

Solid Technical Program plus Shamu, EPCOT Center, and Magic Kingdom Attract 4409 to Orlando Meeting

by Sue Beggs
GSA Meetings Manager

GSA's October 1985 meeting in Orlando, Florida, attracted 4409 earth scientists and their families and guests to this popular meeting location. Registrants participated with dedication to the technical program but also found time for the area's outstanding entertainments. Especially popular was the two-day pass to Walt Disney World's Magic Kingdom and EPCOT Center.

Registration

Of the 4409 attendees, 3044 registered as professionals, 1032 registered as students, and 333 registered as guests. Of the professional registrants, 86% indicated membership in GSA or one of the associated societies. Of the student registrants, over 62% indicated similar affiliation.

A trend in the making is the increasing number of preregistrants. Over 70% of the attendees preregistered, compared to 67% in 1984 and 65% in 1983. This includes one-day registration, which was offered for the first time in 1985 as a preregistration option. Also, the differential for on-site registration was increased to \$15, making preregistration even more attractive, especially for institutions sending several attendees.

Abstracts

A total of 1626 volunteered and symposia papers were submitted. Careful screening of volunteered papers by the Joint

Technical Program Committee left a grand total of 1419 papers presented during the meeting. Of those presented, 241 were given during symposia, 420 during poster sessions, and 758 during oral sessions. The total of 1388 volunteered abstracts submitted was second only to the 1827 submitted for 1984.

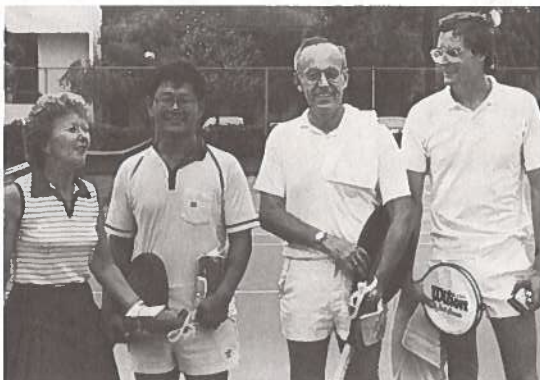
Field Trips

Five premeeting trips and two postmeeting trips involved 155 participants. The half-day self-guided trips to the Winter Park sinkhole attracted 95 participants. Those interested in guidebooks for any of the 1985 field trips should contact Douglas Smith, Department of Geology, University of Florida, Gainesville, FL 32611.

Exhibits

"This is the best exhibit GSA has ever had," commented several long-time annual meeting attendees. Exhibitors are finding GSA's meeting more viable as a contact point and have expanded and upgraded their booth commitment for our meeting. The 133 exhibitors and the 179 booths they occupied represented substantial growth, which will undoubtedly continue in coming years, especially as we head toward the Centennial Celebration in 1988. If you would like to recommend or become an exhibitor for 1986, contact Kathy Ohmie, Exhibits Manager, GSA Headquarters.

(continued on p. 4)



Tennis tournament winners Norma McIntosh, Shiu San Kuo, Dan Weill, and Steve Bohlen.



GSA President
Gary Ernst.



Karen Wenrich discusses her poster presentation.



October 28-31, 1985, Orlando, Florida



Annual Meeting (continued from p. 1)

Business was brisk in the GSA Bookstore. New specialty items and publications, including the first volume of the Decade of North American Geology project (Centennial Special Volume 1, *Geologists and Ideas: A History of North American Geology*), made the booth more popular than ever. Look for the GSA Bookstore at the San Antonio meeting, and for its mini-version at GSA section meetings.

Employment Service

The ever-popular employment service was utilized by 33 employers, who conducted 504 interviews with 218 applicants for 106 positions. Of the positions available, 39 were academic, 29 were corporate, and 38 government or other. All of these numbers parallel the 1984 totals, except for the positions available, 45 more than last year.

Professional Horizons

GSA headed into its second year of sponsoring five of its own premeeting and postmeeting short courses. Other societies and GSA divisions sponsored an additional eight courses and workshops. The open forum "Future Employment Opportunities in the Geological Sciences" was attended by 150. The Geology and Public Policy Forum found a different but equally interested audience during its Tuesday evening forum "Perspectives on the Management and Disposal of Hazardous Wastes."

IBM and WQED Pittsburgh added extra appeal to the Science Theater by providing releases of segments of the new Planet Earth television series, which is premiering in January.

NASA PLANETARY BIOLOGY SUMMER INTERNSHIPS

The Marine Biological Laboratory, Woods Hole, Massachusetts, invites applications from graduate students and seniors accepted in graduate programs for \$1,800 awards to participate in research at NASA centers and collaborating institutions during the summer. Application deadline: 1 April 1986. For information and applications, contact: Michael Enzien, Planetary Biology Intern Program, Department of Biology, Boston University, 2 Cummington Street, Boston, Mass. 02215. An Equal Opportunity/Affirmative Action Institution.

Technical Program

Technical sessions were enthusiastically attended and discussed in hallways, corridors, restaurants, and jacuzzis by groups of twos, threes, and fours—combinations that have become characteristic of our meetings. The news media gave special attention to the symposia "Multiple Uses of Aquifers," "Low-Energy Coastlines," and "Special Panel on the Mexican Earthquakes," the latter arranged just two weeks prior to the meeting. GSA was especially pleased to be able to respond quickly to this event in time for the meeting, due to the efforts of James Tull and Joseph Donoghue, our Technical Program co-chairmen.

Special Events

A high point of the annual meeting events was the debut of killer whale Shamu's offspring, who performed with his parents during GSA's evening at Sea World. The 310-pound "infant," born just prior to the meeting, is the only living killer whale born in captivity. The evening was rounded out by a picnic supper, accompanied by a bluegrass band, and three other Sea World events.

GSA sponsored its second annual 5K/10K race and the first annual President's Invitational Tennis Tournament. The 10K race was won by John Compton (37:05) and Carol Bruton (44:41) and the 5K by Kit Fuller (16:48) and Shirley Adams (24:59). Some tennis players arrived without shoes, but problems were remedied in time for some excellent center court play. Winners of the tennis tournament were Steve Bohlen (top points scorer), Dan Weill, Shiou San Kuo, and Norma McIntosh.

Innovations

This meeting was made more pleasant and convenient for registrants in several ways: new registration procedures, car rental, shuttle service, child care co-op, food services, and luggage storage—to name a few of the background items that went into making this a good experience. The most noticeable difference, however, was the use of two screens and two projectors during all technical sessions. The double system was adopted easily and used widely by many of the speakers. We will be using the same system in 1986, of course.

Speaking of innovations, if you have suggestions for improving any part of the meeting, please write to me. We're encouraging constructive ideas for 1986 and beyond. This applies especially to the activities we may take for granted after so many years—for example, information mailings, registration, the welcoming reception, "friends" meetings, and alumni night. Let me know about an interesting event or procedure that you've experienced at another meeting, and I'll be glad to consider it.

For many years we've been working on eliminating major problems such as program overlaps, technically inferior slides, and meeting rooms that are too small or too large. It is because of your suggestions for improvements that these changes have occurred, so I look forward to receiving your comments and ideas.

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



CENTENNIAL NEWS

by Allison (Pete) Palmer

Final Coordinating Conference Schedule for 1986

The last of the organizational meetings for components of the GSA-produced volumes of *The Geology of North America* was held in mid-November. By September 1986, Final Coordinating Conferences will have been held for all of these books, and chapters will be in the review stage or beyond. The schedule for the remaining Final Coordinating Conferences, all to be held in Denver, is as follows:

- Jan. 18-19—*Surface Water Hydrology of North America*
- Jan. 25-26—*North America and Adjacent Oceans during the Last Deglaciation*
- Feb. 15-16—*Economic Geology: U.S. (coal)*
- April 25-26—*Economic Geology: U.S. (oil & gas)*
- June 24-25—*Economic Geology: U.S. (minerals)*
- Sept. 13-14—*Quaternary Nonglacial Geology: Conterminous U.S.*

Corrections to GSA Publications Catalog Citations

Two important glitches occurred in the citation of Continent/Ocean Transect C-2 in the 1985/86 GSA Publications Catalog produced in September. The citation on p. 3 of the catalog should read (corrections in boldface):

C-2 Central California Offshore to Colorado Plateau (corrected title, my mistake) **Jason B. Saleeby, with contributions** by (the GSA Marketing Department lost a critical line). Apologies to Jason.

Also, the title for the History of Geology Division Centennial Special Volume, which was edited by Ellen Drake and Bill Jordan, got slightly altered during production. On p. 4 of the catalog the title should read (corrected part in boldface): **Geologists and Ideas: A History of North American Geology.**

Congratulations to the Winner of the 1985 Cain Travel Group Drawing

Cathy Pasterczyk, Zimmerman Library, University of New Mexico, won a trip for two for three days and four nights in either Cancun or Puerto Vallarta, Mexico. Her entry was the winner in the Cain Travel Group drawing. As the designated travel agency for the 1985 Orlando meeting, Cain Travel Group offered this incentive drawing to all persons making air travel arrangements through them for the Orlando meeting. Cathy's prize includes round-trip airfare from Dallas to either Cancun or Puerto Vallarta.

Keep your eyes open for the San Antonio meeting, November 10-13, 1986. You may be next year's winner.

GSA To Sponsor Congressional Fellowship

The Geological Society of America will sponsor a one-year fellowship (September-August) for an earth scientist to serve on the staff of a Congressional committee or a U.S. House or Senate member, advising on a wide range of scientific issues related to public policy. The purpose of this program is to provide an opportunity to communicate earth science information to national policymakers and to bring the benefits of that experience back to the scientific community.

Requirements

Applicants should have an advanced degree in the earth sciences, or equivalent professional experience, and be interested in applying science to the solution of public problems. The position will require the ability to work well with people from diverse professional backgrounds and to be articulate and flexible in fulfilling a broad range of assignments.

Stipend

The fellowship carries a stipend of \$25,000 plus a limited relocation and travel allowance.

Application Information

Interested candidates should inquire for further information about the program and application procedures by writing or calling:

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

Deadline for applications is March 31, 1986.

IN MEMORIAM

- | | |
|---|---|
| Arthur B. Cleaves
Lutherville, Maryland
May 7, 1985 | Richards A. Rowland
Bellaire, Texas
April 29, 1985 |
| Lewis B. Kellum
Manchester, Michigan | Comis Tyler
Whitesburg, Kentucky |
| Francis A. Kohout
East Falmouth, Massachusetts
September 25, 1985 | Charles W. Wilson, Jr.
Nashville, Tennessee
June 21, 1985 |
| Fred H. Moore
Austin, Texas
July 20, 1985 | W. Calhoun Smith
Urbana, Illinois
July 24, 1985 |
| Robert B. Newcombe
Grand Rapids, Michigan
March 7, 1985 | |

The Decade of North American Geology **DNAG**

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DNAG's goal is a suite of publications which include a 28-volume modern synthesis of the geology and geophysics of North America and adjacent oceanic regions, six volumes of field guides, four special topical volumes, 23 continent-ocean transects, and seven wall size continent-scale geologic and geophysical maps.

LOW COST PRE-PRESS OFFERS EXPIRE MARCH 1, 1986.

Exceptionally low pre-press prices are now available under our special prepayment, installment payment, or standing order plans. But hurry! The best discounts expire March 1, 1986. GSA will begin fulfilling these publications in January, 1986. Completion is expected in 1988/89.

A comprehensive prospectus of these publications is now available. Write, or call our toll-free number for your copy if you haven't received one.



Geological Society of America
3300 Penrose Place • P.O. Box 9140
Boulder, CO 80301
(303) 447-2020
Outside Colorado call toll-free: 1-800-GSA-1988

THE GEOLOGICAL SOCIETY OF AMERICA

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Final Announcement

Southeastern and South-Central Sections, GSA, Annual Meeting

Memphis, Tennessee

April 2-4, 1986

The Southeastern and the South-Central Sections of the Geological Society of America will meet at the Peabody Hotel in Memphis, Tennessee, April 2-4, 1986, together with the Southeastern Section of the Paleontological Society, the Southeastern Section of the National Association of Geology Teachers, and the Pander Society. The meeting is sponsored by Memphis State University and the Arkansas Geological Commission.

Local Committee chairmen are Robert W. Deininger, Department of Geological Sciences, Memphis State University, and John D. McFarland III, Arkansas Geological Commission. Technical Program Committee chairmen are David B. Bieler, Department of Geological Sciences, Memphis State University, and John D. McFarland III.

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. **PEREGISTRATION FORMS, WITH PAYMENT, MUST BE POSTMARKED NO LATER THAN MARCH 3, 1986.**

Complete the registration form and return it with a check or money order in U.S. currency, made payable to Southeastern/South-Central GSA. *Those planning to go on the field trips or the guest tour must preregister by March 3, 1986.* Refunds for canceled preregistrations will be made in full until March 3, 1986. After that date no refunds will be made except in the event of cancellation of a field trip.

On-site Registration: Registration and pick-up of meeting materials by preregistrants will be from 3 to 8 p.m. on Wednesday, April 2, and from 8 a.m. to 5 p.m. on April 3 and 4. Registration will be held on the Mezzanine of the Peabody Hotel.

WELCOMING PARTY

A welcoming party for those attending the meeting will be held on Wednesday, April 2, from 8 to 10 p.m. at the Memphis Pink Palace Museum. Transportation will be furnished.

TECHNICAL PROGRAM

Technical sessions will be scheduled as oral presentations and poster sessions on Thursday, April 3, and Friday, April 4.

SYMPOSIA

1. Seventh Symposium on Coastal Sedimentology. William F. Tanner, Department of Geology, Florida State University, Tallahassee, FL 32306.

2. Pander Society. Carl Rexroad, Indiana Geological Survey, 611 North Walnut Grove, Bloomington, IN 47405.

3. Stratigraphy and Deformation of the Westernmost Ocoee Basin and Overlying Paleozoic Passive Margin: Southern Appalachian Orogen. John Costello and Keith McConnell, Georgia Geological Survey, Room 400, 19 Martin Luther King, Jr. Dr. S.W., Atlanta, GA 30334.

4. Paleoecology of the Ouachitas and Southern Appalachians. Sponsored by the Southeastern Section of the Paleontological Society. Thomas Broadhead, Department of Geological Sciences, University of Tennessee, Knoxville, TN 37916; Patricia H. Kelley, Department of Geology and Geological Engineering, University of Mississippi, University, MS 38677.

5. Mesozoic and Cenozoic Magmatism and Tectonism in the Southeastern and South-Central United States. Dennis Nelson, Department of Geology, Sul Ross State University, Alpine, TX 79832; Paul C. Ragland, Department of Geology, Florida State University, Tallahassee, FL 32306.

6. Cretaceous Stratigraphy and Paleontology of the Gulf Coast. Ernest A. Mancini, Geological Survey of Alabama, P.O. Drawer O, University, AL 35486; Charles Smith, Tenneco Oil Company, P.O. Box 2888, Houston, TX 77001; Ernest E. Russell, Department of Geology and Geography, Mississippi State University, Mississippi State, MS 39762.

7. Educational Issues in Planning for Natural and Environmental Hazards. NAGT and Tennessee Earthquake Information Center.

FIELD TRIPS

Field trip preregistrants must also preregister for the meeting. Field trip registration is on a first-come, first-served basis. If a trip is oversubscribed or canceled, the full trip fee will be refunded. *Preregistration for field trips must be received by March 3, 1986, accompanied by full payment.* Trips may be canceled if registration is insufficient. No trip refunds will be made after March 3, 1986. Field trip Chairman is Carol Ekstrom, Rhodes College, Memphis, Tennessee.

Premeeting Trips

1. Middle Ordovician through Devonian Stratigraphy and Sedimentology of North-Central Arkansas. William W. Craig and John David McFarland III. Stops will illustrate the stratigraphy and depositional environments of the post-St. Peter Ordovician, Silurian, and Devonian rocks of north-central Arkansas. Although the units to be examined continue far to the west of the trip area, most of their important features are displayed at the trip stops. Some of these features are controversial; discussion will be encouraged.

Starts at 7 p.m. on March 31 at La Quinta Inn, 4100 McCain Blvd., North Little Rock, Arkansas, with an orientation program. Departs Little Rock at 7:30 a.m. April 1; ends in Memphis at 6 p.m. April 2. **Limits: 25 to 35. Cost: \$110**, including transportation, 2 nights lodging, 2 breakfasts, 2 lunches, 1 dinner, and guidebook.

2. Shelf and Basin Facies in Carboniferous Rocks of Central Arkansas. Charles G. Stone, Boyd R. Haley, and M. H. Link. The focus of the trip is on the Morrowan and Atokan

(continued on p. 8)

SE-SC Annual Meeting (continued from p. 7)

outcrops in the Ozarks, Arkansas Valley, and frontal Ouachitas of central Arkansas which display many fine features of alluvial, deltaic, slope, and basinal sedimentation. Attention will also be directed to concurrent and later periods of tectonic activity. Some walking will be required.

Starts at 7 p.m. March 31 at La Quinta Inn, 4100 McCain Blvd., North Little Rock, Arkansas, with an orientation program. Departs Little Rock at 7:30 a.m., April 1; ends in Memphis at 6 p.m. April 2. **Limits: 25 to 45. Cost: \$135**, including transportation, 2 nights lodging, 2 breakfasts, 2 lunches, 1 dinner, and guidebook.

3. Eocene to Present Geology and History of the Mississippi Valley in the Earthquake Region, Tennessee. Richard G. Stearns, Ernest W. Blythe, Jr., Michael L. Hoyal. All stops are of geological interest, but some are mainly historical in emphasis.

Starts at 8 a.m. April 1 at the Peabody Hotel in Memphis; ends at about 3:30 p.m. April 2 at the Peabody. **Limits: 8 to 43. Cost: \$60**, including transportation, 1 lunch, 1 dinner, and guidebook. Lodging on April 1, 1 breakfast, and 1 dinner are at additional expense to participants.

Postmeeting Trips

4. Quaternary and Tertiary Geology of Crowley's Ridge. Margaret J. Guccione, William L. Prior, and E. Moye Rutledge. The trip covers Crowley's Ridge from near Paragould, Arkansas, south to near Forrest City. Stops will include outcrops of Quaternary terrace gravel and sand, loess, buried soils, and Eocene age deposits representing fluvial, deltaic, and marine environments. Some stream walking required; boots are recommended. Departs Memphis at 8 a.m. April 5; returns about 6 p.m. **Limits: 25 to 35. Cost: \$35**, including lunch and guidebook.

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HOUSING FORM

**Southeastern and South-Central Sections, GSA, April 2-4, 1986
Memphis, Tennessee**

DEADLINE FOR RESERVATIONS: MARCH 9, 1986

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

Name _____

Address _____

Phone: Business () _____ Residence () _____

Type of room requested:

- _____ Single (1 bed, 1 occupant)
- _____ Double (2 beds, 2 occupants)
- _____ Triple (2 beds, 3 occupants)
- _____ Quad (2 beds, 4 occupants)

Name(s) of additional persons sharing room:

Arrival date: _____ Time: _____

Departure date: _____ Time: _____

Deposit enclosed:

Check # _____ Amount \$ _____

Credit Card # _____

Type of card: VI MC AE DC

Cardholder's name: _____

Signature: _____

Mail completed housing form to:
The Peabody
Reservations
149 Union Avenue
Memphis, TN 38103

PREREGISTRATION FORM
Southeastern and South-Central Sections, GSA, Annual Meeting
April 2-4, 1986, Memphis, Tennessee

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 3, 1986.** Deadline for field trips and guest tour is March 3, 1986.

FOR OFFICE USE ONLY		
ck/M.O.# _____	Amount \$ _____	
Personal check _____	M.O. _____	Other check _____
Issued by _____		

Please print or type:

Name _____
last first middle

Registered as: Professional Student Guest

Affiliation _____

Professional Address _____

Phone: Business () _____ Residence () _____

GSA Member: yes no Speaker: yes no GSA Student Associate: yes no

Preregistration (before March 3, 1986)

GSA Member	\$ 25	\$ _____
Non-GSA member	\$ 30	\$ _____
GSA Student Associate	\$ 9	\$ _____
Non-GSA student	\$ 12	\$ _____

Registration (after March 3, 1986)

GSA Member	\$ 30	\$ _____
Non-GSA member	\$ 35	\$ _____
GSA Student Associate	\$ 12	\$ _____
Non-GSA student	\$ 15	\$ _____

Guest

	\$ 10	\$ _____
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Tea in the Peabody Lobby (guests)

	\$ 6	\$ _____
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GSA Southeastern and South-Central Sections Banquet

	\$ 12	\$ _____
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Paleontological Society and Pander Society Luncheon

	\$ 10	\$ _____
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Field Trip Registration

Preregistration deadline for field trips is March 3, 1986.

All field trip participants must also preregister for the meeting.

Premeeting Trips

1. Middle Ordovician-Devonian Stratigraphy and Sedimentology, North-Central Arkansas	\$ 110	\$ _____
2. Shelf and Basin Facies in Carboniferous Rocks, Central Arkansas	\$ 135	\$ _____
3. Eocene to Present Geology and History, Mississippi Valley, Earthquake Region, Tennessee	\$ 60	\$ _____

Postmeeting Trips

4. Quaternary and Eocene Geology of Crowley's Ridge	\$ 35	\$ _____
5. Conodont Biostratigraphy of Ordovician and Silurian Strata, Batesville District	\$ 100	\$ _____
6. Upper Cretaceous Marine and Nonmarine Sedimentology, Eastern Mississippi Embayment	\$ 75	\$ _____

Other Trips

Tennessee Earthquake Information Center

Circle choice of day and time:

Thursday 1:30 p.m. 3:30 p.m.	Friday 8:30 a.m. 10:30 a.m.	
		\$ 5

Total Fees. Enclose check or money order (U.S. funds only) made payable to Southeastern/South-Central GSA

		\$ _____
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PREREGISTRATION FORMS MUST BE POSTMARKED BY MARCH 3, 1986

Mail completed registration forms and fee remissions to
 Southeastern/South-Central GSA Registration
 Department of Geological Sciences
 Memphis State University
 Memphis, TN 38152

SE-SC Annual Meeting (continued from p. 8)

5. Conodont Biostratigraphy of Ordovician and Silurian Strata, Batesville District, Arkansas (Pander Society). W. W. Craig, R. L. Ethington, John Repetski. Departs Memphis late Friday afternoon, April 4; returns to Memphis early Sunday afternoon, April 6. **Limits: 25 to 35. Cost: \$100**, including transportation, 2 nights lodging, 1 lunch, 1 dinner, and guidebook.

6. Upper Cretaceous Marine and Nonmarine Sedimentology in the Eastern Mississippi Embayment. Ernest E. Russell, Donald Keady, Ernest A. Mancini, Charles Smith. Departs Memphis at 1 p.m. April 4; returns about 5 p.m. April 6. **Limits: 8 to 15. Cost: \$75**, including transportation, 2 lunches, and guidebook. Lodging and other meals will be extra.

Other Trips

Conducted tours of the Tennessee Earthquake Information Center will leave the Peabody at 1:30 and 3:30 p.m. on Thursday, April 3, and at 8:30 and 10:30 a.m. on Friday, April 4. Each tour, including transportation, will take about two hours. **Limit: 12** each tour. **Cost: \$5.**

PUBLICATIONS

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

PROJECTION EQUIPMENT

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

and one screen will be provided in each meeting room. Please plan your presentations accordingly, and bring your own loaded carousel tray if possible.

EXHIBITS

Geological exhibits concerning education, research, and industry will be on display in the exhibits area near the technical sessions in the Peabody Hotel. Rental fees for exhibit booths range from \$125 to \$300. For further information, contact Wayne Ault, Department of Geological Sciences, Memphis State University, Memphis, TN 38152.

SPECIAL EVENTS

All of the meetings listed below (except for the annual banquet and the joint luncheon of the Southeastern Section of the Paleontological Society and the Pander Society) will be held at the Peabody Hotel.

GSA Southeastern Section Management Board Meeting, Wednesday, April 2, 6 to 8 p.m.

GSA South-Central Section Management Board Meeting, Wednesday, April 2, 6 to 8 p.m.

GSA Southeastern Section Campus Liaison Group Breakfast, Thursday, April 3, 7 a.m.

GSA Southeastern Section Business Meeting, Thursday, April 3, 5 p.m.

GSA South-Central Section Business Meeting, Thursday, April 3, 5 p.m.

GSA Southeastern and South-Central Sections Banquet, Thursday, April 3, 7:30 p.m. at Erika's German Restaurant near the Peabody Hotel.

NAGT Southeastern Section Business Meeting, immediately following the NAGT technical sessions.

Paleontological Society Southeastern Section and Pander Society Luncheon and Business Meeting, Thursday, April 3, 12 noon at the Pier Restaurant.

GUEST ACTIVITIES

An information desk will be maintained in the registration area in the Peabody Hotel. For further information, contact Margaret D. Deininger, 4707 Sequoia Rd., Memphis, TN 38117. Preregistrants may sign up for Tea in the Peabody Lobby, Thursday, April 3, at 3:30 p.m. The cost (including gratuity) will be \$6.00.

TRAVEL

Memphis International Airport is served by a large number of major and regional airlines. The Peabody can be reached from the airport by airport limousine or taxi. For those who drive, Interstate Highways 40 and 55 provide direct access to Memphis.

HOUSING

A block of rooms has been reserved at the headquarters hotel, The Peabody, 149 Union Avenue, Memphis, TN 38103. Rates for this meeting are \$75 single and \$90 double, triple, or quad. In the event that these rooms are filled, additional reservations will be sent to other nearby hotels. Room rates will not exceed those at the Peabody. Reservations will be held until 6 p.m. unless guaranteed by one night's deposit or by approved credit card (Visa, Mastercard, American Express, Diner's Club).

Complete the accompanying Housing Form and send it to the Peabody Hotel (address on form).

DEADLINE FOR ROOM RESERVATIONS IS MARCH 9, 1986.

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Final Announcement

North-Central Section, GSA, 20th Annual Meeting

Kent, Ohio
April 24-25, 1986

The Department of Geology, Kent State University, will host the 20th Annual Meeting of the North-Central Section of the Geological Society of America concurrently with the North-Central Section of the Paleontological Society, the Great Lakes Section of the Society of Economic Paleontologists and Mineralogists, and the East-Central Section of the National Association of Geology Teachers on April 24 and 25, 1986. For further information, write or call Local Committee Chairman Richard A. Heimlich, Program Committee Chairman Rodney M. Feldmann, or Field Trip Chairman Alan H. Coogan, all at the Department of Geology, Kent State University, Kent, OH 44242, (216) 672-2680.

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 21, 1986*. Student registrants must present proper identification or verification to be eligible for student discounts.

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 *Friday, March 21, 1986*, to qualify for the reduced preregistration fees. Please complete the accompanying registration form and return it with a check or money order payable to Kent State University to the Conference Bureau, 211A Kent Student Center, Kent State University, Kent, OH 44242.

On-Site Registration. Registration will take place on Wednesday, April 23, from 7:00 to 9:00 p.m. outside the Geology Reading Room (Room 223) in McGilvrey Hall and on Thursday and Friday, April 24 and 25, from 8:00 a.m. to 4:30 p.m. in Room 302 (near elevator) in the Kent Student Center. Preregistrants can pick up their registration folders and tickets at the registration desk. A limited number of tickets will be available for those who did not preregister.

Requests for advance registration refunds will be honored until April 10, 1986, 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 Kent Student Center at Kent State University. Depending upon the abstracts submitted, there will be sessions on paleontology, stratigraphy, sedimentology, economic geology, geomorphology, hydrogeology, Quaternary geology, mineralogy, petrology, geochemistry, structural geology, geophysics, engineering and environmental geology, and general geology.

SYMPOSIA

- 1. Polar Research: Contributions to the Earth Sciences.** David Elliot, Ohio State University; Rodney Feldmann, Kent State University.
- 2. Hydrogeology of Glacial Terranes.** Lon Ruedisili, University of Toledo; Yoram Eckstein, Kent State University.
- 3. Paleogeography of Paleozoic Midcontinental Seaways.** Markes Johnson, Williams College; Rodney Feldmann, Kent State University. Sponsored by the Paleontological Society.
- 4. Late Paleozoic Strata of Southeastern Ohio and Adjacent Areas.** Mark Boardman, Miami University. Sponsored

by the Society of Economic Paleontologists and Mineralogists Great Lakes Section.

- 5. Geochemistry of Coal.** L. Lynn Chyi, University of Akron; C. L. Chou, Illinois State Geological Survey.
- 6. New Horizons in Geo-Education.** Kennard Bork, Dennison University; George Econ, Jackson Community College. Sponsored by the National Association of Geology Teachers East-Central Section.

PROJECTION EQUIPMENT

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

EXHIBIT SPACE

Exhibits will be held in the Kent Student Center, where all programs will be conducted. A single 8' x 10' booth costs \$100 for the duration of the meeting. For additional information, contact R. A. Heimlich, Department of Geology, Kent State University, Kent, OH 44242, (216) 672-2680.

SPECIAL EVENTS

Welcoming Party. A welcoming party for all registrants will be held in the Geology Reading Room (Room 223), McGilvrey Hall from 7:00 to 9:00 p.m. on Wednesday, April 23.

Annual Banquet. The annual banquet of the GSA North-Central Section will be held in the Ballroom of the Kent Student Center at 7:00 p.m. on Thursday, April 24. Cost: \$10.00. A brief business meeting of the North-Central Section, to be conducted immediately after the banquet, will be followed by an invited lecture.

Paleontological Society Luncheon. The Paleontological Society will have a luncheon in Room 323A of the Kent Student Center at 12:00 noon on Thursday, April 24. The luncheon will be followed by the Paleontological Society's business meeting and a lecture by its president, Norman Sohl. Cost: \$6.50.

SEPM Great Lakes Section Luncheon. The Society of Economic Paleontologists and Mineralogists will have a luncheon in Room 307 of the Kent Student Center at 12:00 noon on Friday, April 25. The luncheon will be followed by the SEPM business meeting. Cost: \$6.50.

GSA Campus Representatives Breakfast. GSA Campus Representatives will conduct a brief review of their activities during breakfast at 7:00 a.m. in Room 323A of the Kent Student Center on Friday, April 25.

Paleontological Society Midyear Council Meeting. The

(continued on p. 12)

North-Central Section Annual Meeting

(continued from p. 11)

National Council of the Paleontological Society will hold its mid-year meeting in the Geology Conference Room (Room 221), McGilvrey Hall from 9:00 a.m. to noon, on Saturday, April 26.

SPOUSE/GUEST PROGRAM

Special guest activities will include visits to the Cleveland Museum of Natural History, Cleveland Museum of Art, and Akron's Quaker Square (Specialty Shop Mall) Restoration, depending upon interest. Cost, depending upon numbers, will be about \$5 per person. Additionally, free tours of the new Kent State University Fashion Museum are available.

Please indicate on the registration form trips in which you have interest. We reserve the right to cancel any trips for which there is insufficient interest.

MEALS

Breakfast, lunch, and dinner (casual dining) are available in the Cafeteria (second floor) and Wendy's Restaurant (first floor) of the Kent Student Center. Additionally, lunch and dinner are available in the Schwebel Garden Room Restaurant (third floor). Reservations are required for the Schwebel Room. Meals may be obtained also at many local restaurants. Names and locations of these restaurants will be provided in the registration folders available at the meeting.

STUDENT AWARDS

The North-Central Section will award \$100 each for a maximum of four of the best papers written and delivered exclusively by a student. Prizes awarded for student papers with more than one author will be divided among the authors.

TRAVEL

Kent is served by several airlines via the Cleveland Hopkins Airport and the Akron-Canton Airport. Public transportation is not available between the airports and Kent. Meeting participants are asked to arrange their own transportation by means of the Hopkins Airport Limousine (216-928-8172; regularly scheduled departures from Cleveland Airport at 9:00 a.m., 12:30 p.m., and 5:30 p.m.; cost: \$10.50) or Town and Country Taxi (216-686-1505; departures from Cleveland and Akron airports as requested; cost: \$15.00). By car, the area is served via the Ohio Turnpike (Route 80) and Interstate Route 76 (see map).

HOUSING

We urge conference participants who know they will be staying overnight to make early hotel arrangements; space in Kent is somewhat limited. Please, too, be willing to share rooms whenever possible for the same reason.

We have reserved blocks of rooms at the Holiday Inn and Knights Inn, both about 6 miles from the campus. To make reservations, and to obtain the reduced rates indicated below, contact the motel directly and indicate that you will be attending the GSA meeting at Kent State University. Rooms not reserved by April 5 will be released. A van shuttle service between both motels and the Kent Student Center will operate in the early mornings and late afternoons.

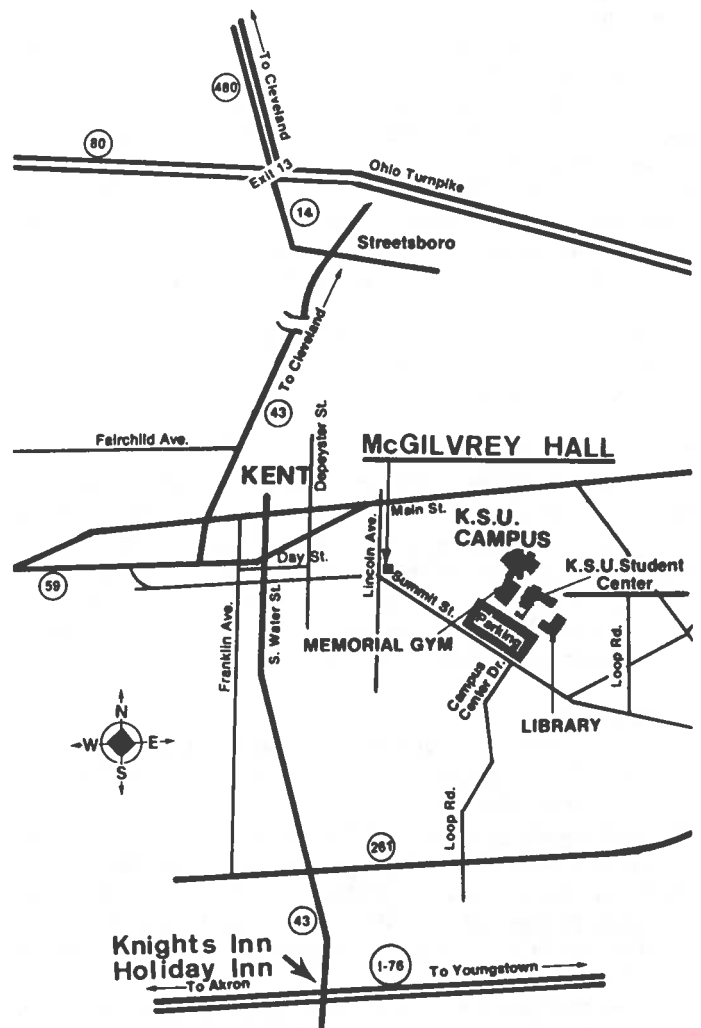
Holiday Inn
4363 State Route 43
Kent, Ohio 44240
Phone: 216-678-0101
Rate: \$41 + tax (2 persons)

Knights Inn
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Kent, Ohio 44240
Phone: 216-678-5250
Rate: \$31.50 + tax (2 persons)

FIELD TRIPS

All field trip participants must preregister and must also register for the meeting. Preregistration deadline is **March 21, 1986**. Trips may be canceled if registration is insufficient. No trip refunds will be made after April 10, 1986. Each trip is one full day, and all trips are on Saturday, April 26. All trips will depart from, and return to, the Kent Student Center parking lot.

- 1. Devonian and Mississippian Strata in Northeastern Ohio.** Alan H. Coogan, Loren Babcock, Doyle Martin, Karen Taylor, David Wehn, Kent State University; Joseph Hannibal, Cleveland Museum of Natural History. Outcrops of the Devonian Chagrin and Cleveland shales, Mississippian Bedford Shale and Berea Sandstone at Stebbins Gulch, and of the Bedford Shale, Berea Sandstone, and basal Cuyahoga Group at Quarry Rock, Geauga County, Ohio. Water-resistant boots are recommended. *Limit: 30; Cost: \$15*, including lunch, transportation, and guidebook.
- 2. Pleistocene Stratigraphy of the Lower Cuyahoga Valley and Adjacent Garfield Heights, Ohio.** John P. Szabo, University of Akron; Barry B. Miller, Kent State University. Examination of Wisconsin and pre-Wisconsin glacial deposits of the Lower Cuyahoga Valley. *Limit: 40; Cost: \$15*, including lunch, transportation, and guidebook.
- 3. Geomorphology of the Lake Erie Shore in Northeast Ohio.** Donald E. Guy, Jr., and Jonathan A. Fuller, Ohio



Geological Survey, Lake Erie Section. Examination of a variety of geomorphic settings that occur along the northeast Ohio shoreline of Lake Erie. The trip contrasts steep unstable bluffs with gentle semistable slopes, low-relief with high-relief shores, and unprotected with protected shores. *Limit: 40; Cost: \$15*, including transportation and guidebook.

4. **Epigenetic Mineralization in Northwestern Ohio, Genoa and Woodville Quarries.** Ernest H. Carlson, Kent State University. Examination of Sr-F-Zn-Pb mineralization in the

U.S. Gypsum Quarry, Genoa and the Martin Marietta Quarry, Woodville, Ohio. Hard hats and boots required. *Limit: 20; Cost: \$15*, including lunch, transportation, and guidebook.

5. **Landslide Occurrences in Summit County, Ohio.** Abdul Shakoor and Mark Jones, Kent State University. Examination of active and inactive landslides in an area of moderate to steep slopes developed on bedrock and glacial materials. *Limit: 20; Cost: \$15*, including lunch, transportation, and guidebook.

PREREGISTRATION FORM

North-Central Section, GSA, Annual Meeting
April 24-25, 1986
Kent, Ohio

Please print or type:

Name _____

Registered as: _____ Professional _____ Student _____ Spouse/Guest

Spouse/Guest name for badge _____

Affiliation (abbreviate for name tag) _____

Professional address _____

City _____ State _____ Zip _____

Phone: Business _____ Home _____

GSA Member _____ yes _____ no GSA Student Associate _____ yes _____ no Speaker _____ yes _____ no

Preregistration (postmarked March 21 or earlier)

Professional	\$25.00	\$ _____
Student	\$ 7.00	\$ _____

Registration (after March 21)

Professional	\$30.00	\$ _____
Student	\$ 9.00	\$ _____

Spouse/Guest registration \$ 8.00 \$ _____

Annual banquet, April 24 \$10.00 \$ _____

Paleontological Society luncheon, April 24 \$ 6.50 \$ _____

SEPM Great Lakes Section luncheon, April 25 \$ 6.50 \$ _____

GSA Campus Representatives breakfast, April 25 NC _____

(indicate the department you officially represent: _____)

Cleveland Museum of Natural History visit _____

Cleveland Museum of Art visit _____

Akron's Quaker Square (Specialty Shop Mall) Restoration visit _____

Field Trips, Registration deadline: March 21

ALL FIELD-TRIP REGISTRANTS MUST ALSO PREREGISTER FOR THE GENERAL MEETING

Devonian and Mississippian Strata in Northeastern Ohio, Saturday, April 26	\$15.00	\$ _____
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Pleistocene Stratigraphy, Lower Cuyahoga Valley, Garfield Heights, Ohio, Saturday, April 26	\$15.00	\$ _____
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Geomorphology of the Lake Erie Shore in Northeast Ohio, Saturday, April 26	\$15.00	\$ _____
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Epigenetic Mineralization, Northwest Ohio, Genoa and Woodville Quarries, Saturday, April 26	\$15.00	\$ _____
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Landslide Occurrences in Summit County, Ohio, Saturday, April 26	\$15.00	\$ _____
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Total Fees. Make check or money order (U.S. funds) payable to Kent State University \$ _____

For registration discounts, mail this Preregistration Form by March 21, 1986, to

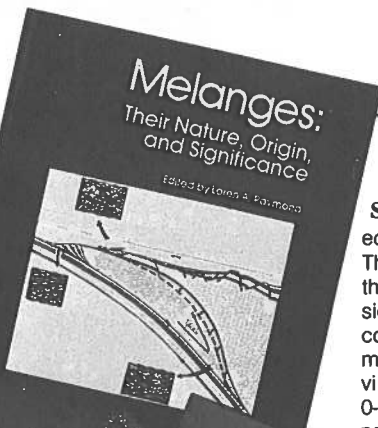
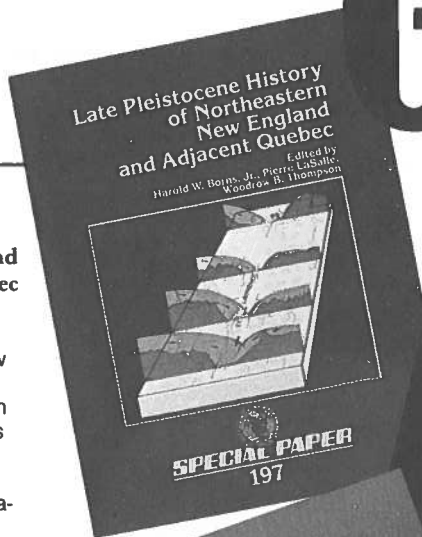
Conference Bureau
211A Kent Student Center
Kent State University
Kent, OH 44242

SPECIAL PAPERS

from

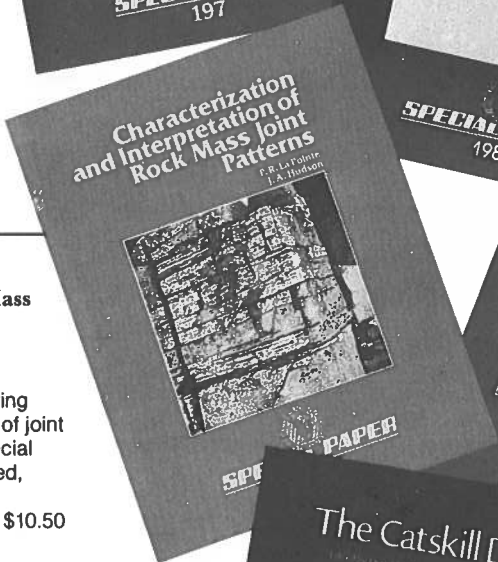
GSA

Late Pleistocene History of Northeastern New England and Adjacent Quebec
 edited by Harold W. Borns, Jr., Pierre LaSalle, and Woodrow B. Thompson, 1985
 13 papers dealing with the timing and models for the late Wisconsinan deglaciation of New England and adjacent Quebec. Special Paper 197, x + 159, illustrated, ISBN 0-8137-2197-0, CIP paperback \$22.50



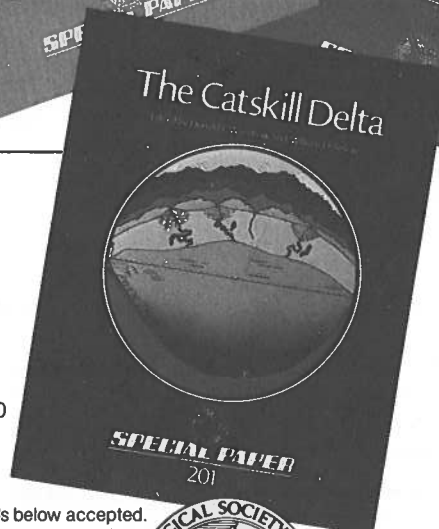
Melanges: Their Nature, Origin, and Significance
 edited by Loren A. Raymond, 1984
 This volume provides images of the nature of melanges, discussion of possible origins, and comments on the significance of melanges. Special Paper 198, vi + 170, illustrated, ISBN 0-8137-2198-9, CIP paperback \$22.00

Characterization and Interpretation of Rock Mass Joint Patterns
 by P.R. La Pointe and J.A. Hudson, 1985
 New techniques for quantifying and analyzing the geometry of joint patterns are developed. Special Paper 199, viii + 37, illustrated, ISBN 0-8137-2199-7, CIP paperback \$10.50



Tectonic Evolution of a Forearc Terrane, Southern Scotia Ridge, Antarctica
 by Ian W.D. Dalziel, 1984
 The author presents the results of structural studies, and conclusions are drawn about the structural evolution of the forearc terrane and the tectonic evolution of the southern Scotia Ridge. Special Paper 200, vi + 32, illustrated, ISBN 0-8137-2200-4, CIP paperback \$ 9.00

The Catskill Delta
 edited by Donald L. Woodrow and William D. Sevon, 1985
 The authors of the 18 chapters present either new ideas involving plate tectonics, paleogeography, and depositional models or sedimentologic and paleobiologic concepts not emphasized until recent years. Special Paper 201, viii + 246, illustrated, ISBN 0-8137-2201-2, CIP paperback \$32.00



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PRESIDENT

W. Gary Ernst

b. St. Louis, MO, 12-14-31; m. 56; c. 4. **PETROLOGY, GEOCHEMISTRY.** *Educ.:* Carleton Coll., BA, 53; Univ. Minnesota, MS, 55; Johns Hopkins Univ., PhD (geol.), 59. *Prof. exp.:* geol. U.S. Geol. Surv. Petrol. Br., 55-56; fel. Geophys. Lab., Johns Hopkins Univ., 58-60; from asst. prof. to assoc. prof., 60-68. chmn. dept. geol., 70-74. **PROF. GEOL. & GEOPHYS. UNIV. CALIF., LOS ANGELES.** 68-, chmn. dept. earth & space sci., 78-82. *Concurrent pos.:* Fulbright fel. Univ. Tokyo, 63; NSF sr. fel. Univ. Basel, 70-71; Guggenheim fel. Swiss Fed. Inst. Technol., 75-76; William Evans visiting prof. Univ. Otago, 82-83; chmn. NRC Bd. on Earth Sci., 84-. *Honors & awards:* Mineral. Soc. Amer. award, 69. *Mem.:* Natl. Acad. Sci.; Am. Assoc. Adv. Sci.; fel. Mineral. Soc. Amer.; Am. Acad. Arts and Sci.; Am. Geophys. Union; Geol. Soc. Amer. (counc., 76-78; v. pres., 85; pres., 86). *Res.:* Igneous and metamorphic petrology; application of theoretical and experimental phase equilibria to geologic problems; plate tectonics. *Mailing address:* Dept. of Earth & Space Sciences, University of California, Los Angeles, CA 90024. Phone: (213) 825-7970.

VICE-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. *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, Univ. Houston, 85-86. *Mem.:* 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). *Res.:* Seismology; geotectonics. *Mailing address:* INSTOC, Snee Hall, Cornell University, Ithaca, NY 14853. Phone: (607) 256-2377.

PAST-PRESIDENT

Brian J. Skinner

b. Wallaroo, S. Australia, 12-15-28; natl. U.S.; m. 54; c. 3. **GEOCHEMISTRY, ECONOMIC GEOLOGY.** *Educ.:* Univ. Adelaide, BSc, 50; Harvard Univ.,

AM, 52, PhD, 55. *Prof. exp.:* lectr. in crystallog., Univ. Adelaide, 55-58; res. geol., 58-62, chief Br. Exp. Geochem. & Mineral., 62-66. U.S. Geol. Surv.; prof. geol. & geophys., 66-, chmn. dept. geol. & geophys., 67-73, **EUGENE HIGGINS PROF. YALE UNIV.**, 72-. *Concurrent pos.:* mem. Lunar Sci. Plan. Team, 65-70; exec. comm. Div. Earth Sci. NRC, 66-69; Guggenheim fel., 69-70; ed. *Econ. Geol.*, 70-; chmn. Bd. of Overseers, *Am. Journal of Science*, 72-; chmn. Comm. Mineral Resources and the Environ., NAS-NRC, 73-75; ed. bd. *Am. Scientist*, 74-; USNC Geol., 74-77; McKinstry Memorial lectr. Harvard Univ., 78; duToit Memorial lectr. S. Africa, 79; chmn. Panel Mineral Resources, Continental Scientific Drilling Comm., 80-81, mem. 82-; Soc. Econ. Geologists medal, 81; Cecil and Ida Green lectr., Univ. British Columbia, 83; Thayer Lindsley Visiting lectr., 83-84. *Honors and Awards:* Assoc. Earth Sci. Eds. Distinguished Contributions Award, 79; *Mem.:* fel. Mineral. Soc. Amer.; Mineral. Soc. Canada (counc., 75-78); Geochem. Soc. (v.-pres., 72, pres., 73); Soc. Econ. Geol.; Geol. Soc. Amer. (counc., 76-78, v.-pres., 84, pres., 85). *Res.:* Phase equilibria in systems containing sulfur; geochemistry of ore deposits. *Mailing address:* Dept. of Geology and Geophysics, Yale University, New Haven, CT 06520. Phone: (203) 436-1073.

TREASURER

Robert L. Fuchs

b. Bay Shore, NY, 12-7-29; m. 53; 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- (name changed to **CALAND PETROLEUM CORP.** in 84). *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-); Geol. Soc. Amer. Foundation (trustee, vice-chmn., 81-82); Rocky Mtn. Assoc. Geol. *Res.:* Natural resource exploration, technical analytical exploration management, venture/asset management, economic geology of petroleum. *Mailing Address:* Caland Petroleum Corp., 1675 Larimer St., Suite 720, Denver, CO 80202. Phone: (303) 571-0885.

COUNCILOR 1984-1986

Charles J. Mankin

b. Dallas, TX, 1-15-32; m. 53; c. 3. **GEOLOGY.** *Educ.:* Univ. Texas, BS, 54, MA, 55, PhD (geol.), 58. *Prof. exp.:* instr. geol. Univ. Texas, 56-57; asst. prof. California Inst. Technol., 58-59; asst. prof., 59-63, assoc. prof., 63-66, actg. dir. sch. geol. and geophys., 63-64, dir. sch. geol. and geophys., 64-77, **PROF. GEOL. UNIV. OKLAHOMA.** 64-; **DIR. ENERGY RESOURCES INST.**, 78-; **DIR. OKLAHOMA GEOL. SURVEY**, 67-. *Concurrent pos.:* mem. Gulf Univ. Res. Consortium-Energy Council, 74-79, mem. Bd. of Dir., Exec. Comm., 80-84, and Nat. Petrol. Council-Exec. Adv. Council Nat. Gas Survey, 75; mem. Commission Nat. Resources, NAS-NRC, 77-82, and Bd. on Mineral and Energy Resources, 76- (v.-chmn., 77-80, chmn., 80-); mem. Comm. Phys. Sciences, Math. and Resources, NAS-NRC, 82-; mem. Research Assoc. Prog., 81-85, Panel on Earth and Atmos. Sciences (chmn. 82-85); mem. USNC Geol., 77-80. *Mem.:* Assoc. Am. State Geol. (pres., 75-76); Am. Assoc. Petrol. Geol.; Am. Inst. Prof. Geol. (v.-pres., 84; pres.-elect, 86); Geol. Soc. Amer. (counc., 84-86); Soc. Econ. Paleont. and Mineral. (pres. Mid-Continent Sec., 83). *Res.:*

(continued on p. 16)

GSA Officers & Councilors (continued from p. 15)

Sedimentary petrology and geochemistry; clay mineralogy. *Mailing address:* Oklahoma Geological Survey, 830 Van Vleet Oval, Rm. 163, Norman, OK 73019. Phone: (405) 325-3031.

COUNCILOR 1984-1986

James W. H. Monger

b. Reading, England, 9-26-37 (natl. Can. citz., 66); m. 60; c. 4. GEOLOGY. *Educ.:* Reading Univ., BSc, 59; Univ. Kansas, MS, 61; Univ. British Columbia, PhD, 66. *Prof. exp.:* GEOLOGIST, GEOLOGICAL SURVEY CANADA, 65-. *Concurrent pos.:* mem. Canadian Geodynamics subcom., 72-75; assoc. ed. *Canadian Jour. Earth Sci.*, 81-; Am. Assoc. Petrol. Geol. distinguished lectr., 81-82; v.-chmn. WG2 Int. Comm. Lith., 82-. *Mem.:* fel. Geol. Soc. Am. (counc., 84-86); Geol. Assoc. Canada (pres. Cord. Sec., 80-81); Royal Soc. Canada. *Res.:* Cordilleran stratigraphy, structure, tectonics. *Mailing address:* Geological Survey of Canada, 100 West Pender Street, Vancouver, BC, Canada V6B 1R8. Phone: (604) 666-6743.

COUNCILOR 1984-1986

Geoffrey G. Snow

b. Salt Lake City, UT, 8-25-33; m. 84; c. 2. GEOLOGY. *Educ.:* Dartmouth Coll., AB, 55; Univ. Utah, MS, 60; PhD (geol.), 63. *Prof. exp.:* Dow Chemical Co., 63-67; Climax Molybdenum Co., 67-69; Midwest Oil Corp., 69-72; v.-pres. Exploration, 72-78. PRES. NORANDA EXPLORATION, INC., 78-. *Concurrent pos.:* Seminar leader, university-sponsored program "Management of Exploration"; sr. author (w/B.W. Mackenzie) of paper "The Environment of Exploration: Economic, Organizational, and Society Constraints," pub. 75th Anniv. Vol. Economic Geology, 81. *Mem.:* Geol. Soc. Amer. (counc., 84-86); Soc. Econ. Geol.; AIME; Canadian Inst. Mining and Metallurgy; Colorado Mining Assoc. (past dir.); Northwest Mining Assoc. (trustee); Minerals Exploration Coalition (founder, past pres., past dir.); Colorado Scientific Soc. (councilor). *Res.:* Mineral exploration. *Mailing address:* Noranda Exploration, Inc., 12640 W. Cedar Dr., P.O. Box 15638, Denver, CO 80215. Phone: (303) 988-6456.

COUNCILOR 1984-1986

William A. Thomas

b. Berea, KY, 7-23-36; m. 57; c. 2. GEOLOGY. *Educ.:* Univ. Kentucky, BS, 56. MS, 57; Virginia Polytech. Inst., PhD (geol.), 60. *Prof. exp.:* geol. California Co., 59-63; from assoc. prof. to prof. geol., 63-70, chmn. dept., 67-70, Birmingham-Southern Coll.; assoc. prof., 70-72, chmn. dept., 71-72, Queens Coll., NY; prof. geol. and chmn. dept., Georgia State Univ., 72-79; PROF. GEOL., UNIV. ALABAMA, 79-. *Concurrent pos.:* ed. *GSA Bulletin*. *Mem.:* fel. Geol. Soc. Amer. (counc., 84-86); Am. Assoc. Petrol. Geol.; Soc. Econ. Paleont. and Mineral. *Res.:* Tectonics and tectonic framework of sedimentation; stratigraphic and structural continuity of Appalachian and Ouachita mountains; stratigraphy of Gulf Coastal Plain; Appalachian structure and stratigraphy; Mississippian stratigraphy. *Mailing address:* Dept. of Geology, University of Alabama, P.O. Box 1945, Tuscaloosa, AL 35486. Phone: (205) 348-1880.

COUNCILOR 1985-1987

Samuel S. Adams

b. Lincoln, NH, 1-26-37; m. 58; c. 3. ECONOMIC GEOLOGY. *Educ.:* Dartmouth Coll., AB, 59, AM, 61; Harvard Univ., PhD (geol.), 67. *Prof. exp.:* Mine geol., expl. geol. International Minerals and Chemical Corp., 61-67; geol., chief geol. uranium and aluminum, v.-pres. The Anaconda Co., 67-77; v.-pres. Ertex Rocky Mtn., Inc., 80-82; CONSULTING GEOLOGIST ADAMS AND ASSOC., 77-; PRES. CARCAJOU EXPLORATION CO., 83-. *Concurrent pos.:* Thayer Lindsley lectr., 78-79; Geol. Sci. Bd., NAS, 80-83. *Mem.:* Soc. Econ. Geol. (counc., 83-85, Res. Comm., 82-84, Comm. on Committees, 81); fel. Geol. Soc. Amer. (counc., 85-87); Am. Inst. Prof. Geol.; Am. Assoc. Petrol. Geol.; Am. Assoc. Adv. Sci. *Res.:* Exploration and mining geology; industrial and metallic mineral deposits in sediments; integrated data-process-recognition criteria mineral deposit models for exploration, deposit evaluation, resource studies, and research. *Mailing address:* Adams and Associates, 3030 Third St., Boulder, CO 80302. Phone: (303) 447-9093.

COUNCILOR 1985-1987

David E. Dunn

b. Dallas, TX, 10-13-35; m. 58; c. 2. ROCK MECHANICS, STRUCTURAL GEOLOGY. *Educ.:* Southern Methodist Univ., BS, 57, MS, 59; Univ. Texas, PhD (geol.), 64. *Prof. exp.:* asst. prof. struct. geol. Texas Tech. Coll., 62-63; visiting asst. prof. Univ. North Carolina, Chapel Hill, 63-64, from asst. prof. to assoc. prof., 64-73, actg. chmn. dept. geol., 67, asst. chmn., 66-69, prof. struct. geol., 73-79; prof. Earth Sci. and dean Coll. Sci., Univ. New Orleans, 79-84; PROF. GEOSCIENCES AND DEAN NATURAL SCI. & MATH., UNIV.

TEXAS AT DALLAS, 84-. *Concurrent pos.:* consult. geol., 80-; Louisiana Univ. Marine Consortium, 79-84, chmn., 81-83. *Mem.:* Am. Assoc. Adv. Sci.; Am. Geophys. Union; Am. Inst. Prof. Geol.; Geol. Soc. Amer. (counc., 85-87); Natl. Assoc. Geol. Teachers. *Res.:* Deformation in orogenic belts; rock mechanics. *Mailing address:* Natural Sci. & Math., Univ. of Texas at Dallas, Box 830688, Richardson, TX 75083-0688. Phone: (214) 690-2516.

COUNCILOR 1985-1987

Melvin C. Schroeder

b. Saskatoon, Canada, 7-19-17; natl. U.S.; m. 83; c. 2. GROUNDWATER GEOLOGY. *Educ.:* Washington State Univ., BS, 42, MS, 47, PhD, 53 (geol.). *Mil. serv.:* U.S. Air Corps, 43-46 (radar). *Prof. exp.:* miner. Idaho mines, 41; survey crew United Engr. and Found., 42; summer field asst. Washington Div. Mines and Geol., 46-48; geol. U.S. Geol. Surv. Ground Water Br., 49-55; from asst. prof. to assoc. prof., 54-63, PROF. GEOL. TEXAS A&M UNIV., 63-. *Mem.:* Am. Assoc. Petrol. Geol.; fel. Geol. Soc. Amer. (counc., 85-87); Natl. Assoc. Geol. Teachers (Texas Sect., sec.-treas., 66, v.-pres., 67, pres., 68). *Honors & awards:* Phi Kappa Phi; fel. Texas Acad. Sci.; Sigma Gamma Epsilon; Sigma Xi; hon. life mem. Sci. Teachers Assoc. Texas. *Res.:* groundwater management, radio-hydrology. *Mailing address:* Dept. of Geology, Texas A&M University, College Station, TX 77843. Phone: (409) 845-8973.

COUNCILOR 1985-1987

Lee J. Suttner

b. Hilbert, WI, 6-3-39; m. 65; c. 2. GEOLOGY. *Educ.:* Univ. Notre Dame, BS, 61; Univ. Wisconsin, MS, 63, PhD (geol.), 66. *Prof. exp.:* from asst. prof. to assoc. prof. geol., 66-78, PROF. GEOL. INDIANA UNIV., BLOOMINGTON, 78-. *Mem.:* Natl. Assoc. Geol. Teachers (v.-pres., 80-81, pres., 81-82); Internat. Assoc. Sediment.; Soc. Econ. Paleont. and Mineral. (Great Lakes Sect. pres., 77); fel. Geol. Soc. Amer. (counc., 85-87). *Concurrent pos.:* assoc. ed. *Jour. Sed. Petrology*, 80-. *Res.:* Sedimentology and sedimentary petrology. *Mailing address:* Dept. of Geology, Indiana University at Bloomington, Bloomington, IN 47401. Phone: (812) 335-4957.

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; m. 76; 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 temper-ature; 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. *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.; 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*

(continued on p. 17)

GSA Officers & Councilors (continued from p. 16)

address: U.S. Geological Survey, 959 National Center, Reston, VA 22092. Phone: (703) 860-6621.

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, GEO-

PHYSICIST, U.S. GEOL. SURV., 79-. Mem.: Am. Geophys. Union (prog. chmn., tect. sec., 81); Geol. Soc. Amer. (counc., 86-88); Natl. Res. Coun., 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) 323-8111, Ext. 2367.

Books and Buckles Also Awarded

GSA Member Wins DNAG Grand Prize

For David King, of Auburn University, GSA's Annual Meeting in Orlando turned out to be a rewarding experience. He was the winner of the complete suite of the publications of the Decade of North American Geology (DNAG), the grand prize in the drawing held at the DNAG booth.

The prize, valued at a minimum of \$1,491.45, consists of a fully paid standing order for the 28-volume synthesis of the Geology of North America, six volumes of field guides, four special topical volumes, 24 continent-ocean transect packages, and seven wall-sized, continent-scale geologic and geophysical maps of North America.

David's entry was one of more than 2000. Although he was not present at the drawing, friends told him he had won, and he went to the DNAG booth to confirm it and receive congratulations. David can appreciate the value of his prize; he's the departmental librarian for the Geology Department at Auburn.

Meanwhile, at the GSA Bookstore, other drawings took place daily for GSA's brass belt buckles and for copies of GSA's



David King

newest memoir (M-163), *The Miocene Ocean: Paleooceanography and Biogeography*, edited by James P. Kennett.

The winners of Memoir 163 are M. J. Kocurko, Elizabeth Smith, David Miller, Karen Noggle, and Marilyn Stark. Belt buckles were won by E. Brett Waller, Tom Davis, Tom Davis (yes, there were two!), Neil Opdyke, and Ahad Chowdhury.

Congratulations to all!

GSA SPECIAL PAPER 194

THE GRENVILLE EVENT

in the Appalachians and related topics
 Edited by Mervin J. Bartholomew

The Grenville Event — about 1 billion years ago — formed the crystalline basement on which later rocks accumulated prior to middle to late Paleozoic orogenic pulses. This volume provides the first synopsis ever done of the basement rocks of the Appalachians and lays the foundation for future searches for similar rocks in Africa and Europe. Fifteen papers presented in geographical order starting with an exhaustive summary of the Adirondacks of New York and ending with a discussion of the tectonics of the Pine Mountain window of Georgia and Alabama. The newly discovered Grenville rocks of eastern Virginia are described.

Special Paper 194, viii + 288, 8½ × 11", soft bound, CIP, ISBN 0-8137-2194-6 \$31.00

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THE GEOLOGICAL SOCIETY OF AMERICA

Penrose Conference To Be Held in France

A GSA Penrose Conference, "Mechanisms of Reservoir Diagenesis and their Geological Constraints," will be held June 8-13, 1986, in Cannes, France. The conference will be co-sponsored by Société Nationale Elf-Aquitaine (Production). Conveners are G. M. Lafon, EXXON Production Research Co., P.O. Box 2189, Houston, TX 77252-2189 (telephone 713-965-4688); Jean-Pierre Cassan, S.N.E.A. (P), 31360 - Saint Martory, France (telephone 33-61-97.80.00); Jacque Schott, Université Paul Sabatier, 31000 - Toulouse, France; and H. J. Soudet, S.N.E.A. (P), 64000 - Pau, France.

Diagenetic modifications of the petrophysical properties of reservoir rocks are of great current interest to researchers in both the academic and industrial communities. Recent progress has been made either in theoretical modeling of diagenetic mass-transfer or in presenting new observations that require modification of previous ideas. However, most of these recent advances have been along specialized mono-disciplinary lines: e.g., theoretical models of fluid convection or of aluminosilicate dissolution, new emphasis on petrographic evidence for secondary porosity. To be practically useful in complex geologic settings, these models and new research ideas must be confronted with approaches from the other geological disciplines: geological and basin history, structural constraints, heat flow, geochronology, volume of fluids and sediments.

The goal of this conference is to develop an improved scientific understanding and better predictive techniques of dia-

genetic modifications of reservoir petrophysical properties. Discussion will be founded on models of diagenetic mechanisms and on critical observations. We will concentrate on a few topics of broad general interest. We intend to bring together experts from different backgrounds and ask them to establish the state-of-the-art and fruitful new directions by integrating their individual contributions using a multidisciplinary approach.

The major discussion topics will include the following:

1. Dolomitization and dedolomitization as determining factors of reservoir quality. Awareness of the importance of late dolomitization has been increased recently by reports that significant fractions of porosity have been generated in the burial environment, but very little is known about the fluids and *P, T* conditions under which subsurface carbonate diagenesis takes place. The focus of this discussion will be to relate petrographic observations and their inferred environmental significance to the fluid chemistry and evolution in buried carbonate formations.
2. Relations between organic maturation, production of dissolved organic ligands, and their role in precipitation/dissolution of aluminosilicates and carbonates during reservoir diagenesis.
3. Paleohydrology and regional setting as controls of diagenetic reactions and of their rates: basin-wide flow patterns vs. local convection, compaction flow, meteoric waters, etc.
4. Kinetics and mechanisms of important diagenetic reactions. Problems and limitations of thermodynamic calculations applied to diagenetic solutions.

(continued on p. 19)

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Theme Announced for 1987 GSA Annual Meeting, in Phoenix, Arizona

The Technical Program Chairmen for the 1987 Phoenix meeting have announced a theme statement (below). Persons planning symposia or other technical program activities should keep this theme in mind as they look ahead to 1987.

The Southern Cordillera: Insights and Problems

The geologic wonderland of the Southern Cordillera includes the southern Rocky Mountains, the Colorado Plateau, much of the Basin and Range province, the Cordilleras of Mexico, and the Rio Grande rift. Recent research efforts have gained fresh insights and raised new questions about crustal origins and structure, ore provinces, regional facies, magmatism, intracrustal deformation, plateau uplift, and landscape evolution within this

fascinating region. The Phoenix meeting of the Geological Society of America provides an ideal forum to air these and related topics from all standpoints of our science. Symposia and contributions directed toward this theme are especially encouraged.

Direct inquiries to Technical Program Chairman **Clement G. Chase**, Dept. of Geosciences, University of Arizona, Tucson, AZ 85721, (602) 621-2417; Technical Program Co-Chairman **J. Dale Nations**, Dept. of Geology, Northern Arizona University, Flagstaff, AZ 86011, (602) 523-2931; General Chairman **William R. Dickinson**, Dept. of Geosciences, University of Arizona, Tucson, AZ 85721, (602) 621-2178.

Penrose Conference (continued from p. 18)

Interested persons should write to J. P. Cassan at the address above, noting specific reasons for wanting to attend the conference and including a description of past or present research relevant to the conference topics. **Deadline for applications is February 15, 1986.**

Limited support will be available to a few qualified graduate students. There will be ample opportunities for informal discussion and poster paper presentations. The registration fee is expected to be approximately \$550 (4,500 French francs), including lodging, meals, and local transportation. It is anticipated that favorable group rates for trans-Atlantic air travel will be available.

Cole Award Applications Due

GSA's Cole Award, for investigations of the geomorphology of semiarid and arid terrains in the United States and Mexico, is given each year to a GSA Fellow between 30 and 65 years old who has published one or more significant papers in geomorphology. The minimum amount of the award has been increased to \$1800. Funds cannot be used for work already accomplished, but previous recipients may reapply if additional support is needed to complete their work.

Application forms for the award can be obtained from Executive Director, Geological Society of America, P.O. Box 9140, Boulder, CO 80301; (303) 447-2020. **Applications must be postmarked by February 15, 1986.**

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

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

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

The Cimmeride Orogenic System and the Tectonics of Eurasia

A. M. Celâl Şengör




SPECIAL PAPER
195

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THE GEOLOGICAL SOCIETY OF AMERICA

MEETINGS

1986

American Geophysical Union and American Society of Limnology and Oceanography Ocean Sciences Meeting, January 13-17, 1986, New Orleans, Louisiana. Information: Ocean Sciences Meeting, American Geophysical Union, 2000 Florida Ave., N.W., Washington, DC 20009; 800-424-2488.

6th Offshore South East Asia Conference, January 28-31, 1986, Singapore. Information: D. H. Morgan, SEAPEX OSEA Committee, Marathon Petroleum Exploration, Ltd., P.O. Box 227, Tanglin Post Office, Singapore 9124.

International Volcanological Congress, February 1-9, 1986, New Zealand. Information: John A. Gamble, Victoria University, Private Bag, Wellington, New Zealand.

COAL SCHOLARSHIP OFFERED

To further interest and research into coal within the Rocky Mountain and Northern Great Plains Coal Provinces, the Coal Geology Division of GSA and the Ad Hoc Committee for the Symposium on the Geology of Rocky Mountain Coal are again offering a scholarship award in 1986. As this scholarship is derived from the Ad Hoc Committee's funds invested in the GSA Foundation, only applicants whose research pertains to the coals in the states or provinces of Arizona, Alberta, British Columbia, Colorado, Idaho, Montana, New Mexico, North Dakota, Utah, Saskatchewan, South Dakota, and Wyoming will be considered.

Requirements

Applicants must meet the following criteria to qualify for consideration of this scholarship: (1) Applicants must be enrolled in a graduate program (M.S. or Ph.D.) at a private or state college or university. (2) The main theme of an applicant's research must be an aspect of coal research, and the research must pertain to coals in the states or provinces listed above. (The institution where the research is being conducted need not be in the states or provinces listed above.) (3) Although the applicant must be involved in coal research, he or she does not have to be a geology major but can be majoring in another field.

Applications

Interested students can obtain scholarship applications from the Chairman of the Scholarship Committee, Gary B. Glass, Geological Survey of Wyoming, Box 3008, University Station, Laramie, Wyoming 82071. Completed applications should be sent to this same address.

Deadline for applications: Scholarship applications should be submitted **no later than February 1**.

Selection

A committee made up of two ad hoc members of the Symposium on the Geology of Rocky Mountain Coal and two GSA Coal Geology Division members will screen applications and select the most appropriate proposal by May 1, 1986, and announce the winner(s). At the time of selection, scholarship monies will be transferred directly to the grantee by the GSA Foundation. Upon completion of the research, it is requested that the grantee submit one copy of his or her thesis to the Secretary of the GSA Coal Geology Division.

Second Annual McKelvey Forum—USGS Research on Energy Resources, February 5-6, 1986, Denver, Colorado. Information: Pam Jackson, TRAC, P.O. Box 6100, Denver, CO 80206; (303) 393-7061.

Geotechnical and Geohydrological Aspects of Waste Management Symposium, February 5-7, 1986, Fort Collins, Colorado. Information: Eighth Annual Symposium on Geotechnical and Geohydrological Aspects of Waste Management, Geotechnical Engineering Program, Civil Engineering Dept., Colorado State University, Fort Collins, CO 80523; (303) 491-6081.

Eighth Australian Geological Convention, February 16-21, 1986, Adelaide, South Australia. Information: L. C. Barnes, P.O. Box 292, Eastwood, South Australia 5063, Australia; telephone 274 7580; Telex AA 88692.

Symposium on Engineering Geology and Soils Engineering, February 26-28, 1986, Boise, Idaho. Information: Spencer H. Wood, Dept. of Geology and Geophysics, Boise State University, Boise, ID 83725; (208) 385-1631.

Symposium on Geochemistry of the Earth Surface and Processes of Mineral Formation, March 16-22, 1986, Granada, Spain. Information: R. Rodriguez Clemente, National Museum of Natural Sciences, c/o Jose Gutierrez Abascal, 2, 280006 Madrid, Spain; telephone (91) 2.62.25.13.

Fourth Federal Sedimentation Conference, March 24-27, 1986, Las Vegas, Nevada. Information: Doug Glysson, U.S. Geological Survey, 412 National Center, Reston, VA 22092; (703) 860-6834.

The Global Ocean: Its Chemistry and Resources, March 24-29, 1986, Woods Hole, Massachusetts. Information: P. A. Meyers, Oceanography Program, University of Michigan, 2455 Hayward Ave., Ann Arbor, MI 48109; (313) 764-0597.

Geochemistry and Mineralisation of Proterozoic Volcanic Suites, April 2-5, 1986, Nottingham, England. Information: Tim Pharaoh, Deep Geology Research Group, British Geological Survey, Keyworth, Nottingham NG12 5GG, England.

International Symposium on Coal and Coal-bearing Strata, April 8-11, 1986, London. Information: A. C. Scott, Geology Dept., Chelsea College, 552 King's Road, London SW10 0UA, England.

Experimental Mineralogy and Geochemistry: Applications to Petrology and Ore Deposits, April 17-19, 1986, Nancy, France. Information: A. Weisbrod, E.N.S.G., B.P. 452, 54001 Nancy Cedex, France.

International Symposium on Environmental Geotechnology, April 21-24, 1986, Allentown, Pennsylvania. Information: H. Y. Fang, Geotechnical Engineering Div., Dept. of Civil Engineering, Lehigh University #13, Bethlehem, PA 18015; (215) 861-3549 or 3520.

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

Geological Association of Canada—Mineralogical Association of Canada Annual Meeting, May 19-21, 1986, Ottawa, Ontario. Information: J. A. Donaldson, Dept. of Geology, Carlton University, Ottawa, Ontario K1S 5B6, Canada; (613) 231-2630.

MEETINGS (continued)

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

American Association for the Advancement of Science National Meeting, May 25-30, 1986, Philadelphia, Pennsylvania. Information: AAAS Meetings Office, 1333 H St., NW, Washington, DC 20005; (202) 326-6400.

Third International Conference on Geoscience Information, June 1-5, 1986, Adelaide, Australia. Information: Secretary, Organising Committee 3ICGI, Australian Mineral Foundation, PB97, Glenside, South Australia 5065, Australia.

American Quaternary Association 9th Biennial Meeting, Environments at Glacier Margins—Past and Present, June 2-4, 1986, Champaign, Illinois. Information: Wayne M. Wendland, AMQUA Local Arrangements Committee, Illinois State Water Survey, 2204 Griffith Dr., Champaign, IL 61820; (217) 333-0729.

Geology of the Bahamas, Third Symposium, June 6-10, 1986, San Salvador, Bahamas. Information: H. Allen Curran, Dept. of Geology, Smith College, Northampton, MA 01063; (413) 584-2700, ext. 3943.

27th U.S. Symposium on Rock Mechanics, June 23-25, 1986, University, Alabama. Information: Howard L. Hartman, Dept. of Mineral Engineering, University of Alabama, P.O. Box 1468, University, AL 35486; (205) 348-6578.

6th International Conference on Geochronology, Cosmochronology and Isotope Geology, June 30-July 4, 1986, Cambridge, England. Information: Organising Committee, Sixth International Conference, Dept. of Earth Sciences, University of Cambridge, Downing St., Cambridge CB2 3EQ, England.

Geocongress '86, July 7-11, 1986, Johannesburg, South Africa. Information: Symposium Secretariat, S. 339, CSIR, P.O. Box 395, Pretoria, Republic of South Africa 0001.

International Field Conference on Proterozoic Geochemistry, July 13-19, 1986, central Colorado. Information: K. C. Condie, Dept. of Geoscience, New Mexico Institute of Mining and Technology, Socorro, NM 87801.

Deep Seismic Reflection Profiling of the Continental Lithosphere, July 15-17, 1986, Cambridge, England. Information: Bullard Laboratories, Madingley Rise, Madingley Rd., Cambridge CB3 0EZ, England.

International Symposium on Natural and Man-made Hazards, August 3-9, 1986, Rimouski, Quebec, Canada. Information: Mohammed El-Sabh, Dept. d'océanographie, Université du Québec à Rimouski, 310, avenue des Ursulines, Rimouski, Québec G5L 3A1, Canada; (418) 724-1755; Telex 051-31623.

Third International Humic Substances Society Meeting, August 4-8, 1986, Oslo, Norway. Information: Egil Gjessing, Norwegian Institute for Water Research, P.O. Box 333, Blindern Oslo 3, Norway, or Wesley L. Campbell, IHSS Standards & Reference Committee, 5293 Ward Rd., Arvada, CO 80002; (303) 236-3615.

Fifth International Symposium on Water-Rock Interaction, August 8-17, 1986, Reykjavik, Iceland. Information: Halldor Armannsson, Orkustofnun — National Energy Authority Grensasvegur 9, 108 Reykjavik, Iceland.

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

Energy Resources in Asia, August 11-14, 1986, Hong Kong. Information: Asian Research Service, G.P.O. Box 2232, Hong Kong. (*Abstracts due March 11, 1986.*)

Basins of Eastern Canada and Worldwide Analogues, August 13-15, 1986, Halifax, Nova Scotia. Information: Secretary, Dept. of Oceanography, Dalhousie University, Halifax, Nova Scotia, Canada B3H 4J1.

Circum-Pacific Energy and Mineral Resources Conference, August 17-22, 1986, Singapore. Information: Allen G. Hatley, c/o Gaffney, Cline & Assoc., P.O. Box 76309, Dallas, TX 75379.

International Association on the Genesis of Ore Deposits Seventh Symposium, August 18-22, 1986, Lulea, Sweden. Information: Inger Wallin, Centek Conference, S-951 87 Lulea, Sweden.

Third U.S. National Conference on Earthquake Engineering, August 24-28, 1986, Charleston, South Carolina. Information: James E. Beavers, Martin Marietta Energy Systems, Inc., Bldg. 9733-4, M/S 2, P.O. Box Y, Oak Ridge, TN 37831.

International Symposium on Large Rock Caverns, August 25-28, 1986, Helsinki, Finland. Information: International Symposium on Large Rock Caverns, Technical Research Center of Finland, Lehtisaarentie 2, SF-00340 Helsinki, Finland; telephone 358-0-4566172; Telex 122972 vttha sf.

International Symposium on Remote Sensing for Resources Development and Environmental Management, August 25-29, 1986, Enschede, Netherlands. Information: Secretariat Symposium Commission VII, ISPRS, c/o ITC, P.O. Box 6, 7500 AA Enschede, Netherlands; Telex 44525.

Second International Conference on Paleoceanography, September 7-12, 1986, Woods Hole, Massachusetts. Information: W. A. Berggren, Dept. of Geology & Geophysics, Woods Hole Oceanographic Institution, Woods Hole, MA 02543.

1986 International Gas Research Conference, September 8-11, 1986, Toronto, Ontario. Information: 1986 International Gas Research Conference, c/o Gas Research Institute, 8600 West Bryn Mawr Ave., Chicago, IL 60631; (312) 399-8300, Telex 253812 or 503802.

International Association of Hydrogeologists Congress, September 8-15, 1986, Karlovy Vary, Czechoslovakia. Information: A. Zaporozec, AIH, 3817 Mineral Point, Rd., Madison, WI 53705.

Society of Economic Paleontologists and Mineralogists Third Annual Midyear Meeting, September 26-28, 1986, Raleigh, North Carolina. Information: Chuck Nittrouer, Dept. of Marine, Earth and Atmospheric Sciences, North Carolina State University, Raleigh, NC 27695. (*Abstracts due April 1, 1986.*)

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

American Association of Petroleum Geologists Eastern Section, October 2-4, 1986, Ann Arbor, Michigan. Information: Paul A. Catacosinos, Dept. of Geology, Delta College, University Center, MI 48710; (517) 686-9252. (*Abstracts due March 1, 1986.*)

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MEETINGS (continued)

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

International Conference on Coastal Engineering, November 9-14, 1986, Taipei, Taiwan. Information: Billy L. Edge, Cubit Engineering Limited, 207 East Bay St., Suite 311, Charleston, SC 29401.

Geological Society of America Annual Meeting—November 10-13, 1986, San Antonio, Texas. Information: Meetings Dept., GSA, P.O. Box 9140, Boulder, CO 80301; (303) 447-2020.

GSA 1986

Penrose Conferences

Southern Oklahoma Aulacogen, March 23-28, 1986, Quartz Mountain State Park, Oklahoma. Information: M. Charles Gilbert, Dept. of Geology, Texas A&M University, College Station, TX 77843; (409) 845-2464 or 845-2451.

Reefal Development in a Terrigenous Province, May 17-21, 1986, Veracruz, Mexico. Information: Paul R. Krutak, ARCO Exploration Co., P.O. Box 51408, Lafayette, LA 70505; (318) 264-4452.

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

Migmatites and Crustal Melting, June 8-13, 1986, Amherst, Massachusetts. Information: Robert J. Tracy, Dept. of Geology and Geophysics, Yale University, New Haven, CT 06511; (203) 436-3539.

Mechanisms of Reservoir Diagenesis and their Geological Constraints, June 8-13, 1986, Cannes, France. Information: G. Michel Lafon, EXXON Production Research Company, P.O. Box 2189, Houston, TX 77252-2189; (713) 965-4688.

Exposed Cross Sections of the Continental Crust, late August or early September 1986, southeastern Ontario. Information: David M. Fountain, Dept. of Geology and Geophysics, University of Wyoming, Laramie, WY 82071; (307) 766-6299.

Sections

Northeastern, March 12-14, 1986, Kiamesha Lake, New York

Cordilleran, March 25-28, 1986, Los Angeles, California

South-Central/Southeastern, April 2-5, 1986, Memphis, Tennessee

North-Central, April 24-25, 1986, Kent, Ohio

Rocky Mountain, April 30-May 2, 1986, Flagstaff, Arizona

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

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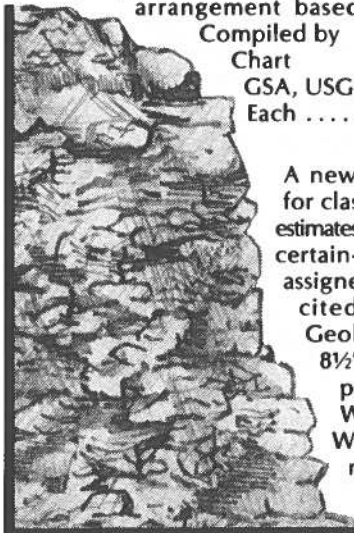
Hawaii Symposium on How Volcanoes Work, January 19-23, 1987, Hilo, Hawaii. Information: Robert Decker, U.S. Geological Survey, MS 910, 345 Middlefield Rd., Menlo Park, CA 94025.

International Symposium on Granites and Associated Mineralizations, January 21-31, 1987, Salvador, Brazil. Information:

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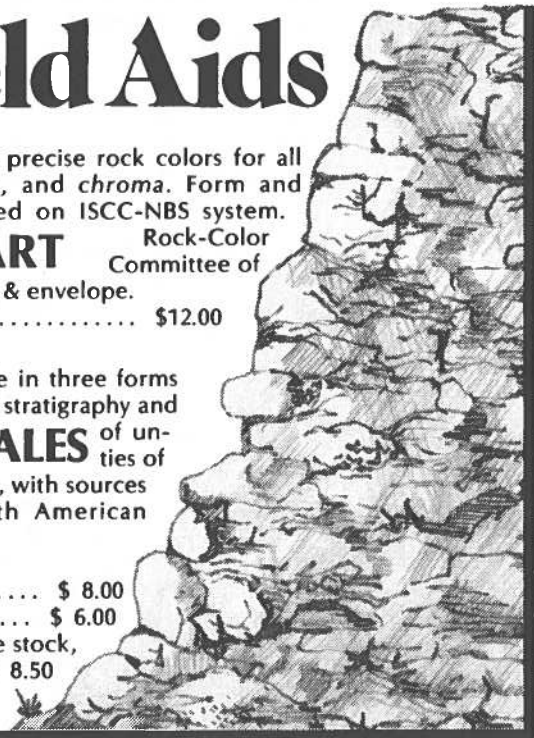
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MEETINGS (continued)

Augusto J. Pedreira, ISGAM, SME-CPM, Rua Ceara, 3-Pituba, 40.000, Salvador, Bahia, Brazil.

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

Coastal Sediments '87, May 12-14, 1987, New Orleans, Louisiana. Information: Nicholas C. Kraus, USAE Waterways Experiment Station, Coastal Engineering Research Center, P.O. Box 631, Attn. WESCR-P, Vicksburg, MS 39180-0631. (Abstracts due April 30, 1986.)

Second International Symposium on the Devonian System, August 17-20, 1987, Calgary, Alberta, Canada. Information: 2nd Int. Symp. on the Devonian System, Canadian Society of Petro-

leum Geologists, #505, 206 - 7 Ave. S.W., Calgary, Alberta T2P 0W7, Canada; (403) 264-5610.

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

XI International Congress of Carboniferous Stratigraphy and Geology, September 7-11, 1987, Beijing, China. Information: Yang Jingzhi, Nanjing Institute of Geology and Paleontology, Academia Sinica, Nanjing, China. (Abstracts due March 15, 1986.)

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


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