

## NEWS & INFORMATION

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### Phoenix Draws 5201 for 1987 GSA Annual Meeting

by Sue Beggs  
GSA Meetings Manager

General Chairman Bill Dickinson predicted Arizona would be a popular site for the 1987 Annual Meeting. When we were first invited by Bill's "Team Phoenix," we agreed—in principle. He promised there would be superb excursions to classic localities led by top-notch leaders. He was right. He promised a technical program that would excite our interest and expand our knowledge of the Southern Cordillera and the Greater Southwest. He was right.

It's only now in the various quantitative measures of a meeting's success that we actually see how accurate he was. This turned out to be a record-breaking meeting in many ways:

- Highest number of abstracts presented ..... 1904
- Highest number of field trips offered ..... 34
- Highest number of exhibitor booths ..... 212
- Highest number of short course participants ..... 474

and it was the first time GSA has held an Annual Meeting in Arizona.



1987 Annual Meeting General Chairman Bill Dickinson and friends.

#### REGISTRATION

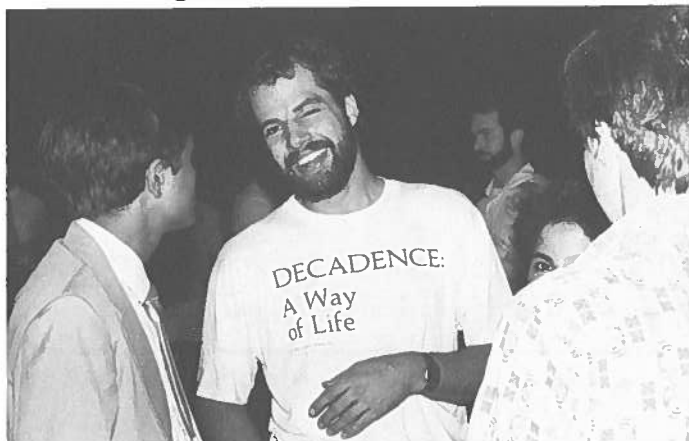
	Preregistered	On-Site	Total
<b>Professionals</b>			
Member	1900	450	2350
Nonmember	270	164	434
Member, one-day	30	66	96
Nonmember, one-day	19	52	71
<b>Students</b>			
Member	565	177	742
Nonmember	191	107	298
Member, one-day	11	25	36
Nonmember, one-day	11	51	62
<b>Guests</b>	<u>248</u>	<u>39</u>	<u>287</u>
	3245	1131	4376
<b>Exhibitors and others</b>	<u>568</u>	<u>257</u>	<u>825</u>
	3813	1388	5201
Attendance in 1986			4252
Increase over 1986			23%
Previous high in attendance (1984)			6205

#### ABSTRACTS

	Submitted	Presented
<b>Symposia</b>	333	331
<b>Volunteered (poster and oral)</b>	<u>2005</u>	<u>1573</u>
	2338	1904
Approximately two of every five persons at the meeting presented a paper.		
Previous high (1984)	2074	1596
Previous year total (1986)	1865	1515
<b>Volunteered papers accepted—1987</b>		79%
1986		75%
<b>Poster presentations—1987</b>		503
1986		430
<b>Concurrent sessions—1987</b>		12
1986		10
<b>Half-day sessions—1987</b>		101
1986		89

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## Annual Meeting (continued from p. 1)



At least until technical sessions start.



Here's to a good Annual Meeting—and *Geology* (Pat Bickford, left, and Eldridge Moores).

### FIELD TRIPS

Premeeting trips offered:	19
Postmeeting trips offered:	15
Trips canceled:	5
Field trip leaders:	98
Total number of participants:	852
Percent of total registration:	17%

Guides to the 1987 field trips are available in an excellent single volume. Those interested in the guidebook may contact: Arizona Bureau of Geology and Mineral Technology, 845 N. Park Avenue, Tucson, AZ 85719.

### EXHIBITS

Number of exhibit booths:	212
Number of exhibitors:	148

### GSA BOOKSTORE

Number of items sold:	1636
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Volume of sales doubled the previous high. New items available from the DNAG project were the Centennial Field Guides for the Cordilleran, Rocky Mountain, Southeastern, and Northeastern Sections; Centennial Special Volume 2, *Geomorphic Systems of North America*; and the *Magnetic Anomaly Map of North America* (one of seven in the series of continent-scale maps).

### PROFESSIONAL HORIZONS

Number of GSA short courses offered:	8
Number of attendees:	474
Increase in attendance over 1986:	107%
Short course manuals printed under GSA supervision:	5 (two of these had computer disks; one also had a set of 40 slides.)

### EMPLOYMENT SERVICE

Number of employers:	30
Number of applicants at the meeting:	273
Number of interviews:	529
Types of jobs available:	Corporate—11; Government—21; Academic—26

### TEAMWORK

General Chairman Dickinson had the last word. He was right when he predicted 1987 GSA—Phoenix would be a great success. It was—and not only in the quantitative sense. It takes many factors to make a meeting run smoothly. All of the critical factors and almost all of the supporting factors worked to provide a hospitable environment for sharing the science and for meeting friends and colleagues.

More than 183 business and social functions took place above and beyond the 108 technical sessions. On two evenings, receptions were enjoyed by more than 3500 persons each evening. Close to another 1000 were entertained during the special event cookout. The scope of the physical space and the timing required to hold these activities can be the bane of 5000-person meetings. The environment will surely be less personal and the arrangements more open to error than in a less congested setting. Nevertheless, as we look at the overall comments, we know that this meeting went very well. Much credit is due to the local committee—Team Phoenix, to the dedicated and experienced headquarters staff, and to the friendly, cooperative people we worked with in Phoenix.

### Memorial Preprints

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

*John Stafford Brown*, by Norman H. Donald, Jr.  
*Erling Dorf*, by Sheldon Judson  
*Cordell Durrell*, by E. M. Moores  
*Fritiof Melvin Fryxell*, by Ann Boaden and Richard C. Anderson  
*Arthur Sidney Huey*, by John Kilkenny  
*Robert Leeds Sutton*, by George E. Ulrich  
*Newman W. Thibault*, by Neil N. Ault  
*Thomas Hampton Thornburn*, by Herbert O. Ireland  
*Robert H. Tschudy*, by D. J. Nichols

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



## CENTENNIAL NEWS

by Allison (Pete) Palmer

### DNAG Progress: Publications Under Control

The latest word on the *Gravity Anomaly Map of North America* is that it will be printed in Canada in December and shipped to GSA for distribution, projected for January.

*The Atlantic Continental Margin: U.S.* was in final page proof as this was being written (Nov. 17) and went to the printer in early December. This book will probably be available in February.

The *Centennial Field Guide for the South-Central Section* continues to be delayed. If O. T. Hayward, Jim Jones, and Dave LeMone complete their tasks soon, this will be the March DNAG book.

*Sedimentary Cover of the Craton*, edited by Larry Sloss, is very close to being completed. The critical chapter on the Illinois Basin came in early in November and received quick reviews. The revised text was expected by the end of November, and most other chapter revisions were also expected by about that time. If there are no further delays we project this as the April DNAG book.

*The Seismicity Map of North America* is into the color proof stage and will probably be ready for printing early in 1988.

### Who's Next?

Ten more volumes of *The Geology of North America* are close to being finished. If you are an author in one of these volumes, and/or a colleague of one of the authors listed below whose substantive chapters are not yet completed and into review, perhaps you can offer some moral or material support to aid them in completing their commitment. Also, if you are an author who has not yet completed revision of a manuscript already through review, you can greatly aid the production process by getting your revision in and approved by your editors ASAP. All ten of these books can and should be finished and published before the Centennial meeting this fall, but all are substantially late. Most authors of, or contributors to, missing chapters received reminders in mid-October and were also contacted at the Phoenix GSA meeting.

*The Caribbean Region*: One substantive multi-author chapter, on northern South America, still needs its final contribution from Reg Shagam and translation of a Spanish text by Alirio Bellizzia.

*The Appalachian and Ouachita Regions*: Tectonic synthesis chapters by Bob Hatcher and George Viele are the only two substantive chapters not yet received for review. This volume also has several complex color plates, most of which are now in production.

*The Eastern Pacific Region*: Two substantive chapters, by Leroy Dorman and Dave McColloch, are still to be received. Roland Von Huene called in response to my mid-October letter to indicate that he was only about one

work-day away from completing his second chapter for this volume.

*The Precambrian: Conterminous U.S.*: Three substantive regional multi-author chapters need parts by Doug Rankin, Ed Lidiak, Don Secor, Mitch Reynolds, and Lee Silver in order to be ready for review.

*The Arctic Ocean Region*: Only four substantive chapters, by Steve Blasco, Norm Heimela, Jack Sweeney, and Art Grantz, need to be submitted for review for this volume. Fred Roots, in response to my mid-October letter, says the *Weber/Roots* chapter is all done except for making copies, and is imminently in the mail.

*Nonglacial Quaternary Geology, Conterminous U.S.*, which was only initiated in the summer of 1985, just needs chapters by Jim Ingle, John Dohrenwend, John Hawley, Bill Wayne, and Roger Morrison to be fully into the review process.

*Surface Water Hydrology*: This volume is being handled through the review process by Reds Wolman and Charlie Riggs. All chapters have been seen by the editors, and only four remain to be revised and submitted to GSA for completion of this book.

*The Gulf of Mexico Basin*, which is being handled through the review process by Amos Salvador, still needs chapters by Ralph Kehle, Norm Sohl, Bill Galloway, Richard Nehring, and Amos Salvador. Drafting is well along on the other chapters at the Texas Bureau of Economic Geology, and Amos expects to begin sending chapters to GSA for processing as soon as the figures are ready.

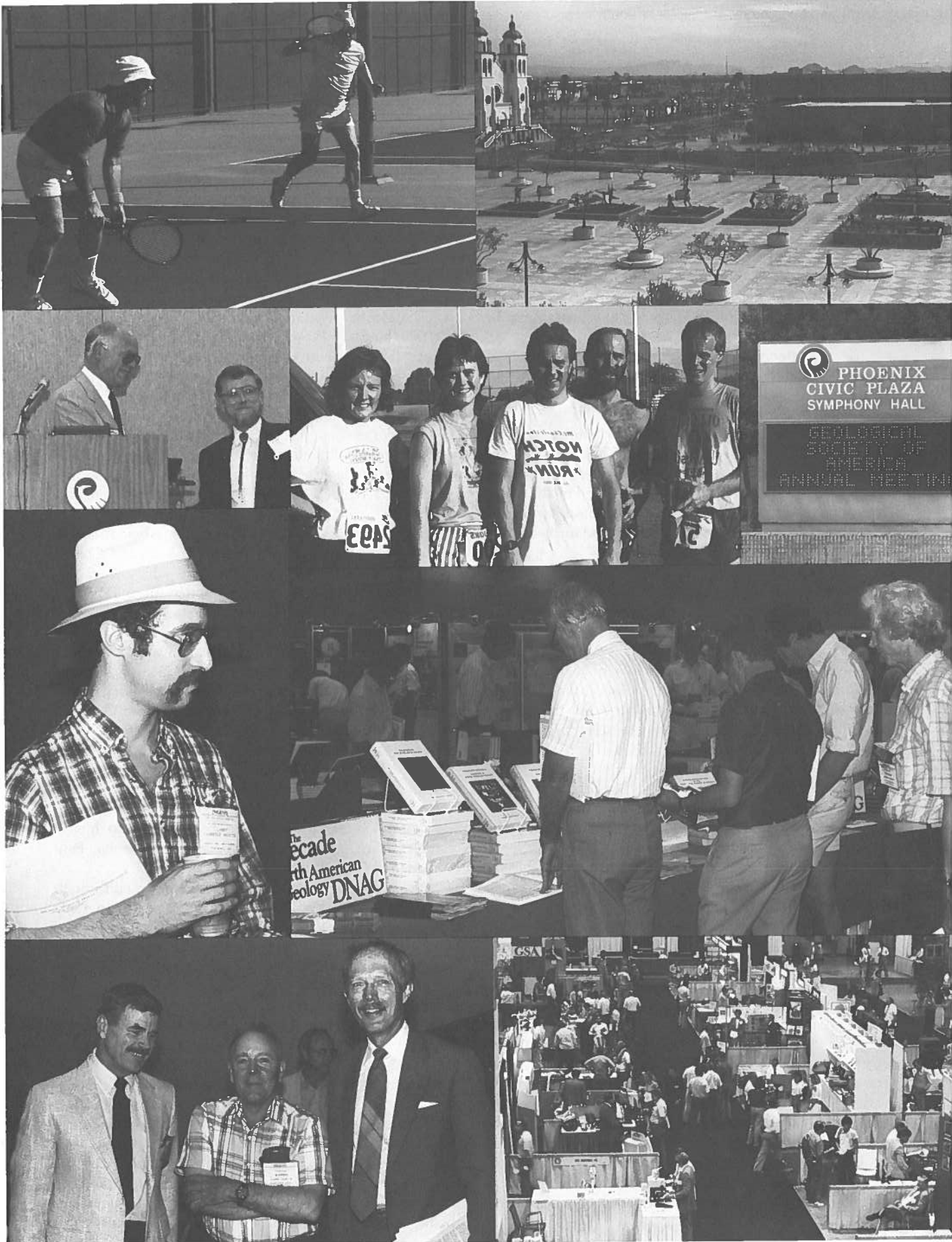
*The Cordilleran Orogen: U.S.*: Six key substantive chapters have not yet been received for review. These include multi-author time-slice chapters from Dave Miller and from Bob Yeats and Bob Christiansen and topical chapters from Dave Engebretson, Jason Saleeby, Pete Lipman, and Clark Burchfiel.

*Hydrogeology*: This volume is being handled through the review process by Bill Back and Joe Rosenshein. Only eight substantive chapters out of 50 in the book have not been transmitted to GSA, and most of these have already been submitted and have been reviewed by the editors.

### A Bit Further Back

*The Cordilleran Orogen: Alaska*, which is being handled by George Plafker, Hank Berg, and Dave Jones and the USGS Alaskan Geology Branch in Menlo Park, has a number of its chapters written and much of the drafting done. However, the editors have yet to see texts for eleven chapters, some with multiple authors. At the organizational meeting for this book in April 1982, many of these were first promised to be submitted in reviewable form by December 1984! In mid-November 1987, these authors were given a new and final deadline of February 1 to complete their long-standing commitments. The development of an

(continued on p. 6)





## Timing of Pluton Emplacement and Deformation Is Subject of 1988 Penrose Conference

A GSA Penrose Conference, Criteria for Establishing the Relative Timing of Pluton Emplacement and Regional Deformations, will be held September 10-15, 1988, in the western foothills of the Sierra Nevada, California. Conveners are Othmar T. Tobisch and Scott R. Paterson, Earth Science Board, University of California, Santa Cruz, CA 95064, telephone (408) 429-3251, and Ron H. Vernon, School of Earth Science, Macquarie University, North Ryde, NSW 2109, Australia, telephone (02) 805-8413.

Geologists have long used radiometrically dated plutons to constrain dates of regional deformation and metamorphism. Knowing precise dates of such deformation and metamorphism is necessary for the development of tectonic models attempting to explain the evolution of orogenic belts. In the past, there has been a tendency to use the age of plutons without looking critically and in detail at the relations between the plutons and wall rock. This is due in part to the lack of rigorous criteria that allow the field geologist to differentiate between pre-tectonic, syntectonic, and post-tectonic intrusive bodies. Specifically, recent work on syntectonic and pre-tectonic intrusives in the Sierra Nevada, California, and Lachlan fold belt, Australia, by the conveners and by other workers from around the world suggests that these bodies may show a remarkable range of characteristics and that their timing of emplacement is easily misinterpreted.

This conference is aimed at looking closely at the criteria used to establish the timing of pluton emplacement, the behavior of plutons during subsequent deformation, and more generally to look at the use of plutons in establishing dates of regional deformation and metamorphism in wall rocks. Although we wish to emphasize aspects of structural geology at the conference, the goals can only be established by contributions from several subdisciplines; thus, we have tentatively scheduled the following sessions: (1) recognizing primary and tectonic fabrics in plutons, (2) structural patterns in and around intrusions, (3) the relations between metamorphism and deformation of plutons and wall rocks, (4) emplacement mechanisms of plutons, and (5) radiometric dating of plutonic rocks and its application to the dating of structural events. The conveners invite the participation of scientists actively involved in these or closely related fields.

The conference will consist of two full-day field trips and 2½ days of oral presentations, poster sessions, and discussions. The

first field trip, led by Paul Bateman of the U.S. Geological Survey will examine the Early Cretaceous granodiorite of Dinkey Creek and Late Cretaceous Mt. Givens granodiorite at the Courtright intrusive zone, Sierra Nevada. This region provides a spectacular array of both igneous (flow fabrics, schlieren, mafic inclusion swarms) and tectonic (foliations, lineations, mylonites, highly deformed inclusions) fabrics and should provide impetus for plenty of discussion on distinguishing primary and tectonic structures. The second field trip will look at the characteristics of a syntectonic and several pre-tectonic intrusive bodies and their wall rocks recently studied by the conveners in the foothills terrane of the Western Metamorphic belt. The pre-tectonic intrusions range from undeformed to examples where tectonic cleavages pass undeflected from wall rock to intrusion, whereas the syntectonic intrusion is a polydeformed body emplaced along a major ductile shear zone. We will examine the patterns of structures and metamorphism in and around these intrusive bodies, and we will look at the available U/Pb and <sup>40</sup>Ar/<sup>39</sup>Ar ages, geochemistry and textures of mylonites in the intrusion, and the gravity, magnetic, and geothermometry data. This field trip should provide ample opportunity to discuss the wide range of characteristics of predeformational intrusions and how they can be misidentified as post-tectonic bodies.

The conference will be limited to 50-60 participants who are actively pursuing research on the above or closely related topics. Prospective participants should send a letter of application stating the relevance of their research to the conference to Scott R. Paterson, Earth Science Board, University of California, Santa Cruz, CA 95064. Deadline for applications is **April 1, 1988**. The registration fee is not yet determined; it will include food, lodging, field trips, and transportation to and from the airport in Fresno, California. Limited support will be available for qualified graduate students.

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### Phoenix Winners

#### 5K/10K Race

GSA's fourth annual 5K/10K race, at El Dorado Park in Scottsdale on Wednesday, Oct. 28, produced the following winners:

5K Winners	Female	Time	Male	Time
First	Terri Ross	17:17	Todd Ririe	17:24
Second	Diane Bellis	22:49	Todd Feeley	17:36
Third	Emily Gloeckler	23:34	Terry Engelder	17:42

10K Winners	Female	Time	Male	Time
First	Vivian Gratton	43:46	Ron Hershey	36:15
Second	Carol Bruton	45:54	David Rothstein	36:49
Third	Charlotte Allen	47:09	Daniel Barnett	37:16

Senior Winner Frank Royce

#### Tennis Tournament Winners

GSA tennis players competed in a round-robin doubles tournament on Sunday, Oct. 25 in Phoenix. The 1987 winners are

First	Dick Mullen
Second	Dane Picard
Third	Ray Ingersoll

Congratulations to all our 1987 winners!

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#### Centennial News (continued from p. 3)

acceptable base map for the plates in this volume has introduced some of the delays, but this is now under control.

*Economic Geology: U.S.*: Not yet received at GSA for review are most chapters in the minerals section, being handled by Dick Taylor; seven chapters in the oil and gas section, being handled by Dudley Rice; and four chapters in the coal section, being handled by Hal Gluskoter.

Many thanks and happy New Year to the authors and co-authors of the 330 chapters of *The Geology of North America* who had completed their chapters at least to the review stage by mid-November. These chapters represent 76% of all of the chapters needed to complete the U.S. volumes of this set that will be produced by GSA. There is light at the end of the tunnel!

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## CALL FOR APPLICATIONS AND NOMINATIONS FOR BULLETIN EDITORS

GSA solicits applications and nominations of two persons to serve as Editors of the Bulletin. The terms of the current Editors will end December 31, 1988, and the new Editors will begin three-year terms at that time. A phased transition should begin in the fall of 1988.

These are not salaried positions, but GSA pays expenses for secretarial assistance, mail, telephone, and travel to GSA headquarters. GSA headquarters staff conducts copy editing and production activities.

Interested persons should submit a résumé and a brief letter describing relevant qualifications, experience, and objectives. Nominations should include a letter and the nominee's written permission and résumé. Applications and nominations should be sent BEFORE FEBRUARY 22, 1988, to:

F. MICHAEL WAHL, EXECUTIVE DIRECTOR  
GEOLOGICAL SOCIETY OF AMERICA  
P.O. BOX 9140  
BOULDER, COLORADO 80301

### BULLETIN EDITOR DUTIES

1. Ensure that the Bulletin remains as one of the premier journals in the geological sciences.
2. Select and maintain an appropriate Board of Associate Editors.
3. Maintain expeditious manuscript flow.
4. Make decisions regarding acceptability of submitted manuscripts in concert with recommendations of reviewers and Associate Editors.
5. Advise authors about necessary revisions.
6. Organize the content and select cover design for each issue of the Bulletin.
7. Keep the Committee on Publications and the GSA headquarters staff informed about the flow of manuscripts and other Bulletin business.
8. Respond promptly to inquiries from authors and prospective authors.

### EDITOR QUALITIES

1. Broad background and active research in the geological sciences with particular emphasis on regional geology (including geomorphology)/geophysics/geochemistry.
2. Good organizational skills.
3. Willingness to invest approximately one day per week.
4. Enthusiasm, tenacity, and imagination for future innovations and improvements in the Bulletin.
5. Broad knowledge of the geological research activities of scientists both nationally and internationally.
6. Good English language skills.
7. Objectivity.
8. Scientific maturity.
9. Patience, courtesy, tact, and firmness in dealing with authors.



## FINAL ANNOUNCEMENT SOUTHEASTERN SECTION, GSA, Annual Meeting

April 6-8, 1988  
Columbia, South Carolina



The Southeastern Section of the Geological Society of America will meet at the Radisson Hotel in Columbia, South Carolina, April 6-8, 1988, together with the Southeastern Section of the Paleontological Society. The meeting is sponsored by the Earth Sciences and Resources Institute and the Department of Geological Sciences, University of South Carolina, and by the South Carolina Geological Survey.

### 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 4, 1988.**

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 March 4, 1988. Refunds for canceled preregistrations will be made in full until March 4, 1988. 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 5 to 8 p.m. on Wednesday, April 6, and from 7 a.m. to 5 p.m. on Thursday and Friday, April 7 and 8. Registration will be held on the Mezzanine of the Radisson Hotel Columbia.

### WELCOMING PARTY

A welcoming party for those attending the meeting will be held on Wednesday, April 6, from 7:30 to 10 p.m. at the new South Carolina State Museum, located in a renovated historic textile mill on the banks of the Congaree River. Shuttle-bus service will be provided to and from the Radisson Hotel Columbia.

### TECHNICAL PROGRAM

Technical sessions will be scheduled as oral presentations and poster sessions on Thursday, April 7, and Friday, April 8.

### SYMPOSIA

- 1. Geological Aspects of Hazardous Waste Disposal.** Stephen H. Stow, Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN 37830; Steven Schamel, Earth Sciences and Resources Institute, University of South Carolina, Columbia, SC 29208.
- 2. Metallic Mineral Resources in the Southern Piedmont and Blue Ridge.** P. Geoffrey Feiss, Department of Geology, University

of North Carolina, Chapel Hill, NC 27514; W. Edwin Sharp, Department of Geological Sciences, University of South Carolina, Columbia, SC 29208.

**3. Geologic Setting of the Appalachian Ultradeep Core Hole (ADCOH) Project.** Richard T. Williams, Department of Geological Sciences, University of Tennessee, Knoxville, TN 37916.

**4. Structural Geology of Ductile Shear Zones in the Southern Appalachian Mountains.** Andy R. Bobyarchick, Department of Geography and Earth Sciences, University of North Carolina, Charlotte, NC 28223; Harmon D. Maher, Jr., Department of Geography and Geology, University of Nebraska, Omaha, NE 68182.

**5. Geology of the Savannah River Plant Area, South Carolina and Georgia.** Van Price, Savannah River Laboratories, Building 773-42A, Aiken, SC 29802; David R. Lawrence, Department of Geological Sciences, University of South Carolina, Columbia, SC 29208.

**6. Geophysics of Buried Mesozoic Rift Basins of the North American Continental Margin.** John McBride, INSTOC, Cornell University, Ithaca, NY 14853; William Smith, Department of Geological Sciences, University of South Carolina, Columbia, SC 29208.

**7. Mesozoic-Cenozoic Biogeography of the Southeastern United States.** Joseph G. Carter, Department of Geology, University of North Carolina, Chapel Hill, NC 27514; Ralph Willoughby, South Carolina Geological Survey, Harbison Road, Columbia, SC 29210.

### FIELD TRIPS

Field Trip Chairman is Donald T. Secor, Department of Geological Sciences, University of South Carolina, Columbia, SC 29208, (803) 777-4516.

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 March 4, 1988, accompanied by full payment.* Trips may be canceled if registration is insufficient. No trip refunds will be made after March 4, 1988.

All field trips will depart from and return to the Radisson Hotel Columbia. A single-volume guidebook will include road logs and stop descriptions for all trips except 1 and 5.

In addition to the premeeting and postmeeting field trips listed below, a half-day excursion to the *Lake Murray spillway*, the type locality for the Alleghanian orogeny in the eastern Piedmont, will be available the mornings and afternoons of April 7 and 8. The Lake Murray spillway is unquestionably the most spectacular outcrop in the eastern Piedmont of South Carolina. It exposes rock relations that were of crucial importance in the recognition of late Paleozoic (Alleghanian) deformation the eastern Piedmont. Tickets for the excursion to the spillway will be available at the meeting. A \$6 fee will be charged to cover transportation costs.

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### Premeeting

**1. Geological and Geotechnical Aspects of Hazardous Waste Disposal at the GSX Facility, Sumter, and at the Chem-Nuclear Facility, Barnwell, South Carolina.** Steven Schamel, Earth Sciences and Resources Institute, University of South Carolina, Columbia, SC 29208, (803) 777-6484. One day, April 6.

This trip features a morning visit to the Chem-Nuclear facility near Barnwell, South Carolina, and an afternoon visit to the GSX hazardous waste facility near Sumter, South Carolina. Each site visit will begin with an introduction to the facility by company personnel; then we will tour the facility. Aspects of the geology of the plant site and the disposal and monitoring techniques utilized will be emphasized. **YOU MUST PROVIDE YOUR OWN HARDHAT TO PARTICIPATE IN THIS TRIP.**

Limit: 30; cost: \$40, including lunch.

**2. Exhalative(?) Gold Deposits in the South Carolina Slate Belt.** Ed Sharp, Department of Geological Sciences, University of South Carolina, Columbia, SC 29208, (803) 777-6929; Geoffrey Feiss, Department of Geology, University of North Carolina, Chapel Hill, NC 27514, (419) 966-4516. One and one-half days, April 5-6.

This trip features leisurely visits to the Brewer and Haile gold mines during, respectively, the morning and afternoon of Tuesday, April 5. On Wednesday, April 6, we will visit the newly discovered gold deposit at Ridgeway, South Carolina, examining cores and any available pits and trenches. **YOU MUST PROVIDE YOUR OWN HARDHAT TO PARTICIPATE IN THIS TRIP.**

This trip leaves from and returns to the Radisson Hotel Columbia each day.

Limit: 90; cost: \$55, including guidebook and two lunches.

**3. The Role of Dextral Strike-Slip in the Displacement History of the Brevard Zone.** Andy Bobyarchick, Department of Geography and Earth Sciences, University of North Carolina, Charlotte, NC 28223, (704) 547-4264; Steve Edelman, Department of Geological Sciences, University of Tennessee, Knoxville, TN 37916, (615) 974-2336; Wright Horton, U.S. Geological Survey, 928 National Center, Reston, VA 22092, (703) 648-6933. Three days, April 4-6

This field trip will focus on the Alleghanian deformational history of the Brevard zone between Lenoir, North Carolina, and Georgia. In particular, we will examine evidence for dextral strike-slip and its overall role in the displacement history of the Brevard Zone. We will also see exposures of parts of the Rosman brittle fault system that have been overprinted on the ductile fabrics of the Brevard zone.

Limit: 45; cost: \$165, including guidebook, one dinner, and lodging (two nights). Facilities will be available for purchasing lunches.

**4. Neotectonics of the Charleston, South Carolina, Region.** Don Colquhoun and Pradeep Talwani, Department of Geological Sciences, University of South Carolina, Columbia, SC 29208, (803) 777-2600/6449. One day, April 6.

This excursion will combine visits to geologic and paleoseismic features in the lower Coastal Plain of South Carolina. These may be related to the Charleston earthquake of 1886 and/or earlier seismic events.

Limit: 45; cost: \$55, including one lunch and admission to Magnolia Gardens.

### Postmeeting

**5. Geological and Geotechnical Aspects of Hazardous Waste Disposal at the GSX Facility, Sumter, and at the**

**Chem-Nuclear Facility, Barnwell, South Carolina.** Steven Schamel, Earth Sciences and Resources Institute, University of South Carolina, Columbia, SC 29208, (803) 777-6484. One day, April 9.

See trip 1 for description. **YOU MUST PROVIDE YOUR OWN HARDHAT TO PARTICIPATE IN THIS TRIP.**

Limit: 30; cost: \$40, including lunch.

**6. Barrier Islands and Tidal Inlets of the Central South Carolina Coast.** Tim Kana and Jerry Sexton, Coastal Science and Engineering, Inc., P.O. Box 8056, Columbia, SC 29202, (803) 799-8949, and Department of Geological Sciences, University of South Carolina, Columbia, SC 29208, (803) 777-4535. Two days, April 9-10.

We will visit mesotidal beach-ridge barrier islands near Charleston, South Carolina: the Isle of Palms, Sullivans Island, and Seabrook Island. On the first day we will view a regressive barrier sequence, migrating inlet, and associated ebb-delta shoals and inlet-bypassing processes. On the second day we will view an armored beach that was restored by inlet relocation and associated natural changes in the new inlet system.

On the way back, a stop will be made at the Columbia airport for those departing after 6 p.m.

Limit: 45; cost: \$135, including two lunches and lodging (one night, downtown Charleston).

**7. A Geological Transect Through the Suspect Terranes of the Appalachian Piedmont from the Fall Line Through the Inner Piedmont.** Allen Dennis and Don Secor, Department of Geological Sciences, University of South Carolina, Columbia, SC 29208, (803) 777-4516; Steve Mittwede, South Carolina Geological Survey, Harbison Forest Road, Columbia, SC 29210, (803) 737-9440; Jack Garihan and Bill Ranson, Department of Geology, Furman University, Greenville, SC 29613, (803) 294-3363 or 3364. Two days, April 9-10.

This trip will begin along the Fall Line in the rocks of the Kiokee belt, which were strongly deformed and metamorphosed during the late Paleozoic Alleghanian orogeny. We will then traverse the rocks of the exotic Carolina terrane in the Carolina slate and Charlotte belts. The latter part of the first day will be in the Kings Mountain belt along the boundary between the Carolina and Piedmont terranes. The second day will be spent in the Kings Mountain belt and in the rock of the Piedmont terrane in the Inner Piedmont belt.

On the way back, a stop will be made at the Columbia airport for those departing after 6 p.m.

Limit: 45; cost: \$135, including two lunches and lodging (one night).

### 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 from industrial, educational, and research organizations are invited. The exhibits will be on display adjacent to the meeting rooms in the Radisson Hotel Columbia on April 7 and 8.

(continued on p. 12)

**PREREGISTRATION FORM**

GSA Southeastern Section, Annual Meeting, April 6-8, 1988, Columbia, South Carolina

**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 acknowledgement of your preregistration, please enclose a stamped, self-addressed envelope.
4. Preregistration deadline: **MUST BE POSTMARKED NO LATER THAN MARCH 4, 1988.** Deadline for field trips is also March 4, 1988.

**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 4, 1988)**

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

**REGISTRATION (after March 4, 1988)**

GSA member or affiliate .....	\$ 30	\$ _____
Science teacher .....	\$ 12	\$ _____
Non-GSA member .....	\$ 35	\$ _____
GSA Student Associate .....	\$ 12	\$ _____
Non-GSA student .....	\$ 15	\$ _____
Guest .....	\$ 10	\$ _____

Paleontological Society Luncheon ..... \$ 10    \$ \_\_\_\_\_

**FIELD TRIPS**

Preregistration deadline for field trips is March 4, 1988. All field trip participants must also preregister for the meeting.

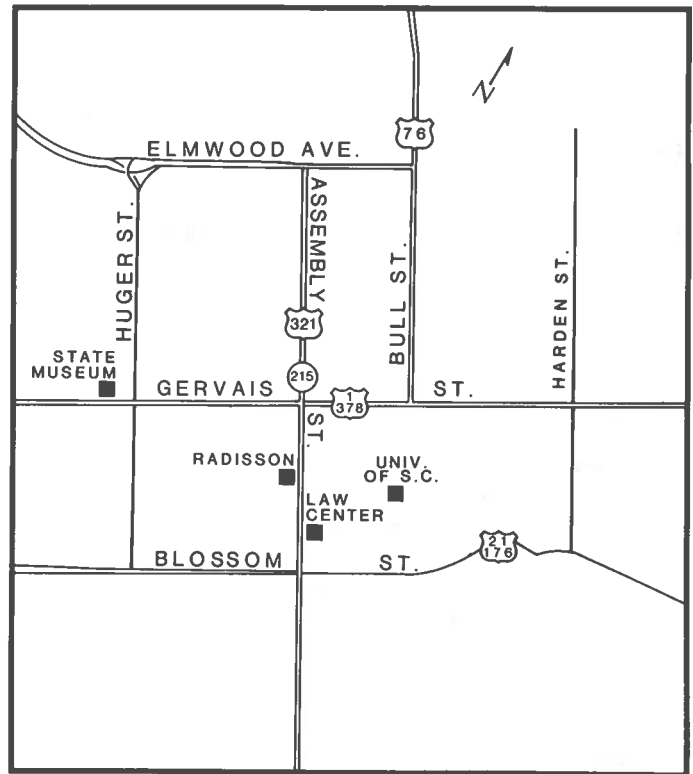
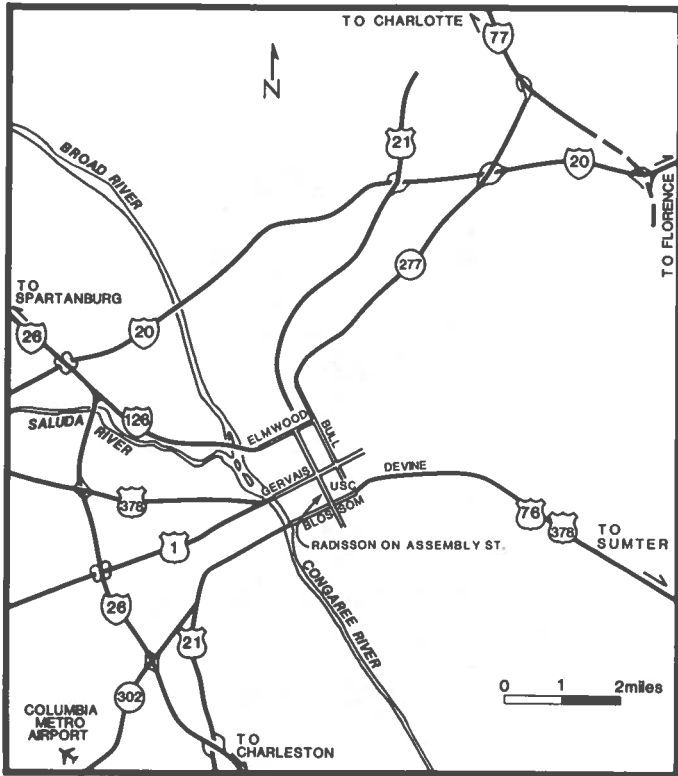
1. Geological and Geotechnical Aspects of Hazardous Waste Disposal, GSX, and Chem-Nuclear (April 6) .....	\$ 40	\$ _____
2. Exhalative(?) Gold Deposits, South Carolina Slate Belt (April 5-6) .....	\$ 55	\$ _____
3. Dextral Strike Slip in Displacement History of Brevard Zone (April 4-6) .....	\$165	\$ _____
4. Neotectonics of the Charleston, South Carolina, Region (April 6) .....	\$ 55	\$ _____
5. Geological and Geotechnical Aspect of Hazardous Waste Disposal, GSX, and Chem-Nuclear (April 9) .....	\$ 40	\$ _____
6. Barrier Islands and Tidal Inlets, Central South Carolina Coast (April 9-10) .....	\$135	\$ _____
7. Geological Transect Through Suspect Terranes of Appalachian Piedmont from Fall Line Through Inner Piedmont (April 9-10) .....	\$135	\$ _____

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

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

Mail to  
 Liza Morris  
 Earth Sciences and Resources Institute  
 University of South Carolina  
 Columbia, SC 29208

**PREREGISTRATION DEADLINE: MARCH 4, 1988**



**HOUSING FORM**

Geological Society of America

Southeastern Section, April 6-8, 1988, Columbia, South Carolina

DEADLINE FOR RESERVATIONS: MARCH 14, 1988

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:

Type of card:  American Express  Carte Blanche

- \_\_\_\_\_ Single \$65
- \_\_\_\_\_ Double \$65
- \_\_\_\_\_ Triple \$65
- \_\_\_\_\_ Quadruple \$65

Diner's Club  Discovery  MasterCard  VISA

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

(All rates subject to state taxes, currently totaling 7%)

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

Check-in time: 3:00 pm Check-out time: 12:00 noon

Reservations will be held until 6:00 p.m. unless guaranteed or covered by deposit. Reservations received after 3/14/88 will be accepted on a space-available basis at regular (non-convention) rates.

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

Mail completed housing form to:

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

Radisson Hotel Columbia  
Reservations Office  
937 Assembly Street  
Columbia, SC 29201

(800) 333-3333  
or (803) 799-8200

**Southeastern Section** (continued from p. 9)

Rental fees for exhibit booths range from \$150 for an educational exhibit to \$350 for a commercial booth. For further information, please contact either Ed Sharp, Department of Geological Sciences, University of South Carolina, Columbia, SC 29208, (803) 777-6929, or Liza Morris, Earth Sciences and Resources Institute, University of South Carolina, Columbia, SC 29208, (803) 777-5910.

**SPECIAL EVENTS**

**Welcoming Party.** Wednesday, April 6, 7:30-10 p.m., South Carolina State Museum. Shuttle-bus service will be provided to and from the Radisson Hotel Columbia.

**Archaeology Exhibit.** "The First Egyptians" will be opening at the University of South Carolina's McKissick Museum on Friday, April 8. After its opening at McKissick, this exhibition will travel to major museums across the country, ending its tour at the Smithsonian. Organized by Michael Allen Hoffman of the Earth Sciences and Resources Institute, this exhibition will highlight Egypt before the rise of the Pharaohic dynasties.

All of the meetings listed below will be held at the Radisson Hotel Columbia.

**GSA Southeastern Section Management Board Meeting.** Wednesday, April 6, 5-7 p.m.

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

**Paleontological Society Southeastern Section Luncheon and Business Meeting.** Thursday, April 7, 12 noon.

**GSA Southeastern Section Business Meeting.** Thursday, April 7, 5 p.m.

**GUEST ACTIVITIES**

A variety of cultural, recreational, and educational activities is available in the Columbia area for guests and conventioners who choose to extend their visits. These activities include the award-winning Riverbanks Zoo, historic houses, and the Congaree Swamp National Monument. For additional information on guest activities, please contact Jeannie Kanes at (803) 777-6484 or the Columbia Visitors' Bureau at (803) 254-0479.

**TRAVEL**

The Columbia Metropolitan Airport is served by American, Delta, Eastern, Piedmont, and United airlines. Columbia is centrally located in South Carolina, at the intersections of Interstate Highways 20, 26, and 77. From this location, either the Atlantic coast or the Blue Ridge Mountains can be reached in a few hours' drive.

**HOUSING**

A block of rooms for the meeting has been reserved at the Radisson Hotel, 937 Assembly Street, Columbia, SC 29201, (803) 799-8200. Rates for this meeting are \$65 for single, double, triple, or quadruple accommodation. 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, Discovery, MasterCard, VISA). Complete the Housing Form and send it to the Radisson Hotel Columbia (address on form). **ROOM RESERVATIONS MUST BE RECEIVED BY MARCH 14, 1988.**

Additional housing is available in the Columbia area. For more information, contact the Columbia Visitors' Bureau at (803) 254-0479.



# SHORT OF RESEARCH FUNDS? We're working on the problem.

Give us a hand by joining the CENTURY CHALLENGE

Call the GSA Foundation  
303-447-2020 • 800-GSA-1988

or mail contribution form to:  
GSA FOUNDATION  
3300 Penrose Place  
P.O. Box 9140  
Boulder, CO 80301-9974

To the Geological Society of America Foundation:

My Century Challenge payment preference is:

- check for \$100 is enclosed
- check for \$50 is enclosed. Please bill me for \$50 next year.
- check for \$25 is enclosed. Please bill me for \$25 in each of the next three years.
- I recognize the strong need for research funds in our profession. I am joining the Trustees as a Challenge Partner by enclosing my check for \$ \_\_\_\_\_ (minimum \$250).

Name \_\_\_\_\_

Address \_\_\_\_\_

Signature \_\_\_\_\_

## CALL FOR APPLICATIONS AND NOMINATIONS FOR GSA BOOKS SCIENCE EDITOR

GSA solicits applications and nominations of persons qualified to serve as GSA Books Science Editor. The term of the current Editor will end December 31, 1988, and the new Editor will begin a three-year term at that time. A phased transition should begin by September 1988.

This is not a salaried position, but GSA pays expenses for secretarial assistance, mail, telephone, and copying and for travel to meetings of the GSA Publications Committee twice each year. The GSA headquarters staff handles copyediting and production of books from accepted manuscripts.

Interested persons should submit a vita, a list of publications, and a letter describing relevant qualifications, experience, and objectives. Nominations should include a letter and the nominee's written permission, vita, and publications list. Applications and nominations should be sent **BEFORE MARCH 15, 1988**, to:

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

### Duties

- Encourage submission of appropriate manuscripts or collections of manuscripts to GSA for Memoir, Special Paper, and Microform series (*not* Decade of North American Geology).
- Respond to inquiries, oral or written, about possible manuscripts.
- Inform prospective authors and volume editors about GSA policies and procedures.
- Appoint volume editor(s) and supervise selection of reviewers for multi-paper volumes.
- Select and recruit reviewers for single-paper volumes; send out manuscripts for review. Advise author(s) about necessary revisions.
- Inform volume editors on procedures for review and revision of papers.
- Review each proposed volume upon receipt of final draft from author(s) or volume editor(s). If volume is up to standard, forward it to GSA headquarters with a recommendation for publication.

- Keep the GSA Committee on Publications and the headquarters staff informed about the flow of manuscripts and other GSA book business.

### The GSA Books Science Editor should have

- Strong, broad background in geological sciences.
- Good organizational skills.
- Willingness to invest the necessary time (sometimes 15-20 hours/week).
- Familiarity with many earth scientists and their work.
- Good English language skills.
- Objectivity regarding subject matter and author(s) and affiliation(s).
- Scientific maturity (but eyesight intact).
- Patience, courtesy, and tact in dealing with agitated authors and editors.
- Persistence in finding and recruiting suitable reviewers.

## Applications Sought for Senior and Postdoctoral Research Associateships

The National Research Council announces the 1988 Resident, Cooperative, and Postdoctoral Research Associateship Programs for research in the sciences and engineering to be conducted in behalf of 28 federal agencies or research institutions, whose laboratories are located throughout the United States. The programs provide Ph.D. scientists and engineers of unusual promise and ability with opportunities to perform research on problems largely of their own choosing yet compatible with the research interests of the supporting laboratory.

Approximately 450 new full-time Associateships will be awarded on a competitive basis in 1988 for research in chemistry, earth, and atmospheric sciences; engineering and applied sciences; biological, health, and behavioral sciences and biotechnology; mathematics; space and planetary sciences; and physics. Most of the programs are open to both U.S. and non-U.S. nationals and to both recent Ph.D. degree recipients and senior investigators.

Awards are made for one or two years; senior applicants who have held the doctorate at least five years may request shorter

tenure. Annual stipends for recent Ph.D.s for the 1988 program year will range from \$27,150 to \$35,000, depending upon the sponsoring laboratory, and will be appropriately higher for senior Associates.

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

Applications to the National Research Council must be post-marked no later than January 15, April 15, and August 15, 1988. Initial awards will be announced in March and April (July and November for the two later competitions) followed by awards to alternates later.

Information on specific research opportunities and federal laboratories, as well as application materials, may be obtained from the Associateship Programs, Office of Scientific and Engineering Personnel, GF1 Room 424-D3, National Research Council, 2101 Constitution Avenue, N.W. Washington, DC 20418, (202) 334-2760.

**FINAL ANNOUNCEMENT**  
**NORTH-CENTRAL SECTION, GSA, 22nd Annual Meeting**  
**Akron, Ohio, April 21-22, 1988**

The North-Central Section of the Geological Society of America will be hosted by the Department of Geology of the University of Akron and will meet concurrently with the North-Central Section of the Paleontological Society, the Great Lakes Section of the Society of Economic Paleontologists and Mineralogists, the National Association of Geology Teachers, and the Pander Society.

### REGISTRATION

Registration is required for all those participating in any event, including technical sessions, exhibits, planned social events, and field trips. A discount is offered for those who use the forms accompanying this notice before *March 25, 1988*. Student registrants must present proper identification or verification to be eligible for student discounts. In-service K-12 earth science teachers will be permitted to pay student registration rate with a letter from their supervisor, on school district letterhead.

**Preregistration.** You are requested to register in advance so that the local committee can plan more efficiently. Your registration form and payment *must be postmarked no later than March 25, 1988* to qualify for the reduced preregistration fees. Please complete the accompanying preregistration form and return it—with a check or money order payable to the University of Akron—to North-Central Section, Geological Society of America, Department of Geology, University of Akron, Akron, OH 44325.

**On-Site Registration.** Registration will be from 7 to 9 p.m. on Wednesday, April 20, at the welcoming party in the Ocasek Government Office Building. Thereafter, registration will take place on the first level of the Gardner Student Center (G.S.C.), University of Akron, in the Perkins Lounge from 8 a.m. to 4 p.m. Thursday and Friday, April 21 and 22. Preregistrants may pick up their folders and tickets at the registration desk. A limited number of tickets for special events will be available for those who did not preregister.

Requests for advance registration refunds will be honored until April 8, 1988, for all but field trip fees, which will be refunded only if the space can be resold.

### TECHNICAL PROGRAM

Technical sessions and symposia will be held in the Gardner Student Center, University of Akron. Technical sessions will include paleontology, stratigraphy and sedimentology, hydrogeology, Quaternary geology and geomorphology, geophysics and remote sensing, structural geology and tectonics, engineering and environmental geology, and general geology. Oral and poster presentations will be accommodated.

### SYMPOSIA

1. **Seismicity of the Great Lakes Region.** A.W.G. Kunze, University of Akron; S. S. Alexander, Pennsylvania State University.
2. **Geochemistry of Sediments.** Samuel M. Savin, Case Western Reserve University.
3. **Petroleum Geology of the Appalachian Basin,** a Clinton Centennial. Arthur E. Burford, University of Akron; George Kotska, Park Ohio Energy.
4. **Depositional and Geochemical Features of Low-Sulfur Coals.** Lindgren Lin Chyi, University of Akron.
5. **Sedimentary Iron Accumulation through Geologic Time,** sponsored by SEPM Great Lakes Section. Annabelle M. Foos, University of Akron; Bruce M. Simonson, Oberlin College.

6. **Great Lakes Levels and Public Policy: A Geological Perspective.** Charles H. Carter, University of Akron.

7. **Carboniferous Paleontology and Biostratigraphy of the Mid-Continent Region,** sponsored by the Paleontological Society. Gerald T. Weber, MacAlester College.

8. **Hydrogeology of Glacial Terrains.** Lon C. Ruedisili, University of Toledo; John P. Szabo, University of Akron.

9. **Public Lands and the Teaching of Geology,** sponsored by the National Association of Geology Teachers. Barbara M. Manner, University of Akron.

### ABSTRACTS WITH PROGRAMS

All members of the North-Central Section of the Geological Society of America will have been mailed a copy of the 1988 North-Central Section *Abstracts with Programs* IF they have paid their dues and selected and paid for the North-Central Section *Abstracts with Programs* on their dues statement. *Please bring your copy to the meeting.* A limited number of copies will be available for purchase at the meeting.

### PROJECTION EQUIPMENT

All slides must be 2" x 2" and fit a standard 35-mm carousel projector. Two projectors will be available in each meeting room. *Please bring your own loaded carousel trays.* The Speaker Ready Room is Chestnut B Room. Carousel projectors will be available for speakers to preview their slides. Speakers are asked to deliver carousel trays, labeled with the speaker's name, to the appropriate session projectionist 15 minutes before the session begins.

### SMOKING, CAMERAS, AND SOUND-EQUIPMENT 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 in the lobby of the Gardner Student Center, where technical programs will be held. A single 8' x 10' booth costs \$100 for the duration of the meeting. GSA and Ohio Geological Survey publications will be available for purchase. For additional information, contact Charles H. Carter, Department of Geology, University of Akron, Akron, OH 44325, (216) 375-7632.

### SPECIAL EVENTS

**Welcoming Party:** A welcoming party will be held in the Ocasek Government Office Building, from 7 to 9 p.m. on Wednesday, April 20. The building is fashioned with Caledonian gray granite from St. Sebastian Quarry in Quebec. The University of Akron Steel Drum Band will entertain.

*(continued on p. 15)*

## North-Central Section (continued from p. 14)

### North-Central Section GSA Management Board

**Meeting:** luncheon at noon in the Carnation Room, G.S.C., Friday, April 22.

**Annual Banquet:** in the Hilltop Dining Lounge at 7 p.m. on Thursday, April 21. Cost: \$12. A brief business meeting of the North-Central Section, to be conducted immediately after the banquet, will be followed by a talk by Guy Sitler, President, Stocker and Sitler, Inc.

### Society of Economic Paleontologists and Mineralogists

**Great Lakes Section Luncheon:** in the Carnation Room, G.S.C., at noon on Thursday, April 21. The luncheon will be followed by the SEPM business meeting. Cost: \$7.

### Paleontological Society and Pander Society Joint

**Luncheon:** in the Buckeye A and B Room, G.S.C., at noon on Friday, April 22. The luncheon will be followed by the Paleontological Society business meeting. Cost: \$8.

### GSA Campus Representatives Breakfast:

in the Carnation Room, G.S.C., at 7 a.m. on Friday, April 22.

## SPOUSE/GUEST PROGRAM

Information for individual guided tours and possibly group tours (depending on registration) will be available for the following: Stan Hywet Hall (Old English Tudor mansion), Hower House (Victorian style), Akron Museum of Art, Cleveland Museum of Art, Cleveland Museum of Natural History, Amish countryside (cheese factory, store, and restaurant), Pro-Football Hall of Fame, Quaker Square (specialty shops), and numerous other points of interest. Cost: about \$5 per person, depending on activity and number. Please indicate your interests on the registration form by checking those listed (only those requiring special arrangements are listed).

## MEALS

Restaurants are in all hotels; food services of the Gardner Student Center as well as many others offer a wide variety within a few blocks of the university. (One popular site is the converted mill and silos of the original Quaker Oats Cereal Company, known as Quaker Square and listed in the National Historic Register.)

## STUDENT AWARDS

The North-Central Section will award \$100 each for a maximum of four of the best papers written and delivered exclusively by 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 session on stratigraphy and sedimentology or in the Sedimentary Iron Accumulation Through Geologic Time Symposium.

## TRAVEL

Akron is served by many airlines at Akron-Canton and Cleveland-Hopkins airports. Airport Limousine Service provides fast and inexpensive service for the 16-mi and 40-mi trip to these two airports, respectively (regular fare to Akron-Canton is \$8.25; to Cleveland-Hopkins, \$10.25). By car, the area is served by Interstates 77 and 76. Parking is available for those who prefer to drive (see map, parking lot no. 8 on campus).

## HOUSING

Blocks of rooms have been reserved at Holiday Inn Cascade and Hilton Quaker Square. To make reservations and to obtain the reduced rates indicated below, contact the Holiday Inn or Hilton Quaker Square directly and state that you will be attending the GSA

meeting at the University of Akron. Rooms not reserved by March 21 will be released. A shuttle service between both hotels and the University of Akron Gardner Student Center will operate in the early mornings and late afternoons.

Holiday Inn Cascade

V Cascade Plaza

Akron, OH 44308

Phone: (216) 762-0661

Rate: \$45 single plus

\$6 each additional

person up to 4 total

Plus 11.5% tax

Quaker Square Hilton

135 South Broadway

Akron, OH 44308

Phone: (216) 253-5970

Rate: \$68 single

\$76 double

\$15 each additional person

Plus 11.5% tax

Information concerning additional housing is available from: Akron-Summit Convention & Visitor Bureau, Inc., I Cascade Plaza, Akron, OH 44308, phone: (216) 376-4254.

## FIELD TRIPS

All field trip participants must preregister and must also register for the meeting. *Preregistration deadline is March 25, 1988.* Trips may be canceled if registration is insufficient. No refunds will be made after April 15, 1988. All trips will depart at 8 a.m. (unless noted).

### Premeeting

1. **Late Devonian and Early Mississippian Distal Basin-Margin Sedimentation, Northern Ohio.** Thomas L. Lewis. One day, Wednesday, April 20.

Clastic sediment influxes, derived from southeastern, eastern, and northeastern sources, prograded westward into a shallow basin in the northwestern margin of the Appalachian basin in Late Devonian and Early Mississippian time (Lewis, 1976, 1986). The distal part of the basin was delimited early by the western margin of the thinning, prograding Chagrin clastic wedge that provided a gentle northwest and west paleoslope that supplied and directed clastics of the lower Cleveland shale (Lewis, 1967, 1978). Westward, the basin likely shallowed near the axis of the Cincinnati-Findlay arch, which (although perhaps submerged and draped with black muds) provided lineation to the basin and isolated stagnant conditions in the basin (Lewis and Schwietering, 1971). Submergence with rising sea levels coupled with variation of amounts and rates of clastic-sediment input, diminution or diversion of supplies, faulting, and soft-sediment deformation within the distal basin accommodated the variable clastic influxes of the Bedford Formation and Berea Sandstone. Temporary emergence may have preceded upper Berea deposition on the basin shelf margin and locally, with uplift, provided repeated emergence features. Limit: 25; cost: \$30, including lunch.

2. **Applied Environmental Geology in Northeast Ohio.** Jim L. Jackson. One-half day, Wednesday, April 20, 1-5 p.m.

Hardy Road Landfill has been operated by the City of Akron for nearly 20 years. Geologic features of the site include a buried valley more than 150 m deep and evidence of multiple glacial events. Leachate studies have not revealed a groundwater contamination problem. Lake silts underlie the course surficial drift. Explosion of methane gas in a private dwelling occurred offsite in 1984. Gas migration has been controlled with a collection system. A shutdown of the system for overhaul and improvement provided additional gas data.

Industrial Excess Landfill of Uniontown, Ohio is a Superfund site now undergoing extensive study by contractors for the

(continued on p. 17)





### North-Central Section

(continued from p. 15)

Environmental Protection Agency. Ground-water contamination is a major concern. The site had been a gravel pit. Compacted lodgment till beneath the gravel, muck soil, and local topography has limited water-contamination problems.

Limit: 25; cost: \$25.

### Postmeeting

**3. Upper Pennsylvanian Coals and Associated Rocks—Depositional Environments, Sedimentation, Paleontology, and Paleobiology.** Aureal T. Cross and others. Two days, Saturday, April 23, and Sunday, April 24.

Special points of interest for observation, analysis, and collection include Allegheny-Conemaugh coals and associated rocks exposed in several strip mines and roadside/streamside outcrops; exposures of fluvial, deltaic, and possibly longshore systems; marginal lagoons and channels; and continuous and lenticular marine, brackish, and freshwater limestones, mudstones, and coarser clastics. Observation and discussions of special depositional and structural features augment the study of exposures where lateral variability of sedimentation and shifting environments of deposition are clearly exposed and where regional faults appear to have modified sedimentation penecontemporaneously. One remarkable locality (strip pit) which has been intensively studied is a partially freshwater through brackish to marine section above the Upper Freeport Coal (?). Strata contain an assortment of cockroaches, spiders, millipedes, shark teeth, lungfish scales, cephalopods, brachiopods, corals, snails, clams, beautiful fern and seed fern fronds, and branches of one of the earliest conifers known in North America. We will visit the classic Linton Cannel Coal site (Upper Freeport) vertebrate locality, from which 40 genera from 6000 specimens of fish, tetrapods, and reptiles have been collected, and we will evaluate recent structural and depositional interpretations. Two mid-Conemaugh coal-ball localities near Steubenville which have a very well-studied diverse flora will provide opportunity to see coal balls in place.

Limit: 40; cost: \$116, including 2 lunches, lodging (shared, one night).

**4. Glacial and Postglacial Deposits in Northeastern Ohio.** John P. Szabo, Charles H. Carter, Pierre W. Bruno, Edward J. Jones. One day, Saturday, April 23.

Recent high levels of Lake Erie have produced severe erosion and mass wasting along the shore. At the same time it has produced excellent exposures of glacial and postglacial deposits east of Cleveland, Ohio. Glacial deposits consist of an older(?) "coastal till" and the late Wisconsin Ashtabula Till, whereas postglacial deposits generally are gravels, sands, and silts. Lithofacies of the Ashtabula Till include sheared, massive diamicts and resedimented diamicts. Some lithofacies of postglacial sediments represent deltaic environments.

Limit: 25; cost: \$25, including lunch.

**5. Geology of the Cuyahoga Valley National Recreational Area.** Robert G. Corbett, Barbara M. Manner (National Association of Geology Teachers). One day, Saturday, April 23.

Shallow marine black shales of Devonian age, offshore marine, coastal, fluvial, and marine sedimentary rocks of Mississippian age, and braided stream sandstones of Pennsylvanian age are exposed in stream valleys, and stratified and unstratified deposits of Wisconsin age cap the area in and adjacent to the CVNRA. We will consider three contradictory hypotheses on the origin of the Berea Formation: (1) continental lower and marine upper, (2) eolian, and (3) fluvial and tidal channel. Geologic terrain and geomorphic

history have influenced development of seven habitats. Human activity is minimal; the sites are accessible and protected from future development, and the sequence of stops follows ages of bedrock, oldest to youngest.

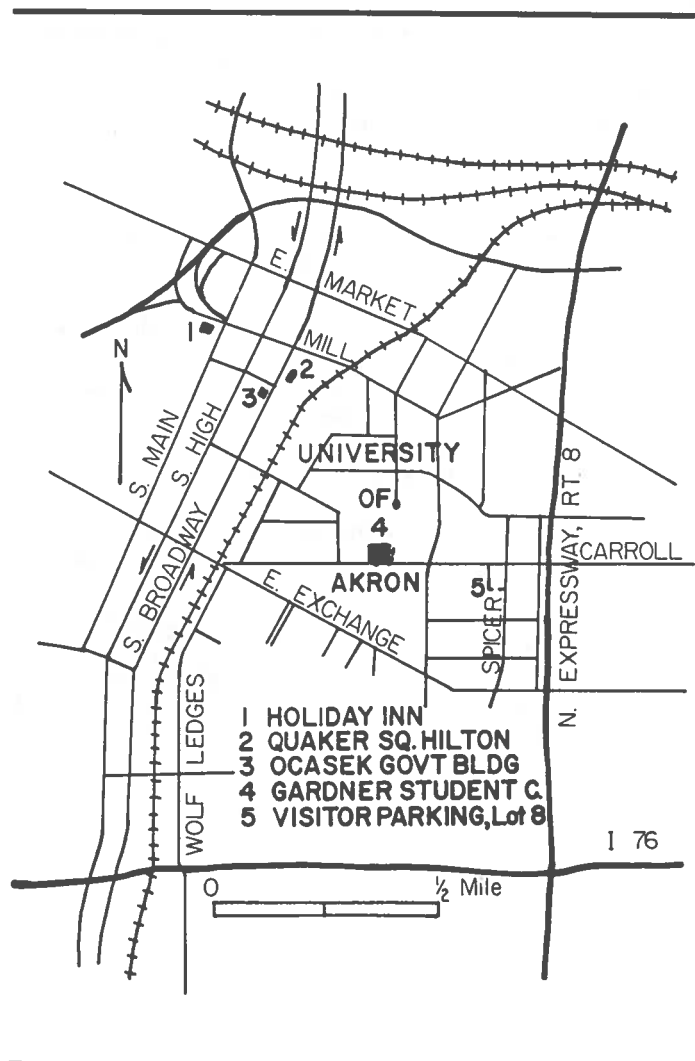
Limit: 40; cost: \$30, including lunch.

**6. Middle Devonian Carbonate Rocks and Shales of North-Central Ohio.** Dale Sparling, Frank Huntly (Pander Society). Two days, Friday, April 22 (evening) and Saturday, April 23. Participants will assemble at the Ramada Inn in Sandusky on Friday evening.

This field trip provides an opportunity to examine some of the best exposures of Middle Devonian strata in north-central Ohio. Emphasis will be on primary and diagenetic lithologic features, faunal assemblages, the sequence of depositional settings that these record, and interregional correlations. The carbonate rock and shale units examined reflect entirely marine deposition of the southeastern flank of the Findlay Arch. Dip is southeastward into the Allegheny basin, and the sequence of field trip stops is broadly from north to south traveling down dip—and thus upsection.

Although the Middle Devonian of north-central Ohio has been studied by paleontologists and stratigraphers for many decades, correlations of it with strata in surrounding regions are still somewhat controversial.

Limit: 25; cost: \$114, including lodging and lunch.



# FOUNDATION NEWS

by Robert L. Fuchs

## Foundation Announces New Fund: GEOSTAR

The GSA Annual Meeting in Phoenix in October 1987 proved to be an important milestone in the Foundation's history as the Board of Trustees approved the establishment of GEOSTAR, a new fund Supporting The Advancement of Research. While Century Challenge, the other major fund-raising campaign sponsored by the Foundation, is directed toward broad membership participation, GEOSTAR will focus on larger gifts from members, other individuals, industry, and institutions. Both programs celebrate the Society's 100th anniversary, which will culminate at the 1988 Annual Meeting in Denver in November.

Although Century Challenge will be completed at the end of 1988, GEOSTAR will continue for several more years, toward an ultimate goal of \$4 million. In this regard, GEOSTAR will be similar in size to the Decade of North American Geology fund drive in 1981 and 1982, wherein large industrial contributors (principally energy companies) and the U.S. Government pledged a total of \$3.4 million to finance the DNAG series of publications. Because of changing natural-resource economics and the emergence of other important activities that utilize the earth sciences, such as precious-metals prospecting, mining, and environmental preservation, it is anticipated that contributions to GEOSTAR will come from a much broader spectrum of donors. Special gifts from individuals will be an important part of the contributions that will flow into GEOSTAR.

More details on GEOSTAR and its progress will appear in future issues of *GSA News & Information*.

### Leighton & Associates Kickoff Gift

The most important Foundation event at Phoenix was a \$10,000 GEOSTAR gift from Leighton & Associates, presented by the company's chairman and CEO F. Beach Leighton, also a member of the Foundation's Board of Trustees. In accepting this gift (see photo), board chairman Harry Jamison responded, "We are absolutely delighted with Beach Leighton's contribution, particularly



F. Beach Leighton presents check for GEOSTAR fund to Foundation Board of Trustees Chairman Harry Jamison.

because it marks the initial gift in what will be the GSA Foundation's most important long-term fund-raising program. This contribution is an excellent example of earth science self-help, an important commercial utilizer of geology making an investment to ensure future strength and growth of the profession."

### FOUNDATION TO FUND MATCHING STUDENT-TRAVEL GRANTS

The GSA Foundation will award matching grants in the amount of \$2000 each to the six GSA Sections. The money, when combined with equal funds from the Sections, will be used to assist students traveling to 1988 Section meetings and the Centennial Celebration in Denver in November.

Travel grants will be awarded and administered by the Sections, whose officers should be contacted for further information.

### WE HAVE A WINNER!

Thomas Arkle, Jr., of Morgantown, West Virginia, is the winner of two free round-trip air tickets to any U.S. destination. His name was drawn at the conclusion of the 1987 GSA Annual Meeting in Phoenix from all Century Challenge participants.

### CENTURY CHALLENGE REPORT

Cumulative as of October 31, 1987:

Donors: 206

Contributed & pledged: \$33,420

### IS THE FOUNDATION IN YOUR WILL?

Recently we have heard from several people that they have designated the GSA Foundation in their wills as a bequest recipient. If you have made or intend to make such a designation, we would very much appreciate being notified.

If you are making or revising a will and are giving thought to including the GSA Foundation, we have information on wills and bequests that might be of interest to you. Please call or write GSA Foundation, P.O. Box 9140, Boulder, CO 80301, (303) 447-2020.

**GSA Foundation**  
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Funding is needed for geologic research. I would like to support the GSA Foundation.

Please send information on

- Investments & Taxes
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### PRESIDENT

#### Albert W. Bally

b. The Hague, Netherlands, 4-21-25; m. 50, c. 3; cit. Switzerland. *GEOLOGY. Educ.*: Univ. Zurich, PhD (geol.), 53. *Prof. exp.*: Gulf Oil, 53; post-doctoral Lamont-Doherty Geol. Observ., 53-54; explor., 54-62, chief geol., 62-66, Shell Canada; mgr. geol. res., Shell Dev. Co. (Houston), 66-68; chief geol. U.S.A., 68-75, consulting geol., 75-80, sr. explor. consultant, 80-81, Shell Oil; chmn. dept. geol., Rice Univ., 81-86; **HARRY CAROTHERS WIESS PROFESSOR OF GEOLOGY, RICE UNIV., 81-**. *Concurrent pos.*: mem. ad hoc comm. on the geol. sci., NRC, 68; Crosby visiting prof., Massachusetts Inst. Tech., Spring 77; mem. passive margin panel Internat. Panel Ocean Drilling (IPOD), 75-78; mem. Interunion Comm. Geodynamics and section ed. final rept. 78-79; mem. U.S. Geodynamics Comm., 77-80; chmn. site selection comm., 74-80, exec. comm., 74-80, 82-, Consortium Continental Reflection Profiling; mem. oceanography advisory, exec. comm., Natl. Sci. Found., 78-79; chmn. panel res. and problems on continental margins, Natl. Acad. Sci., 76-78; mem. sci. comm., 78-80, chmn., 80-83, Internat. Geol. Correlation Programme (IGCP); mem. IUGS task group post-geodynamics proj. planning, 78-79; mem. plate tectonics delegation, Natl. Acad. Sci. comm. scholarly communication with People's Republic of China, 79; mem. ocean sci. bd., Natl. Acad. Sci., 82; mem. Am. Assoc. Petrol. Geol. educ. comm., 82; mem. publications advisory comm., Am. Geol. Inst., 83-; sci. consultant, Institut Francais du Petrole, 82-; Trans Alaska Lithosphere Investigation, 83; Tectonics Panel, 84-85, Atlantic Regional Panel, 84-85, JOIDES Ocean Drilling Proj.; ed. three vols. "Seismic Expression of Structural Styles: a picture and work atlas," pub. AAPG, 84; mem. Lithoprobe Eval. Comm. for Sci. Engineering Res. Coun. Canada, 85-; chmn. Am. sedimentary basins delegation to the People's Republic of China, comm. on scholarly communication with People's Republic of China, Natl. Acad. Sci., 85-86. *Honors & awards*: Canadian Soc. Petrol. Geol. Merit Award Medal (together with P.L. Gordy, C. Steward), 66; Geol. Soc. London William Smith Medal, 82; mem. Associe Soc. Geol. de France, 84; Am. Assoc. Petrol. Geol. President's Award, Best Special Publication, 85; hon. mem., Am. Assoc. Petrol. Geol., 86; Geologische Vereinigung Gustav Steinmann Medal, 87. *Mem.*: Am. Assoc. Petrol. Geol.; Am. Geophys. Union; fel. Geol. Soc. Amer., (counc., 75-77; v. pres., 87; pres., 88); fel. Am. Assoc. Adv. Sci.; Canadian Soc. Petrol. Geol.; Geologische Vereinigung; Schweizerische Geologische Gesellschaft; Vereinigung Schweiz Petroleum-Geologen und Ingenieure; Houston Geol. Soc.; Soc. Geologica Italiana; Assoc. Geoscientists for Internat. Development. *Res.*: Petroleum geology, structural geology, tectonics, and regional geology. *Mailing address*: Dept. of Geology, Rice University, P.O. Box 1892, Houston, TX 77251. *Phone*: (713) 527-4880.

### VICE-PRESIDENT

#### Randolph W. Bromery

b. Cumberland, MD, 1-18-26; m. 47; c. 5. *GEOLOGY, GEOPHYSICS. Educ.*: Howard Univ., BS, 56; American Univ., MS, 62; Johns Hopkins Univ., PhD, 68. *Honorary degrees*: EdD, Western New England Coll.; DSc, Frostburg State Coll.; LHD, Univ. of Massachusetts; LLD, Hokkaido Univ. *Prof. exp.*: geophysicist, U.S. Geol. Surv., 48-67; assoc. prof. geophysics, 67-69, head dept. geol. & geog., 69-70, v. chancellor, 70-71, exec. vice-pres. & chancellor, 71-79, **COMMONWEALTH PROF. OF GEOPHYSICS, 79-**; **PRES., GEOSCIENCE ENGINEERING CORP., 83-**; **DIR., EXXON CORP., 77-**, **SINGER CO., 76-**, **NYNEX CORP., 87-**, **JOHN HANCOCK INS. CO., 87-**. *Concurrent pos.*: professorial lectr., Howard Univ., 61-65; consultant, USAID, U.S. Dept. of State, 64 & 68; sr. scientist, Conn. Geol. & Natural History Surv., 67-71; consultant, Kennecott Copper & Esso Eastern, 64-75; mem. bd. of dir.: New England Telephone Co., 73-81, and Northwestern Mutual Life Ins. Co., 77-79; pres., Weston Geophysical Internat., 81-83; mem. bd. of trustees: Johns Hopkins Univ., Mount Holyoke Coll., and

Talladega Coll.; incorporator, Woods Hole Oceanographic Inst. and Boston Museum of Sci.; v. chmn. and dir., New Coalition for Econ. and Social Change; mem. Advisory Comm. Sch. of Earth Sci., Stanford Univ., 84-87; mem. U.S. Dept. of Commerce, Sea Grant Review Panel, 77-80, chmn., 79-80; mem. bd. of overseers, visiting comm., Dept. of Geol. Sci., Harvard Univ., 76-81; mem. bd. of overseers, visiting comm., Dept. Earth and Planetary Sci., Massachusetts Inst. Tech., 82-85; mem. Advisory Comm., Sch. of Arts and Sci., Johns Hopkins Univ., 82-; mem. Advisory Comm., American Men and Women in Sci., 73-79; mem. special comm. to Republic of Zaire, educ. and geol., NAS, 70; mem. Advisory Comm. on Minorities in Engineering, Sloan Found., 74-77; mem. Special Advisory Panel, secy., Dept. of Interior, 76-77; mem. Grad. Record Exam. Comm., ETS, 81-87, chmn., 83-87; mem. Special Comm. on Governance in South Africa, World Peace Found. & South African Inst. for Internat. Affairs, 79. *Honors & awards*: pres., Soodoo Womens Univ., Seoul, Korea; spec. award, Northeast Corridor Prog., U.S. Geol. Surv., 67; spec. commendation, Republic of Liberia, 66; cert. of appre., Republic of Liberia, 72; alumni award, Distinguished Postgrad. Achievement, Howard Univ., 85; Award for Excellence in Physical, Earth, and Atmos. Sci., Natl. Consort. for Black Professional Development, 77; official guest, pres. Republic of Malawi, 71; official guest, pres. Republic of Cameroons, 78. *Mem.*: Geol. Soc. Amer. (counc., 77-79; v. pres., 88); Soc. Explor. Geophys.; fel. Am. Geophys. Union; fel. Am. Assoc. Adv. Sci.; New York Acad. of Sci.; NRC Bd. on Earth Sci.; OCS Scientific Advisory Comm.; Sigma Xi; Phi Kappa Phi; Phi Eta Sigma (hon.); Cosmos Club; Council on Foreign Relations. *Res.*: gravity, magnetic, radioactivity, electrical and seismic surveying methods applied to geologic mapping programs and hydrological and civil engineering programs. *Mailing address*: Dept. of Geology and Geography, Morrill Science Center, Univ. of Massachusetts, Amherst, MA 01003. *Phone*: (413) 545-2120, (413) 545-2211.

### PAST PRESIDENT

#### Jack E. Oliver

b. Massillon, OH, 9-26-23; m. 64; c. 2. *GEOPHYSICS. Educ.*: Columbia Univ., BA, 47, MA, 50, PhD (geophys.), 53. *Prof. exp.*: scientist's aide, U.S. Naval Res. Lab., 47; physicist, Air Force Cambridge Res. Lab., 51; res. assoc. Lamont-Doherty Geol. Observ., Columbia Univ., 53-55; from instr. to prof. geol., 55-71, chmn. dept. geol., 69-71, adj. prof., 71-73, Columbia Univ.; chmn. dept. geol. sci., 71-81, **DIR. INST. FOR THE STUDY OF THE CONTINENTS (INSTOC), 83-**, **IRVING PORTER CHURCH PROF. ENG. CORNELL UNIV., 71-**. *Concurrent pos.*: consult. President's Scientific Advisory Comm. Panel on Seismic Improvement, 58-59; Air Force Tech. App. Ctr., 58-65; Advanced Res. Proj. Agency, 59-63; U.S. Arms Control & Disarmament Agency, 62-73; Comm. on Seismology & Earthquake Eng., UNESCO, 65; AEC, 69-74; mem. Comm. on Polar Res., 59-71. mem. Comm. on Seismology, 60-72, chmn., 66-70, NAS; chmn. Geodesy Comm., 75-76; mem. Scientific Advisory Bd., U.S. Air Force, 60-63, 64-69; mem. Ofc. of Scientific Res. Contractor's Res. Eval. Panel, 61-74, chmn., 66-68; mem. Advisory Comm., U.S. Coast & Geod. Surv., 62-66, Panel Solid Earth Probs, 62; mem. Natl. Comm. Upper Mantle Prog., 63-71, Site Selection Comm., 65; Carnegie Inst. Advisory Comm. Awards, Gilbert & Wood Fund, 64-68; Geophys. Res. Bd., 69-70; chmn. exec. comm. Ofc. Earth Sci., NRC, 76-79; chmn. Geol. Sci. Bd., Assembly Math & Applied Sci., 81-84; mem. U.S. Geodynamics Comm., 79-88, chmn., 84-88; mem. Continental Scientific Drilling Comm., 81-84; mem. Advisory Comm. Sch. of Earth Sci., Stanford Univ., 84-87; mem., comm. on Physical Sciences, Mathematics, and Resources, NRC, 87-90. *Honors & awards*: Walter Bucher Medal, Am. Geophys. Union, 81; Virgil Kaufmann Gold Medal Award, Soc. Explor. Geophysicists, 83; Eighth Medal of the Seismol. Soc. Amer., 84; mem. Natl. Acad. Sci., 84; Cabot Distinguished Visiting Scholar,

(continued on p. 21)

## GSA Officers and Councilors (continued from p. 20)

Univ. Houston, 85-86. *Mem.*: fel. Am. Assoc. Adv. Sci.; fel. Seismol. Soc. Amer. (v. pres., 62-64, pres., 64-65); fel. Am. Geophys. Union; fel. Geol. Soc. Amer. (counc., 71-73; v. pres., 86; pres., 87); honorary foreign fel., European Union of Geosciences, 86. *Res.*: Seismology; geotectonics. *Mailing address*: INSTOC, 3120 Snee Hall, Cornell University, Ithaca, NY 14853. *Phone*: (607) 255-2377.

### TREASURER

#### Robert L. Fuchs

b. Bay Shore, NY, 12-7-29; m. 86; c. 2. **GEOLOGY**. *Educ.*: Cornell Univ., BA, 51; Univ. Illinois, MS, 52. *Mil. serv.*: U.S. Navy. *Prof. exp.*: area explor. supervisor, analyst, staff geol., party chief, jr. geol., Mobil Oil, NY, Louisiana, Venezuela, Libya, 52-65; dir. prog. support Flow Labs., Inc., 65-66; pres., founder, dir. Con-Serv Corp. & Automation Inst., 66-69; sr. vice-pres., Intercontinental Energy Corp., 69-71; dir. Canyon Resources Corp., 80-; dir. Sheffield Explor. Co., Inc., 81-; dir. Sundance Oil Co., 82-84; pres., founder, dir. Geosystems Corp., 71-86 (name changed to Caland Petroleum Corp. in 84); **MANAGING DIR., FIRST FAIRFIELD INVESTMENT CO., 87-.** *Concurrent pos.*: trustee, v. chmn., 81-82, pres., 87-, Geol. Soc. Amer. Found., 87-. *Mem.*: Am. Assoc. Petrol. Geol., Energy Minerals Div. (pres., 81-82); Am. Inst. Prof. Geol.; Am. Inst. Min. Eng.; fel. Geol. Soc. Amer. (treas., 83-); Rocky Mtn. Assoc. Geol. *Res.*: Natural resource exploration, technical analytical exploration management, venture/asset management, economic geology of petroleum. *Mailing Address*: First Fairfield Investment Co., 1675 Larimer St., Suite 720, Denver, CO 80202. *Phone*: (303) 571-0885.

### COUNCILOR 1986-1988

#### David L. Jones

b. Chicago, IL, 11-12-30; m. 53; c. 4. **GEOLOGY, PALEONTOLOGY**. *Educ.*: Yale Univ., BS, 52; Stanford Univ., MS, 53, PhD, 56. *Prof. exp.*: geol. Western Region, U.S. Geol. Surv., 55-85; **PROF. DEPT. GEOL. GEOPHYS. UNIV. CALIFORNIA, 85-.** *Honors & awards*: co-recipient GSA Structural Geol. Tectonics Div. Best Paper Award, 84. *Mem.*: Geol. Soc. Amer. (counc., 86-88); Paleont. Soc. *Res.*: Molluscan paleontology; Cretaceous of the Pacific Coast region of North America; stratigraphy, structure, radiolarian biostratigraphy and sedimentology of Paleozoic and Mesozoic cherts, Accretionary tectonics of Western North America. *Mailing address*: Department of Geology and Geophysics, University of California at Berkeley, Berkeley, CA 94720. *Phone*: (415) 642-3993.

### COUNCILOR 1986-1988

#### C. Barry Raleigh

b. Little Rock, AR, 8-11-34; c. 4. **GEOPHYSICS**. *Educ.*: Pomona Coll., BA, 56, MA, 59; Univ. California, Los Angeles, PhD (geol.), 63. *Prof. exp.*: res. fel. geophys., 63-65, fel., 65-66, Inst. Advanced Studies, Australian Natl. Univ.; res. geophysicist Natl. Ctr. Earthquake Res., 66-73, br. chief earthquake tectonics, U.S. Geol. Surv.; **DIR. LAMONT-DOHERTY GEOL. OBSERV. and PROF. GEOL. SCI. COLUMBIA UNIV., 81-.** *Honors & awards*: Interdisciplinary Award, Intersoc. Comm. Rock Mech., 69, 74; Meritorious Service Award Dept. Interior, 75. *Mem.*: fel. Geol. Soc. Amer. (counc., 86-88); fel. Am. Geophys. Union. *Res.*: Experimental deformation of rocks at high pressure and temperature; studies of earthquakes triggered by fluid injection; plastic deformation of rock-forming minerals. *Mailing address*: Lamont-Doherty Geological Observatory, Columbia Univ., Palisades, NY 10964. *Phone*: (914) 359-2900.

### COUNCILOR 1986-1988

#### E-an Zen

b. Peking, China, 5-31-28; natl. U.S. **GEOLOGY, PETROLOGY**. *Educ.*: Cornell Univ., BA, 51; Harvard Univ., AM, 52, PhD (geol.), 55. *Prof. exp.*: res. fel., 55-56, res. assoc., 56-58, Oceanog. Inst. Woods Hole; visiting asst. prof. Univ. of North Carolina, 58-59; **RES. GEOLOGIST, U.S. GEOL. SURV., 59-.** *Concurrent pos.*: visiting assoc. prof. California Inst. Technol., 62; Crosby visiting prof. Massachusetts Inst. Technol. 72; Harry Hess visiting fel. Princeton, 81. *Honors & awards*: Arthur L. Day Medal, GSA, 86. *Mem.*: Natl. Acad. Sci.; fel. Am. Acad. Arts and Sci.; fel. Am. Assoc. Adv. Sci.; fel. Geol. Soc. Amer. (counc., 86-88); fel. Mineral. Soc. Amer. (pres., 76); Mineral. Assoc. Canada. *Res.*: Phase equilibrium of sedimentary and metamorphic rocks; stratigraphy and structure of northern Appalachians and northern Rockies; igneous petrology and tectonics of the Western Cordillera. *Mailing address*: U.S. Geological Survey, 959 National Center, Reston, VA 22092. *Phone*: (703) 648-6166.

### COUNCILOR 1986-1988

#### Mary Lou Zoback

b. Sanford, FL, 7-5-52. **GEOPHYSICS, GEOLOGY**. *Educ.*: Stanford Univ., BS, 74, MS, 75, PhD (geophys.), 78. *Prof. exp.*: res. assoc., 78-79, **GEOPHYSICIST, U.S. GEOL. SURV., 79-.** *Honors & awards*: James B. Macelwane Medal, Am. Geophys. Union, 87. *Mem.*: fel. Am. Geophys. Union (prog. chmn., tect. sec., 81); fel. Geol. Soc. Amer. (counc., 86-88); Natl. Res. Council., U.S. Geodyn. Comm., 85-88. *Res.*: Basin and Range

tectonics; state of stress in conterminous U.S.; earthquake hazards-Wasatch fault. *Mailing address*: U.S. Geological Survey, Seismology Branch, MS-977, 345 Middlefield Rd., Menlo Park, CA 94025. *Phone*: (415) 853-8300, Ext. 4760.

### COUNCILOR 1987-1989

#### William W. Hay

b. Dallas, TX, 10-12-34. **MICROPALAEONTOLOGY, MARINE GEOLOGY**. *Educ.*: Southern Methodist Univ., BS, 55; Univ. of Illinois, MS, 58; Stanford Univ., PhD (geol.), 60. *Prof. exp.*: NSF fellowship in geol., Univ. of Basel, 59-60; from asst. prof. to prof. geol., Univ. of Illinois, Urbana-Champaign, 60-73; chmn. div. marine geol. geophys., 74-80, dean, 77-80, prof. marine geol. geophys., 68-80, Rosenstiel School of Marine and Atmospheric Sciences, Miami; pres., Joint Oceanographic Institutions Inc., 79-82; **PROF., NATL. HISTORY AND GEOL., DIR., UNIV. MUSEUM, FEL., COOPERATIVE INST. FOR RESEARCH IN ENVIRONMENTAL SCI., UNIV. OF COLORADO, BOULDER, 82-.** *Concurrent pos.*: adjunct prof., Marine and Atmospheric Sci., Univ. of Miami, 82-; honorary research fel., Univ. College, Univ. of London, 71-. *Mem.*: Am. Geophys. Union; fel., Geol. Soc. Amer. (counc., 87-89); Am. Assoc. Petrol. Geol.; Paleont. Soc.; Soc. Econ. Paleont. Mineral. *Res.*: Pelagic sedimentation; calcareous nannoplankton; probability in stratigraphy sedimentary mass balance. *Mailing address*: University Museum, University of Colorado, Campus Box 218, Boulder, CO 80309-0218. *Phone*: (303) 492-7370.

### COUNCILOR 1987-1989

#### Marcus E. Milling

b. Galveston, TX, 10-8-38; m. 59; c. 1. **PETROLEUM GEOLOGY; SEISMIC STRATIGRAPHY**. *Educ.*: Lamar Univ., BS, 61; Univ. Iowa, MS, 64, PhD (geol.), 68. *Prof. exp.*: res. specialist, sr. res. specialist, sr. res. geol., res. supervisor, EXXON Production Research Co., 68-77; sr. supervisory production geol., 77-79, dist. explor. geol., 79-80, EXXON Co., USA; mgr. geol. res., 80-86, mgr. geologic staff, 86-87, ARCO Oil & Gas Co.; **RESEARCH SCIENTIST/PROGRAM MGR., TEXAS BUREAU OF ECONOMIC GEOLOGY, 87-.** *Mem.*: fel., Geol. Soc. Amer. (counc., 87-89); Am. Assoc. Petrol. Geol.; Soc. Econ. Paleont. Mineral.; Am. Geol. Inst. Found. Bd. of Trustees; Offshore Technology Comm., vice-chmn. Bd. of Dir.; Dept. of Energy Earth Science Advisory Bd., mem. Solid Earth Science Panel. *Res.*: Environmental facies analysis clastic depositional systems; subsea foundation characteristics; seismic stratigraphy deep-sea fans. *Mailing address*: Bureau of Economic Geology, The University of Texas, P.O. Box X, Univ. Station, Austin, TX 78713. *Phone*: (512) 471-1534 or 471-0369.

### COUNCILOR 1987-1989

#### John S. Scott

b. Hamilton, Ontario, 7-14-29; m. 56; c. 2. **GEOLOGY**. *Educ.*: McMaster Univ., BSc, 53; Univ. Illinois, Urbana, PhD (geol.), 60; Natl. Defence Coll., Kingston, 77. *Prof. exp.*: geol., Photographic Surv. Corp., Ltd., Canada, 53-57; geol., Geol. Surv. Canada, 60-67; consulting geol., H.G. Acres & Co., Ltd., Canada, 67-69; research scientist, 69-74, dir., Terrain Sciences Div., 74-87, **DIR. GEN. GEOPHYSICAL SURVEY, HAZARDS TERRAIN SCIENCES BRANCH, GEOL. SURV. CANADA, 87-.** *Concurrent pos.*: mbr. assoc., Comm. on Geotechnical Research, Natl. Res. Council of Canada, 61-66, 78-. *Mem.*: fel., Geol. Soc. Amer. (counc., 87-89); fel., Geol. Assoc. Canada; mbr. Canadian Geotechnical Soc.; Internatl. Assoc. Engineering Geol. *Res.*: Engineering geology; hydrogeology as related to construction; stability of slopes in overconsolidated shales. *Mailing address*: Geological Survey of Canada, 580 Booth Street, Room 2048, Ottawa, Ontario, Canada K1A 0E9. *Phone*: (613) 995-0623.

### COUNCILOR 1987-1989

#### Stephen H. Stow

b. Oklahoma City, OK, 9-18-40; m. 65; c. 2. **GEOCHEMISTRY**. *Educ.*: Vanderbilt Univ., BA, 62; Rice Univ., MA, 65, PhD (geochem.), 66. *Prof. exp.*: res. scientist, Plant Foods Res. Div., Continental Oil Co., 66-69; consultant, Geol. Surv. Alabama, 70-74; industry consultant, 70-80; part-time geol., U.S. Bureau of Mines, Tuscaloosa, 74-76; from asst. prof. to prof. geol., 69-80, adjunct prof., 82-84, Univ. Alabama, Tuscaloosa; **GROUP LEADER GEOL. GEOCHEM., SR. RES. GEOL., PROGRAM MGR., OAKRIDGE NATL. LABORATORY, 80-.** *Concurrent pos.*: part-time prof. geol., Univ. Tennessee, Knoxville, 81-. *Mem.*: Am. Geophys. Union; fel., Geol. Soc. Amer. (counc., 87-89) (hydrogeol. div.); fel., Am. Assoc. Adv. Sci.; Soc. Econ. Geol.; Alabama Geol. Soc. (vice-pres., 72-73, 75-76, pres., 76-77); Georgia Geol. Soc., 74-80; The Universities Council on Water Resources, 72-79; Internatl. Assoc. Hydrogeol. (Comm. Hydrogeol. Hazardous Waste). *Honors & awards*: Sigma Xi Best Thesis Award, Rice Univ., 65; elected to Outstanding Young Men of Amer., 71; ed. bd. *Environ. Geol. and Water Sci. Res.*: Geology and geochemistry of phosphates; geochemistry of mafic rocks of southern Appalachians; sulfide ore deposits; subsurface injection of liquid wastes; sedimentary rocks for repository siting. *Mailing address*: Environmental Sciences Div., Bldg. 1505, Oak Ridge National Laboratory, P.O. Box X, Oak Ridge, TN 37830. *Phone*: (615) 574-7830.

(continued on p. 22)

## GSA Officers and Councilors (continued from p. 21)

### COUNCILOR 1988-1990

#### Zoltan de Cserna

b. Budapest, Hungary, 3-3-28; m.; cit. Mexico. GEOLOGY. *Educ.*: Univ. New Mexico, BA, 51, MS, 52; Columbia Univ., PhD (geol.), 55. *Prof. exp.*: explor. geol., Inst. Nat. Invest. Recursos Minerales (México), 51-55; res. assoc., 52-53, res. geol., 53-59, Inst. Geología, Univ. Nat. Autón. México; consult. geol., Cia. Minera del Río Murga, S.A., 56-69; SENIOR RESEARCH PROFESSOR, INSTITUTO DE GEOLOGÍA, UNIV. NAL. DE AUTÓNOMA MÉXICO, 59-, and GEOLOGICAL CONSULTANT, COMISION FEDERAL DE ELECTRICIDAD, 77-. *Concurrent pos.*: mem., Comité de la Carta Geológica de México, 52-60; prof. structural geol., Facultad de Ciencias, Univ. Nat. Autón. México, 56-; chief geol., Inst. Geología, Univ. Nat. Autón. México, 66-69; mem., 66-82, chmn., 72-73, Am. Comm. Strat. Nomenclature; sci. co-editor, Inst. Geología, Univ. Nat. Autón. México, 83-; editor, Soc. Geol. Mexicana, 86-. *Honors & awards*: mem. Acad. Investigación Científica (México), 62-; Guggenheim Fellow, 73; Investigador Nacional, 85-; assoc. mem. Centro de Investigación Sísmica, Fundación J. Barros Sierra, 87-. *Mem.*: fel. Geol. Soc. Amer. (counc., 88-90); Am. Assoc. Petrol. Geol.; Sigma Xi; Geologische Vereinigung; Soc. Geol. Mexicana; Asoc. Mex. Geól. Petrol.; Asoc. Ings. Minas, Metalurgistas y Geólogos de México; Soc. Mex. Mineralogía. *Res.*: structural geology, tectonics and regional geology. *Mailing address*: Apartado Postal 21-093, Coyoacán, 04000 México, D. F., México. *Phone*: (901) 548-4203.

### COUNCILOR 1988-1990

#### Priscilla C. Grew

b. Glens Falls, NY, 10-26-40; m. 75. GEOLOGY, EARTH SCIENCES. *Educ.*: Bryn Mawr Coll., BA, 62; Univ. of California, Berkeley, PhD (geol.), 67. *Prof. exp.*: from instr. to asst. prof. geol., Boston Coll., 67-72; asst. research geol., Inst. of Geophysics, Univ. of California, Los Angeles, 72-77; dir., California Dept. of Conservation, 77-81; commissioner, California Public Utilities Commission, 81-86; DIR., MINNESOTA GEOL. SURV. and PROF. GEOL., UNIV. OF MINNESOTA, 86-. *Concurrent pos.*: exec. secretary, ed., Lake Powell Research Proj., 71-77; visiting staff mem., Los Alamos Scientific Lab., 72-77; mem., Comm. on Minority Participation in Earth Sci. & Mineral Engineering, U.S. Dept. of Interior, 72-75; visiting asst. prof. geol., Univ. of California, Davis, 73-74; adjunct asst. prof., environ. sci. and engineering, Univ. of California, Los Angeles, 75-76; chmn., California State Mining & Geol. Bd., 76-77; chmn., California Geothermal Resources Bd., 77-81; mem., U.S. Geol. Surv. Earthquake Studies Advisory Panel, 79-83; mem., Comm. on Gas, Exec. Comm., Natl. Assoc. Regulatory Utility Commissioners, 82-86; mem., Bd. Mineral and Energy Resources, Natl. Research Council, 82-; mem., Advisory Council, Gas Research Inst., 82-86; mem., Comm. Advisory to U.S. Geol. Surv., 82-86; mem., Subcom. on Earthquake Research, Natl. Research Council, 85-; mem.-at-large, U.S. Natl. Comm. on Geol., 85-; mem., Comm. on Equal Opportunities in Sci. and Tech., Natl. Sci. Found., 85-86; mem., Research Coordination Council, Gas Research Inst., 87-. *Mem.*: fel. Geol. Soc. Amer. (counc.,

88-90); fel. Am. Assoc. Adv. Sci. (mem.-at-large, Sect. E, 86-); Natl. Parks and Conservation Assoc. (trustees, 82-86). *Res.*: geology and public affairs; environmental geology; natural resources management; science and regulatory policy studies. *Mailing address*: Minnesota Geological Survey, 2642 University Avenue, St. Paul, MN 55114. *Phone*: (612) 627-4780.

### COUNCILOR 1988-1990

#### Donald C. Haney

b. Ferguson, KY, 7-2-34; m. 56; c. 2. GEOLOGY, SOILS. *Educ.*: Univ. of Kentucky, BS, 59, MS, 60; Univ. of Tennessee, PhD (geol.), 66. *Mil. serv.*: U.S. Army, 53-56. *Prof. exp.*: instr. geol., Campbellsville Coll., 60-62; instr. geol., Eastern Kentucky Univ., 62-64, from assoc. prof. to prof. geol., 66-78, chmn. dept. geol., 68-78; STATE GEOLOGIST and DIR., KENTUCKY GEOLOGICAL SURVEY, 78-. *Concurrent pos.*: geol., U.S. Geol. Surv., 70-77; participant Am. Geol. Inst. Internat. Field Conf., Spain, 71; consultant, Amoco Prod. Co., 76; consultant, Kerr-McGee, Inc., 77; consultant, Staggs and Assoc., 80; adjunct prof. geol., Univ. of Kentucky, 80-. *Mem.*: Assoc. Am. State Geol.; Am. Inst. Prof. Geologists; fel. Geol. Soc. Amer. (counc., 88-90); Geol. Soc. Kentucky (vice-pres., 67, pres., 71); Kentucky Acad. Sci. (sect. leader, 71); Lexington Geol. Soc. (vice-pres., 68); Natl. Assoc. Geol. Teachers. *Res.*: structural geology of eastern Tennessee; study of Pennsylvanian rocks in eastern Kentucky, including structure, sedimentology, and coal resources. *Mailing address*: Kentucky Geological Survey, 311 Breckinridge Hall, Univ. of Kentucky, Lexington, KY 40506-0056. *Phone*: (606) 257-5863.

### COUNCILOR 1988-1990

#### Richard W. Hutchinson

b. London, Ontario, 11-17-28; m. 51; c. 4. GEOLOGY. *Educ.*: Univ. Western Ontario, BSc, 50; Univ. of Wisconsin, MS, 51, PhD (geol.), 54. *Prof. exp.*: geol., Am. Metal Climax, Inc., 54-64; assoc. prof., 64-69, prof. econ. geol., mineral deposits, Univ. Western Ontario, 69-83; CHARLES F. FOGARTY PROF. OF ECON. GEOL., COLORADO SCHOOL OF MINES, 83-. *Concurrent pos.*: Natl. Research Council Canada research grant, 64-; Geol. Surv. Canada research grant, 65-69; NATO Research Council research grant, 67-69; consulting geol.: Callahan Mining Corp., NY, 64-70, Chevron Resources Co., 72-83, UNDP-UNRF, 76-85, Utah Internat., 85-. *Honors & awards*: Barlow Gold Medal, Canadian Inst. Mining & Metall., 72, 79; Derry Medal, Mineral Deposits Div. of Geol. Assoc. Canada, 83; SEG Medal, Soc. Econ. Geol., 85. *Mem.*: Soc. Econ. Geol.; Geol. Soc. Am. (counc., 88-90); Canadian Inst. Mining & Metall.; Geol. Assoc. Canada; Soc. Geol. Appliqué Gites Minéraux; Pros. Dev. Assoc. Canada; Colorado Sci. Soc. *Res.*: descriptive geology on pegmatites and deposits of rare-element minerals in pegmatites; genesis and tectonic relationships of massive sulfide base metal ore deposits; metallogeny and origin gold deposits; tin deposits; origin of K-bearing marine evaporite deposits; metallogenic evolution of ore deposits. *Mailing address*: Dept. of Geology and Geological Engineering, Colorado School of Mines, Golden, CO 80401. *Phone*: (303) 273-3039, (303) 273-3800.

## GSA Medal and Award Winners for 1987

GSA's 1987 medalists and award winners were honored at the Annual Meeting in Phoenix.

**Penrose Medal:** Marland P. Billings, 43 Glen Road, Wellesley, MA 02181. Billings is Emeritus Professor of Geology, Department of Geological Sciences, Harvard University.

**Day Medal:** Don L. Anderson, Division of Geology and Planetary Sciences, California Institute of Technology, Pasadena, CA 91125.

**Archaeological Geology Division Award:** John C. Kraft, Department of Geology, University of Delaware, Newark, DE 19716.

**Gilbert H. Cady Award (Coal Geology Division):** Aureal T. Cross, Professor Emeritus, Geology and Paleobotany, Michigan State University, East Lansing, MI 48823.

**E. B. Burwell Award (Engineering Geology Division):** Joseph I. Ziony, 1640 Escobita Avenue, Palo Alto, CA 94306.

**George P. Woollard Award (Geophysics Division):** Neil D. Opdyke, Department of Geology, University of Florida, Gainesville, FL 32611.

**History of Geology Division Award:** Martin J.S. Rudwick, Program in the History of Science, 220 Palmer Hall, Princeton University, Princeton, NJ 08544.

**O. E. Meinzer Award (Hydrogeology Division):** L. W. Gelhar, Department of Civil Engineering, Room 48-329, Massachusetts Institute of Technology, Cambridge, MA 02139.

**G. K. Gilbert Award (Planetary Geology Division):** Donald E. Gault, Box 833, Murphys, CA 95247.

**Kirk Bryan Award (Quaternary Geology & Geomorphology Division):** Richard B. Waitt, U.S. Geological Survey, Cascades Volcano Observatory, 5400 MacArthur Boulevard, Vancouver, WA 98661.

**Structural Geology & Tectonics Division Best Paper Award:** Steven E. Boyer, Department of Geological Sciences, University of Washington, Seattle, WA 98195; and David Elliott (posthumously), whose professional affiliation was with the Department of Earth Sciences, Johns Hopkins University.

**Geological Society of America**



# **CONGRESSIONAL SCIENCE FELLOWSHIP 1988-1989**

The Geological Society of America invites applications for the 1988-1989 Congressional Science Fellowship. The Fellow selected will spend a year (September 1988-August 1989) in the office of an individual 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**

The program is aimed at highly qualified earth scientists in early or mid-career. Candidates should have 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 \$28,000 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

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Geological Society of America  
P.O. Box 9140  
Boulder, Colorado 80301



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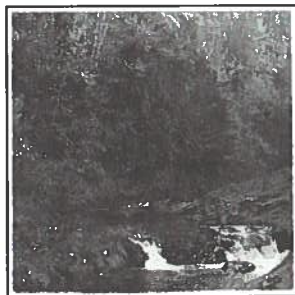
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## GSA Grants Fund Wide Variety of Research

In 1933, shortly after the 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 \$176,200 in grants in 1987, to 199 students doing research for advanced degrees. The average amount awarded was \$885 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 1988 research grants program is February 15, 1988. Applications must be submitted on 1988 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 seven 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 Michael J. Neilson, Department of Geology, University of Alabama, Birmingham, AL 35294. The deadline for 1988 applications is March 1, 1988. 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, Mani-

toba, 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 1988 applications is February 15, 1988.

The South-Central Section will begin awarding student grants in 1988. Applicants must be attending a college or university in the South-Central Section geographic area (Texas, Oklahoma, Arkansas, Kansas). Graduate student recipients are selected from applicants for the general research grants program (applications available from GSA headquarters; see address under General Grants). Deadline for 1988 applications is February 15, 1988. Undergraduate student recipients are selected by the Management Board of the South-Central Section. Applications for undergraduate student grants can be obtained from Page C. Twiss, Department of Geology, Thompson Hall, Kansas State University, Manhattan, KS 66506. The deadline for 1988 undergraduate student applications is October 15; the grants will be awarded in late December.

### 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 1988 applications is February 1, 1988.

The Coal Geology Division established the Antoinette Lierman Medlin Scholarship Award and Fund at the 1987 division business meeting in Phoenix, Arizona. Details of the criteria for the award will appear in a formal announcement in the February issue of *GSA News & Information*.

GSA's Quaternary Geology and Geomorphology Division 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 1988 is February 15, 1988. Grant awardees are announced in April.

The Sedimentary Geology Division awarded its first grant for outstanding student research in 1987. This newly established grant will be awarded annually to an applicant for the general GSA research grants who is working in the field of sedimentary geology and stratigraphy. Applicants must be master's or doctoral candidates. Applications for this grant are available from GSA headquarters (address under General Grants) and for 1988 must be submitted by February 15, 1988.

The Structural Geology and Tectonics Division awarded its first grant for outstanding student research in 1986. This grant is 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 1988 must be submitted by February 15, 1988.

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

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## DNAG GEOLOGY OF NORTH AMERICA

### NORTH AMERICA AND ADJACENT OCEANS DURING THE LAST DEGLACIATION

*edited by W.F. Ruddiman and H.E. Wright, Jr., 1987*

Most Quaternary sediments in North America north of 45°N post-date the last deglaciation. This volume looks at those extensive deposits from the standpoints of timing, cause, and mechanism of the wastage of North American ice during the last deglaciation and the accompanying environmental changes in the nonglaciated and deglaciated areas. It particularly examines the mechanisms by which a mass of ice equivalent to 100 m of global sea-level was returned to the ocean within about 8,000 years. A truly comprehensive synthesis of marine and terrestrial information in 22 chapters grouped into five sections: Chronology of Disintegration of the North American Ice Sheets, Ice Core and Other Glaciological Data, the Nonglacial Physical Record on the Continent, Biological Record on the Continent, and Analysis and Summary. Includes two oversize pocket-plates in color showing time-series maps of pollen densities and vegetation changes since 18 ka.

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## MEMOIR SERIES

### FOSSIL CONCHOSTRACA OF THE SOUTHERN HEMISPHERE AND CONTINENTAL DRIFT: PALEONTOLOGY, BIOSTRATIGRAPHY, AND DISPERSAL

*by Paul Tasch, 1987*

Does the record of fossil conchostracan of the southern continents contain credible evidence of nonmarine dispersal between them during portions of Paleozoic and Mesozoic? The author presents results of field studies and biostratigraphic collections of fossil conchostracans in pursuit of this question. His own fossil collections extended to Africa, Australia, Antarctica, India, and South America, and he supplemented his own with fossils from collections of colleagues and museums. The data, he claims, indicate a need for reexamination of pre-Drift placement of India and Africa. He describes several new taxa, and provides 49 outstanding plates, six appendices, and his personally prepared index.

MWR165, 304 p., indexed, ISBN 0-8137-1165-7, \$55.00

## SPECIAL PAPER SERIES

### THE MOTION OF ALLOCHTHONOUS TERRANES ACROSS THE NORTH PACIFIC BASIN

*by Michel G. Debiche, Allan Cox, and David Engebretson, 1987*

This paper presents new efforts in an interesting field and displays great ingenuity by the authors in dealing with a problem which, on the face of it, defied rational solution. They present the results of studies of possible trajectories of terrane movement across the Pacific basin and along the margin of North America. Using special computer software created to simulate terrane movement and plate age, the authors looked at possible points of origin of those terranes. Methods and results of Terrane Trajectories, Paleolatitude versus Time, and Coastwise Translation are presented. Models and data were compared, and trajectories were tested for internal consistency with paleomagnetic results. Includes more than 12 tables and 40 figures of unusually high quality.

SPE207, 56 p., ISBN 0-8137-2207-1, \$11.00

### COMMUNITY PALEOECOLOGY AS A GEOLOGIC TOOL: THE CHINESE ASHGILLIAN-EIFELIAN (LATEST ORDOVICIAN THROUGH EARLY MIDDLE DEVONIAN) AS AN EXAMPLE

*by Wang Yu, A.J. Boucot, Ron Jia-yu, and Yang Xue-chang, 1987*

This volume is part of an overall collaboration by A.J. Boucot and several members of the Nanjing Institute on varied problems of Silurian-Devonian community paleoecology, biogeography, and Silurian correlation — problems that are interrelated and that influence current basic taxonomic research. Chinese data are compared and contrasted with similar data from other parts of the world. Included are chapters that trace community evolution, name and list the communities, and illustrate brachiopod taxa in 20 plates.

SPE211, 106 p., ISBN 0-8137-2211-X, \$18.50

### MANTLE METASOMATISM AND ALKALINE MAGMATISM

*edited by Ellen M. Morris and Jill D. Pasteris, 1987*

Contains 26 papers originally presented at the Symposium on Alkaline Rocks and Kimberlites, in April, 1985, a noteworthy outgrowth of which was a heightened awareness that alkaline magmatism is not restricted to any single scenario but may occur in virtually all tectonic and petrologic settings. The editors focus on mantle metasomatism and the origin of alkaline magmas, kimberlites, and related rocks; alkalic rocks in oceanic settings, and alkalic rocks in continental settings.

SPE215, 392 p., ISBN 0-8137-2215-2, \$45.00

## REVIEWS IN ENGINEERING GEOLOGY SERIES

### DEBRIS FLOWS/AVALANCHES: PROCESS, RECOGNITION, AND MITIGATION

*edited by J.E. Costa and G.F. Wieczorek, 1987*

Debris flows and debris avalanches are among the most dangerous and destructive natural hazards. They claim hundreds of lives and millions of dollars in property loss every year. The past two decades have produced much new scientific and engineering understanding of these occurrences and have led to new methods for mitigating the loss of life and property. These 17 papers pull together much of this recent research and present it in three categories: (1) process; (2) recognition; and (3) mitigation. Much of this work results from cooperative efforts between GSA's Engineering Geology Division and Quaternary Geology and Geomorphology Division.

REG007, 248 p., indexed, ISBN 0-8137-4107-6, \$37.50

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# MEETINGS

(Asterisk indicates new or changed information)

## 1988

**Restoring the Earth**, National conference on natural resource restoration and environmental planning, January 13-16, 1988, Berkeley, California. Information: Kathleen Ferguson, 1713 C Martin Luther King Jr. Way, Berkeley, CA 94709; (415) 843-2645.

**American Institute of Mining, Metallurgical and Petroleum Engineers-Society of Mining Engineers-Metallurgical Society Annual Meeting**, January 25-28, 1988, Phoenix, Arizona. Information: Meetings Dept., Society of Mining Engineers, P.O. Box 625002, Littleton, CO 80162.

**Symposium on Geologic and Geochemical Evidence for Segmentation of Continental and Oceanic Rifts**, January 26-27, 1988, Woods Hole, Massachusetts. Information: Janet M. Johnson, Dept. of Geology and Geophysics, Woods Hole Oceanographic Institution, Woods Hole, MA 02543; (617) 548-1400, ext. 2623.

**Australian Association of Exploration Geophysicists-Society of Exploration Geophysicists International Geophysical Conference and Exhibition**, February 14-21, 1988, Adelaide, Australia. Information: ASEG/SEG Adelaide '88 Conference, c/o Ellisservice Convention Management, P.O. Box 753, Norwood 5067, SA, Australia; phone (08) 332-4068; Telex AA87129.

**American Association of Petroleum Geologists Southwest Section**, February 21-23, 1988, El Paso, Texas. Information: Robin Hoffer, Dept. of Geology, University of Texas, El Paso, TX 79968; (915) 747-5501.

**Central Canada Geological Conference**, February 22-23, 1988, London, Ontario. Information: Brett Norris, Dept. Geology, University of Western Ontario, London, Ontario N6A 5B7, Canada; (519) 661-3187.

**Fourth Annual V. E. McKelvey Forum on Mineral and Energy Resources: Roles of Geological Research in Assessment of Energy Resources**, March 1-2, 1988, Denver, Colorado. Information: Buhler and Abraham, Inc., 8700 First Ave., Silver Springs, MD 20910; (301) 588-4177.

**Prospectors and Developers Association of Canada 56th Annual Convention**, March 6-9, 1988, Toronto, Ontario. Information: Susan Sikala, Suite 1002, 74 Victoria St., Toronto, Ontario M5C 2A5, Canada; (416) 362-1969.

**Second International Symposium on Geotechnical Applications of Ground-Penetrating Radar**, March 6-10, 1988, Gainesville, Florida. Information: Gregg Schellengrager, U.S.D.A.-SCS, 701 SE First Ave. Gainesville, FL 32601; (904) 377-1092.

**Environment '88** seminar and exhibition, March 7-8, 1988, Milwaukee, Wisconsin. Information: Federation of Environmental Technologists, P.O. Box 185, Milwaukee, WI 53201; (414) 251-8163.

**American Association of Petroleum Geologists Annual Meeting**, March 20-23, 1988, Houston, Texas. Information: AAPG Convention Dept., P.O. Box 979, Tulsa, OK 74101; (918) 584-2555.

**\*European Geophysical Society XIII General Assembly**, March 21-25, 1988, Bologna, Italy. Information: A. K. Richter, MPI für Aeronomie, D-3411 Katlenburg-Lindau, Federal Republic of Germany, or A. Speranza, Dipartimento di Fisica, Via Irnerio 46, I-40126 Bologna, Italia.

**Anadarko Basin Symposium**, April 5-6, 1988, Norman, Oklahoma. Information: Kenneth S. Johnson, Oklahoma Geological Survey, University of Oklahoma, Norman, OK 73019; (405) 325-3031.

**American Association of Petroleum Geologists Pacific Section**, April 17-19, 1988, Santa Barbara, California. Information: Jack Cunningham, Celeron Oil & Gas, 111 West Micheltorena, Santa Barbara, CA 93101-3018; (805) 966-0831.

**First Catamarca International Mining Exposition and Fair**, May 7-15, 1988, Catamarca, Argentina. Information: FEMICA, Uruguay 435, 3° piso, Of. E, Buenos Aires (1015), Argentina; Telex 17808 ANCYA-AR.

**V. M. Goldschmidt Conference** for geochemistry, May 11-13, 1988, Baltimore, Maryland. Information: Goldschmidt Conference Coordinator, Pennsylvania State University, 410 Keller Bldg., University Park, PA 16802.

**Sixth Thematic Conference on Remote Sensing for Exploration Geology**, May 16-19, 1988, Houston, Texas. Information: Thematic Conference, Environmental Research Institute of Michigan, P.O. Box 8618, Ann Arbor, MI 48107; (313) 994-1200, ext. 3382; Telex 4940991 ERIMARB.

**American Geophysical Union Spring Meeting**, May 16-20, 1988, Baltimore, Maryland. Information: Ann E. Singer, American Geophysical Union, 2000 Florida Ave., N.W., Washington, DC 20009; (202) 462-6903.

**Bicentennial Gold 88**, May 16-20, 1988, Melbourne, Australia. Information: R. R. Keays, Dept. of Geology, University of Melbourne, Parkville, Victoria 3052, Australia; phone (03) 345 1844; Telex AA35185.

**\*Geological Association of Canada-Mineralogical Association of Canada-Canadian Society of Petroleum Geologists Joint Annual Meeting**, May 23-25, 1988, St. John's, Newfoundland. Information: John Fleming, St. John's '88, P.O. Box 13577, Postal Station A, St. John's, Newfoundland A1B 4B8, Canada; (709) 576-2768.

**\*Society for the Preservation of Natural History Collections Annual Meeting**, May 30-June 3, 1988, Pittsburgh, Pennsylvania. Information: Duane A. Schlitter or Stephen L. Williams, Carnegie Museum of Natural History, 5800 Baum Blvd., Pittsburgh, PA 15206; (412) 665-2611.

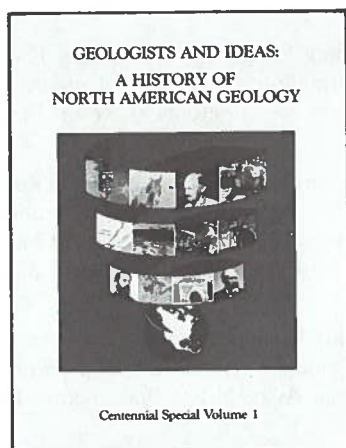
**Case Histories in Geotechnical Engineering 2nd International Conference**, June 1-5, 1988, St. Louis, Missouri. Information: Shamsher Prakash, Room 308, Dept. of Civil Engineering, University of Missouri, Rolla, MO 65401; (314) 341-4461.

**WaterTech China '88**, International exposition and congress of water technologies, June 3-8, 1988, Beijing, China. Information: Management Committee, WaterTech China '88, c/o MartLink Communications Group, GPO Box 13477, Hong Kong; phone 5-225705; Telex 72091 HX.

**Second International Symposium on Rockbursts and Seismicity in Mines**, June 8-10, 1988, Minneapolis, Minnesota. Information: Charles Fairhurst, Dept. Civil and Mineral Engineering, University of Minnesota, 500 Pillsbury Dr. S.E., Minneapolis, MN 55455-0220.

(continued on p. 29)

# The Decade of North American Geology DNAG VOLUMES



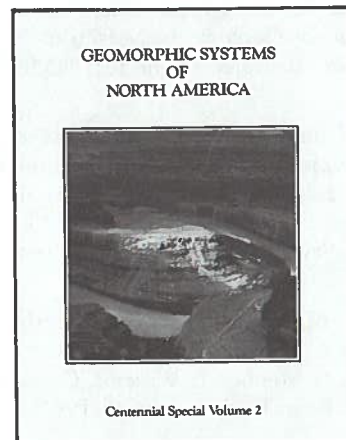
## CENTENNIAL SPECIAL VOLUMES

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### Geologists and Ideas: A History of North American Geology edited by Ellen T. Drake and William M. Jordan, 1985

An unusually coherent, well-written volume. Prepared for DNAG by the History of Geology Division of GSA. Spotlights events, ideas, and people, and sheds light on the history of North American geology as a whole. With its many intellectual jewels on the evolution of scientific concepts, this book will provide many happy hours of entertainment and instruction for anyone interested in the history of science, especially that of the earth sciences. Thirty-four papers are organized into four categories: (1) The Evolution of Significant Ideas; (2) Contributions of Individuals; (3) Contributions of Organized Groups; and (4) Application of Significant Ideas. Excellent as a course-book or for additional reading for classes related to the history of geology or general science. Light blue spine.

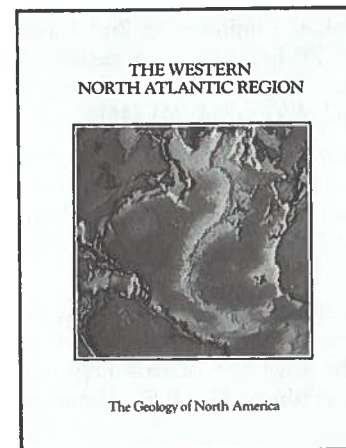
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### Geomorphologic Systems of North America edited by W. L. Graf, 1987

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### The Western North Atlantic Region edited by P.R. Vogt and B.E. Tucholke, 1986

The award-winning first volume in this 28-volume series. Complete coverage of the geology and geophysics of the western North Atlantic Ocean basin in 41 chapters, organized into 8 sections: Introduction; Present Accretion Axis; Regional Geology and Geophysics; Plate Tectonic Evolution; Surficial Sedimentation; Biofacies; Paleoceanography; and Resources and Law of the Sea. The editors received the 1986 Alan Berman Research Publication Award for this volume. Includes 11 plates, several in color, in a separate, matching slipcase.

GNA-M, 720 p., 11 plates in slipcase, Indexed, ISBN 0-8137-5202-7, CIP, hardbound, \$47.50

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### GNA-K3: North America and Adjacent Oceans during the Last Deglaciation edited by W. F. Ruddiman and H. E. Wright, Jr., 1987

Heritage of Engineering Geology  
edited by George A. Kiersch, 1987

**MEETINGS** (continued from p. 27)

**29th U.S. Symposium on Rock Mechanics**, June 13-16, 1988, Minneapolis, Minnesota. Information: Jan Becker, Dept. Professional Development, University of Minnesota, 315 Pillsbury Dr. S.E., Minneapolis, MN 55455; (612) 626-1358.

**Fourth Symposium on the Geology of the Bahamas**, June 17-22, 1988, San Salvador Island, Bahamas. Information: Donald T. Gerace, CCFL Bahamian Field Station, 270 Southwest 34th St., Fort Lauderdale, FL 33315.

**Shelf Sedimentation: Events and Rhythms** (SEPM research conference), June 26-July 1, 1988, Santa Cruz, California. Information: M. Field or E. Clifton, USGS, 345 Middlefield Rd., Menlo Park, CA 94025; (415) 354-3088 or 3112.

**Seismic Probing of the Continents and Their Margins International Symposium**, July 6-8, 1988, Canberra, Australia. Information: Jim Leven, Bureau of Mineral Resources, P.O. Box 378, Canberra, ACT 2601, Australia; phone (062) 499 111; Telex AA62109.

**International Working Meeting on Soil Micromorphology** (meeting of Subcommittee B of the International Society of Soil Science), July 10-15, 1988, San Antonio, Texas. Information: L. P. Wilding, Dept. of Soil and Crop Sciences, Texas A&M University, College Station, TX 77843-2474; (409) 845-3604.

**First International Conference on Radiolaria**, July 18-20, 1988, Marburg, Federal Republic of Germany. Information: Joyce R. Blueford, U.S. Geological Survey, MS 144, 345 Middlefield Rd., Menlo Park, CA 94025; (415) 329-4004, or R. Schmidt-Effing, InternatradConference, Dept. of Geosciences, Philipps-Universität, Lahnberge, D-3550 Marburg, Federal Republic of Germany.

**5th International Symposium on Fossil Cnidaria**, including Archaeocyatha and spongiomorphs, July 25-29, 1987, Brisbane, Australia. Information: John Jell, Uniquet Ltd., University of Queensland, St. Lucia, QLD 4067, Australia; phone (07) 344 2733.

**Permafrost 5th International Conference**, August 2-5, 1988, Trondheim, Norway. Information: V International Conference on Permafrost, Norwegian Institute of Technology, Studies Administration, N-7034 Trondheim-NTH, Norway.

**Fifth International Symposium on the Ordovician System**, August 9-12, 1988, St. John's, Newfoundland. Information: Chris R. Barnes, ISOS, Dept. of Earth Sciences, Memorial University, St. John's, Newfoundland A1B 3X5, Canada; (709) 737-8143.

**Paleozoic Biogeography and Paleogeography**, August 14-19, 1988, Oxford, England. Information: C. R. Scotese, Shell Development Co., P.O. Box 481, Houston, TX 77001, (713) 663-2688, or W. S. McKerrow, Dept. Earth Sciences, Parks Rd., Oxford OX1 3PR, England.

**39th Annual Highway Geology Symposium**, August 15-17, 1988, Park City, Utah. Information: Highway Geology Symposium, T. Leslie Youd, 368 Clyde Bldg., Dept. Civil Engineering, Brigham Young University, Provo UT 84602; (801) 378-6327. (*Abstracts due February 1, 1988.*)

**American Association of Petroleum Geologists Rocky Mountain Section**, August 21-24, 1988, Bismarck, North Dakota. Information: Roger N. Borchert, Box 5006, Bismarck, ND 58501; (701) 223-3588.

**Society of Economic Paleontologists and Mineralogists Fifth Midyear Meeting**, August 21-24, 1988, Columbus, Ohio. Information: SEPM, P.O. Box 4756, Tulsa, OK 74159-0756; (918) 743-9765.

**6th International Fission Track Dating Workshop**, September 5-9, 1988, Besançon, France. Information: J.-L. Janier-Dubry, Lab. de Microanalyses Nucléaires, U.F.R. des Sciences et Techniques, 16 Route de Gray, 25030 Besançon cedex, France; phone 81.53.81.22.

**International Symposium on Geochemistry and Mineralization of Proterozoic Mobile Belts**, September 6-10, 1988, Beijing, China. Information: Proterozoic Geochemistry Symposium, c/o Prof. Sun Dazhong, Tianjin Inst. Geology and Mineral Resources, CAGS No. 4, 8th Rd., Dazhigu, Tianjin 300170, People's Republic of China.

**International Symposium on Rock Mechanics and Power Plants**, September 12-16, 1988, Madrid, Spain. Information: ISRM Symposium, Sociedad Española de Mecánica de las Rocas, Paseo Bajo de la Virgen del Puerto, 3, 28005 Madrid, Spain.

**International Symposium on Engineering Geology: Study, Preservation and Protection of Ancient Works, Monuments and Historical Sites**, September 19-23, 1988, Athens, Greece. Information: Paul G. Marinos, Greek Committee of Engineering Geology, 1988 Symposium Secretariat, P.O. Box 19140, GR-117 10 Athens, Greece; Telex 45 4312 POLX.

**Fourth International Tectonostratigraphic Terrane Conference**, September 23-October 7, 1988, Nanjing University, Nanjing, People's Republic of China. Information: Tom Wiley, U.S. Geological Survey, MS 999, 345 Middlefield Road, Menlo Park, CA 94025; (415) 354-3067.

**Mediterranean Basins Conference**, September 25-28, 1988, Nice, France. Information: AAPG Convention Dept., P.O. Box 979, Tulsa, OK 74101-0979; (918) 584-2555. (*Abstracts due February 1, 1988.*)

**\*New York State Geological Association Annual Field Trip Meeting**, October 7-9, 1988, Plattsburgh, New York. Information: Tom Wolosz, Center for Earth and Environmental Science, SUNY College, Plattsburgh, NY 12901; (518) 564-4031.

**American Geophysical Union Fall Meeting**, December 5-9, 1988, San Francisco, California. Information: Ann E. Singer, American Geophysical Union, 2000 Florida Ave., N.W., Washington, DC 20009; (202) 462-6903.

**GSA 1988**

**Northeastern Section**, March 9-12, Portland, Maine

**South-Central Section**, March 14-15, Lawrence, Kansas

**Cordilleran Section**, March 29-31, Las Vegas, Nevada

**Southeastern Section**, April 6-8, Columbia, South Carolina

**North-Central Section**, April 21-22, Akron, Ohio

**Rocky Mountain Section**, May 16-18, Sun Valley, Idaho

**Annual Meeting**, October 31-November 3, Denver, Colorado

**Penrose Conferences**

**Paleozoic and Early Mesozoic Paleogeographic Relations Between the Klamath Mountains, the Northern Sierra Nevada, and North America**, June 5-10, 1988, Redding, California. Information: David S. Harwood, U.S. Geological Survey, MS 975, 345 Middlefield Rd., Menlo Park, CA 94025; (415) 329-4932.

**Origin of Massif Anorthosites and Related Rocks**, August 14-19, 1988, Chugwater, Wyoming. Information: B. Ronald Frost, Dept. of Geology and Geophysics, University of Wyoming, Laramie, WY 82071; (307) 766-4290.

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Send letter of application accompanied by a vita, description of research interests in groundwater modeling, and names of three referees to Professor Frank T. Caruccio, Groundwater Search Committee, Department of Geological Sciences, University of South Carolina, Columbia, SC 29208.

Closing date for applications is January 31, 1988.

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Applications should be sent to Prof. Daniel Habib, Executive Officer, The Graduate School, City University of New York, Ph.D. Program in Earth and Environmental Sciences, Room 1201, 33 W. 42 Street, New York, NY 10036.

Rank Open. Application Deadline: February 1, 1988. An Affirmative Action/Equal Opportunity Employer.

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The Department of Geosciences (Geology-Geography-Meteorology), The University of Missouri—Kansas City, invites applications for a regular ("tenure-track") faculty replacement at the rank of Assistant Professor of Geology, starting the fall semester of 1988. The department seeks a replacement faculty member capable of offering undergraduate Mineralogy or Igneous and Metamorphic Petrology, Geochemistry, and Physical Geology as well as graduate-level courses in support of our M.S. program in Urban Environmental Geology. Research, grantsmanship, and timely publication of results is expected. Candidates should have the Ph.D. in Geology.

The University of Missouri—Kansas City is an equal opportunity institution. Salary will be competitive and commensurate with credentials. Applicants with less than two years post doctoral teaching experience should submit their transcripts with their resumes. Resumes should indicate records of grantsmanship activities. For completion of an application, all applicants must have three references sent to: Professor Edwin D. Goebel, Chairperson, Department of Geosciences, University of Missouri—Kansas City, 5100 Rock-

hill Rd., Kansas City, MO 64110-2499. Review of applicants begins February 1, 1988.

### PALEOMAGNETISM/ UNIVERSITY OF PITTSBURGH

The Department of Geology and Planetary Science invites applications for a tenure-track position in paleomagnetism, preferably at the assistant professor level to supplement the existing program in rock magnetism and paleomagnetism. Highly qualified individuals with a strong commitment to original research and teaching in the field of paleomagnetism and applications of rock magnetism to problems of structure, stratigraphy, tectonics, diagenesis and geochronology are urged to apply. Applicants are expected to have completed the Ph.D. and to have demonstrated ability to conduct a vigorous research program. A curriculum vitae including a list of publications and a brief description of proposed research activities should be sent to Dr. Thomas H. Anderson, Chairman, Department of Geology and Planetary Science, University of Pittsburgh, Pittsburgh, PA 15260. The position, which starts September 1988, is subject to final budgetary approval. Deadline for applications is March 15, 1988.

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The Department has a new position for a junior tenure-track faculty member. The Department's emphasis has long been research and Ph.D.-level education. Its current programs are plate, continental, and marine tectonics; geochemistry; paleoclimatology; seismology; sedimentary geology; structural geology; and petrology. The applicant's research should complement one or more of these fields. She or he should provide evidence of high scientific productivity and the potential to lead research programs employing Ph.D. candidates. Please submit resume, including the names of 3 or more referees, by Jan. 15, 1988 to: Search Committee, Department of Geological Sciences, Northwestern University, Evanston, IL 60208.

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**WANTED:** Copy of Henderson's GSA Spec Pap #3 Dr H G Pierce, 617 Bogey, O'Neill, NE 68763

**WANTED:** Small geoscience department seeking used Jolly balance. Can you help? Phone 717-824-4651, Ex 246, E&ES Dept., Wilkes College, Wilkes-Barre, PA 18766, Attn: Sid Halsor.

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The Geodynamics Program  
Woods Hole Oceanographic Institution

### Symposium on Geologic and Geochemical Evidence for Segmentation of Continental and Oceanic Rifts

January 26 - 27, 1988  
Woods Hole, MA

A two-day symposium will examine the geology, geochemistry and geophysics of rifting, with particular emphasis on evidence for segmentation in the rifting process. Active processes within individual rift segments, as well as between rift segments, will be considered. There will be talks on all stages of rifting from intra-continental to mature ocean ridge. Included will be discussions on theoretical modeling of rifts, tectonics, igneous geochemistry, and sedimentation. The goal is to achieve an integrated picture of the rifting process with an emphasis on bringing the oceanic and continental "rifting communities" together. Ample time will be allowed for audience participation and for contributed poster presentations.

The meeting is open, with graduate student participation encouraged. Dr. Henry J. B. Dick is serving as conference chairman. Those wishing to contribute a talk or have a poster session may send an abstract for consideration. To attend and arrange accommodations, please contact:

Mrs. Janet M. Johnson, Dept. of Geology & Geophysics,  
Woods Hole Oceanographic Institution,  
Woods Hole, MA 02543; Tel. (617) 548-1400, ext. 2623.

## MEETINGS (continued from p. 29)

**Volcanic Influences on Terrestrial Sedimentation**, August 28-September 3, 1988, Crystal Mountain, Washington. Information: Gary A. Smith, Dept. of Geology, University of New Mexico, Albuquerque, NM 87131; (505) 277-4204.

**Criteria for Establishing the Relative Timing of Pluton Emplacement and Regional Deformations**, September 10-15, 1988, California. Information: Scott R. Paterson, Earth Science Board, University of California, Santa Cruz, CA 95064; (408) 429-3251.

## 1989

**\*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.

**\*European Geophysical Society XIV General Assembly**, March 13-17, 1989, Barcelona, Spain. Information: EGS Office, c/o MPI für Aeronomie, D-3411 Katlenburg-Lindau, Federal Republic of Germany. (Abstracts due December 15, 1988.)

## FUTURE GSA ANNUAL MEETINGS

1988	October 31-November 3	Denver, Colorado
1989	November 6-9	St. Louis, Missouri
1990	October 29-November 1	Dallas, Texas
1991	October 21-24	San Diego, California
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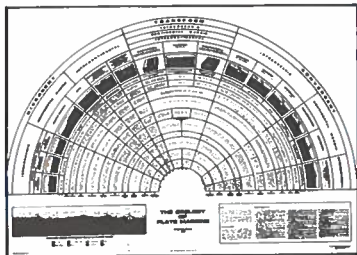
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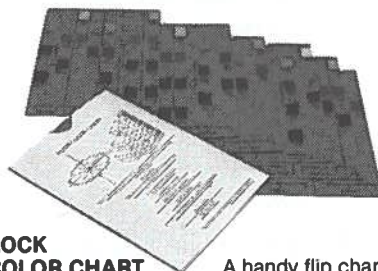
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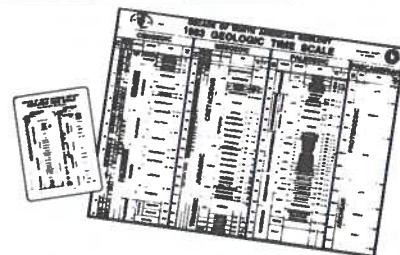
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