening of April 3. Limit: 30. Cost: \$90, does not include evening meals.

**3. Georgia Kaolin District Field Trip.** Sam M. Pickering, Georgia Kaolin Company, Deepstep-Linton Road, Box 1018, Sandersville, GA 31082, (912) 552-5225; Vernon J. Hurst, University of Georgia, Athens, GA 30602, (404) 542-2652. One day, April 5.

The trip will examine the source granitic rocks, kaolinization weathering history, and the deposition environments of the two sedimentary formations making up the largest commercial kaolin district in the world. There will be ample opportunity to sample a wide variety of clay minerals, observe Late Cretaceous through late Eocene coastal plain stratigraphy, see modern open-pit mining methods, and discuss mine dewatering and artesian water utilization. Carbonaceous zones will be available for sampling for palynology and organic geochemistry.

Note: Some aspects of the trip are subject to weather conditions, and wet-weather contingency plans are in place. No private cars can be accommodated.

Depart from the Radisson at 7:30 a.m. on April 5; return the same evening at about 7 p.m. Limit: 45. Cost: \$39, including lunch and guidebook.

**4. Structure, Tectonics, and Ore Potential along a Transect across the Inner Piedmont, Charlotte Belt, Slate Belt, and Kiokee Belt of Eastern Georgia.** Gilles O. Allard, University of Georgia, Athens, GA 30602, (404) 542-2420; James A. Whitney, University of Georgia, Athens, GA 30602, (404) 542-2652. Two days, April 4 and 5.

Day one will focus on Piedmont metamorphic rocks, the Elberton batholith, the Middleton-Lowndesville fault zone, the Danburg Granite, the Lincolnton metadacite, and ultramafic rocks of the Russell allochthon. Day two will be in the Slate Belt, where various volcanic lithologies will be examined and a number of potential ore systems will be visited, including the famous Graves Mountain kyanite deposit (a world-class rutile collecting site), the Stoney Ridge gold prospect, and the manganese pits at the volcanogenic Springfield prospect. All outcrops are close to roads, and limited walking is required. *You must provide a hard hat for visits to mines and quarries.*

Depart from the Holiday Inn Motel, Athens, at 7:30 a.m., April 4; return to Athens at 7 p.m.; depart Athens, April 5, 7:30 a.m.; return to Atlanta via Athens at 8 p.m. Make your own reservations at the Holiday Inn in Athens where a block of rooms has been

reserved, but make your reservation early, as this is the Master's weekend. Mention GSA when reserving; (800) 465-4329 or (404) 549-4433. Limit: 20. Cost: \$72, including lunches and guidebook, but excluding lodging.

**Postmeeting**

**5. Late Eocene and Early Oligocene Carbonates of Central and Southwestern Georgia.** J. Phil Manker and Burchard Carter, Georgia Southwestern College, Americus, GA 31709, (912) 928-1252. One day, April 8.

The Suwannee Strait, a subsurface paleobathymetric low in southwestern Georgia, influenced carbonate facies during the Eocene and Oligocene. The northwestern edge of the strait localized high-energy calcarenite in the Eocene and an algal bioherm in the Oligocene. Eocene facies grade landward through a low-energy lagoon to moderately high-energy nearshore sands. We will examine these nearshore and lagoonal Eocene facies as well as the Oligocene bioherm facies.

Depart from the Radisson in Atlanta at 4 p.m., April 7; overnight at Holiday Inn, Perry, Georgia; return to the Radisson via Atlanta International Airport at about 8 p.m., April 8. Limit: 45. Cost: \$74, including guidebook, lunch, beverages, and lodging.

**6. Stone Mountain Granite and Mount Arabia Migmatite.** William B. Size, Nayla Khairallah, Emory University, Atlanta, GA 30322, (404) 727-6488. One day, April 8.

A variety of igneous and high-grade metamorphic rocks in the Piedmont east of Atlanta will be examined. These upper Precambrian to upper Paleozoic rocks are multiply folded, metamorphosed, stacked thrust sheets in the Tucker-Newnan synform; the type section of the Clairmont melange will be visited. Highlights of the trip include the Stone Mountain Granite, whose structural and petrologic history will be seen. The Mount Arabia Migmatite displays various states of progressive anatexis of banded gneiss, the melting areas being controlled by ductile shear zones. All exposures are easily accessible.

Depart from the Radisson in Atlanta at 9 a.m.; return at 4:30 p.m. Limit: 46. Cost: \$34, including guidebook and lunch.

**7. Hydrogeology of Saprolite and Hard-rock Aquifers in the Blue Ridge and Piedmont of Northeastern Georgia and Northwestern South Carolina.** Thomas Jay Schmitt, Robert L. Atkins, David A. Brackett, William M. Steele, Georgia Geologic Survey, 19 Martin Luther King, Jr. Drive, S.W., Atlanta, GA 30334, (404) 656-3214; Thomas J. Crawford, Dept. Geology, West Georgia College, Carrollton, GA 30117, (404) 834-1250; James L. Ligon, Richard K. White, Dept. Agricultural Engineering, Clemson University, Clemson, SC 29634, (803) 656-3250. Two days, April 8 and 9.

This trip will examine some of the field aspects of the ground-water hydrology of the Piedmont and Blue Ridge provinces which are characteristic of the southeastern United States. It is primarily directed at issues related to exploration for ground-water supplies. However, the findings presented have implications to well-head protection, mitigation of ground-water contamination, and other ground-water issues. Water distribution and movement in soil/regolith will be discussed at the Clemson research watershed. This is the site of a moisture balance experiment on a 0.21-acre plot within the watershed. The movement of water was studied by direct and radioactive tracer methods. Sites of active experiments on infiltration rates will be visited. The use of geology and geomorphology to reduce uncertainty in exploration for ground water will be demonstrated at Sky Valley and Colbert, Georgia. These are the sites of high-yield water wells that were selected by geologic criteria. Sky Valley is in the high Blue Ridge, and Colbert is in the central

(continued on p. 8)

### **Southeastern Section** (continued from p. 7)

Piedmont. Despite the differences in topography and geology, the same exploration procedures were used successfully at both sites. General siting criteria for Piedmont water wells will be reviewed.

Depart from the Radisson in Atlanta at 6 p.m. on April 7. Lodging to be determined. Return to Atlanta on April 9. Cost: \$111, including two nights lodging (double rooms), all meals Saturday, two meals on Sunday, and guidebook.

**8. Stratigraphic Variations Between Thrust Sheets in the Valley and Ridge Province of Georgia.** Timothy M. Chowns, West Georgia College, Carrollton, GA 30118, (404) 836-6479. One day, April 8.

The Valley and Ridge province in Georgia is divided into six major thrust sheets, characterized by differences in stratigraphic sequence, thickness, and facies. Stratigraphic variations between thrust sheets are especially evident in the rocks of Middle Ordovician to Silurian age which will be the main focus of the trip. Three key Ordovician-Silurian sections in the Coosa thrust sheet near Rockmart, the Clinchport thrust sheet near Dalton, and the Kingston thrust sheet at Ringgold will be examined. Discussions will center on the interpretation of depositional environments and on discontinuities of strata and facies caused by overthrusting. The trip is intended as a forum for stratigraphers, sedimentologists, and structural geologists and will provide an overview of the geology of the Valley and Ridge province.

Depart from the Radisson in Atlanta at 6 p.m. on April 7; travel to Days Inn, Rome, Georgia—(404) 295-0400—for overnight (double occupancy). Return to Atlanta via Atlanta International Airport on April 8; arrive about 7:30 p.m. at the Radisson. Limit: 45. Cost: \$63, including lodging, lunch, guidebook, and beverages.

**9. A New Look at the "Murphy Structure" and a New Interpretation of the Geologic Framework of Northern Georgia and Southern North Carolina.** Michael Higgins, Charles W. Cressler, Ralph W. Crawford, U.S. Geological Survey, 6481 Peachtree Industrial Blvd., Doraville, GA 30360, (404) 331-4858; Thomas J. Crawford, West Georgia College, Carrollton, GA 30117, (404) 834-1250. Two days, April 8 and 9.

The trip will visit the Grenville basement complexes and their upper pre-Cambrian(?)–Lower Cambrian(?) cover sequence, the Salacoa Group, in the Corbin massif. The Salacoa Group will be examined in the Murphy zone also. What has been called the "Murphy syncline" is really a complex fault zone, a duplex-window, where a low-grade cover-over-Grenville basement sequence, the Salacoa Group, is brought to the present erosion level in horses and juxtaposed against the overlying high-grade rocks of the Talking Rock accretionary complex which were thrust upon the rocks of the Salacoa Group before the formation of the duplex. The low-grade rocks belong with the cover-over-basement sequence rather than with a "Murphy Group" that is structurally and stratigraphically above the Ocoee Supergroup, whereas the high-grade rocks that have been thrust upon the low-grade rocks belong to an ancient accretionary complex.

Depart from the Radisson in Atlanta at 7 a.m. on Saturday, April 8; overnight at Stratford Inn, Ellijay, Georgia, (404) 276-1080; return to Atlanta on April 9 via the Atlanta International Airport. Cost: \$69, including lodging (double rooms), 2 lunches, beverages, and guidebook.

### **PROJECTION EQUIPMENT**

Equipment will be provided for standard 2" × 2" slides, which must fit a 35-mm carousel tray. Please bring your own loaded carousel trays, if possible. Only a single projector and one screen will routinely be provided at each session. Overhead projectors will

normally not be provided. Requests for special projection needs must be made well in advance.

### **PUBLICATIONS**

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

### **POSTER SESSION**

Individual booths will consist of three poster boards. Each poster board will be 4 feet high and 8 feet long.

### **EXHIBITS**

Geological exhibits from industrial, educational, and research organizations are invited. The exhibits will be on display adjacent to the meeting rooms in the Radisson Hotel, Atlanta, April 6 and 7. Rental fees for exhibit booths range from \$150 for a noncommercial booth to \$300 for a commercial booth. For further information, please contact either L. T. Gregg, Atlanta Testing & Engineering, 11420 Johns Creek Parkway, Duluth, GA 30136, (404) 476-3555, or Kevin Beck, School of Geophysical Sciences, Old Civil Engineering Bldg., Georgia Institute of Technology, Atlanta, GA 30322, (404) 894-2857.

### **SPECIAL EVENTS**

All of the events listed below will be held at the Radisson Hotel, Atlanta.

**Welcoming Party.** Wednesday, April 5, 7:30–10 p.m., Ballroom.

**GSA Southeastern Section Management Board Meeting.** Wednesday, April 5, 5:30–7:30 p.m.

**GSA Southeastern Section Liaison Breakfast.** Thursday, April 6, 7 a.m.

**Paleontological Society Southeastern Section Luncheon and Business Meeting.** Thursday, April 6, 12 noon.

**GSA Southeastern Section Business Meeting.** Thursday, April 6, 5 p.m.

**Cocktail Reception and Geological Survey Poster Session.** Thursday, April 6, 5:30–7:30 p.m., Exhibit Hall. Part of the celebration of the 100th anniversary of the Georgia Geologic Survey, the special poster session will exhibit the work of state geological surveys throughout the southeastern United States.

### **GUEST ACTIVITIES**

Enjoy Atlanta with a variety of cultural, educational, and recreational activities! Bus tours, trips for shopping, historic dining, and entertainment are all planned. Guidelines—Atlanta has been selected as the official tour company. Space on the tours is limited. Advance reservations should be received by March 3, 1989. *Checks are to be made payable to Guidelines—Atlanta.* Tickets may be picked up at the GSA registration desk at the Radisson Hotel up to one hour prior to the tour departure. No refunds or exchanges after March 3, 1989, unless tours are canceled due to insufficient registration. In the event of cancellation, payment will be refunded in full at the registration desk.

**Tour I: Atlanta Shopping,** Thursday, April 6, 1989, 9:15 a.m.–12 noon. Ride through Inman Park, whose sweeping streets and avenues were laid out before the turn of the century. Shop at Lenox Square, featuring Rich's, Macy's, Neiman-Marcus, and more than 200 other stores, services, restaurants, and offices. Cost: \$12.

**Tour II: Atlanta Highlights,** Thursday, April 6, 1989, 12:30–4:30 p.m. Tour the Cyclorama, a three-dimensional painting depicting the Battle of Atlanta during the Civil War. Continue on, and tour the Carter Library and Museum where important historical events will

(continued on p. 11)



**PREREGISTRATION FORM**

GSA Southeastern Section Annual Meeting, April 6-7, 1989, Atlanta, Georgia

**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 MARCH 3, 1989.** Deadline for field trips is also March 3, 1989.

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 March 3, 1989)**

GSA member or affiliate .....	\$ 25.00	\$ _____
Science teacher .....	\$ 10.00	\$ _____
Non-GSA member .....	\$ 30.00	\$ _____
GSA Student Associate .....	\$ 9.00	\$ _____
Non-GSA student .....	\$ 12.00	\$ _____

**REGISTRATION (after March 3, 1989)**

GSA member or affiliate .....	\$ 30.00	\$ _____
Science teacher .....	\$ 12.00	\$ _____
Non-GSA member .....	\$ 35.00	\$ _____
GSA Student Associate .....	\$ 12.00	\$ _____
Non-GSA student .....	\$ 15.00	\$ _____
Guest .....	\$ 10.00	\$ _____
Paleontological Society Luncheon .....	\$ 12.50	\$ _____

**FIELD TRIPS**

Preregistration for field trips is due March 3, 1989. All field trip participants must also preregister for the meeting.

1. Pennsylvanian System in Georgia (April 4-5) .....	\$ 93.00	\$ _____
2. Terrane Configurations, Pine Mountain Window and Adjacent Piedmont, Central Georgia (April 4-5) .....	\$ 90.00	\$ _____
3. Georgia Kaolin District (April 5) .....	\$ 39.00	\$ _____
4. Structure, Tectonics, and Ore Potential, Inner Piedmont, Charlotte Belt, Slate Belt, and Kiokee Belt (April 4-5) .....	\$ 72.00	\$ _____
5. Late Eocene and Early Oligocene Carbonates, Central and Southwestern Georgia (April 8) .....	\$ 74.00	\$ _____
6. Stone Mountain Granite and Mount Arabia Migmatite (April 8) .....	\$ 34.00	\$ _____
7. Hydrogeology of Saprolite and Hard-rock Aquifers, Piedmont and Blue Ridge (April 8-9) .....	\$111.00	\$ _____
8. Stratigraphic Variations between Thrust Sheets, Valley and Ridge Province, Georgia (April 8) .....	\$ 63.00	\$ _____
9. "Murphy Structure" and Geologic Framework of Northern Georgia and Southern North Carolina (April 8-9) .....	\$ 69.00	\$ _____

**TOTAL FEES** ..... \$ \_\_\_\_\_

Enclose check or money order, U.S. funds, payable to **Southeastern Section, GSA**

Mail to  
 Bruce O'Connor  
 Geological Society of America  
 Southeastern Section Meeting 1989  
 P.O. Box 347065  
 Atlanta, Georgia 30334

**PREREGISTRATION DEADLINE: MARCH 3, 1989**

**GUEST TRIPS**

Tour I: Atlanta Shopping .....	\$ 12.00	\$ _____
Tour II: Atlanta Highlights .....	\$ 21.00	\$ _____
Tour III: Dining at Aunt Fanny's Cabin—Southern Style .....	\$ 32.00	\$ _____
Tour IV: Stone Mountain Park .....	\$ 35.00	\$ _____
<b>TOTAL ENCLOSED</b> .....		\$ _____

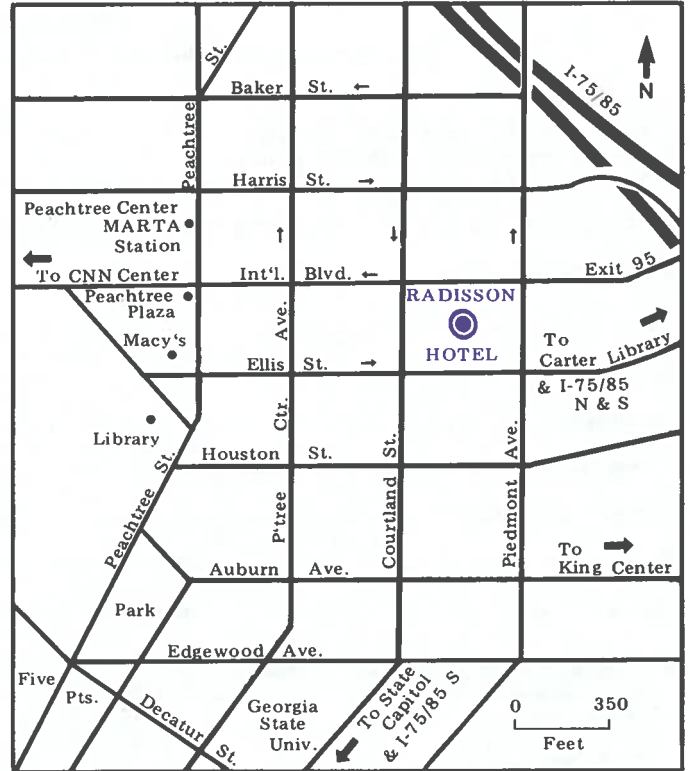
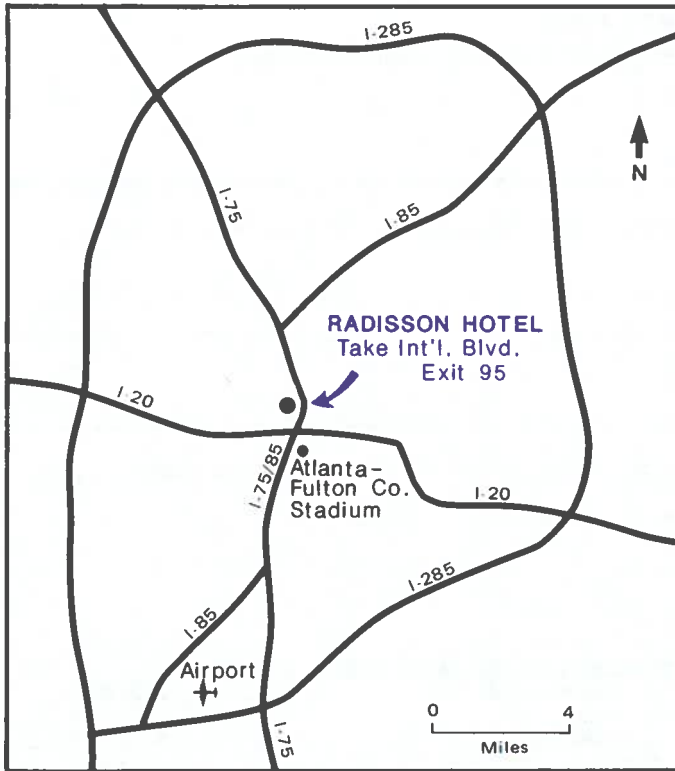
Name \_\_\_\_\_

Address \_\_\_\_\_

City/State \_\_\_\_\_ ZIP \_\_\_\_\_

MAIL TO Guidelines—Atlanta, 550 Pharr Road, Suite 604, Atlanta, GA 30305

If you would like confirmation, please enclose a self-addressed, stamped envelope.



**HOUSING FORM**

GSA Southeastern Section, April 6-7, 1989, Atlanta, Georgia

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: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

First night's deposit enclosed:

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

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

Amount \$ \_\_\_\_\_ Expiration date: \_\_\_\_\_

residence ( ) \_\_\_\_\_

Type of card: American Express \_\_\_\_\_

Type of room requested:

Carte Blanche \_\_\_\_\_

Diner's Club \_\_\_\_\_

\_\_\_\_\_ Single \$66 \_\_\_\_\_ Triple \$78

MasterCard \_\_\_\_\_

VISA \_\_\_\_\_

\_\_\_\_\_ Double \$78 \_\_\_\_\_ Quadruple \$78

(All rates subject to 11% sales tax.)

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

Check-in time: 3 p.m.

Check-out time: 12 noon

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

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Mail completed housing form to  
Radisson Hotel Atlanta  
Reservations Office  
Courtland & International Blvd.  
Atlanta, GA 30303  
(404) 659-6500 or 1-800-333-3333

Reservations will be held until 6 p.m. unless guaranteed by deposit or American Express or Diner's Club credit card.

Deposit is not refundable unless canceled 24 hours prior to arrival time.

**Southeastern Section** (continued from p. 8) be explained and displayed through multimedia sound, light, and photographic productions. See many of Atlanta's landmarks and points of interest. Cost: \$21.

**Tour III: Dining at Aunt Fanny's Cabin—Southern Style**, Thursday, April 6, 1989, 8–11 p.m. Camaraderie can continue after the GSA Cocktail Reception. Ride to famous Aunt Fanny's Cabin in Smyrna. Aunt Fanny, widely known for her fried chicken, started her restaurant because of popular demand. Entertainment will be provided by a gospel singer. Cost: \$32.

**Tour IV: Stone Mountain Park**, Friday, April 7, 1989, 10 a.m.–3:30 p.m. Drive to internationally known Stone Mountain Park, 3200 acres of scenic beauty and fascinating attractions. Visit the sculpture carved on the face of the large granite monolith; stroll through a completely restored antebellum plantation OR ride an enclosed cable car to the top of the mountain. Enjoy lunch, a traditional and hearty southern buffet at Stone Mountain Inn. End your visit to the park with a relaxing ride around Stone Mountain Lake aboard an old-fashioned paddle-wheel riverboat. Cost: \$35.

For additional information on guest activities, contact Kit Kammer, (404) 874-7097.

**HOUSING**

A block of rooms for the meeting has been reserved at the Radisson Hotel, Courtland and International Boulevard, Atlanta, GA 30303, (404) 659-6500. Rates for this meeting are \$66 for a single room, and \$78 for double, triple, or quadruple accommodations. Reservations will be held only until 6 p.m. unless guaranteed by a one-night deposit or by approved credit card (American Express, Carte Blanche, Diner's Club, MasterCard, VISA). Complete the

Housing Form and send it to the Radisson Hotel Atlanta (address on form).

**TRAVEL**

Atlanta is located at the intersections of Interstate Highways 20, 75, and 85. The Atlanta International Airport is served by all major airlines. A high-speed rail line (MARTA) is available from the airport to Peachtree Center Station, 2½ blocks west of the Radisson. Paid parking is available.

**People**

The Association for Women Geoscientists has presented its first Outstanding Educator Award to GSA Fellow **Maria Luisa Crawford**.

Fellow **Bryan L. Isacks** is now Director of the Cornell Institute for the Study of the Continents (INSTOC); Member **Muawia Barazangi** is Associate Director.

Member **Charles H. Langmuir** has been named an Arthur D. Storke Memorial Professor at Columbia University.

Member **Daniel N. Leavell** has joined the Ohio Environmental Protection Agency and is coordinating Ohio's Wellhead Protection program.

The American Institute of Professional Geologists has awarded its Ben H. Parker Memorial Medal to GSA Fellow **Michel T. Halbouty**, honorary membership to GSA Fellows **Robert R. Berg** and **Wallace B. Howe**, the Martin Van Couvering Memorial Award to GSA Fellow **Charles J. Mankin**, and the Public Service Award to GSA Member **Russell G. Wayland**.

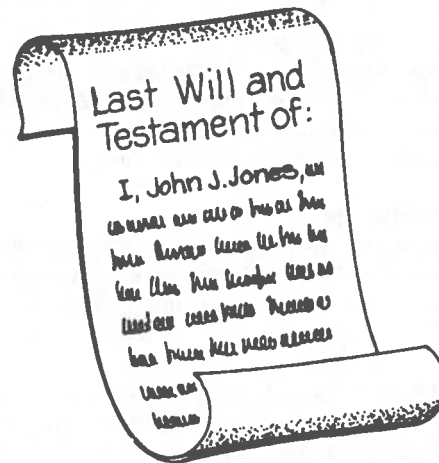
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**GSA Foundation  
(303) 447-2020**



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P.O. Box 9140  
Boulder, CO 80301  
(303) 447-2020

Please send me information on Estate Planning:

Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Final Announcement

# North-Central Section, GSA, 23rd Annual Meeting

Notre Dame, Indiana

April 20-21, 1989

The 23rd Annual Meeting of the North-Central Section of the Geological Society of America, hosted by the Department of Earth Sciences, University of Notre Dame, will convene at the Notre Dame Center for Continuing Education, April 20 and 21, 1989. The meeting will be held jointly with the North-Central Section of the Paleontological Society, the Great Lakes Section of the Society of Economic Paleontologists and Mineralogists, the Pander Society, and the East-Central Section of the National Association of Geology Teachers. The Local Committee—all members of the Department of Earth Sciences, the University of Notre Dame—includes General Chairman Michael J. Murphy and Program Chairman James A. Rigert.

**PREREGISTRATION DEADLINE: MARCH 31, 1989**

### REGISTRATION

The Notre Dame Center for Continuing Education will handle registration for the meeting (including all field trips). Send pre-registration forms to the address on the forms. For further information, call the Center for Continuing Education, (219) 239-6691, between 8 a.m. and 5 p.m. EST. *Remember that registration after March 31, 1989, will cost \$10 more for professionals and \$5 more for students.*

### GENERAL INFORMATION

Notre Dame is located in northern Indiana, about equidistant from the Illinois and Ohio borders and less than 10 miles south of Michigan. The Indiana Toll Road is just north of Notre Dame. The exit for Notre Dame connects with U.S. 33 on the northwest corner of the Notre Dame campus. All the motels recommended for the meeting are located about 1 mile north of the Toll Road exit on U.S. 33.

Michiana Regional Airport, serving South Bend and surrounding cities, is located about 5 miles west of Notre Dame. It is serviced by several airlines, including Northwest, Piedmont, US Air, and United Express. Most major airlines have air link service connecting with O'Hare Airport about 60 air miles west in Chicago.

### TECHNICAL PROGRAM

The technical program will include the topics listed on the GSA abstract form. There will also be volunteered papers presented in oral or poster sessions and invited papers presented in symposia.

#### Symposia

1. **Structure and Tectonics of the Midcontinent.** Lawrence W. Braile, William J. Hinze, Department of Earth and Atmospheric Sciences, Purdue University, West Lafayette, Indiana.
2. **Groundwater Supplies and Associated Problems in the Midcontinent.** Konrad J. Banaszak, Geraghty and Miller, Indianapolis; William Steen, Ground Water Section, Indiana Department of Natural Resources, Indianapolis.
3. **Industrial Minerals and the Environment.** Donald D. Carr, Indiana Geological Survey, Bloomington; Haydn H. Murray, Department of Geology, Indiana University, Bloomington.
4. **Shoreline Behavior in Response to Lake-Level Variations, Modern and Ancient (SEPM Symposium).** Todd Thompson, Indiana Geological Survey, Bloomington; William Wood, Department of Civil Engineering, Purdue University, West Lafayette, Indiana.
5. **Applied Quaternary Geology and Geophysics.** Ned K. Bleuer, Gordon S. Fraser, Indiana Geological Survey, Bloomington.
6. **Biological Extinction in the Geologic Record.** J. Jack Sepkoski, Department of Geological Sciences, University of Chicago.

7. **Fossils as Living Organisms (Paleontological Society Symposium).** William I. Ausich, Department of Geology and Mineralogy, Ohio State University, Columbus.

8. **Pander Society Symposium.** Carl B. Rexroad, Indiana Geological Survey, Bloomington.

9. **Evolving Earth Science Education (NAGT Symposium).** J. Stewart Monroe, Department of Geology, Central Michigan University, Mount Pleasant.

### ABSTRACTS WITH PROGRAMS

Copies of *Abstracts with Programs* are sent to those members of the North-Central Section of GSA who selected this option on their GSA dues statement. *Please bring your copy to the meeting.* A limited number of copies will be available for purchase at the meeting.

### PROJECTION EQUIPMENT

Projection equipment will be provided for 2" x 2" slides only. *Please bring your own loaded carousel trays, identified with your name, session, and speaker number.* A Speaker Ready Room equipped with projectors will be available for review and practice.

### CAMERAS, SOUND-EQUIPMENT, AND SMOKING POLICY

Annual meeting policy prohibits the use of cameras or sound-recording equipment at technical sessions and poster sessions. A no-smoking policy has been adopted by the Program Committee and will be followed in all meeting rooms for technical sessions.

### EXHIBITS

Space will be available for educational, research, and commercial exhibits. Exhibits will be located in the lower level of the Center for Continuing Education adjacent to the area used for poster sessions and coffee breaks. A single 8' x 10' booth costs \$100 for the duration of the meeting. GSA and Indiana Geological Survey publications will be available for purchase. For additional information, contact Michael J. Murphy, Department of Earth Sciences, Notre Dame, IN 46556-1020; phone: (219) 239-6686. *Deadline for reservation of exhibit booths: March 1, 1989.*

### SPECIAL EVENTS

A **welcoming party**, hosted by Notre Dame, will be held at the Alumni-Senior Club, immediately south of the Notre Dame Stadium, from 7 to 9 p.m. on Wednesday, April 19. **No charge.**

The **North-Central Section Annual Banquet** is scheduled at the Monogram Room in the Joyce Athletic and Convocation  
*(continued on p. 13)*

### North-Central Section (continued from p. 12)

Center on Thursday, April 20 at 7:15 p.m. A brief business meeting of the Section, to be conducted immediately after the banquet, will be followed by a talk by a visiting speaker. **Cost: \$15.**

The North-Central Section of the Paleontological Society and the Pander Society will have a joint luncheon on Thursday noon at the Morris Inn. The luncheon will be followed by a Paleontological Society business meeting. The Pander Society will have a meeting at 1:30 p.m., prior to their workshop. **Cost: \$10.**

The Great Lakes Section of the Society of Economic Paleontologists and Mineralogists will have a luncheon at noon on Friday. The luncheon will be followed by a business meeting. **Cost: \$10.**

### SPOUSE/GUEST PROGRAM

The University's Public Relations and Information Office provides guided walking tours of the Notre Dame campus. These tours, which last about one hour, cover the historical part of the campus, including the Administration Building, Sacred Heart Church, the Grotto, and the South Quad of the campus. Guides are Notre Dame students who volunteer their time.

If there is sufficient interest, arrangements will also be made for tours of the Snite Museum of Art (its collection numbers some 17,000 pieces, ranging from ancient to contemporary), the Hesburgh Library, and the Joyce Athletic and Convocation Center.

### MEALS

Restaurants are located in, or near, all motels. The Morris Inn has a dining room. The University's South Dining Hall has a public cafeteria. To avoid congestion, shuttle bus service between the Center for Continuing Education and nearby restaurants will be provided from 11:15 a.m. to 1:30 p.m. on Thursday and Friday. Each registration packet will have a list of recommended restaurants.

### STUDENT AWARDS

The North-Central Section will offer up to four awards of \$100 each for the best papers written and presented exclusively by graduate or undergraduate students. Prizes awarded for student papers with more than one author will be divided among the authors. The SEPM Great Lakes Section will award \$50 and an SEPM publication to the best student paper in the SEPM Symposium (Shoreline Behavior in Response to Lake-Level Variations, Modern and Ancient) or in the fields of stratigraphy and sedimentology.

In addition, a limited number of awards for student travel assistance will be made to *students who are members of the sections as of January 1, 1989*. The student must present a paper at the meeting (can be a co-author). *Applications for the awards may be obtained by writing to the General Chairman. Applications must be submitted before March 1, 1989.*

### FIELD TRIPS

**Registration.** *Field trip registrants must register for the meeting. Registration procedures, deadlines, and forms are provided in this announcement. Registration at the meeting for the post-meeting field trip may be possible if trip logistics and space permit.*

#### Premeeting (April 19)

1. **The Kentland, Indiana, Structural Anomaly.** Attila Aydin, Department of Earth and Atmospheric Sciences, Purdue University, West Lafayette, Indiana; Gary L. Pavlis, Department of Geology, Indiana University, Bloomington. This trip will begin at Kentland, Indiana, at 8 a.m. on Wednesday. *Participants must take care of their own transportation and lodging (if required) on Tuesday night.*

Motels are available in Kentland and Remington, Indiana, and Watseka, Illinois.

Asterisks after motel listing refer to AAA rating

Kentland: Tri-Way Inn\* (30 rooms); (219) 474-5141.

Remington, 15 miles east of Kentland, adjacent to I-65: Days Inn\*\* (99 rooms), 10% senior and AAA discount, 800-325-2525;

Howard Johnson Motor Lodge\*\*\* (100 rooms), 15% senior and AAA discount, 800-654-2000.

Watsseka, 16 miles west of Kentland, at the intersection of US 24 and Illinois 1: Carousel Inn\*\* (26 rooms), (815) 432-4966.

**Limit: 47. Cost: \$15,** including guidebook and box lunch.

2. **Glacial Terrain Models in North-Central Indiana: Vertical Sequences Derived from Downhole Geophysics, Linked to Landscapes and Near-Surface Stratigraphy.** Ned K. Bleuer, Indiana Geological Survey, Bloomington; Wilton N. Melhorn, Department of Earth and Atmospheric Sciences, Purdue University, West Lafayette, Indiana. This trip will begin at the Notre Dame Center for Continuing Education at 8 a.m. Wednesday and will last about nine hours.

**Limit: 47. Cost: \$25,** including guidebook, box lunch, and transportation.

#### Postmeeting (April 22)

**Shoreline Deposition and Erosion in Northwest Indiana.** Todd Thompson, Indiana Geological Survey, Bloomington; William Wood, Department of Civil Engineering, Purdue University, West Lafayette, Indiana; Steve Davis, Indiana Department of Natural Resources, Indianapolis. This trip will begin at the Notre Dame Center for Continuing Education at 8 a.m. Saturday and will last about nine hours.

**Limit: 47. Cost: \$25,** including guidebook, box lunch, and transportation.

### HOUSING

Asterisks refer to AAA rating. Rates include 10% tax.

**Morris Inn\*\*** (92 rooms); (219) 234-0141. Headquarters for the meeting. Located on the Notre Dame campus, opposite the Center for Continuing Education. Rates: Single—\$55; double—\$63.80.

Shuttle service will be provided between Notre Dame and the following motels (only motels whose rate, including tax, is less than \$35/single are listed):

**Best Inn\*\*\*** (93 rooms); (219) 277-7700 or 800-237-8466. 10% AARP discount; continental breakfast. Rates: Single—\$32.87; 2 people, 1 bed—\$37.27; 2 people, 2 beds—\$39.47; 3 or 4 people, 2 beds—\$43.87.

**Budgeteer Inn** (110 rooms); (219) 272-9000. Discounted group rate: 1 or 2 persons (2 beds)—\$30.75.

**Days Inn\*** (180 rooms); (219) 277-0510 or 800-325-2525. 10% AARP discount. Rates: Single—\$33; double—\$38.50; extra person—\$5.50.

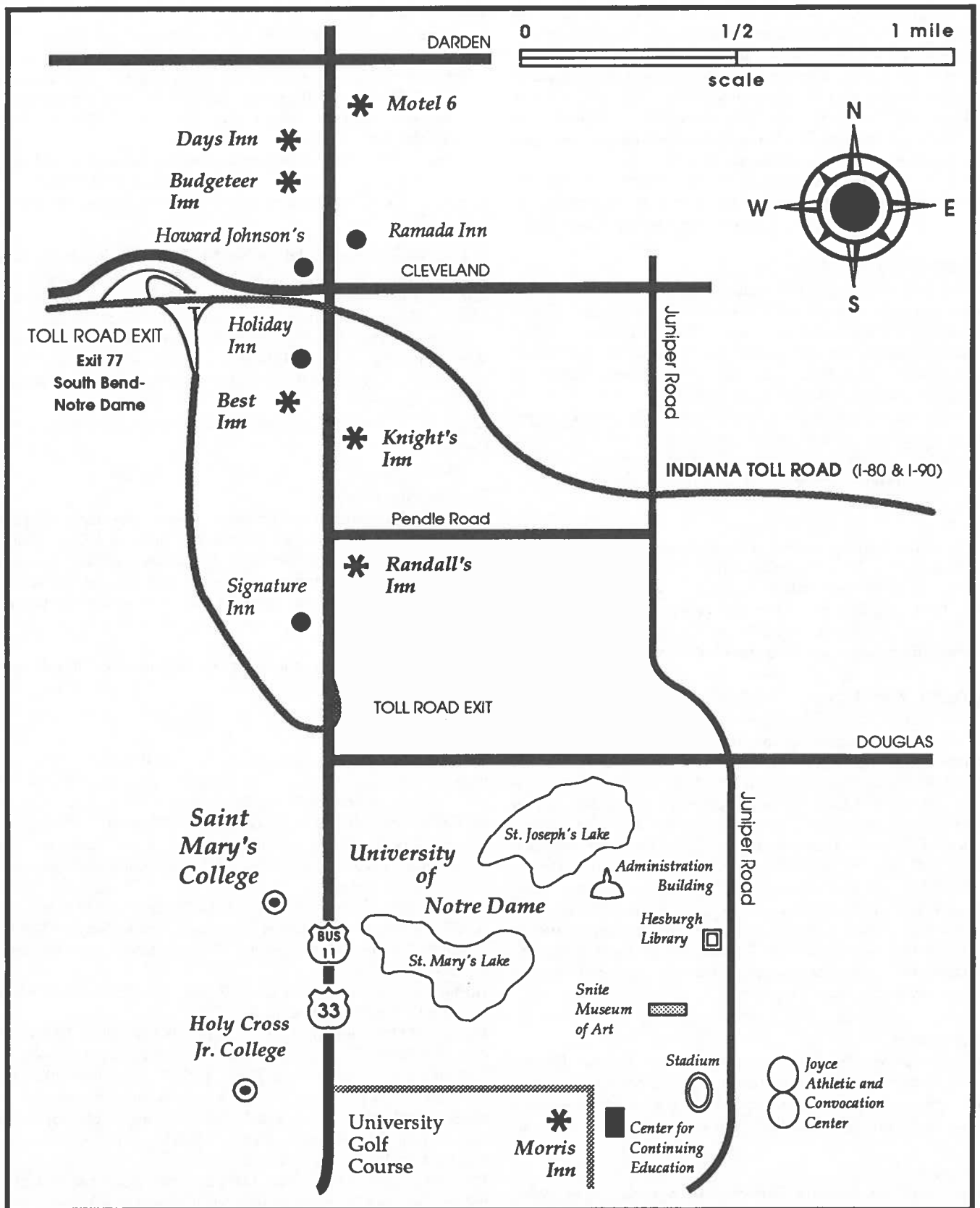
**Knight's Inn\*\*** (108 rooms); (219) 277-2960—call collect. 10% AAA or AARP discount. Rates: Single—\$34.65; double—\$41.80.

**Motel 6** (147 rooms); (219) 272-7072. Rates: Single—\$21.95; double (either 1 or 2 beds; must specify)—\$28.55; 3 adults (2 beds)—\$35.15; 4 adults (2 beds)—\$41.75.

**Randall's Inn\*** (140 rooms); (219) 272-7900—can call collect in Indiana; 800-348-2412 outside Indiana. 10% AAA or AARP discount. Rates: Single—\$27.45; double (1 bed)—\$29.65; double (2 beds)—\$31.85; extra person—\$2.20.

Other motels are located nearby (see map on p. 14).

### Preregistration Form on p. 15.



Map of area north of South Bend, Indiana, including University of Notre Dame, showing location of motels used for the GSA North-Central Section meeting.

## PREREGISTRATION FORM

GSA, North-Central Section, 23rd Annual Meeting, April 20-21, 1989, Notre Dame, Indiana

held jointly with the North-Central Section of the Paleontological Society, the Great Lakes Section of the Society of Economic Paleontologists and Mineralogists, the Pander Society, and the East-Central Section of the National Association of Geology Teachers.

Preregistration must be postmarked no later than March 31, 1989. FULL payment and this form must accompany all preregistration requests. Unpaid purchase orders are NOT accepted as valid registration. One form per registrant, please. All field trip registrants must preregister for the meeting. *Cancellation deadline: April 7, 1989. No refunds will be given after this date.* A confirmation card will be your receipt.

### REGISTRATION INFORMATION: NOTRE DAME CENTER FOR CONTINUING EDUCATION (219) 239-6691

Type or print. Photocopy for your records.

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City	State/Country

Member Affiliation: (1) GSA \_\_\_\_\_ (2) PS \_\_\_\_\_ (3) SEPM \_\_\_\_\_ (4) Pander \_\_\_\_\_ (5) NAGT \_\_\_\_\_

#### REGISTRATION FEES

		Fee	Qty	Amount
<i>Prior to March 31</i>				
Professional Member (member affiliation checked above) .....	( 1 )	\$35	1	\$ _____
Professional Nonmember .....	( 2 )	\$45	1	\$ _____
Student Member (member affiliation checked above) .....	( 3 )	\$10	1	\$ _____
Student Nonmember .....	( 4 )	\$15	1	\$ _____
<i>After March 31</i>				
Professional Member (member affiliation checked above) .....	( 5 )	\$45	1	\$ _____
Professional Nonmember .....	( 6 )	\$55	1	\$ _____
Student Member (member affiliation checked above) .....	( 7 )	\$15	1	\$ _____
Student Nonmember .....	( 8 )	\$20	1	\$ _____
Guest (fill in name above for badge) .....	( 9 )	\$ 0	—	___n/c___
Abstracts with Programs—reserved (on-site pick up) .....	(10)	\$ 6	—	\$ _____
<b>SPECIAL EVENTS</b>				
North-Central Council Business Meeting (breakfast), Thursday, 7 a.m. (Check for planning) .....	(11)	\$ 0	1	___n/c___
Paleontological/Pander Societies Joint Luncheon, Thursday, April 20, 12 noon .....	(12)	\$10	1	\$ _____
Annual Banquet, GSA North-Central Section, Thursday, 7:15 p.m. ....	(13)	\$15	1	\$ _____
GSA Campus Representatives (breakfast), Friday, 7 a.m. (Check for planning) .....	(14)	\$ 0	1	___n/c___
SEPM Luncheon, Friday, April 21, 12 noon .....	(15)	\$10	1	\$ _____
<b>FIELD TRIPS (meeting registration required)</b>				
Kentland, Indiana Structural Anomaly, Wednesday, April 19 .....	(16)	\$15	1	\$ _____
Glacial Terrain Models in North-Central Indiana, Wednesday, April 19 .....	(17)	\$25	1	\$ _____
Shoreline Deposition and Erosion in Northwest Indiana, Saturday, April 22 .....	(18)	\$25	1	\$ _____
<b>TOTAL</b> .....				\$ _____

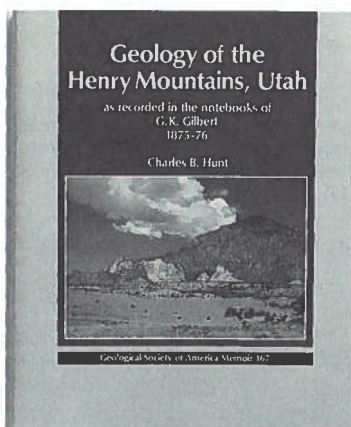
Remit by check or money order payable to: **University of Notre Dame, CCE**

Mail to: GSA Meeting  
Center for Continuing Education  
P.O. Box 1008, Notre Dame, IN 46556

*Note: Each registrant must make his/her own lodging reservation. See Housing Information for a list of motels, with phone numbers, rates, etc. To insure quoted rates, early motel reservations are strongly recommended.*

# MEMOIRS

from GSA



## Geology of the Henry Mountains, Utah, As Recorded in the Notebooks of G.K. Gilbert, 1875-76

edited by Charles B. Hunt, 1988

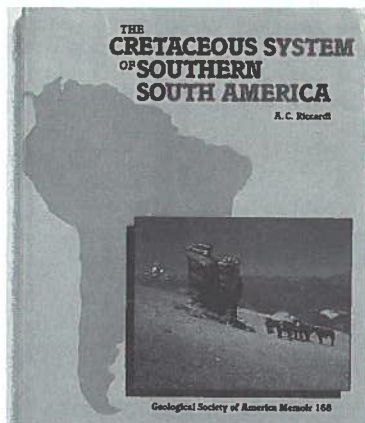
Go back in time with this volume and experience the thrill of discovering brand new geologic concepts! Accompany one of America's greatest geologists, Grove Karl Gilbert, through these field notes of his trip into Utah's Henry Mountains in 1875-1876. Here is an exciting, first-hand record of this historic field trip during which Gilbert introduced the concept of laccoliths and demonstrated clearly that intrusive igneous masses can deform the rocks into which they intrude. Gilbert's notes became the guide for Charles Hunt's many seasons of work in the same area 60 years later. Now Hunt shares Gilbert's notes and maps with us, adding asides and clarifications of his own to create a fascinating combination of geologic history and frontier Americana. An enjoyable book for all, and an essential companion for anyone exploring this scenic section of the great American West.

**MWR167**, 234 p., ISBN 0-8137-1167-3, hardbound, **\$52.50; SALE \$36.00**

## The Cretaceous System of Southern South America

by A. C. Riccardi, 1988

This synthesis of the existing knowledge of the Cretaceous System of southern South America gives a general account of the stratigraphy, magmatism, tectonism, paleontology, and paleogeography of Argentina, Bolivia, southern Brazil, Chile, Paraguay, and Uruguay. In the first part is a description of the Cretaceous rocks on the basis of generalized sections of the most important areas or basins; in the second part is a summary of patterns of plutonism, volcanism, tectonism, paleontology, transgressive-regressive history, and paleogeographic evolution. Includes more than 1,100 bibliographic references, a general correlation chart for the entire area, and 16 tables listing the stratigraphic and geographic distribution of all described and figured



fossils. Tithonian to Maastrichtian ammonites are figured in 18 plates.

**MWR168**, 168 p., 1 pocket-plate, indexed, hardbound, ISBN 0-8137-1168-1, **\$32.00**

## Geology and Paleontology of Seymour Island, Antarctic Peninsula

edited by R.M. Feldmann and M.O. Woodburne

This small, desolate island, located off the northeast tip of the Antarctic Peninsula, contains one of the most important records of Late Cretaceous and Early Tertiary life in the Southern Hemisphere. The prophetic words of early explorer/scientist Otto Nordenskjöld about the importance of the deposits here have been borne out by spectacular paleontologic discoveries during the past ten years — discoveries that have provided new insights into the geologic history of Antarctica and answers to old questions about life in the Southern Hemisphere that have puzzled naturalists since Darwin's voyage on HMS *Beagle*. The authors provide an enormous amount of information in 22 chapters.

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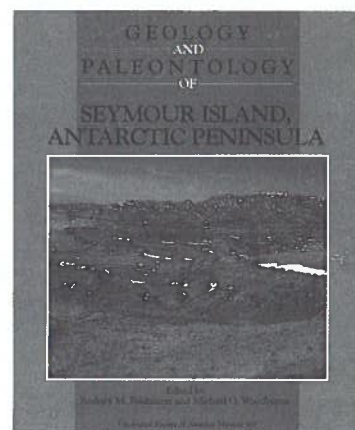
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SUMMARY OF SCIENTIFIC CONTRIBUTIONS TO GEOLOGY:  
(not more than 200 words)

(over)

**SELECTED BIBLIOGRAPHY:**  
(no more than 10 titles)

Nominations for the Donath Medal **MUST BE SUPPORTED** by signed letters from each of five (5) GSA Fellows or Members. The letters may be attached to this nomination form or may be sent to the Executive Director separately.

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Address: \_\_\_\_\_

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**DEADLINE:** Please return this form to headquarters by March 15.

# MEETINGS

(Asterisk indicates new or changed information)

## 1989

**Fourth International Conference on Mars**, January 10-13, 1989, Tucson, Arizona. Information: Hugh H. Kieffer, U.S. Geological Survey, 2255 N. Gemini Drive, Flagstaff, AZ 86002; (602) 527-7015.

**Australasian Tectonics**, February 6-10, 1989, Kangaroo Island, Australia. Information: A. Grady, c/o Dept. of Earth Science, Flinders University, Bedford Park, SA 5042, Australia.

**Crustal Dynamics: Chaotic Behavior and Fractal Structures**, February 12-15, 1989, Monterey, California. Information: Donald L. Turcotte, Snee Hall, Cornell University, Ithaca, NY 14853; (607) 255-7282.

**Geophysics of the Rocky Mountains, Front Range, and High Plains**, February 13-14, 1989, Golden, Colorado. Information: Front Range AGU Service Center, P.O. Box 18-P, Denver, CO 80218; 1-800-525-6338 (303-831-6338 in Colorado).

**Society of Mining Engineers Annual Meeting**, February 27-March 2, 1989, Las Vegas, Nevada. Information: Society of Mining Engineers, Meetings Dept., P.O. Box 625002, Littleton, CO 80162-5002; (303) 973-9550; Telex 881988; Fax (303) 973-3845.

**International Symposium on Natural Catastrophes and Their Impact**, March 1989, Ankara, Turkey. Information: Tevfik Erkal, Türkiye Jeomorfoloğlar Derneği, P.K. 652 Kizilay, 06425 Ankara, Turkey.

**Prospectors and Developers Association of Canada 57th Annual Convention**, March 5-8, 1989, Toronto, Ontario, Canada. Information: Cary McLeod, PDAC, 74 Victoria St., Suite 1002, Toronto, Ontario M5C 2A5, Canada; (416) 362-1969.

**Symposium on Energy and Mineral Potential of the Central America-Caribbean Region**, March 5-9, 1989, San Jose, Costa Rica. Information: Mary Stewart, Circum-Pacific Council for Energy and Mineral Resources, 5100 Westheimer Road, Houston, TX 77056.

**Symposium on the Afro-Arabian Rift System**, March 6-8, 1989, Karlsruhe, Federal Republic of Germany. Information: U. Achauer, Geophysical Institute, Karlsruhe University, Herzstr. 16, 7500 Karlsruhe 21, Federal Republic of Germany; phone 0049-721-6084545; Telex 7825740 GEOK D; Fax 0049/721/71173.

**Workshop on Drilling the Oceanic Lower Crust and Upper Mantle**, March 7-9, 1989, Woods Hole, Massachusetts. Information: Janet Johnson, Dept. Geology and Geophysics, Woods Hole Oceanographic Institution, Woods Hole, MA 02543; (508) 548-1400, ext. 2623.

**\*Geological Society of America South-Central Section Annual Meeting**, March 12-14, 1989, Arlington, Texas. Information: Charles I. Smith, Dept. of Geology, University of Texas, Box 19049, Arlington, TX 76019; (817) 273-2987.

**Second Symposium on the Application of Geophysics to Engineering and Environmental Problems**, March 13-16, 1989, Golden, Colorado. Information: Ron Bell, SEMEG, c/o BellWest Geoservices, P.O. Box 10845, Edgemont Branch, Golden, CO 80401.

**\*European Geophysical Society XIV General Assembly**, March 13-17, 1989, Barcelona, Spain. Information: EGS Office, Max-Planck-Str. 1, Postfach 49, D-3411 Katlenburg-Lindau, Federal Republic of Germany; phone (49)-5556-1440; Telex 965564 zil d; Fax (49)-5556-4709.

**Engineering Geology and Geotechnical Engineering 25th Anniversary Symposium**, March 20-23, 1989, Reno, Nevada. Information: Engineering Symposium, Division of Continuing Education, University of Nevada, Reno, NV 89557-0024; (702) 784-4046.

**\*Geological Society of America Northeastern Section Annual Meeting**, March 23-25, 1989, New Brunswick, New Jersey. Information: Gail M. Ashley, Dept. of Geological Sciences, Rutgers University, New Brunswick, NJ 08903; (201) 932-2221.

**International Symposium on the Silurian System (Murchison Symposium)**, March 28-April 9, 1989, Keele, England. Information: M. G. Bassett, Dept. of Geology, National Museum of Wales, Cardiff CF1 3NP, Wales; phone 02222-397951.

**Economic Geology and Geotechnics of Active Tectonic Regions**, April 3-7, 1989, London, England. Information: Conference Manager, Economic Geology and Geotechnics Conference, Dept. of Geological Sciences, University College, Gower St., London WC1E 6BT, England.

**\*Geological Society of America Southeastern Section Annual Meeting**, April 6-7, Atlanta, Georgia. Information: Earl A. Shapiro, Georgia Geologic Survey, 19 MLK Jr. Dr., SW, Atlanta, GA 30334; (404) 656-3214.

**\*South-Central Friends of the Pleistocene**, April 7-9, 1989, Central Texas. Information: Stephen A. Hall, Dept. of Geography, University of Texas at Austin, Austin, Texas 78712; (512) 471-5116.

**Shallow Gas and Leaky Reservoirs**, April 10-11, 1989, Stavanger, Norway. Information: Norwegian Petroleum Society, P.O. Box 1897 - Vika, 0124 Oslo 1, Norway; phone 47-2-207025; Telex 77 322 nopet n.

**National Fossil Exposition XI**, April 14-16, 1989, Macomb, Illinois. Information: Karl A. Stuekerjuergen, Rte. 1, Box 28A, West Point, IA 52656; (319) 837-6690.

**\*Geological Society of America North-Central Section Annual Meeting**, April 20-21, 1989, Notre Dame, Indiana. Information: Michael J. Murphy, Dept. of Earth Sciences, University of Notre Dame, Notre Dame, IN 46556; (219) 239-7205.

**American Association of Petroleum Geologists Annual Meeting**, April 23-26, 1989, San Antonio, Texas. Information: AAPG, P.O. Box 979, Tulsa, OK 74101; (918) 584-2555.

**Third Annual Conference on Undergraduate Research**, April 27-29, 1989, Trinity University, San Antonio, Texas. Information: Ann Knoebel, EUREKA, Trinity University, Holt Center, 106 Oakmont, San Antonio, TX 78212.

**The Earth: Planet in Transition**, University of Michigan Department of Geological Sciences Sesquicentennial Symposium, May 4-5, 1989, Ann Arbor, Michigan. Information: J.C.G. Walker,

(continued on p. 20)

## MEETINGS (continued from p. 19)

Dept. Geological Sciences, 1006 C. C. Little Building, University of Michigan, Ann Arbor, MI 48109-1063; (313) 764-2466; Telex 258 869 JCGW UR; GTE mail: JWALKER/KOSMOS/EDUNET.

**\*Geological Society of America Cordilleran and Rocky Mountain Sections Annual Meeting**, May 8-10, 1989, Spokane, Washington. Information: Ernest H. Gilmour, Eastern Washington University, Cheney, WA 99004; (509) 359-2406.

**American Geophysical Union Spring Meeting**, May 8-12, 1989, Baltimore, Maryland. Information: AGU, Convention Director, 2000 Florida Ave., N.W., Washington, DC 20009; (202) 462-6903.

**Pacific Sections of American Association of Petroleum Geologists, Society of Economic Paleontologists and Mineralogists, Society of Exploration Geophysicists, and Society of Professional Well Log Analysts Annual Meeting**, May 10-12, 1989, Palm Springs, California. Information: 1989 AAPG/SEPM/SED/SPWLA Pacific Sections, AAPG Convention Dept., P.O. Box 979, Tulsa, OK 74101-0979. **\*12th Annual Spring Systematics**

**\*12th Annual Spring Systematics Symposium, History and Evolution**, May 13, 1989, Chicago, Illinois. Information: Kristine L. Bradof, Symposium Coordinator, Dept. of Geology, Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, Chicago, IL 60605-2496; (312) 922-9410, ext. 298.

**Geological Association of Canada-Mineralogical Association of Canada Joint Annual Meeting**, May 14-17, 1989, Montreal, Quebec, Canada. Information: Colin Stearn, Rm. 238, 3450 University St., Montreal, Quebec H3A 2A7, Canada; (514) 398-4082.

**40th Annual Highway Geology Symposium**, May 17-19, 1989, Birmingham, Alabama. Information: Kathy Keller, Alabama Highway Department, Bureau of Materials and Tests, 1409 Coliseum Blvd., Montgomery, AL 36130; (205) 261-5788.

**\*Gold '89 in Europe**, May 23-25, 1989, Toulouse, France. Information: F. Tollon, Lab. de Minéralogie, Université Paul Sabatier, 39 Allées Jules Guesde, 31400 Toulouse, France.

**Engineering Geology in Tropical Terrains**, June 26-29, 1989, Selangor Darul Ehsan, Malaysia. Information: Organising Secretary, Conference on Engineering Geology in Tropical Terrains, Dept. of Geology, Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor Darul Ehsan, Malaysia.

**\*IGCP Project 257, Mafic Dyke Swarms, Annual Meeting**, July 1, 1989, Santa Fe, New Mexico. Information: John W. Geissman, Dept. of Geology, University of New Mexico, Albuquerque, NM 87131; (505) 277-2644 or (505) 277-0887 (lab).

**28th International Geological Congress**, July 9-19, 1989, Washington, D.C. Information: 28th International Geological Con-

(continued on p. 21)

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**MEETINGS** (continued from p. 20)

gress, P.O. Box 1001, Herndon, VA 22070-1001; (703) 648-6053; Telex 248418.

**6th International Symposium on Water-Rock Interaction**, August 3-8, 1989, Malvern, England. Information: W. M. Edmunds, Hydrogeology Research Group, British Geological Survey, Wallingford, Oxon OX10 8BB, England; phone (0) 491-38800, ext. 2293; Telex 849365 HYDROL G; Fax (0) 491-32256.

**12th Caribbean Geological Conference**, August 7-11, 1989, Christiansted, St. Croix, Virgin Islands. Information: Frederick Nagle, 12th Caribbean Geological Conference, c/o Dept. of Geological Sciences, P.O. Box 249176, University of Miami, Coral Gables, FL 33124.

**Dunes '89: Geomorphology and Ecology of Desert and Coastal Sand Dunes**, August 14-17, 1989, Swakopmund, Namibia. Information: Dunes '89, c/o J. D. Ward, P.O. Box 2168, Windhoek 9000, Namibia.

**14th International Cartographic Conference**, August 17-24, 1989, Budapest, Hungary. Information: Conference Secretary, Institute of Geodesy, Cartography and Remote Sensing, POB 546, H-1373 Budapest, Hungary.

**Second International Research Symposium on Clastic Tidal Deposits**, August 22-25, 1989, Calgary, Alberta. Information: Ray Rahmani, Canadian Hunter Exploration Ltd., 435-4th Ave., S.W., Calgary, Alberta T2P 3A8, Canada; (403) 260-1818.

**9th International Clay Conference**, August 28-September 2, 1989, Strasbourg, France. Information: Hélène Paquet, Inst. de Géologie, 1, rue Blessig, 67084 Strasbourg, France.

**\*New Frontiers for Hazardous Waste Management Third International Conference**, September 10-13, 1989, Pittsburgh, Pennsylvania. Information: NUS Corporation, Park West Two, Pittsburgh, PA 15275.

**3rd International Conference on Palaeoceanography**, September 10-16, 1989, Cambridge, England. Information: I. N. McCave or N. J. Shackleton, Dept. of Earth Sciences, University of Cambridge, Downing St., Cambridge CB2 3EQ, England; phone 223-333422/334876.

**\*Focus '89, Nuclear Waste Isolation in the Unsaturated Zone**, September 18-21, 1989, Las Vegas, Nevada. Information: D. Burton Slemmons, School of Mines, Center for Neotectonic Studies, University of Nevada, LME 400 Reno, NV 89557-0047. (Abstracts deadline: February 15, 1989.)

**SIAM Conference on Mathematics of Geophysical Sciences**, September 18-21, 1989, Houston, Texas. Information: SIAM Conference Coordinator, 1400 Architects Bldg., 117 S. 17th St., Philadelphia, PA 19103-5052; (215) 564-2929.

**14th International Conference of Organic Geochemistry**, September 18-22, 1989, Paris, France. Information: Yolande Rondot, Institut Français du Pétrole, BP 311, 92506 Rueil-Malmaison cedex, France; phone 33(1) 47.49.02.14; Telex A 203050 F.

**XIII International Geochemical Exploration Symposium and II Brazilian Geochemical Congress**, October 1-6, 1989, Rio de Janeiro, Brazil. Information: RIO '89 (XIII IGES-II CBGq), A/C CPRM-LAMIN, Av. Pasteur, 404 - Urca, CEP 22292 - Rio de Janeiro, RJ, Brazil; phone (55-21) 295-5297; Telex (55-21) 22685.

**Seventh Thematic Conference on Remote Sensing for Exploration Geology**, October 2-6, 1989, Calgary, Alberta, Canada.

Information: Robert H. Rogers, ERIM, P.O. Box 8618, Ann Arbor, MI 48107-8618; (313) 994-1200, ext. 3382.

**\*New York State Geological Association 61st Annual Meeting and Field Trips**, October 13-15, 1989, Middletown, New York. Information: Lawrence E. O'Brien, Orange County Community College, Middletown, NY 10940; (914) 343-6222, ext. 2570.

**Structural and Tectonic Modelling and Its Application to Petroleum Geology**, October 18-20, 1989, Stavanger, Norway. Information: Norwegian Petroleum Society, P.O. Box 1897 - Vika, 0124 Oslo 1, Norway; phone 47-2-207025; Telex 77 322 nopet n.

**Supercomputing World** conference and exposition, October 18-20, 1989, San Francisco, California. Information: Carol Y. Hurley, Meeting Brokers International, Inc., 5 Science Park, New Haven, CT 06511; (203) 786-5132.

**\*20th Annual Geomorphology Symposium: Geomorphic Evolution of the Appalachians**, October 20-22, 1989, Dickinson College, Carlisle, Pennsylvania. Information: W. D. Sevon, Pennsylvania Geological Survey, P.O. Box 2357, Harrisburg, PA 17120; (717) 787-6029.

**World Gold '89**, November 5-8, 1989, Reno, Nevada. Information: Meetings Dept., World Gold '89, Society of Mining Engineers, P.O. Box 625002, Littleton, CO 80162; (303) 973-9550; Telex 881988.

**\*Geological Society of America Annual Meeting**, November 6-9, 1989, St. Louis, Missouri. Information: Meetings Department, GSA, P.O. Box 9140, Boulder, CO 80301; (303) 447-2020.

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Environmental engineering firm located in eastern Iowa has an opening for a hydrogeologist with 3 or more years of practical experience in solid and hazardous waste projects. The candidate should have a B.S. or M.S. degree in geology with hydrogeology courses and experience in site assessments, monitoring well system design, groundwater modeling, developing recommendations for groundwater cleanup and site remediation, soil sampling and analysis, project management, and report writing. Experience in conducting hydrogeologic studies for sanitary landfills is imperative. Experience with RCRA and CERCLA is desirable. Interested individuals should send their resume to: Howard R. Green Company, P.O. Box 9009, Cedar Rapids, Iowa 52409, Attn: E.J. (Rick) Yoerger, P.E., Phone: 319-395-7805.

### STRUCTURAL GEOLOGY PHYSICAL MODELING

The Bureau of Economic Geology, The University of Texas at Austin, invites applications for a

## Director, Center for Neotectonic Studies

Applications and nominations are invited for the position of Director of the Center for Neotectonic Studies, a research component of the Mackay School of Mines, University of Nevada-Reno. More than thirty personnel are currently involved, through the Center, in basic and applied research in geology, neotectonics and tectonics, active faulting, geological hazards, seismology, tectonophysics, geophysics, geological engineering, geochemistry, remote sensing, natural resources, and related fields relevant to waste isolation and seismotectonics. The annual budget is 1 to 2 million dollars.

The candidate should have a Ph.D. degree, with specialities in such fields as neotectonics, active faulting, tectonics, or geological hazards. The director will have major responsibilities to provide focus and direction for the Yucca Mountain project, which is contracted to the state of Nevada to review Department of Energy work and to conduct original research on the proposed high level nuclear waste repository at Yucca Mountain, Nevada. In addition, the individual will be expected to pursue additional sponsored research projects. The director will have the option to teach and supervise graduate students within the Department of Geological Sciences. Other organizations on the UNR campus with complementary programs include the Seismological Laboratory, the Nevada Bureau of Mines and Geology, the U.S. Geological Survey Reno Field Office, and the remote sensing program of the Cooperative Institute for Aerospace Sciences and Terrestrial Applications. The Director would serve as liaison with State and Federal agencies. Rank and salary are competitive, and will be commensurate with the applicant's qualifications and experience.

Applicants should submit a resume, comprehensive statement of interest, research and management qualifications, administrative experience, experience in applications of neotectonics to social and/or engineering problems, bibliography of scientific publications, and names and addresses of at least three references by January 31, 1989. Send to Chairman, Neotectonics Search Committee, Mackay School of Mines, University of Nevada-Reno, Reno, NV 89557-0088. Further information may be obtained from David B. Slemmons, Retiring Director, Center for Neotectonic Studies, (702) 784-6067.

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Research Associate position in its newly established Applied Geodynamics Laboratory. Required qualifications include a Doctoral degree in geology with specialization in structural geology, one year of post-Doctoral work with experience in research or teaching, and the demonstrated ability to write effectively for publication. Candidates with a background in strain analysis, fluid or fracture mechanics, and the application of physical modeling techniques to analyzing the origin of geologic structures are preferred. Salary is commensurate with training and experience.

The successful candidate will participate in the design and construction of physical models, supervise the testing of physical properties, analyze model results, and apply data to hypotheses of the origin of natural geologic structures. The principal deformation apparatus to be employed in this program is a 7000-G centrifuge designed for tectonic modeling.

Send resume and names of three references to Edward C. Bingle, Bureau of Economic Geology, The University of Texas at Austin, University Station Box X, Austin, TX 78713-7508.

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### GRADUATE ASSISTANTSHIPS AVAILABLE UNIVERSITY OF NEVADA, LAS VEGAS

The Department of Geoscience in conjunction with the Desert Research Institute is pleased to announce the availability of teaching and research assistantships for qualified students pursuing a Masters of Science degree in geology.

Four primary areas of funded research are (1) Cambrian limestones in Antarctica, (2) Tertiary to recent volcanism and tectonism in the southern Basin and Range, (3) hydrogeology with emphasis in groundwater flow and contaminant transport in arid regions, and (4) Precambrian metamorphic rocks of southern Nevada. Other fields of research include Quaternary geology, tectonics and sedimentation, and structural geology.

Interested students should send a letter of inquiry to the Graduate Coordinator, Department of Geoscience; University of Nevada, Las Vegas; Las Vegas, Nevada 89154 or telephone (702) 739-3262.

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**NEW YORK, NEW YORK 10021. Hunter College, City University of New York. ASSISTANT PROFESSOR,** tenure track position beginning Fall, 1989. Applicant should have research and undergraduate/graduate teaching interests in hydrology (including but not limited to groundwater, surficial processes, environmental aspects); metropolitan orientation desirable. A secondary interest in G.I.S. and/or remote sensing is helpful. Ph.D. required at time of appointment. Women and minorities are encouraged to apply. Please send letter of application, curriculum vitae, recent publications, and the names of three references before February 1, 1989 to: Dr. Charles Heatwole, Chairman, Department of Geology & Geography, Room 1006 North Bldg., Hunter College, 695 Park Ave., N.Y., NY 10021. EO/AEE.

**FLUVIAL GEOMORPHOLOGIST  
COLORADO STATE UNIVERSITY**

The Department of Earth Resources in the College of Forestry and Natural Resources at Colorado State University invites applications for a full-time faculty position in Fluvial Geomorphology beginning August 20, 1989, contingent upon available funds. Salary and rank are dependent on experience and accomplishments. Candidates should have a Ph.D. degree in Geology by the hire date and research and teaching experience. The appointee is expected to teach at the graduate and undergraduate levels, supervise M.S. and Ph.D. students, and develop an active research program emphasizing quantitative approaches which complement current programs in Geomorphology and Sedimentology.

The Department presently has 16 full-time faculty members covering the areas of geology, geography, and watershed science. Interdisciplinary research is conducted with other departments including Civil Engineering and Atmospheric Sciences. Research facilities include the Rainfall Erosion Facility and flumes located at the Engineering Research Center on the Foothills Campus. Applicants should send a vita, citation of publications, a statement of research and teaching interests, and names and addresses of four references to Frank G. Ethridge, Department of Earth Resources, Colorado State University, Ft. Collins, CO 80523. Deadline for applications is March 1, 1989. Colorado State University is an EO/AA employer.

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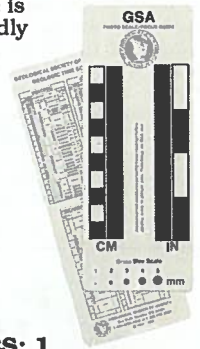
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