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Firsts Abound at 1989 GSA Annual Meeting

by Sandra Rush
GSA Media Consultant

GSA's 1989 Annual Meeting in St. Louis was the first of a new century for the Society, so it is appropriate that several other "firsts" were associated with it.

The Young Scientist Award (Donath Medal) was awarded for the first time at this meeting. The recipient of the award, which includes \$10,000 and a gold medal, is Mark Cloos, Associate Chairman of the Department of Geological Sciences at the University of Texas at Austin.

GSA also announced its first annual awards for Excellence in Earth Science Teaching to 18 educators from around the country.

This was the first annual meeting for GSA's new International Division, which was formed to foster cooperation with overseas geoscientific societies and to carry out activities related to geology of regions outside North America.

Among the most popular "firsts" were the oral and poster sessions on Geoscience and the Arts. Speakers discussed the relation between geology and art—music, painting, architecture, poetry, and film—and delighted a large audience.

Other firsts were the Photo Salon, a photography contest judged by GSA's Publications Committee, and publication of a daily newsletter about the meeting.

Highlights

Earthquake studies attracted considerable interest at the meeting, both because of the recent major quake in California and because St. Louis is situated in an earthquake zone. A special forum on the Loma Prieta earthquake in California was attended by more

than 1000 people. Speakers were William Ellsworth and Thomas Holzer of the U.S. Geological Survey, Menlo Park. A premeeting field trip conducted by Randall Jibson (USGS—Reston) and Eugene Schweig (Memphis State University) examined the surface evidence left by the nation's largest historic earthquake—the 1811-1812 New Madrid, Missouri, event.

Geoscience education played a prominent role throughout the meeting. Missouri science teachers were invited to attend as guests of the Society. Before the meeting, teachers could attend short courses that focused on earthquakes, volcanoes, and dinosaurs. The Science Theater provided them an opportunity to preview audio-visual materials for possible use in the classroom. On Wednesday, GSA hosted its 13th annual Geoscience Day; 160 area junior high school students and their teachers went on field trips concentrating on geologic features of the St. Louis area. Technical and theme sessions on geology education addressed how to interest students in the field of geology through improved presentations, texts, and computer programs.

The Solar System was the focus of several sessions. Technical sessions included talks on Martian data gathered by the Phobos spacecraft, the geologic history of the planets, and the origin of Earth's moon. A special noontime forum, "Voyager Encounters Neptune," presented the latest results from Voyager II on Neptune, its ring system, and its satellites.

A blue-ribbon panel discussed the future of funding for geoscience research at the Local Committee symposium "Geo-

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PHOTOS BY RAIN ROBERTS AND BILL CRONIN

1989 Annual Meeting (continued from p. 1)

science Research and Public Policy." Frank Press, president of the National Academy of Sciences, led off the symposium with a discussion of the earth sciences in an age of environmental awareness. Other speakers at the session included James Hays, Director of Earth Sciences for the National Science Foundation; Dallas Peck, Director of the U.S. Geological Survey; Donald Stevens, Associate Director for Basic Energy Sciences, U.S. Department of Energy; Peter Wyllie, California Institute of Technology; Robert Phinney, Princeton University; and William Fisher, University of Texas at Austin.

Twenty-seven theme sessions were presented at the St. Louis meeting, more than four times the number presented in 1988 and indicative of a continuing trend. Man's effect on the Mississippi River and its delta was addressed from an interdisciplinary perspective at one theme session. A report compiled from many studies in Minnesota, Wisconsin, Iowa, Illinois, and Missouri was presented in this session. Among other theme topics at the meeting were extinctions in the geologic record, radon hazards, and geologic mapping in the next several decades.

News media reporters who covered the meeting were interested in Alan Hildebrand's (University of Arizona) discovery of a crater left by a huge meteor that struck Earth millions of years ago; Daniel Fisher's (University of Michigan) presentation of the first evidence that Paleoindian hunters living in Michigan almost 11,000 years ago preserved meat from mastodon kills by anchoring it to the bottom of ponds; Gifford Miller's (University of Colorado) use of a novel dating technique with fossilized ostrich eggshells to determine the oldest firm ages of anatomically modern man in South Africa; Moid Ahmad's (Ohio University) proposal that the deserts of the world

should be planted with extensive forests to increase rainfall and help halt global warming; Steven Fritz's (Purdue University) research project aimed at taking 30-foot-deep soil samples and checking them for tritium movement; Steven Stanley's (Johns Hopkins University) theory about the link between the brain and an ice age 2.5 million years ago; and Samuel Bowring's (Washington University) discovery of the oldest (3.96 billion years) known rocks in the world, in Canada.

Field trips before and after the meeting drew 485 participants. Field trip 5, led by Vince Kurtz (Southwest Missouri State University) and Jim Palmer (Missouri Department of Natural Resources), yielded Missouri's oldest invertebrate fossils.

Social and sports events drew full complements of revelers (Welcoming Party, Blues Cruise), runners (5K/10K race), and enthusiastic spectators (St. Louis Blues hockey game). The guest program offered diverse activities, from a lecture on the greenhouse effect to a trip through the Ozarks to Cathedral Cave and a shopping expedition to St. Charles.

Bottom Line

A questionnaire in each attendee's registration packet yielded helpful suggestions, a few complaints, and considerable praise for the 1989 Annual Meeting: "Thanks, GSA! I always leave the annual meeting physically exhausted but intellectually invigorated," said one respondent. A student wrote, "I would like to thank GSA for choosing a Midwestern location. . . . this is a rare and lucky chance for me to see a national convention. I think this is something every geology student should be able to experience." "I thought the St. Louis meeting was great!" another attendee said. "Good meeting rooms, exhibits, registration—everything. Keep it up!"



Photos by Bill Cronin and Faith Rogers

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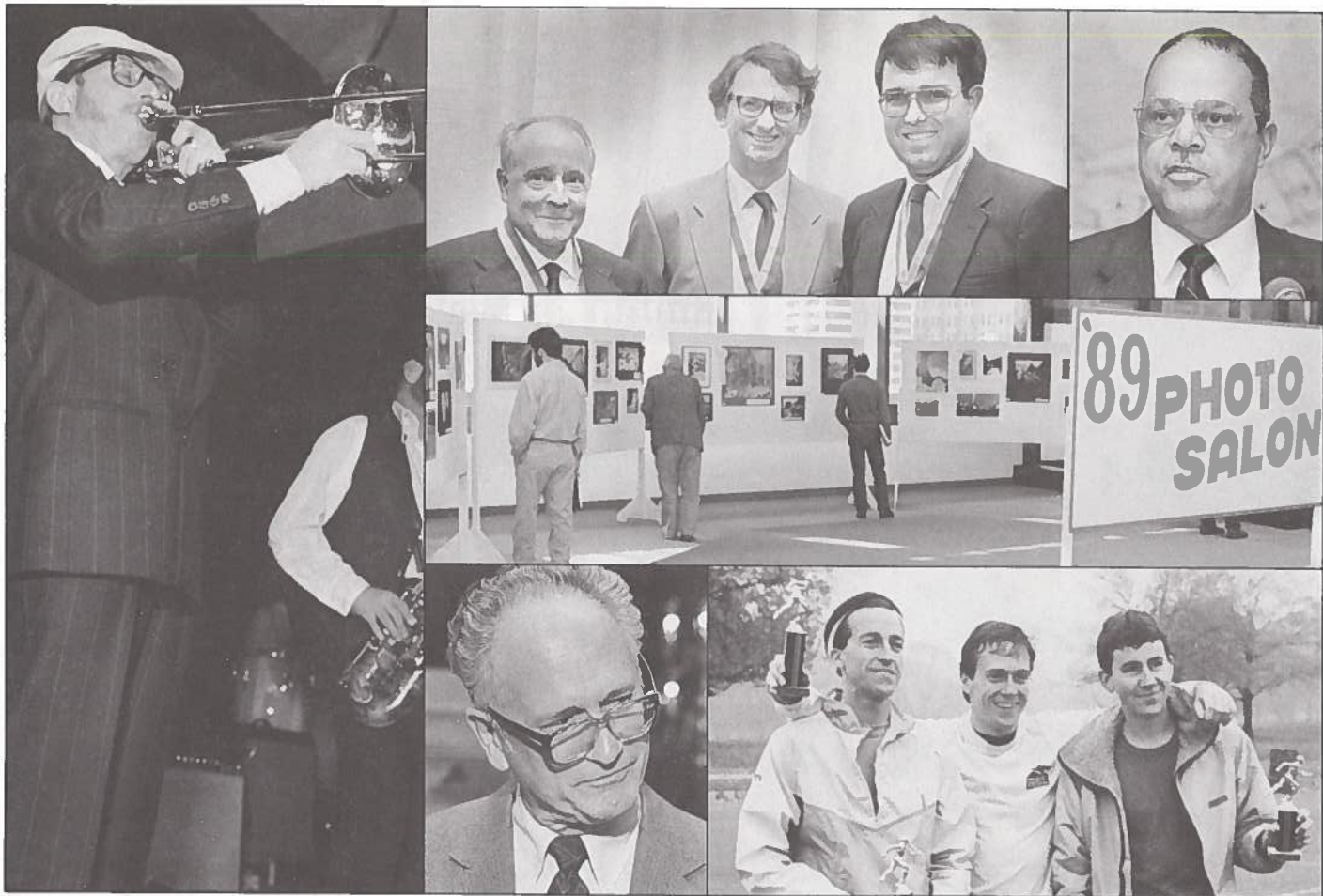
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Photos by Bill Cronin and Faith Rogers

1989 GSA Annual Meeting Figures and Facts

Registration

Professional	3402
Student	1334
Guest	250
Total	4986

Short Courses

Registrants	350
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Field Trips

Participants	485
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GSA Employment Service

Applicants	289
Employers	48
Positions available	65
Interviews	548

Technical Program

Abstracts submitted	2042
Abstracts presented	
Oral: volunteered	1274
symposia	189
Poster: volunteered	400
symposia	9
Total presented	1872

Photo Salon Winners

Color: First place—Nicholas Lancaster, Arizona State University; Second place—Randy Korotev, Washington University; Third place—Robert Crippen, Jet Propulsion Laboratory.

Black and white: First place—Dewey Sanderson, Marshall University; Second place—Joel Dexter, Illinois State Geological Survey; Third place—Robert Hatcher, Jr., University of Tennessee.

Race Winners

5K—Women

First—Karen Taylor-When, 22:35; Second—Martha Gerdes, 22:55; Third—Allison Earl, 23:46

5K—Men

First—Kit Fuller, 17:34; Second—Terry Engelder, 18:23; Third—David Maecher, 19:03

5K, over 40—Terry Engelder, Gail Ashley

5K, over 49—Art Sylvester

10K—Women

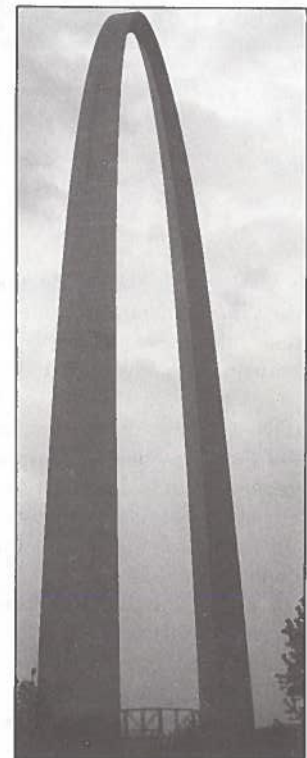
First—Charlotte Allen, 46:21; Second—Leslie Randolph, 49:26; Third—Virginia Stern, 53:26

10K—Men

First—Robert Ross, 34:50; Second—Richard Lane, 36:16; Third—Lawrence Krissek, 36:52

10K, over 40—Mark Cocker

10K, over 49—Brian Mitchell





Photos by Faith Rogers and Bill Cronin

Business Was Brisk at the GSA Bookstore

by Rick Nelson

Assistant Editor, GSA Books

The 1989 Annual Meeting in St. Louis was a successful one for the GSA Bookstore, located in the center of the exhibit hall. Many new titles were on display, and a round of price cutting made bargains of many of the older works.

Three new titles in the Decade of North American Geology (DNAG) series drew considerable attention: the *Overview* volume, the *Eastern Pacific Ocean and Hawaii* volume, and the *Hydrogeology* volume. Though not as new to GSA Bookstore shelves, the DNAG Field Guide Series, as well as the Centennial Special Volumes and the rest of the Geology of North America series, continued to sell well.

Several new GSA Special Papers were also on display, including *Paleobiology of the Dinosaurs* (Special Paper 238), and *Tectonics of the Western Himalayas* (Special Paper 232). Many bookstore patrons placed orders for GSA's newest Memoir, *Glacial Lake Wisconsin*, which at the time of the meeting was still in press. It came as no surprise that Special Paper 225, *The Art of Geology*, also

sold briskly (some lucky buyers got their copies autographed by editors E. M. Moores and F. M. Wahl).

The recent publication of GSA's newest catalog, featuring our "End of the Century Clearance Sale," also stimulated interest in the bookstore. Most of the sale-priced titles were available, and the show discount made them even better bargains. The *Treatise on Invertebrate Paleontology*, now priced as low as it is ever likely to go, was a strong seller, as were several older Memoirs, Special Papers, and Maps and Charts, many of which have become recognized as classics in the years since their introduction.

The bookstore featured daily drawings for Special Paper 225, *The Art of Geology*. Winners were Gilles Allard, Kerrie Blazek, E. R. Engh, Ed Hajic, Dick Hammond, W. B. Howe, Randy Kath, E. R. Landis, Roger W. Longdon, Robert W. Metsger, John Stamm, Mary E. Turner, and Bernice L. Wood.

We thank everyone who visited the GSA Bookstore in St. Louis. We hope to see you next year in Dallas!



Raymond Price



Doris Curtis



Randolph Bromery



Robert Fuchs

GSA Officers and Councilors for 1990

PRESIDENT

Raymond A. Price

b. Winnipeg, Manitoba, 3-25-33. STRUCTURAL GEOLOGY, TECTONICS. *Educ.*: Univ. of Manitoba, BSc, 55; Princeton Univ., AM, 57, PhD (geol.), 58. *Prof. exp.*: geol./res. scientist, Geol. Surv. Canada, 58-68; assoc. prof. geol., 68-70, head dept. geol. sci., 72-77, prof. geol., 70-81, visiting prof., 88-, Queen's Univ., Kingston, Ontario; dir. general, 81-87; asst. deputy minister, 87-88, Geol. Surv. Canada, Energy, Mines and Resources Canada; RES. SCIENTIST, GEOL. SURV. CANADA and VISITING PROF. GEOL. SCI., QUEEN'S UNIV., 88-. *Concurrent pos.*: mem. Canadian Geoscience Council, 79-88, foreign secy., chmn., Comm. on Intl. Geoscientific Relations, 79-82; mem. ed. bd., *Journal of Structural Geology*, 78-; mem. Canadian Geol. Found., 82-88; mem. advisory comm., dept. of geol. geophys. sci., Princeton Univ., 84-88; dir. Intl. Union Geol. Sci. (IUGS) Advisory Bd. on Research Development, 85-; chmn. Canadian Council for Ocean Drilling Prog., 85-88; No. American ed. *Tectonics* (AGU), 85-88, ed.-in-chief, 89-90; ed. bd. Oxford Univ. Press *Monographs on Geol. and Geophys.*, 86-; mem. bd. of dir., Lithoprobe, 87-; mem. (past-pres.) Inter-Union Comm. on the Lithosphere, Intl. Council of Scientific Unions (ICSU), 86-; assoc. ed. *Bulletin of Canadian Petrol. Geol.*, 81-83; assoc. ed. *Canadian Journal of Earth Sci.*, 67-81; chmn. Canadian Natl. Subcomm. for the Intl. Geodynamics Proj., 72-80; assoc. ed. *Geoscience Canada*, 73-75; mem. Comn. for the Geol. Map of the World, 80-85; mem., 75-77, 79-81, chmn., 81-82, Advisory Council, Queen's Univ. Ctr. for Resource Studies; mem. bd. of electors, dept. earth sci., Cambridge Univ., 82-84; chmn. advisory comm., dept. earth sci., Memorial Univ. of Newfoundland, 85-87; mem. bd. of dir., Queen's Univ. Ctr. for Resource Studies, 81-82; chmn. AGU comm. on "Earth as a System," 86-88; chmn. working group on "Geol. Processes: Past and Present"; ICSU Planning Group for "The Intl. Geosphere-Biosphere Programme: A Study of Global Change," 85-86; mem. Advisory Bd. for Earth Sciences, U.S. Natl. Sci. Found., 88-91; mem. Prog. Review Comm., DOSECC Inc., 86-; mem. Scientific Comm., Intl. Geol. Correlation Prog., 89-; mem. Advisory Comm. for Polar Prog., U.S. Natl. Sci. Found., 89-91; mem. Royal Soc. Canada Advisory Comm. on Evaluation of Canadian Res. Output, 88-. *Honors & awards*: distinguished lectr. Canadian Inst. Min. Metallurgy, 69; fel. Royal Soc. of Canada, 72; Killam Sr. Res. Fellowship, 78-80; distinguished lectr. Canadian Soc. Petrol. Geol., 80-81; Best Technical Paper, Rocky Mtn. Assoc. Geol., Denver, 81; R.J.W. Douglas Medal, Canadian Soc. Petrol. Geol., 84; Sir William Logan Medal, Geol. Assoc. Canada, 85; doctor of sci. (*honoris causa*), Carleton Univ., 87; officier dans l'Ordre des Palmes Academiques, France, 88; foreign assoc. U.S. Natl. Acad. Sci., 88; D.F. Hewett lectr., Lehigh Univ., 88; Leopold von Buch Medal, Deutsche Geologische Gesellschaft, 88; hon. foreign fel., European Union of Geosciences, 89; Major Edward D'Ewes Fitzgerald Coke Medal, Geol. Soc. London, 89. *Mem.*: fel. Geol. Soc. Amer. (counc., 83-85; v.-pres., 89; pres., 90); fel. Geol. Assoc. Canada; Am. Assoc. Petrol. Geol.; Canadian Soc. Petrol. Geol.; Am. Geophys. Union; Sigma Xi; Assoc. Professional Engineers of the Province of Ontario. *Res.*: Structural geology, tectonics, regional geology, science and public policy. *Mailing address*: Geological Survey of Canada, c/o Dept. of Geological Sciences, Queen's Univ., Kingston, Ontario K7L 3N6, Canada. *Phone*: (613) 545-6542.

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GEOLOGICAL CONSULTANTS, 79-; ADJUNCT PROF., GEOL., RICE UNIV., 79-. *Concurrent pos.*: pres., 80-81, Am. Geol. Inst.; Scientific Comm. Intl. Geol. Correlation Prog., UNESCO-IUGS, 80-85; U.S. Natl. Comm. Geol., 79-82 (chmn., 81-82); Comm. on Global and Intl. Geol., 82-85, Comm. on Undiscovered Oil and Gas Resources, 88-90, Bd. Earth Sci. and Resources, Natl. Acad. Sci. *Mem.*: fel. Geol. Soc. Amer. (counc., 83-85; v. pres., 90); fel. Am. Assoc. Adv. Sci. (chmn., Sect. E, 79-80); hon. mem. Soc. Econ. Paleont. Mineral. (secy.-treas., 64-66, pres., 78-79, pres., Found., 89-91); hon. mem. Am. Assoc. Petrol. Geol.; hon. mem. Am. Inst. Prof. Geol.; Intl. Assoc. Sedimentol.; Sigma Xi; hon. mem. 28th Intl. Geol. Congress. *Res.*: Stratigraphy, sedimentology, petroleum geology, basin analysis, depositional systems. *Mailing address*: Curtis and Echols, Geological Consultants, 800 Anderson, Bellaire, TX 77401. *Phone*: (713) 661-7245.

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COUNCILOR 1988-1990

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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, 82-88; 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, 85-88; mem.-at-large, U.S. Natl. Comm. on Geol., 85-; mem., Bd. on Earth Sci. and Resources, Natl. Research Council, 89-; mem., Comm. on Equal Opportunities in Sci. and Tech., 85-86, mem., Adv. Comm. Earth Sciences, 88-, mem. Adv. Comm. Sci. and Technology Centers, 88-, Natl. Sci. Found.; mem. Minnesota Minerals Coordinating Comm., 86-; mem., Research Coordination Council, Gas Research Inst., 87-. *Mem.*: fel. Geol. Soc. Amer. (counc., 88-90); Am. Geophys. Union (chmn. Comm. on Public Affairs, 86-89); fel. Am. Assoc. Adv. Sci. (mem.-at-large, Sect. E, 86-); Natl. Parks and Conservation Assoc. (trustee, 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.

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Donald C. Haney

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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. Applique Gites Mineraux; 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.

COUNCILOR 1989-1991

James F. Hays

b. Little Rock, AR, 7-10-33; m. 56; c. 1. GEOLOGY. *Educ.*: Columbia Univ., AB, 54; California Inst. Tech., MS, 61; Harvard Univ., PhD (geol.), 66. *Prof. exp.*: geol. U.S. Geol. Surv., 61; guest investigator Carnegie Inst. Geophys. Lab., 65; jr. fel., 63-66, asst. prof., 66-69, assoc. prof., 69-72, prof. geol., 72-82, chmn. dept. of geol. sci., Harvard Univ., 81-82; dir. Div. of Earth Sci., 82-87, senior science advisor, 87-89, DIR. DIV. OF EARTH SCI., NATIONAL SCIENCE FOUNDATION, 87-89. *Concurrent pos.*: consultant Astronaut Training Prog., 69-73, mem. Lunar Sample Analysis Planning Team, NASA, 73-76; visiting prof. chemistry and geol., Arizona State Univ., 78-79; chmn. Lunar & Planetary Review Panel, 78-81; mem. Advisory Comm. on Mining and Minerals Research, 83-85; Scientific Advisory Bd., Mount St. Helens Natl. Volcanic Monument, 83-87; assoc. ed. *Journal of Geophysical Research*, 78-80, 83-85. *Mem.*: fel. Geol. Soc. Amer. (counc., 89-91); fel. Mineral. Soc. Amer.; Am. Geophys. Union; Am. Assoc. Petrol. Geol.; Geochem. Soc.; Am. Assoc. Adv. Sci.; Meteoritical Soc. *Res.*: Experimental petrology; phase equilibria in silicates at high pressures and high temperatures; kinetics of crystallization; interior of the earth, moon, and planets; principal investigator of Apollo lunar samples. *Mailing address*: Division of Earth Sciences, National Science Foundation, Washington, DC 20550. *Phone*: (202) 357-7958.

COUNCILOR 1989-1991

Eldridge M. Moores

b. Phoenix, AZ, 10-13-38; m. 65; c. 3. TECTONICS, STRUCTURAL GEOLOGY. *Educ.*: California Inst. Tech., BS, 59; Princeton Univ., MA, 61, PhD (geol.), 63. *Prof. exp.*: teaching asst. geol., 62-63, NSF visiting res. fel., 63-65, res. assoc., Princeton Univ., 65-66; lectr., 66-67, from asst. prof. to assoc. prof., 67-75, chmn. dept., 71-72, 73-76, PROF. GEOL., 75-, CHAIRMAN, 88-, UNIV. OF CALIFORNIA AT DAVIS. *Concurrent pos.*: NSF Panel on Grad. Fellowships in Earth Sciences, 77-79, chmn., 78-79; COCORP Site Selection and Sci. Advisory Panel, 81-; mem., Tectonics Panel, Ocean Drilling Project, 89-. *Mem.*: Geol. Soc. Amer. (counc., 89-91); Mineral. Soc. of Amer.; Am. Geophys. Union. *Res.*: Ophiolites and plate tectonics; plate tectonics of deformed belts; history of plate interactions. *Mailing address*: Department of Geology, University of California at Davis, Davis, CA 95616. *Phone*: (916) 752-4624.

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COUNCILOR 1989-1991

David A. Stephenson

b. Moline, IL, 7-1-36; m. c. 4. **HYDROGEOLOGY**. *Educ.*: Augustana Coll., BA, 58; Washington State Univ., MS, 61; Univ. of Illinois, PhD, 65. *Prof. exp.*: res. assoc. Desert Res. Inst., 62-64; asst. geol. Illinois St. Geol. Surv., 61-62, 64-65; consultant Water Resources, 64-78; from asst. prof. to prof. geol., Univ. of Wisconsin, 65-79; chief Water Resources Section, Wisconsin Geol. and Natural History Surv., 77-79; chmn. Environ. Resources Unit, Univ. of Wisconsin Ext., 74-77; dir. Water Resources Mgmt. Grad. Degree Prog., Univ. of Wisconsin, 68-78; assoc., v.-pres., dir., Water Resources Group, Woodward-Clyde Consultants, 79-83; exec. v.-pres., Water Resources Assoc., Inc., 83-84; assoc. and dir., Ground-water Resources and Waste Mgmt. Svcs. Group, Dames & Moore Consultants, 84-87; principal, Harding Lawson Assoc., Phoenix, 87-89; **PRESIDENT/CEO, GEOSCIENCE REVIEW, INC. (GRI), SCOTTSDALE, AZ, 89-**. *Concurrent pos.*: Natl. Res. Council (NRC) committees on Accessory Elements, 77-78, chmn. Ground-water Resources in Relation to Coal Mining, 80-81, Groundwater Quality Protection, 85-86; Res. Advisory Council., Wisconsin Dept. Natural Resources, 77-79; gen. chmn. Am. Water Resources Assoc. natl. conference, San Francisco, 82. *Mem.*: Am. Inst. Hydrology; Am. Inst. Prof. Geol.; Am. Water Resources Assoc.; Geol. Soc. Amer. (counc., 89-91); Intl. Assoc. Hydrogeol.; Intl. Water Resources Assoc. *Res.*: Hydrogeology, water resources mgmt. *Mailing address*: Geoscience Review, Inc., 8669 East San Alberto Drive, Suite 101, Scottsdale, AZ 85258. *Phone*: (602) 948-7171.

COUNCILOR 1989-1991

James F. Tull

b. New York, NY, 5-26-47; m. 67; c. 2. **STRUCTURAL GEOLOGY, GEOTECTONICS**. *Educ.*: Univ. of North Carolina, BS, 69; Rice Univ., PhD (geol.), 73. *Prof. exp.*: asst. prof. geol., Univ. Alabama, 73-78, assoc. prof., 78-81; assoc. prof. geol., 81-84, **PROF. GEOL. AND DEPT. CHMN., FLORIDA STATE UNIV., 84-**. *Concurrent pos.*: consultant Geol. Surv. Alabama, 75-80; E. I. du Pont de Nemours & Co., Inc., 78; visiting res. prof. Univ. of Tromsø, Norway, 79-80; Amoco Petrol. Co., 81-84; Champlin Petrol. Co., 81; J. M. Huber Co., 84-86; Educational Testing Svc., 86-; Hecla Mining Co., 87-; Exxon Found., 88-. *Mem.*: fel. Geol. Soc. Amer. (counc., 89-91); Geol. Soc. Norway; Geol. Soc. Alabama; Geol. Soc. Georgia; Soc. of Sigma Xi. *Res.*: Structural evolution of mountain systems, particularly the development of metamorphic and igneous terranes in the Scandinavian Caledonides and Southern Appalachians; studying metamorphism associated with orogenesis and relationships between structural and metamorphic events; successor basin evolution. *Mailing address*: Department of Geology, Florida State University, Tallahassee, FL 32306. *Phone*: (904) 644-1448.

COUNCILOR 1990-1992

Arden L. Albee

b. Port Huron, MI, 5-28-28; m. 53, 78; c. 8. **GEOLOGY, PLANETARY SCIENCE**. *Educ.*: Harvard Univ., BA, 50, MA, 51, PhD (geol.), 57. *Prof. exp.*: geol., U.S. Geol. Surv., 50-59; chief scientist, Jet Propulsion Lab., NASA, 78-84; from visiting asst. prof. to assoc. prof., 59-66, **PROF. GEOL., 66-**, **DEAN GRAD. STUDIES, 84-**, **CALIFORNIA INSTITUTE OF TECHNOLOGY; PROJECT SCIENTIST, MARS OBSERVATION MISSION, NASA, 84-**. *Concurrent pos.*: consultant: Los Angeles Dept. Water & Power, 64-70, Converse, Davis & Associates, 64-73, Fugro, 74-78; assoc. ed; *GSA Bulletin*, 70-, *American Mineralogist*, 72-76, *Proceedings of the 5th Lunar and Scientific Conference, Journal of Geophysical Research*, 77-82, *Annual Review, Earth & Space Sciences*, 78-; NASA service: chmn., Lunar Sci. Review Panel, 72-77, Mars Scientific Working Group, 77-78, Mars Scientific Steering Group, 77-, Lunar Planning Comm., 73-75, Terrestrial Bodies Scientific Working Group, 76-77, Physical Science Comm., 76-77, Mars '84 Scientific Working Group, 77, Space Science Advisory Comm., 78-81, leader, Mars Prog., 78-79, Solar System Exploration Comm., 80-83, Mgmt. Council, 83-88; mem. task force for Planetary Lunar Exploration, Natl. Acad. Sci., 84-86; mem. Mars Rover Sample Return Scientific Working Group, 87-; mem. US-USSR Joint Working Group Solar System Exploration, 87-. *Honors & awards*: NASA Medal for Exceptional Scientific Achievement, 76. *Mem.*: fel. Geol. Soc. Amer. (counc., 90-92); Microbeam Analytical Soc.; fel. Mineral Soc. Amer.; Geochem. Soc.; Am. Geophys. Union. *Res.*: Metamorphic petrology; electron microprobe; lunar rock investigations; planetary science. *Mailing address*: Graduate Office (02-31), California Institute of Technology, Pasadena, CA 91125. *Phone*: (818) 356-6367.

COUNCILOR 1990-1992

William L. Fisher

b. Marion, IL, 9-16-32; m. 54; c. 3. **GEOLOGY, PALEONTOLOGY**. *Educ.*: Southern Illinois Univ., BS, 54; Univ. Kansas, MS, 58, PhD (geol.), 61. *Honorary degrees*: DSc, Southern Illinois Univ., 86. *Prof. exp.*: geol., Aluminum Co. Amer., 57; asst., Kansas Geol. Surv., 57-58; research assoc., 60-64, research scientist, 64-68, assoc. dir., 68-70, **DIR., 70-**, **BUREAU ECON. GEOL., THE UNIV. OF TEXAS AT AUSTIN**; from deputy asst. secy. to asst. secy. Energy and Minerals, U.S. Dept. Int., 75-77; special lectr. geol. and assoc. mem. grad. faculty, 64-69, **PROF. GEOL. SCI. and MEM. GRAD. FACULTY, 69-**, Morgan J. Davis Centennial Prof. Petrol. Geol., 82-86, **LEONIDAS T. BARROW**

CHAIR OF MINERAL RESOURCES, 86-, **CHMN., 84, DEPT. GEOL. SCI., THE UNIV. OF TEXAS AT AUSTIN**. *Concurrent pos.*: White House Sci. Council., 88-89; Natl. Petrol. Council., 87-; Outer Continental Shelf Policy Advisory Bd., U.S. Dept. Int., 79-, chmn., 82-84; advisory comm., Coastal Zone Mgmt., U.S. Dept. Commerce, 73-75; mem., Research Comm., Interstate Oil Compact Comm., 77-; Interstate Mining Compact Comm., 77-; U.S. Natl. Comm. Geol., 81-, Bd. Mineral and Energy Resources, Natl. Research Council., 81-, chmn., 89, Bd. Earth Sci. and Resources, co-chmn., 89-91; Advisory Council., Gas Research Inst., 86-; distinguished lectr., 69-70, 70-71, 78-79, pres., 85-86, Am. Assoc. Petrol. Geol.; Soc. Econ. Geol., Pubs. Comm., 78-80; Assoc. Am. State Geol., pres., 81-82; Governor's Energy Council., 88-; Texas Energy and Natural Resources Advisory Council., 79-83; Texas Scientific Advisory Council., 88-; Texas 2000 Comm., 80-82; Internatl. Geol. Congress Organizing Bureau, 85-89. *Mem.*: fel. Geol. Soc. Amer. (counc., 90-92); Am. Inst. Mining Engineers; Sigma Xi. *Res.*: Depositional systems; seismic stratigraphy; oil, gas, and mineral exploration and development; energy and minerals policy. *Mailing address*: Bureau of Economic Geology, The University of Texas at Austin, P.O. Box X, University Station, Austin, TX 78713-7508. *Phone*: (512) 471-1534.

COUNCILOR 1990-1992

Marie E. Morisawa

b. Toledo, OH, 11-2-19. **GEOLOGY, GEOMORPHOLOGY**. *Educ.*: Hunter College, AB, 41; Union Theological Seminary, MA, 45; Univ. Wyoming, MA (geol.), 52; Columbia Univ., PhD (geol.), 60. *Prof. exp.*: instructor geol., Bryn Mawr College, 55-59; asst. prof., Montana State Univ., 59-61; geol., U.S. Geol. Surv., 61-62; assoc. prof., Antioch College, 63-69; assoc. prof., 70-75, **PROF. GEOL., STATE UNIV. OF NEW YORK, BINGHAMTON, 75-**. *Concurrent pos.*: assoc. ed., *American Journal of Science*, 85-, ed., *Geomorphology*, 87-. *Honors & awards*: Ford Found. Fellow, 64, 66; Sigma Xi Visiting Scientist, 70; Fulbright Lectureship to India, 87-88. *Mem.*: fel. Am. Assoc. Adv. Sci. (counc., 86-89); fel. Geol. Soc. Amer. (counc., 90-92); Am. Quaternary Assoc. (bd. mem., 74-78); Am. Geophys. Union; Sigma Xi; Am. Water Resources Assoc. *Res.*: Fluvial geomorphology; environmental geomorphology, natural hazards, geology and planning; geological aesthetics. *Mailing address*: Department of Geological Sciences, State University of New York at Binghamton, Binghamton, NY 13901. *Phone*: (607) 777-2615.

COUNCILOR 1990-1992

Elaine R. Padovani

b. Kansas City, MO, 12-10-38; m. 63; c. 2. **METAMORPHIC PETROLOGY, GEOPHYSICS**. *Educ.*: Vassar College, AB, 61; Stanford Univ., MS, 63; Univ. Texas, Dallas, PhD (petrol. geochem.), 77. *Prof. exp.*: research assoc., Dept. Earth and Planetary Sci., Massachusetts Inst. Tech., 77-81; prog. dir., Petrogenesis and Mineral Research, Earth Sci. Div., Natl. Sci. Found., 81-85; **DEPUTY CHIEF, EXTERNAL RESEARCH PROGRAM, OFFICE OF EARTHQUAKES, VOLCANOES AND ENGINEERING, U.S. GEOL. SURV., 85-**. *Mem.*: Am. Geophys. Union; Soc. Econ. Geol.; fel. Geol. Soc. Amer. (counc., 90-92). *Res.*: Chemistry mineralogy and physical properties of the deep crust beneath the continents; evolution of the continents through time, constraints on mechanisms of melt production, fluid transport, chemical equilibration, and physical properties at depth. *Mailing address*: U.S. Geological Survey, 905 National Center, Reston, VA 22092. *Phone*: (703) 648-6722.

Reminder

Call for Nominations for 1990

Nominations for GSA's most prestigious awards, the Penrose and Day Medals, for Honorary Fellowships of the Society, and for the Donath Medal (Young Scientist Award) are due at headquarters by **FEBRUARY 1, 1990**.

Nominations for service as officers and councilors of the Society are due at headquarters by **FEBRUARY 15, 1990**.

Nominations for the Distinguished Service Award are due at headquarters by **MARCH 1, 1990**.

For procedures and additional information, please refer to the October 1989 issue of *GSA News & Information*, or call headquarters at (303) 447-2020.

Send your nominations and required backup and supporting materials **TODAY** to

Administrative Department
Geological Society of America
P.O. Box 9140
Boulder, CO 80301



DNAG NEWS

by Allison R. (Pete) Palmer

Happy New Year! This is a good time to summarize where the DNAG Project is in terms of completion. All authors for all volumes originally promised completion of their contributions, more or less on their agreed-upon page targets for length, well before the end of last year, so that this project could be completed by January 1990 (the end of the Decade). As you all know, we aren't quite done yet, but we're not so far off, either.

Originally, we hoped that the proceeds from the DNAG

Project would provide a source of funds for the GSA Foundation to use for other worthy projects. However, because of delays and length overruns, all of the funds received for the DNAG Project, *plus* all of the proceeds from sales of finished products through 1990 will have been consumed to pay for the increased DNAG costs. Thus, the GSA Foundation will not begin to reap any benefits until at least 1991. Such is the price of delays, and exceeding length targets, for whatever reasons.

Here's where we stand as of December 1, 1989.

The Geology of North America (502 chapters in 18 books)

- Total chapters published or at the printer—240 (48%)
- Total books published or at the printer—8
- Total chapters written and at least into the formal review stage—466 (93%) (48 still to go)
- Total chapters received at GSA in final form, including 22 chapters finished for the Arctic volume but not yet transmitted—390 (77%) (113 still to go)

The missing 113 chapters are distributed as follows. (These may include introductory or summary chapters, which don't get written until all other parts are in. The number in parentheses is that part of the total that is not yet to the formal review stage.)

	<i>Text not yet received</i>
<i>The Caribbean Region</i>	1
<i>Surface Water Hydrology</i>	1
<i>The Arctic Ocean Region</i>	2
<i>Cordilleran Orogen, Conterminous U.S.</i>	10
<i>Precambrian, Conterminous U.S.</i>	5 (4)
<i>Cordilleran Orogen, Alaska*</i>	13 (5)
<i>Non-glacial Quaternary, Conterminous U.S.</i>	6 (6)
<i>Gulf of Mexico Basin*</i>	14 (8)
<i>Economic Geology, U.S.</i>	15 (13)
<i>Economic Geology of Mexico (all chapters written; this number is translations still to be received)</i>	46
Totals	113 (36)

Other Special Volumes (151 chapters in 6 books)

- Total chapters published or at the printer—83 (55%)
- Total books published or at the printer—3
- Total chapters received in final form—123 (81%)

	<i>Text not yet received*</i>
<i>Heritage of Engineering Geology</i>	3
<i>Phanerozoic Evolution of North American Continent-Ocean Transitions</i>	7
<i>Neotectonics of North America</i>	18
Total	28

Continent/Ocean Transects (25 expected)

- Published—12
- In production—5
- Not yet through review stage—8

Continent-Scale Maps (7 expected)

- Published—3
- In production—2
- Still in development—2

*Editors obtain reviews for these chapters and send copies of the final revised texts.

NEWEST RELEASES FROM THE DNAG PROJECT

THE APPALACHIAN-OUACHITA OROGEN IN THE UNITED STATES.

edited by R.D. Hatcher, Jr., W.A. Thomas, and G.W. Viele. GNA-F2 (please call for price; not available at press time)

GEOLOGY OF NORTH AMERICA—AN OVERVIEW

edited by A.W. Bally and A.R. Palmer GNA-A, 629 p., 12 plates, 2 microfiche cards, \$60.00

THE EASTERN PACIFIC OCEAN AND HAWAII

edited by E.L. Winterer, D.M. Hussong, and R.W. Decker GNA-N, 577 p., 12 plates \$54.50

HYDROGEOLOGY

edited by W. Back, P.R. Seaber, and J.S. Rosenshein GNA-O2, 534 p., 3 pocket plates, \$49.50

SOON TO BE RELEASED...

1st Canadian Volume due out early 1990 ...

QUATERNARY: CANADA AND GREENLAND (GNC-K1)

FYI

Because of the new GSA dues structure and journal subscription options, the table of contents of the *GSA Bulletin* and *Geology* will be published in *GSA News & Information* each month.



The Geological Society of America

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Edwin B. Eckel 1906-1989

Edwin B. Eckel, former Editor and Executive Director of GSA died in Denver, Colorado, on September 28, 1989, at the age of 83. Ed was a major contributor to numerous scientific societies and to the development of engineering geology in the U.S. Geological Survey and in the United States.

Ed was born January 27, 1906, in Washington, D.C. He received an undergraduate degree in chemistry from Lafayette College and a master's degree in geology from the University of Arizona, and he undertook additional graduate work at the Colorado School of Mines. In 1931, he married LaCharles Q. Goodman, who preceded him in death. They had three sons, two of whom survive him.

Ed joined the U.S. Geological Survey in 1930. In 1945, he was asked to establish the Branch of Engineering Geology, which he headed in Denver, the national headquarters, until 1961 when it was split into two branches—Engineering Geology and Special Projects. He became the first Chief of the Branch of Special Projects, formed to assist what was then the Atomic Energy Commission in characterizing the geology and hydrology for safe testing of underground nuclear weapons.

Ed retired from the U.S. Geological Survey in 1968 to devote full time as Editor-in-Chief for the Geological Society of America. In 1970, he moved to the post of Executive Director (then Executive Secretary), which he held until his second retirement in 1974. He was highly regarded by the staff and members of GSA. He then returned to the U.S. Geological Survey as a reemployed annuitant until his third retirement in 1984.

Ed was a Fellow and Councilor of the Geological Society of America, president and honorary member of the Colorado Scientific

Society, and president and honorary member of the Association of Engineering Geologists. He also served on many local, national, and international boards and committees.

He received many scientific honors and awards, including the Distinguished Service Award, the highest award of the U.S. Department of the Interior; the Geological Society of America's E. B. Burwell, Jr., Award; and the Colorado Engineering Council's Certificate of Honor.

Ed was the author, co-author, or editor of numerous geological and scientific publications, including *Landslides and Engineering Practice*, the landmark Highway Research Board volume published in 1958 by the National Academy of Sciences. He was the editor of the multivolume U.S. Geological Survey Professional Papers on the geologic and hydrologic effects of the 1964 Alaska earthquake. He wrote several society histories, including those for the Geological Society of America and the Colorado Scientific Society.

In addition to his varied scientific interests and exceptional talents as an editor, Ed was especially noted for his administrative and management skills. He maintained a personal and caring relationship with all those who worked with him. He had asked that any remembrance be in the form of a contribution to the Colorado Scientific Society Memorial Fund (P.O. Box 150495, Denver, CO 80215-0495). His many friends and associates are proposing that the Colorado Scientific Society establish the Ed Eckel Memorial Fund for Engineering Geology to honor his many contributions to that field and to his training of young engineering geologists. The interest from the fund would be used to support graduate student research in the field of engineering geology.

In Memoriam

Tracy V. Buckwalter
Shipperville, Pennsylvania
August 15, 1989

Eduardo J. Guzman
Mexico City, Mexico
September 1989

Thomas R. Lyons
Albuquerque, New Mexico

Ralph E. Taylor
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Revocable Living Trusts—More Money, Fewer Headaches

When an individual dies, his or her executor, family, and heirs are often astounded by the delays, complexities, and costs of settling the estate. During probate of a will, assets may be frozen, as in California where the court ties up an estate for four months awaiting the appearance of any who would contest the will.

Costs of probating an estate can be staggering. In California, for example, statutory probate costs can run from \$10,300 on a \$200,000 estate to \$42,300 on a \$1,000,000 estate. This is 4%-5% of the value of the estate and does not include additional fees on the sale of assets, preparation of tax returns, and any litigation that may arise during the course of probate. Even more astonishing, probate costs may be based on the gross value of real estate. The charges on a \$400,000 house with a \$200,000 mortgage are calculated on \$400,000!

Perhaps the rudest shock of all is the exposure of an estate in probate to public scrutiny. The proceedings involved in settling an estate through the courts are a matter of public record, an obvious breach of family privacy.

Enter the revocable living trust, an estate planning tool whose time has surely arrived. The revocable living trust is not a device generally designed to save taxes. Instead, it is used to avoid probate costs and provide convenience and privacy for one's beneficiaries.

All of the obvious problems encountered with a will and probate can be handled with this type of trust. First, there is simply the time and nuisance of the probate court proceedings. With a revocable living trust there is no court action. The successor trustee simply distributes the assets in accordance with the trust's instructions, using an accountant, notary public, and lawyer to assist with the more mechanical aspects of the distribution such as the transfer of titles to property.

Second, while it is a relatively easy matter to contest a will during the probate process, trusts are not easily contested. In the court system it is often just a simple matter for a disgruntled heir to step forward, but in the case of a trust the contestant must hire a lawyer and file a suit. Further, since the assets can be immediately distributed to the beneficiaries, the contestant would end up suing each beneficiary separately.

Third, the cost savings are dramatic. There are no probate fees. From \$10,000 in the case of a small estate of \$200,000 to in excess of \$100,000 on large estates of several million dollars . . . this is money that can be retained for the heirs.

Fourth, when a person owns real property in several states, the problem of ancillary probate arises. This means that the portion of the estate in each state where the property is located must undergo the probate process in that state. Again, this entails additional time and costs. The problem is easily circumvented through the revocable living trust.

Fifth, many seniors use these trusts to hold their assets and avoid the problems of a court-appointed guardian, should they become unable to manage their own affairs.

Finally, there is the all-important matter of family privacy. Anyone who wants to find out the particulars of a person's estate after that person dies can go to the probate court and get the information, unless the estate is in a trust. No details about beneficiaries or the estate enter the public record when the decedent has placed his or her assets in a revocable living trust. This information could only be made public in the event of litigation against the trust, but as pointed out above, such action is costly to the plaintiff.

Disadvantages of these trusts are relatively few, although there can be some minor hassles in establishing the trust. These relate to transferring titles to homes and real estate, bank accounts, securities, and other investments into the name of the trust. However, once this is accomplished the trust operates in the same manner as one would handle one's own pre-trust personal affairs. The cost of setting up one of these trusts is on the order of \$500 to \$2000, depending on the complexities of the assets going into the trust. Once the trust is established, it is also important to make sure that subsequent transactions continue to be handled through the trust, rather than in one's own name.

It is common for the grantor of the trust to appoint himself or herself as trustee, with a relative, attorney, friend, or a representative of a beneficiary as successor trustee to step in at the time of death. For example, where some of the assets of the estate will be distributed to GSA, an officer of the GSA Foundation could serve as successor trustee and distribute assets as directed by the trust document immediately following the grantor's death.

Because of its simplicity and significant cost benefit, the revocable living trust has become in recent years a very popular estate-planning device. If you would like further information on this subject, please call or write the Foundation office.

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PEOPLE

GSA Fellow **Otto J. Buis** has been appointed President and Chief Executive Officer of MSR Exploration, Ltd., Cut Bank, Montana.

Fellow **Peter T. Flawn**, Austin, Texas, has been awarded the American Institute of Professional Geologists Ben H. Parker Memorial Medal. AIPG presented its Public Service Award to Fellow **Elisabeth G. Newton**, McLean, Virginia; made Fellow **Edward R. Rue**, Mt. Vernon, Illinois, an Honorary Member; and presented a Presidential Certificate of Merit to Member **Frederick B. Mullin**, Denver, Colorado.

A Kaolin Symposium at the Clay Minerals Society 27th Annual Meeting in October will honor Fellow **Walter D. Keller**, professor emeritus, University of Missouri, Columbia.

Fellow **John E. Moore** has retired from the U.S. Geological Survey Water Resources Division and has been appointed Senior hydrologist with Environmental Strategies Corporation, Vienna, Virginia.

Fellow **Howard J. Pincus**, San Diego, California, has received ASTM's 1989 Award of Merit.

Fellow **Peter Rona**, Miami, Florida, received the Outstanding Presentation award from the International Marine Minerals Society for a presentation at the 1988 Underwater Mining Institute conference.

Executive Director

for the

American Geological Institute

The Search Committee of the American Geological Institute invites applications for the position of Executive Director. We seek an able executive and administrator to conduct the affairs of the Institute, as directed by the Executive Committee, beginning May, 1990.

The candidate must be a mature, broadly educated earth scientist who has significant management and budgetary skills and executive experience. This select person should have a well-established reputation and be highly regarded as an able leader within the geoscience community. A PhD or equivalent qualification is desirable.

Principal Responsibilities

- The AGI Executive Director implements and administers all planning and standing policies of the Institute as directed by the Executive Committee.
- The Executive Director supervises the AGI staff and employees and coordinates all the various activities, projects, and programs of the Institute.
- The Executive Director will establish and maintain liaison relationships with officers and administrators of the affiliated member societies as well as with other national geoscience and science related organizations. A candidate who currently enjoys these relationships, however limited, is much desired.

Candidates are invited to submit a resumé, including salary and other contractual requirements, by February 15, 1990, to:

The Chairman
AGI Ad Hoc Search Committee
4220 King Street
Alexandria, Virginia 22302

All resumé and inquiries will receive private and confidential consideration. AGI is an equal-opportunity employer.

Final Announcement

SOUTHEASTERN SECTION, GSA, 39th Annual Meeting

Tuscaloosa, Alabama
April 5-6, 1990

The Southeastern Section of the Geological Society of America will meet at the Paul W. Bryant Conference Center and Sheraton Capstone Inn in Tuscaloosa on the campus of the University of Alabama on April 5 and 6, 1990. This is a joint meeting with the Southeastern Section of the Paleontological Society and the Southeastern Section of the National Association of Geology Teachers. The meeting is sponsored by the University of Alabama with the cooperation of the Geological Survey of Alabama, University of Alabama at Birmingham, Tom Joiner and Associates, P. E. LaMoreaux and Associates, and Thornton L. Neathery and Associates.

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 in full, must be postmarked no later than March 3, 1990.* Preregistration can be done by mail, telephone, or fax (address and numbers are on the preregistration form). Payment may be made by check or money order in U.S. funds, payable to the University of Alabama, or by VISA or MasterCard.

Those planning to go on the field trips or guest tours must preregister by March 3, 1990. Refunds for canceled preregistrations will be made in full until March 3, 1990. After that date no refunds will be made except in the event of cancellation of a field trip or guest tour.

On-Site Registration: Registration and pick-up of meeting materials by preregistrants will be from 3:00 to 8:00 p.m. on Wednesday, April 4, and from 7:30 a.m. to 5:00 p.m. on April 5 and 6. Registration will be in the foyer of the Bryant Conference Center.

WELCOMING PARTY

A welcoming party for those attending the meeting will be held on Wednesday, April 4, from 7:00 to 9:30 p.m. at the Tom Beville Energy, Mineral, and Material Science Research Building, new home of the Department of Geology, on the university campus. Admission to the welcoming party will be by registration badge; registration materials should be picked up at the Bryant Conference Center before the welcoming party. A shuttle bus will operate between all meeting motels, the Conference Center, and the Beville Building during the welcoming party.

TECHNICAL PROGRAM

Technical sessions will be scheduled as oral or poster presentations on Thursday, April 5, and Friday, April 6.

SYMPOSIA

1. **Applied Geology and Hydrogeology.** L. T. Gregg, Atlanta Testing and Engineering, Inc., 11420 Johns Creek Parkway, Duluth, GA 30136.
2. **Ground-water Protection—Are Geologists Needed?** Tola B. Moffett, P. E. LaMoreaux and Associates, P.O. Box 2310, Tuscaloosa, AL 35403.
3. **Timing, Nature, and Tectonic Significance of Felsic Magmatism in the Southern Appalachians.** Mark S. Drummond and Michael J. Neilson, Department of Geology, University of Alabama, Birmingham, AL 35294.
4. **Metallic Ore Deposits of the Southeast.** Jerry M. German, Georgia Geologic Survey, 19 Martin Luther King, Jr., Drive, Atlanta, GA 30334.

5. **North American Paleozoic Paleobiogeography.** Carl W. Stock, Department of Geology, University of Alabama, Tuscaloosa, AL 35487; Patricia H. Kelley, Department of Geology and Geological Engineering, University of Mississippi, University, MS 38677.
6. **Coalbed Methane.** Lawrence J. Rheams, Geological Survey of Alabama, P.O. Drawer O, Tuscaloosa, AL 35486; Philip G. Malone, Geomet, Inc., 6200 Flint Ridge Road, Fairfield, AL 35064.
7. **Second Annual Symposium on Industrial Minerals.** Guerry H. McClellan, Department of Geology, University of Florida, Gainesville, FL 32611; Karen F. Rheams, Geological Survey of Alabama, P.O. Drawer O, Tuscaloosa, AL 35486.
8. **Maps and Cross Sections in Thrust-faulted Terranes: Poster Symposium.** William M. Dunne, Department of Geological Sciences, University of Tennessee, Knoxville, TN 37996-1410; Richard H. Groshong, Jr., Department of Geology, University of Alabama, Tuscaloosa, AL 35487.
9. **Modern Coastal Sediments and Processes, and the Geologic Record: Ninth Symposium on Coastal Sedimentology.** William F. Tanner, Department of Geology, Florida State University, Tallahassee, FL 32306; Richard L. Hummell, Geological Survey of Alabama, P.O. Drawer O, Tuscaloosa, AL 35486.

FIELD TRIPS

Field trip committee: Nathan L. Green, Department of Geology, University of Alabama, Tuscaloosa, AL 35487, (205) 348-1878; Gregory M. Guthrie and W. Edward Osborne, Geological Survey of Alabama, P.O. Drawer O, Tuscaloosa, AL 35486, (205) 349-2852.

Field trip registrants must also register for the meeting. Field trip registration is on a first-come, first-served basis. If a trip is oversubscribed or canceled, the field trip fee will be refunded. *Preregistration for field trips must be postmarked by March 3, 1990, and accompanied by full payment.* Trips may be canceled if registration is insufficient. No refunds (except for cancellation of a trip) will be made after March 3, 1990.

All field trips will depart from and return to the Sheraton Capstone Inn in Tuscaloosa unless otherwise noted.

Premeeting

1. **Paleocene and Eocene Sequence Stratigraphy of Southwestern Alabama.** Ernest A. Mancini and Berry H. Tew, Geological Survey of Alabama, 420 Hackberry Lane, P.O. Box O, Tuscaloosa, AL 35486-9780, (205) 349-2852. Three days, April 2, 3, and 4.

The lower Tertiary sequence of southwestern Alabama represents one of the most completely exposed marine and transitional marine sections of these strata in the United States. The

(continued on p. 17)

Southeastern Section (continued from p. 16)

Cretaceous-Tertiary, Paleocene-Eocene, and Eocene-Oligocene boundaries are excellently exposed, and most of the strata contain rich and well-preserved fossil assemblages. The field trip will provide participants with an opportunity to view and collect these classic localities in terms of newly developing coastal-onlap sequence concepts. The resolution of time-stratigraphic boundary problems through the use of an integrated paleontological-sedimentological approach will be emphasized.

Depart from the Sheraton Inn in Tuscaloosa at 3:00 p.m. on April 2. Overnight April 2 at the Motel Demopolis, Demopolis, AL (205) 289-1760 and April 3 at the Jackson Motel, Jackson, AL (205) 246-2405. Return to the Sheraton at 5:00 p.m. on April 4. Limit: 20. Cost: \$110; includes lodging, lunches, and guidebook.

2. Contrasts in Structural Styles and Mechanisms in a Foreland-Hinterland Transition Zone, Central Alabama Appalachians. Gregory M. Guthrie and W. Edward Osborne, Geological Survey of Alabama, 420 Hackberry Lane, P.O. Box O, Tuscaloosa, AL 35486-9780, (205) 349-2852. Two days, April 3 and 4.

The foreland-hinterland transition zone contains three of the largest thrust systems in the Alabama Appalachian orogen, the Pell City fault system, the Jacksonville fault complex, and the Talladega-Cartersville fault system. All three systems are polydeformed, contain foreland-propagating and out-of-sequence faults, and exhibit evidence for heterogeneous deformation in both ductile and brittle environments. The purpose of this trip is to examine deformation features in these thrust systems and the parautochthon in order to demonstrate the complexities associated with structural development in this area of the orogen. The trip will focus on four large culminations; three of these, Kelley Mountain, Childersburg, and Fort McClellan, are associated with windows. Stops will focus on the contrasting ductile nature of early structures and the brittle nature of later structures in the thrust systems, the role of metamorphism in early structural development, and disharmonic semi-brittle deformation in the parautochthon.

Depart from the Sheraton Inn in Tuscaloosa at 7:00 a.m. on April 3. Overnight at the Colony House Motel in Talladega, AL (205) 362-0900. Return to the Sheraton at 5:00 p.m. on April 4. Limit: 28. Cost: \$86; includes lodging, lunches, and guidebook. Field boots are recommended.

3. Industrial Minerals of Central and West-Central Alabama. Karen F. Rheams, Geological Survey of Alabama, 420 Hackberry Lane, P.O. Box O, Tuscaloosa, AL 35486-9780; Guerry H. McClellan, Department of Geology, University of Florida, Gainesville, FL 32611, (904) 392-2231. One day, April 4.

The purpose of this trip is to examine several important economic mineral deposits located within one day's driving time of Tuscaloosa. Mineral deposits to be examined include red iron ore, shale used as lightweight aggregate, common clay and shale used in pipe, cosmetic-grade hydrothermal talc, and high-quality white calcite marble. Geologic framework of mineral deposits, mining history, mining and extraction techniques, industrial specifications, processing, and final products will be discussed at each stop.

Depart from the Sheraton Inn in Tuscaloosa at 7:30 a.m. on April 4; return at 7:00 p.m. Limit: 28. Cost: \$41; includes lunch and guidebook.

4. Hazardous Chemical Waste Disposal: The Emelle Facility, Sumter County, Alabama. Rona J. Donahoe and Richard H. Groshong, Department of Geology, University of Alabama, Tuscaloosa, AL 35487, (205) 348-5095. One day, April 4.

This trip will tour the Emelle Hazardous Chemical Waste Disposal Facility operated by Chemical Waste Management, Inc.

The facility is in chalk of the Upper Cretaceous Selma Group and is called the "Cadillac of hazardous waste landfills." The facility tour will begin with presentations by Chemical Waste Management personnel on the design and operation of the landfill and will be followed by visits to the analytical laboratory, the solvent recycling plant, the liquid waste solidification plant, and PCB shed. Site monitoring will be discussed by personnel from the Alabama Department of Environmental Management. Afternoon stops will examine local geology and concerns about the potential for ground and surface water contamination.

Depart from the Sheraton Inn in Tuscaloosa at 8:30 a.m. on April 4; return at 3:30 p.m. Limit: 13. Cost: \$31; includes lunch and guidebook.

5. Coal-bearing Strata near Oak Grove and Brookwood Coalbed-Methane Fields, Black Warrior Basin, Alabama. Jack C. Pashin and Joseph C. Sarnecki, Geological Survey of Alabama, 420 Hackberry Lane, P.O. Box O, Tuscaloosa, AL 35486-9780, (205) 349-2852. One day, April 4.

The principal objectives of the field trip are to acquaint the participants with the coal geology of the Black Warrior basin and the importance of geology in the degasification of coal. Most of the day will be spent examining highwalls in the Blue Creek basin that expose the Mary Lee and "J" coal groups, where the sedimentologic complexity of the coal beds and the intervening siliciclastic units is apparent. The Blue Creek basin lies immediately southeast of the Oak Grove degasification field, where the Mary Lee coal group is the primary degasification target. The highwalls also exhibit joints and cleats that are important in providing hydrologic conduits for coal-bed degasification. An additional roadcut along the Blue Creek anticline will be examined. Pennsylvanian Pottsville Formation strata in this exposure contain axial-plane cleavage and tear structures which may also provide hydrologic conduits.

Depart from the Bryant Conference Center in Tuscaloosa at 8:00 a.m. on April 4; return at 4:30 p.m. Limit: 25. Cost: \$36; includes lunch and guidebook. A hardhat and steel-toed boots are required.

Postmeeting

6. Carboniferous Coastal Environments and Paleocommunities of the Mary Lee Coal Zone, Marion and Walker Counties, Alabama. R. A. Gastaldo, T. M. Demko, and Y. Liu, Department of Geology, Auburn University, Auburn, AL 36849-5305, (205) 844-4282. Two days, April 7 and 8.

Outcrop and surface mine exposures of the Mary Lee coal zone (Jagger bedrock to Morris shale interval) will be examined with respect to sedimentological facies, coastal depositional framework, and terrestrial and marine paleocommunities. Autocyclic mechanisms for terrestrial clastic sequences and allocyclic mechanisms for marine inter-coal zone deposition, as well as biofacies-lithofacies relations will be explored. The goal of the field trip is to present an integrated portrait of the Carboniferous coastal regime now represented in the Warrior coal field. The field trip is cosponsored by the Southeastern Section of the Paleontological Society.

Depart from the Sheraton Inn in Tuscaloosa after the last technical session on April 6; return to Tuscaloosa, by way of the Birmingham Airport, on April 8 at 6:00 p.m. Two nights at the Best Western Motel in Jasper, AL (205) 221-3050. Limit: 28. Cost: \$115; includes lodging on April 6 and 7, lunches, and guidebook.

7. Geology of the Southern Inner Piedmont, Alabama and Southwest Georgia. Mark G. Steltenpohl, Department of Geology, Auburn University, Auburn, AL 36849-5305, (205) 844-4282; Stephen A. Kish, Department of Geology, Florida State University, Tallahassee, FL 32306, (904) 644-5860; Michael J. Neilson, Depart-

(continued on p. 18)

Southeastern Section (continued from p. 17)

ment of Geology, University of Alabama, Birmingham AL 35294, (205) 934-2439. Two days, April 7 and 8.

The purpose of this trip is to highlight recent research in the Inner Piedmont of Alabama and southwest Georgia, which is perhaps the least understood of all southern Appalachian terranes. Field trip stops emphasize structural, metamorphic, and igneous features, such as (1) contacts with the eastern Blue Ridge (Brevard zone) and the Pine Mountain window (Towaliga fault); (2) characteristics of the regional Tallassee synform, which controls the southern configuration of the terrane; (3) recently discovered mylonite zones internal to the terrane; and (4) recently dated granitoid plutons that provide timing constraints on tectonic evolution.

Depart from the Sheraton Inn in Tuscaloosa after the last technical session on April 6; return to Tuscaloosa, by way of the Birmingham Airport, on April 8 at 5:00 p.m. Two nights at the Heart of Auburn Motel, Auburn, AL (205) 887-3462. Limit: 28. Cost: \$113; includes lodging on April 6 and 7, lunches, and guidebook.

PUBLICATIONS

Additional copies of *Abstracts with Programs* and the field trip guidebooks may be purchased at the registration desk during the meeting. After the meeting, field trip guidebooks will be available from the Geological Survey of Alabama.

PROJECTION EQUIPMENT

All slides must be 2" x 2" and fit into a standard 35 mm carousel tray. Please bring your own loaded carousel trays; only a few carousels will be available in the Speaker Ready Room. Two 35 mm slide projectors and two screens will be available in each meeting room. Other types of projection equipment will be available only by special request in advance.

POSTER SESSIONS

Poster sessions will be scheduled in the Convention Center adjacent to the exhibits. Each poster booth will provide three boards of approximately 4' x 6' dimensions.

EXHIBITS

Exhibits representing education, research, and industry will be on display in the Sellers Auditorium in the Bryant Conference Center on April 5 and 6. For information about exhibits, contact Thomas J. Joiner, Tom Joiner and Associates, P.O. Box 5894, Tuscaloosa, AL 35405, (205) 345-2311.

GUEST PROGRAM REGISTRATION

A hospitality room with refreshments and information on local points of interest will be open to all guest registrants in the President's Room at the Sheraton Capstone Inn. For additional information, contact Rona Donahoe, Department of Geology, University of Alabama, Tuscaloosa, AL 35487, (205) 348-1879.

Guest Tours

1. Thursday, April 5, 9:00 a.m.–4:00 p.m. Enjoy Birmingham's beautiful Botanical Gardens or see the world-famous geologic roadcut and museum at Red Mountain. Shopping at the Galleria from 12:00 to 3:00 p.m. Luncheon is not included in the tour cost. Choose your own lunch spot at the Galleria (everything is available from fast food to elegant dining at the Wynfrey Hotel). Cost: \$10.

2. Thursday, April 5, 4:30–6:15 p.m. A guided tour of the famed Warner collection of artwork by Audubon, Remington, and others at the Gulf States Paper Corporation Headquarters. *Open to all meeting registrants.* Cost: \$5.

3. Friday, April 6, 9:00 a.m.–3:00 p.m. Participate in Tuscaloosa's Heritage Week by touring three historic antebellum landmarks (the Old Tavern, the Battle-Friedman House, and the Mildred Warner House), followed by luncheon at the University Club (formerly the Governor's mansion). After lunch, shop for original works of regional artisans and craftsmen at the Kentuck Museum in Northport. Cost: \$20.

All tours depart from and return to the Sheraton Capstone Inn. Tours will be canceled and fees refunded if there is insufficient response.

SPECIAL EVENTS

GSA Southeastern Section Management Board Meeting. Wednesday, April 4, 5:00–7:00 p.m. in the Morgan Board Room, Bryant Conference Center.

GSA Southeastern Section Campus Liaison Group Breakfast. Thursday, April 5, 7:00 a.m. in the Moore Room, Sheraton Capstone Inn.

Paleontological Society Southeastern Section Luncheon and Business Meeting. Thursday, April 5, 12 noon at the Cypress Inn. Transportation will be provided from the Bryant Conference Center.

GSA Southeastern Section Business Meeting. Thursday, April 5, 5:00 p.m. in the Morgan Board Room, Bryant Conference Center.

Bryant Museum. The Paul "Bear" Bryant Museum, adjacent to the Conference Center, is open from 10:00 a.m. to 4:00 p.m. daily. A discount on the admission fee will be given to registrants of the meeting.

Inner Tube Water Polo Tournament. No experience is required for participation in the first-ever SE-GSA Inner Tube Water Polo Tournament. Competition between teams from various states in the Southeastern Section will be at the University of Alabama Aquatic Center across the street from the Sheraton Capstone Inn. The action is scheduled for Thursday, April 5, 8:00 to 10:00 p.m. Participants should bring swim suits and towels. A fee will be charged to cover costs and will be dependent upon the number of participants. To register, contact Jeff Levine, Department of Geology, University of Alabama, Tuscaloosa, AL 35487, (205) 348-1587.

LUNCH

Pre-reserved box lunches will be available on April 5 and 6 at the Sheraton Capstone Inn. **Lunch tickets must be purchased in advance:** either on the preregistration form, or the day before at the registration desk in the Conference Center. A barbecue lunch will be served beside the pool at the Sheraton Capstone Inn. A croissant sandwich and chips box will be picked up in the lobby of the Sheraton, and the grounds around the Conference Center are available for an informal lunch. The box lunches are provided as an alternative to three nearby restaurants or more distant restaurants in Tuscaloosa.

TRAVEL TO TUSCALOOSA

Tuscaloosa is on Interstate 20-59, 55 miles southwest of Birmingham, in western Alabama. Exits for the University of Alabama are posted on the interstate. Tuscaloosa airport is served by Atlantic Southeast Airlines to and from Atlanta, and by American Eagle to and from Nashville. Several airlines serve Birmingham to and from a variety of destinations, and rental car driving to Tuscaloosa is convenient. Amtrak serves Tuscaloosa with daily trains in both directions on the Washington-New Orleans route.

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PREREGISTRATION FORM
Southeastern Section, GSA, Annual Meeting
April 5-6, Tuscaloosa, Alabama

IMPORTANT

1. Full payment must accompany registration.
2. Use separate form for each registrant: professional, pre-college science teacher, student, or guest.
3. **PREREGISTRATION MUST BE POST-MARKED NO LATER THAN MARCH 3, 1990.** Registration deadline for field trips and guest tours is also March 3, 1990.

Personal checks payable to **University of Alabama**

Master Card # _____

Visa # _____

Expiration Date _____

Signature _____

Please print or type

Name _____
last
first
middle

Social Security Number (for filing purposes only): _____

Affiliation _____

Professional Address _____

Telephone: business () _____ residence () _____

REGISTRATION

	<i>before</i>	<i>after</i>	
	<i>March 3, 1990</i>	<i>March 3, 1990</i>	
Professional, member of GSA or affiliated society	\$ 30.00	\$ 35.00	\$ _____
Professional, pre-college science teacher	\$ 10.00	\$ 10.00	\$ _____
Professional, non-member of GSA	\$ 35.00	\$ 40.00	\$ _____
Student, student associate of GSA	\$ 10.00	\$ 13.00	\$ _____
Student, non-student associate of GSA	\$ 13.00	\$ 16.00	\$ _____
Guest	\$ 10.00	\$ 10.00	\$ _____

SOCIAL PROGRAM REGISTRATION

Paleontological Society Luncheon (April 5, 1990)	\$ 12.00	\$ _____
Pool-side BBQ lunch (April 5, 1990)	\$ 9.50	\$ _____
Pool-side BBQ lunch (April 6, 1990)	\$ 9.50	\$ _____
Croissant box lunch (April 5, 1990)	\$ 5.00	\$ _____
Croissant box lunch (April 6, 1990)	\$ 5.00	\$ _____

GUEST TOUR REGISTRATION

1. Birmingham attractions and shopping (April 5, 1990)	\$ 10.00	\$ _____
2. Gulf States art collection (April 5, 1990)	\$ 5.00	\$ _____
3. Tuscaloosa historical landmarks, shopping, and lunch (April 6, 1990)	\$ 20.00	\$ _____

FIELD TRIP REGISTRATION

1. Paleocene and Eocene sequence stratigraphy of southwestern Alabama	\$ 110.00	\$ _____
2. Contrasts in structural styles and mechanisms, central Alabama Appalachians	\$ 86.00	\$ _____
3. Industrial minerals of central and west-central Alabama	\$ 41.00	\$ _____
4. Emelle hazardous chemical waste disposal facility, Sumter Co., Alabama	\$ 31.00	\$ _____
5. Coal-bearing strata and coalbed-methane fields, Black Warrior basin	\$ 36.00	\$ _____
6. Carboniferous coastal environments and paleocommunities.....	\$ 115.00	\$ _____
7. Geology of the southern Inner Piedmont, Alabama and southwest Georgia	\$ 113.00	\$ _____

TOTAL FEES \$ _____

Mail registration: **Registration Services, College of Continuing Studies, The University of Alabama, Box 870388, Tuscaloosa, AL 35487-0388**

Telephone registration: **800-452-5971** (toll-free in Alabama only) or **205-348-3000**
 Fax registration: **205-348-6614**

Southeastern Section (continued from p. 18)

STUDENT TRAVEL ASSISTANCE

Support for travel expenses of students presenting papers at the meeting is available from the Southeastern Section. For information contact

Michael J. Neilson
Department of Geology
University of Alabama at Birmingham
Birmingham, AL 35294
(205) 934-5102

ADDITIONAL INFORMATION

Inquiries should be directed to

William A. Thomas SE-GSA Local Committee Chairman Department of Geology University of Alabama Tuscaloosa, AL 35487 (205) 348-5095	or	C. Michael Leshner SE-GSA Local Committee Vice-Chairman Department of Geology University of Alabama Tuscaloosa, AL 35487
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HOUSING

The five motels listed below have reserved blocks of rooms for participants of the 1990 SE-GSA meeting. The Sheraton Capstone Inn is adjacent to the Bryant Conference Center and has limited but very good dining facilities; the other motels are on McFarland Boulevard (U.S. Highway 82) approximately 4 miles away, convenient to many restaurants and shopping malls. **There will be no shuttle service to the technical sessions on April 5 and 6; only the Sheraton Capstone Inn is within realistic walking distance of the Bryant Conference Center.** Parking space directly adjacent to the Conference Center is restricted, but there is abundant free parking within 1 block.

The Sheraton Capstone Inn operates a free shuttle from and to Tuscaloosa airport for guests. Transportation between Tuscaloosa airport and other SE-GSA hotels is provided by ATS Shuttle Service at a special round-trip fare of \$12 for GSA registrants; be certain to identify yourself to qualify for the discount fare.

Please make reservations directly with the motel of your choice. **Indicate that you are with the Southeastern Section of the Geological Society of America to obtain special rates.**

All motels accept major credit cards; room rates are subject to 9% sales tax.

Motels

1. Sheraton Capstone Inn, 320 Paul Bryant Drive (north side, west of and adjacent to the Bryant Conference Center), (205) 752-3200 (local) or 800-325-3535 (national); 120-room block; single \$60, double \$66.
2. Shoney's Inn, 3501 McFarland Boulevard East (east side, 2 blocks north of I-20/59), (205) 556-7950 or 800-222-2222 (both local); 75-room block; single \$34, double \$39 (reservations required 2 weeks prior to expected arrival date).
3. Holiday Inn—Tuscaloosa, 3920 McFarland Boulevard East (northwest corner of intersection with I-20/59), (205) 553-1550 or 800-322-3499 (both local); 75-room block; single \$45, double \$50.
4. Quality Inn, 3801 McFarland Boulevard East (northeast corner of intersection with I-20/59), (205) 556-9690 or 800-221-2222 (both local); 75-room block; standard-size rooms: single \$30, double \$34, triple \$39, quad \$44; king-size rooms: single \$47, double \$51; suite \$100.
5. La Quinta Motor Inn, 4122 McFarland Boulevard East (southwest corner of intersection with I-20/59), (205) 349-3270 (local) or 800-537-5900 (national); 75-room block; single \$29, double \$33, triple \$37.



GSA Foundation and Sections Fund Student Travel Grants

GSA Sections offer grants to students for travel to Section meetings, assisted by matching grants from the GSA Foundation. Travel grants are awarded and administered by the Sections. For information on travel grants for the 1990 Section meetings, contact the following.

Cordilleran: Bruce A. Blackerby, Department of Geology, California State University, Fresno, CA 93740, (209) 294-2955 or 294-3086.

North-Central: John S. Klasner, Department of Geology, Western Illinois University, Macomb, IL 61455, (309) 298-1275.

Northeastern: Kenneth N. Weaver, Maryland Geological Survey, 2300 St. Paul St., Baltimore, MD 21218, (301) 554-5503 or 554-5500.

Rocky Mountain: Kenneth E. Kolm, Department of Geology and Geological Sciences, Colorado School of Mines, Golden, CO 80401, (303) 273-3932 or 273-3800.

South-Central: Scott M. Ritter, School of Geology, Oklahoma State University, 105 Noble Research Center, Stillwater, OK 74078-0451, (405) 744-6358.

Southeastern: Michael J. Neilson, Department of Geology, University of Alabama, Birmingham, AL 35294, (205) 934-5102.

THE GEOLOGICAL SOCIETY OF AMERICA



Annual research awards program 1990

The Geological Society of America will continue its annual research awards program in 1990. Eligibility is not restricted to GSA members. New application forms for the current year and detailed requirements are available each fall in the geology departments of colleges and universities offering graduate degrees in earth sciences. Forms are mailed annually to GSA Campus Representatives and department secretaries and chairmen in the United States and Canada. They are also available upon request from the Research Grants Administrator, Geological Society of America, P.O. Box 9140, Boulder, Colorado 80301. PLEASE USE ONLY THE 1990 APPLICATION AND APPRAISAL FORMS.

The primary role of the research grant program is to provide partial support of master's and doctoral thesis research for graduate students at universities in the United States, Canada, Mexico, and Central America.

The Geological Society of America awarded \$180,000 in grants in 1989. The awards went to 210 students doing research for advanced degrees. The average amount awarded was \$859. The largest award was \$1,700, but there is no predetermined maximum amount.

Confidential evaluations from two faculty members are required from master's and doctoral candidates and must accompany applications submitted. PLEASE USE THE "APPRAISAL OF APPLICANT" FORMS, WHICH ACCOMPANY THE 1990 APPLICATION FORMS.

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

**ALL APPLICATIONS MUST BE SUBMITTED ON THE 1990 FORMS
AND POSTMARKED BY FEBRUARY 15, 1990**

Final Announcement
NORTH-CENTRAL SECTION, GSA, 24th Annual Meeting
Macomb, Illinois
April 26-27, 1990

The North-Central Section of the Geological Society of America will meet at the University Union of Western Illinois University (WIU). The meeting is to be hosted by Augustana College, Monmouth College, and Western Illinois University. The North-Central Section of the Paleontological Society and the Great Lakes Section of SEPM will meet jointly with the North-Central GSA; the American Institute of Professional Geologists, the Association of Women Geoscientists, the Central Section of the National Association of Geology Teachers, the National Earth Science Teachers Association and Sigma Gamma Epsilon are cosponsoring a special Keynote Symposium on Geoscience Education.

TRAVEL ARRANGEMENTS

Macomb is located near the geographic center of the GSA North-Central Section. Illinois highways 67 and 136 intersect in Macomb, which lies about 80 miles south of Moline-Rock Island, Illinois; 80 miles west of Peoria, Illinois; 150 miles north of St. Louis Missouri; and 50 miles southeast of Burlington, Iowa. Shuttle service will be available from the Peoria airport, which has the best and most frequent service from major cities, and from the Moline airport if there is a need. Please indicate on the registration form if you will need the shuttle service. A shuttle schedule is given on the registration form. Daily round-trip Amtrak service is also available from Chicago Union Station. The train leaves Chicago at 5:55 p.m. and arrives in Macomb at 9:20 p.m. Monday through Saturday it leaves Macomb at 7:02 a.m. and arrives in Chicago at 10:35 a.m. On Sunday the train departs Macomb at 8:17 a.m. and arrives at Union Station at 11:48 a.m. Round-trip fare is currently \$51.

REGISTRATION

Registration is required for all who participate in any event at the meeting, including technical sessions, symposia, exhibits, planned social events, and field trips.

Preregistration. Advance registration is encouraged to aid the local committee in making final plans for the meeting. A pre-registration discount is available to those who register using the enclosed form by **March 30, 1990**. Advance registration is required for those who plan to attend a field trip. Return the completed registration form with check or money order (payable to Western Illinois University in U.S. currency), or pay by credit card. Mail to: Director of Non-Credit Programs, Western Illinois University, Macomb, IL 61455. Please note that the registration fees have been changed from those quoted in the preliminary announcement, October issue of *GSA News & Information*. Registration must be postmarked by March 30, 1990, to qualify for discount. Refunds for canceled registration will be made until March 30, 1990. After that date no refunds will be made for field trips or other events, unless the events are canceled or the field trips are oversubscribed.

On-Site Registration. Registration will take place at the Conference Registration Center in the WIU Union from 6:00 to 9:00 p.m. on April 25; from 8:00 a.m. to 5:00 p.m. on April 26; and from 8:00 to 10:00 a.m. on April 27, 1990.

WELCOMING RECEPTION

A reception for those attending the meeting will be held Wednesday evening, April 25, 1990, in the Lamoine Room of the WIU Union from 6:30 to 9:30 p.m. There will be a cash bar and complimentary hors d'oeuvres.

STUDENT ARRANGEMENTS

Student Travel. The North-Central Section will provide GSA

student members with travel awards up to \$200 on a first-come first-served basis. The students must be enrolled in an academic geology department in the North-Central Section, and travel must be fully documented by receipts presented to meeting chairman John S. Klasner by May 16, 1990, two and one-half weeks following the meeting. Applications for the travel awards must be submitted by March 30, 1990. Application forms for student travel awards have been sent to all academic geology departments within the North-Central Section as listed in the AGI Directory. Additional application forms may be obtained from: John S. Klasner, Department of Geology, Western Illinois University, Macomb, IL 61455.

Student Paper Awards. The North-Central Section will present up to four \$100 awards and certificates for the best student oral or poster papers. The Student Awards Committee will select the winners. The SEPM Great Lakes Section will award \$50 and an SEPM publication to the best student paper in the SEPM Symposium or in the fields of stratigraphy, sedimentation, and paleontology. To be eligible for any student award, the paper must be written and presented by students only. The paper may have a single author or multiple student authors. To be considered for a student award, *all papers submitted must be clearly labeled by attaching a note to the abstract form*. Student papers will be marked in the program. Thus, papers to be considered for a student award cannot be submitted after the January 5, 1990, abstract deadline.

TECHNICAL PROGRAM

Technical sessions are scheduled as oral presentations and poster papers on Thursday and Friday, April 26 and 27. The 24th Annual Meeting of the North-Central Section of the Geological Society of America will be one of the first regional GSA meetings to place a major emphasis on geoscience education. In addition to regular technical sessions, there will be a special full-day plenary session on geoscience education. Special efforts will be made to bring together people from all facets of geoscience education, including K-12, community college, college and university educators, and representatives from industry and governmental agencies.

SYMPOSIA

Symposia include invited as well as volunteered papers.

1. **Quaternary History of the Mississippi River Valley.** Howard Hobbs, Minnesota Geological Survey, 2642 University Avenue, St. Paul, MN 55114-1507, (612) 627-4797.
2. **Paleoecology and Taphonomy of Fossil Communities.** Sponsored by the North-Central Section of the Paleontological Society. William Hammer, Geology Department, Augustana College, Rock Island, IL 61201, (309) 794-7318.
3. **Cambro-Ordovician Geology of the Northern Midcontinent.** Sponsored by the Great Lakes Section of SEPM. Dennis

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North-Central Section (continued from p. 22)

Kolata and Michael L. Sargent, Illinois Geological Survey, Natural Resources Building, 615 East Peabody Dr., Champaign, IL 61820, (217) 333-4747.

4. **Geoscience Education for the 1990s.** Sponsored by the American Institute of Professional Geologists, Association of Women Geoscientists, Central Section of National Association of Geology Teachers, National Earth Science Teachers Association, and Sigma Gamma Epsilon. Larry Wiedman, Department of Geology, Monmouth College, Monmouth, IL 61462, (309) 457-2351.

THEME SESSIONS

The organizing committee encourages registrants to submit papers on the following themes. These titles will appear in the final schedule if, by abstract deadline (January 5), enough abstracts are received to constitute a minimum two-hour session. These theme titles were sent to all academic geology departments in the North-Central Section several months prior to the abstract deadline.

1. **Hydrogeology of the Midwestern United States**
2. **Geoarchaeologic Research in the North-Central United States and Adjoining Regions**
3. **Topics on Environmental Geology of the Midwest:** geo-engineering, waste management, water resource management, and water pollution
4. **Coal Resources of the Illinois Basin**
5. **Geology of the Type Mississippian**
6. **Structural Geology of the Illinois Basin**
7. **Quaternary Geology of the North-Central United States**
8. **Geology of the Precambrian Basement in the Midcontinent United States**

EQUIPMENT AND FACILITIES

Oral papers will be presented in rooms that have two carousel projectors, two screens, and a light-beam pointer. Overhead projectors will not be available. Poster sessions will be housed in an area adjacent to the exhibits and a coffee bar. Poster booths will consist of three 8' by 4' display panels; tacks and masking tape will be provided.

A Speaker Ready Room with two carousel projectors and screens will also be available. Carousel trays will not be available. Please bring your own carousel trays identified with your name and the title and number of your paper.

FIELD TRIPS

Premeeting

1. **Erosional Processes Along Lake Michigan Shoreline, Illinois.** Charles Collinson, Illinois State Geological Survey, Champaign, IL 61820, (217) 333-5108. Minimum: 18; maximum: 30. Cost: \$35. Meets at 8:00 a.m., Wednesday, April 25, 1990, parking lot, Quality Inn, Halsted and Monroe Streets, just off the Kennedy Expressway, Chicago, Illinois. Lunch provided and, if necessary, transportation from and to the airport. Field stops and spectacular vistas at Pleistocene and Holocene localities. Vans. One day.
2. **Limestone Quarry Operations, West-Central Illinois and Northeast Missouri.** Peter Calengas, Department of Geology, Western Illinois University, Macomb, IL 61455, (309) 298-1151. Minimum: 10; maximum: 12. Cost: \$32. Meets at 6:30 a.m., Wednesday, April 25, 1990, Sandburg Lounge, WIU Union. Continental breakfast and box lunch provided. Huber Corporation Limestone Quarries, Quincy, Illinois, and Dundee Cement Company Quarry, Clarksville, Missouri. Mississippian-age and Ordovician-age carbonates and limestone operations. One van. One day.

3. **Paleoenvironmental Setting of the Middle Pennsylvanian (Westphalian) Mazon Creek Fauna and Flora, Illinois.** Gordon Baird, Department of Geosciences, State University of New York, College at Fredonia, Fredonia, NY 14063, (716) 673-3303; Steve Sroka, Department of Geology, University of Illinois, Champaign IL 61820, (217) 333-3540. Minimum: 10; maximum: 15. Cost: \$100. Meets at 8:00 a.m., Tuesday, April 24, 1990. Lobby, Holiday Inn, Morris, Illinois, just off Interstate 80. Second overnight provided. Meals and Monday night on your own. Stops at classic locations including Pits 8 and 11 in the Mazon Creek fauna and flora both in northeastern and west-central Illinois. Private vehicles with one backup van. Two days, April 24 and 25. Ends in Macomb, Illinois.
4. **Freeman United Coal Company, Crown II Coal Mine, Virden, Macoupin County, Illinois.** Philip DeMaris and W. John Nelson, Illinois State Geological Survey, Champaign, IL 61820, (217) 244-2426. Minimum: 15; maximum: 30. Cost: \$48. Assemble at 6:30 a.m., Wednesday, April 25, 1990, at Sandburg Lounge, WIU Union. Continental breakfast and sack lunch provided. Strike-slip faulting, Pennsylvanian-age Anvil Rock channel sandstone, geology of Herrin coal, fossil flora, marine roof units, coal operations. One bus, leaves promptly at 7:00 a.m., west of WIU Union behind (north of) Knoblauch Hall. One day.

Postmeeting

1. **Quaternary History of the Mississippi River** (see symposium 1) Howard Hobbs, Minnesota State Geological Survey, 2642 University Ave., St. Paul, MN 55114-1507, (612) 627-4797. Minimum: 18; maximum: 40. Cost: \$120. Assemble at 7:00 a.m., Saturday, April 28, 1990, at Sandburg Lounge, WIU Union. Continental breakfast and box lunches provided both days; participants responsible for evening meal. Overnight provided at Dubuque, Iowa. Field stops and discussion of pre-Illinoian and Illinoian and Wisconsin geologic history of the Mississippi River. One bus, leaves at 8:00 a.m., behind (north of) Knoblauch Hall, immediately west of the WIU Union. Two days, April 28 and 29, 1990. Bus will return to Macomb with interim stop at Rock Island.
2. **Structural Geology of Shawnee Hills, Illinois.** W. John Nelson, Illinois State Geological Survey, Champaign, IL 61820; Stephen Marshak, Department of Geology, University of Illinois, Champaign, IL 61820, (217) 333-3540. Minimum: 20; maximum: 36. * Cost: \$110. Meets at 1:00 p.m., Saturday, April 28, 1990, at Sandburg Lounge, Western Illinois University Union, Macomb, Illinois, for those going from Macomb by van. All others (and van from Macomb) meet at 8:00 p.m., Saturday, April 28, 1990, at Gray Plaza Motel, lobby, Harrisburg, Illinois. Two lunches (Sunday and Monday) and one supper (Sunday) and two overnights at Harrisburg, Illinois, provided. Participants responsible for Saturday evening meal and breakfasts. Three vans. Three days, April 28 to April 30, 1990. One van will return to Macomb, two to Champaign; others will continue home in private cars.

If trips are underenrolled, participants will be notified no later than ten days before the start of the meeting, and all registration fees will be refunded. No refunds if participant fails to show on time for field trip other than documented serious illness or extreme family emergency. Field guidebooks will be provided, one per participant for each trip. Sponsoring agencies assume no liability whatsoever for failure of participants to show for trips, for missed connections, or for injury, losses, or damages during or resulting from participation

*A sub-maximum of 26 will be planned for this trip. An additional van may be provided if at least 30 participants enroll.

(continued on p. 25)

Preregistration Form
GSA North-Central Section, 24th Annual Meeting
April 26-27, 1990, Macomb, Illinois

IMPORTANT

- | | |
|---|---|
| <p>1. Full payment must accompany registration.</p> <p>2. Register one person per form.</p> <p>3. Your canceled check will be your receipt.
 Copy this preregistration form for your records.</p> | <p>4. Preregistration deadline for meeting and field trips is March 30, 1990.</p> <p>5. Registrants are responsible for making their own housing arrangements. See Housing Form.</p> |
|---|---|

PLEASE PRINT OR TYPE

Name _____
Last First Middle

Nickname for badge _____

Spouse/Guest name (if accompanying) _____

Professional affiliation/business _____

Address _____

City _____ State _____ ZIP _____

(Day) Phone (_____) _____

GSA Member Yes No GSA Member # _____

GSA Student Associate Yes No GSA Student Associate # _____

PREREGISTRATION (postmarked before March 30, 1990)

GSA Member	\$ 40.00	_____
Other Professional	\$ 45.00	_____
GSA Student Associate	\$ 10.00	_____
Other Student	\$ 15.00	_____
Spouse/Guest	\$ 10.00	_____

REGISTRATION

GSA Member	\$ 45.00	_____
Other Professional	\$ 50.00	_____
GSA Student Associate	\$ 15.00	_____
Other Student	\$ 20.00	_____
Spouse/Guest	\$ 15.00	_____

FIELD TRIPS

Premeeting

1. Erosional processes along Lake Michigan shoreline	\$ 35.00	_____
2. Limestone quarry operations, west-central Illinois and northeast Missouri	\$ 32.00	_____
3. Mazon Creek fauna and flora, Illinois	\$100.00	_____
4. Freeman Coal Company, Crown II Coal Mine, Virden, Macoupin County, Illinois	\$ 48.00	_____

Postmeeting

1. Quaternary history of the Mississippi River	\$120.00	_____
2. Structural geology of Shawnee Hills, Illinois	\$110.00	_____

SPECIAL EVENTS

Annual Banquet (7:15 p.m., April 26)	\$ 12.00	_____
Combined Paleontological Society-SEPM Luncheon (noon, April 26)	\$ 7.00	_____
GSA Campus Representatives Breakfast (7:00 a.m., April 27) Please check if you will attend	N/C	_____

Please check service you plan to use:

SHUTTLE SERVICE BETWEEN PEORIA AND MACOMB

- _____ Wednesday, April 25, depart Peoria 5:30 p.m.
 _____ Friday, April 27, depart Macomb 2:00 p.m.
 _____ Saturday, April 28, depart Macomb 6:30 a.m.

SHUTTLE SERVICE BETWEEN MOLINE AND MACOMB (tentative)

- _____ Wednesday, April 25, depart Moline 5:30 p.m.
 _____ Friday, April 27, depart Macomb 2:00 p.m.
 _____ Saturday, April 28, depart Macomb 6:30 a.m.

Both airports are approximately a 90-minute drive from Macomb.

Shuttle service fee	\$ 14.00	_____
Total fees		_____

_____ Check enclosed payable to Western Illinois University

_____ I wish to pay by credit card

VISA # _____

MasterCard # _____

Expiration date _____

Signature _____

Mail to: Director, Non-Credit Programs, 5 Horrabin Hall, Western Illinois University, Macomb, IL 61455.
 Telephone: (309) 298-1911

Please make a copy of this form for your records.

North-Central Section (continued from p. 23)
in the field trips. Further information on housing and transportation will be sent to field trip participants.

EXHIBITS

Commercial exhibits and exhibits from nonprofit societies, governmental surveys, geology departments, and graduate programs will be displayed in an area near the poster sessions and coffee bar. Free exhibit space will be provided to noncommercial organizations. There is a \$100 fee for commercial exhibitors. For more information: Peter Calengas, Department of Geology, Western Illinois University, Macomb, IL 61455, (309) 298-1151. Deadline for reservations for exhibit space is *March 30, 1990*.

JOB INFORMATION BOOTH

A special information booth on employment in the geosciences will offer pamphlets from companies and governmental agencies. It will be located in the exhibits-poster display area.

REFRESHMENT BAR

A refreshment bar serving coffee, soft drinks, and pastries will be located adjacent to the exhibits and poster sessions.

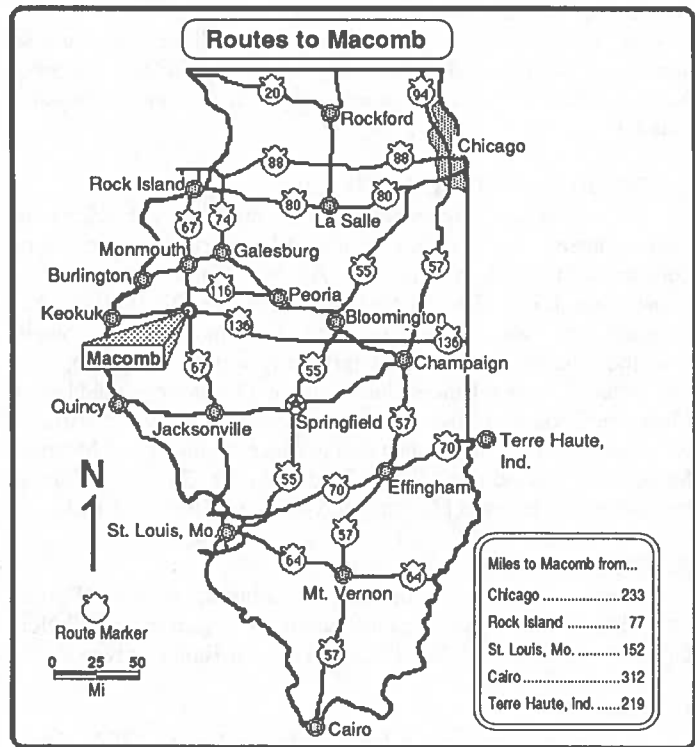
SPECIAL EVENTS

GSA North-Central Section Management Board Breakfast and business meeting will be held on Thursday, April 26, at 7:00 a.m. in the Lamoine Room of the WIU Union.

GSA Campus Representatives Complimentary Breakfast will be held at 7:00 a.m. on Friday, April 27, in the Lamoine Room of the WIU Union. Please indicate on the preregistration form if you plan to attend.

Paleontological Society-SEPM Combined Luncheon will be held in the Lamoine Room of the WIU Union at 12:00 noon on Thursday, April 26.

Other groups and organizations may also request special breakfasts, luncheons, or meeting rooms by contacting John S.



Klasner, Department of Geology, Western Illinois University, Macomb, IL 61455, (309) 298-1275 or 298-1151.

ANNUAL BANQUET

The annual banquet will be held at 7:15 p.m. on Thursday, April 26, in the Lamoine Room of the WIU Union. A short business meeting will be held in conjunction with the banquet. A cash bar will be available both before and after the banquet. Allison (Pete)
(continued on p. 26)

Housing Form

North-Central Section, Macomb, Illinois, April 26-27, 1990

MAIL TO FACILITY OF YOUR CHOICE

Deadline for reservations is **April 11, 1990**

Deadline for reservations at Holiday Inn is **March 24, 1990**

PLEASE COMPLETE ONLY ONE FORM FOR EACH ROOM REQUESTED

Arrival date _____ Time _____

Departure date _____ Time _____

Name _____

Address _____

City _____ State _____ ZIP _____

Phone (____) _____ day (____) _____ evening

Type of room requested:

____ Single ____ Double (____ 1 bed ____ 2 beds)
____ Triple ____ Quad

Name of facility _____

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

Olson Conference Center Only

_____ I wish to purchase a meal package for my entire stay at the Conference Center.

TO GUARANTEE ACCOMMODATIONS FOR A LATE ARRIVAL
Reservations held until 6:00 p.m. unless guaranteed by payment of one night's lodging. (The Olson Conference Center does require advance payment to guarantee against late arrival and does NOT accept credit card payments.)

Credit card number _____

____ VISA ____ MasterCard Expiration date _____

Name (print) _____

Signature _____

North-Central Section (continued from p. 26)

Palmer, GSA Coordinator of Education, will be the banquet speaker. His talk, "Geosciences: What Should My Neighbor Know," will focus on the general theme of the meeting, geoscience education.

GUEST AND SPOUSE ACTIVITIES

A special tour to Dickson Mounds, 1050–1250-year-old, middle Mississippian Indian burial mounds and cultural museum will be conducted at 1:00 p.m. Thursday, April 26. Please sign up on the registration form. The world-famous Haeger Art Pottery and Haeger Lamp Company are located in Macomb, just a few blocks from the WIU campus. Tours of the factory and gift shop are open to the public. Western Illinois University also has a Regional History Museum, Geologic Museum and Greenhouse, all of which are open to the public. The area is also rich in Mormon history. A Mormon Museum is located in Carthage, and a Visitor Center in Nauvoo, both within 40 miles of Macomb and easily reached by private car.

ADDITIONAL INFORMATION

For more information on program content, call John Klasner, (309) 298-1275 or 1151. For information on registration, call Non-Credit Programs, (309) 298-1911, and ask for Kathy or Kim.

HOUSING

Blocks of rooms have been reserved for the GSA North-Central Section meeting at the following facilities:

On-Campus (numbers correspond to location numbers on map)

1. Olson Conference Center, Western Illinois University, Macomb, IL 61455, (309) 298-3500.

The Olson Conference Center, a short walk from the University Union, the site of the meeting, provides economical, dormitory-style rooms with community bathrooms.

Double—\$8.59 per person (includes tax)

Single—\$14.77 (includes tax)

2. University Union Guest Rooms, Western Illinois University, Macomb, IL 61455, (309) 298-1941.

These motel-style rooms are located at the meeting site.

Single—\$29; Double—\$40; Triple—\$44; Quad—\$48.

Off-Campus

3. Holiday Inn, 1400 N. Lafayette; Macomb, IL 61455, (309) 833-5511.

Single—\$40; Double—\$45; Triple—\$45; Quad—\$45.

Meling's Motel, 1129 N. Main, Monmouth, IL 61462, (309) 734-2196 (not shown or numbered on accompanying map). Monmouth is a forty-five minute drive from Macomb.

Single—\$26; Double—\$35 (2 beds).

Additional accommodations may be available at the following facilities:

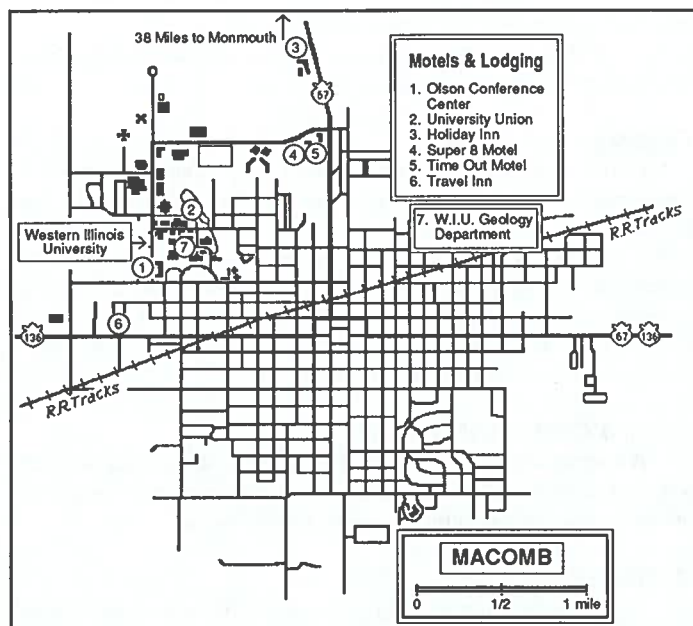
4. Super 8 Motel, University Drive, Macomb, IL 61455.

This newly constructed facility should be in operation by April or May 1990. Call information to obtain the telephone number. Single—\$29.88; Double—\$38.88 (1 bed); Triple—\$42.88; Quad—\$46.88.

5. Time-Out Motel, 311 University Drive and Highway 67 North, Macomb, IL 61455, (309) 837-4838. Single—\$29.88; Double—\$30 (1 bed); Double—\$35 (2 beds); Triple—\$38.88; Quad—\$41.88.

6. Travel Inn, 1414 W. Jackson, Macomb, IL 61455, (309) 833-4521. Single—\$30; Double—\$35 (1 bed); Double—\$40 (2 beds); Triple—\$45; Quad—\$50.

State and local taxes of 9% in Macomb and 6% in Monmouth will be added to rates.



Because none of the off-campus facilities is within easy walking distance, shuttle service will be provided between them and the meeting site, except for Meling's Motel in Monmouth.

Registrants are responsible for making their own housing arrangements; mail the attached Housing Form to the facility of your choice. If you make your reservation by telephone, please identify yourself as a North-Central GSA registrant. Reserve your accommodations by April 11, 1990. Holiday Inn reservations must be made by March 24, 1990.

MEALS

Registrants staying at the Olson Conference Center may purchase a meal package and eat all meals in the Center's cafeteria. Breakfast is \$2.46, lunch \$3.43, and dinner \$4.46. No credits are given for missed meals. If interested in the meal package, fill in the appropriate box on the Housing Form.

Any registrant may purchase individual Olson meal tickets at the registration table or at the Olson desk. Breakfast is priced at \$2.80, lunch \$3.90, and dinner \$5.60.

The Olson Cafeteria provides sufficient variety to accommodate those with special dietary requirements and offers unlimited seconds.

BE SURE TO VISIT THE
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AT EACH OF THE 1990 GSA
SECTION MEETINGS.

New titles will be on display and for sale. All products from our new clearance sale catalog available at the special show discount!

Geological Society of America



CONGRESSIONAL SCIENCE FELLOWSHIP 1990-1991

The Geological Society of America invites applications for the 1990-1991 Congressional Science Fellowship. The Fellow selected will spend a year (September 1990-August 1991) 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 \$35,000 stipend and a limited relocation and travel allowance. The fellowship is funded by GSA and by a grant from the U.S. Geological Survey. (Employees of the USGS are ineligible to apply for this fellowship.)

TO APPLY

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

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



Deadline for receipt of all application materials is March 15, 1990

Mullins Replaces Bickford as Geology Editor

Henry T. Mullins, Syracuse University, has been appointed co-editor of *Geology*, replacing M. E. Bickford, who resigned when he was named chairman of the Department of Geology at Syracuse.

Mullins, currently Associate Professor of Geology, received a B.S. in geology at the State University of New York at Oneonta, his M.S. in geology at Duke University, and his Ph.D. in geological oceanography at the University of North Carolina, Chapel Hill. He has been chief or co-chief scientist on 16 scientific cruises since 1976. He has been on the editorial boards of *Geology*, *Geo-Marine Letters*, the SEPM Slide Set Committee, and *Journal of Sedimentary Petrology* special issues. He is co-chair of the 1990 GSA North-eastern Section meeting.

Mullins will work with co-editor Raymond Arvidson, Washington University, St. Louis.

Prospective authors of papers for *Geology* should note that all



**New Geology Editor
Hank Mullins**

manuscripts are to be addressed to *Geology*, Geological Society of America, 3300 Penrose Place, P.O. Box 9140, Boulder, CO 80301, not to Editors Arvidson or Mullins.



GSA Goes Kiwi



New Zealand: 1991

2½ to 3 Week Geological Vacation Trip emphasis on South Island

*Exact dates to be announced;
will be between mid-February and mid-March*

Geological leadership and other trip information to be announced
February 1, 1990

Check the February issue of *GSA News & Information*
Approximate cost: \$2000-\$2400 plus airfare

Guests welcome

GSA members will receive a special discount

Call Sue Beggs, GSA Meetings Manager, (303) 447-2020

— Clip and return to —

GSA Meetings Dept.
P.O. Box 9140, Boulder, CO 80301

GSA NEW ZEALAND 1991

____ YES, I'm interested. Send more information.

Name _____

Address _____

Address _____

City _____

State _____

ZIP code _____

(_____)

Business phone

(_____)

Home phone

FUTURE GSA SECTION MEETINGS

1990			
South-Central	....	March 5-6	.... Stillwater, Oklahoma Oklahoma State University
Northeastern	.....	March 5-7	.... Syracuse, New York Sheraton, University Conference Center
Cordilleran	.....	March 14-16	... Tucson, Arizona University of Arizona
Southeastern	.....	April 5-6	..... Tuscaloosa, Alabama University of Alabama
North-Central	....	April 26-27	.... Macomb, Illinois Western Illinois University
Rocky Mountain	..	May 21-23	.... Jackson, Wyoming Snow King Resort

1991			
Northeastern/Southeastern	.....		Baltimore, Maryland
South-Central/Rocky Mountain	....		Santa Fe, New Mexico
North-Central	.....		Toledo, Ohio
Cordilleran	.....		San Francisco, California

1992			
North-Central	.....		Iowa City, Iowa
South-Central	.....		Houston, Texas
Southeastern	.....		Winston-Salem, North Carolina
Northeastern	.....		Bethlehem, Pennsylvania
Cordilleran	.....		Eugene, Oregon
Rocky Mountain	.....		Ogden, Utah

GSA in Education

by Allison R. (Pete) Palmer

GSA's education program is gaining momentum. At the 1989 Annual Meeting, in St. Louis, there were about 40 attendees for the Education Committee meeting, including all of the GSA Section Chairs and several of their committee members. Some valuable suggestions were received regarding implementation of our Partners for Excellence project, and these will be incorporated in the development of this program, which we hope to get under way by spring.

Meanwhile, the teachers who will receive GSA's 1989 award for Excellence in Earth Science Teaching were announced at St. Louis. These are teachers of earth science who have been either winners of Presidential Awards for Excellence in Science and Mathematics

Teaching at the state level,* or winners of NAGT sectional awards as Outstanding Earth Science Teachers. The combined group includes 18 individuals from 16 states (Virginia has two) and Puerto Rico. Six of the 18 awardees are women. In addition to a certificate, awardees will be given the opportunity to attend a GSA Section meeting or Annual Meeting of their choice for each of the next three years (1990-1992) and, for each meeting that they attend, a \$300 stipend to help defray whatever costs are incurred for attendance.

The awardees are listed below. If one lives in your area, look her or him up. It might be fun to partner with the best! If you helped prepare one or more of these, take a bow!

*An additional factor in our selection is that at least 50% of the teaching load of the individual must be in earth science teaching.

Awards for Excellence in Earth Science Teaching

California

Jeff Tolhurst, San Benito High School, Hollister

Delaware

Ellis E. Underkoffler, Talley Junior High School, Wilmington

Idaho

Dean H. Jones, Fairmont Junior High School, Boise

Indiana

Kathleen Kaye Gulley, Pike High School, Indianapolis

Iowa

John Verdon, Waverly-Shell Rock Community Schools, Waverly

Maryland

William R. Krayner, Gaithersburg High School, Gaithersburg

Minnesota

Marv Mikesh, John Adams Junior High School, Rochester

Nebraska

Edwin T. Schafer, Sr., Ralston Middle School, Ralston

New Hampshire

Daniel J. Bisaccio, Thayer High School, Winchester

New Mexico

Deborah Thrall, Sandia Preparatory School, Albuquerque

New York

Lois E. Gundrum, Ichabod Crane High School, Valatie

North Carolina

David M. Barlow, Mooresville Junior High School, Mooresville

Pennsylvania

Helen Elizabeth Martin, Unionville High School, Unionville

Puerto Rico

Edwin Oscar Cresop Ramos, Alfonso Casta Martinez Junior High School, Maunabo

Texas

Michael Wayne Hoke, West Orange Middle School, Orange

Virginia

Jo Ann Peaco Pulvany, Mills E. Godwin High School, Richmond;

James D. Sproull, McLean High School, McLean

Wisconsin

Gerald Lawson, Hudson Junior High School, Hudson

On another aspect of partnering, the National Earth Science Teachers Association (NESTA) is seeking volunteers for its Earth Science Alliance Program. They would like you to indicate your interest in providing field trips, lectures, or discussions on the latest advances in geology to teachers of earth science who want to enhance their geological backgrounds. If you are interested, write to:

Earth Science Alliance
Department of Geological Sciences
Michigan State University
East Lansing, MI 48824-1115

They will see that notification of your interest reaches the nearest NESTA state contact person.

Old Gift Certificates Never Die

Anyone who keeps a \$150 gift certificate for five years surely is an optimist! Albert G. Roussin, of Brookfield, Illinois, earned that reputation and gave the GSA staff a chuckle when he dropped in at headquarters recently to redeem his gift certificate, awarded in 1984, only a year after Albert joined GSA.

If anyone else out there has an unredeemed GSA gift certificate, this is a good time to cash it in. The extra-low clearance prices shown in our new catalog (mailed in early October) will only last as long as supplies last! If you didn't get a copy of the new catalog, please contact the GSA Marketing Department, P.O. Box 9140, Boulder, CO 80301, or 1-800-472-1988.



GSA Executive Director F. Michael Wahl (left) and Albert Roussin, who finally got around to redeeming his 5-year-old gift certificate to buy some GSA books.

If you haven't ordered ...

Abstracts with Programs for 1990 Section Meetings and the Annual Meeting are available for purchase and will be mailed prior to each meeting.

Information on individual Section meetings and the Annual Meeting is available in issues of *GSA News & Information*.

Use the form below or call GSA Publication Sales with your order. Prepayment is required on all purchases. Major credit cards are accepted.

ORDER FORM

Abstracts with Programs, Volume 22, 1990

Publication Sales, P.O. Box 9140, Boulder, CO 80301
(303) 447-2020, 1-800-472-1988, fax 303-447-1133

Qty	Issue/Description	Price	Total
	1. Northeastern	9.00	
	2. South-Central	9.00	
	3. Cordilleran	9.00	
	4. Southeastern	9.00	
	5. North-Central	9.00	
	6. Rocky Mountain	9.00	
	7. Annual Meeting	20.00	

	Subtotal	
	Less GSA Member Disc. (20%)	
	Net Price	
	Colo. Res. add tax	
	TOTAL	

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TERMS: Check, money order (in U.S. funds), or major credit cards accepted for payment. Credit Card users please provide all information. Colorado residents add appropriate sales tax. GSA pays surface postage on all prepaid and credit card orders.

GSA Congressional Science Fellow Announces Placement

Daniel R. Sarewitz, 1989-1990 GSA Congressional Science Fellow, has accepted a placement in the personal office of Congressman George Brown of California. Brown is a member of the Committee on Science, Space and Technology.

Sarewitz is working on a bill that allocates funds to the National Science Foundation for competitive grants in support of undergraduate science teaching. (This bill was originally written by 1988-1989 Fellow Elizabeth Robinson.) He will also pursue legislative initiatives in the area of international scientific cooperation, especially with Third World countries.

Sarewitz's placement location is
Office of Congressman George E. Brown, Jr.
36th District of California
2188 Rayburn House Office Building
Washington, D.C. 20515
(202) 225-6161.

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Rocky Mountain 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 1990. 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.

- Currently enrolled in graduate program (M.S. or Ph.D.) at a private or state college or university.
- 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.)
- 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, (307) 766-2286. Completed applications should be sent to this same address.

Deadline for applications: **February 1, 1990.**

AGI and NSTA Solicit Questions for Earth Science Exam

The first edition of the AGI/NSTA Earth Science Examination, published in 1988, was developed by a joint task force of the American Geological Institute (AGI) and the National Science Teachers Association (NSTA), with the cooperation of the National Association of Geology Teachers and the National Earth Science Teachers Association. More than 400 professionals contributed to its development. This multiple-choice high school level examination provides teachers with a tool for evaluating student achievement and program design in the earth sciences. It targets several areas: problem solving; interaction of earth science, technology, and society; nature of science; and earth science concepts. Forty-five percent of the questions have been designed to utilize maps, diagrams, data tables, graphs, and reference tables.

Plans are now underway to develop the second edition, scheduled for release during the 1991-1992 academic year. AGI and NSTA need the assistance of the earth science education community to provide feedback concerning the first edition of the exam and to submit new items for inclusion in the second edition. Interested persons should write to: AGI/NSTA Earth Science Examination, National Center for Earth Science Education, American Geological Institute, 4220 King Street, Alexandria, VA 22302. Those wishing to submit questions will be sent Suggestions for Submitting Questions, Examination Outline, and Form for Submitting Questions. The deadline for receiving questions is *February 15, 1990.*

Selection Committee

A committee made up of at least two ad hoc members of the Symposium on the Geology of Rocky Mountain Coal and two GSA Coal Geology Division members will screen applications, select the most appropriate proposal before May 1, and announce the winner(s).

AWG Foundation Offers Chrysalis Scholarships

The Association for Women Geoscientists Foundation will be awarding two \$300 scholarships on March 1, 1990. The Chrysalis Scholarship will be given to two women geoscience Masters or Ph.D. candidates to cover expenses needed to complete a thesis. Candidates must have returned to school after an interruption in their education of one year or longer. The support can be used for typing, drafting, child-care expenses, or anything else necessary to allow a degree candidate to finish her thesis and enter a geoscience profession.

The applicant should write a letter stating her career goals and objectives, describing how she will use the money, and explaining the length and nature of the interruption to her education. Her thesis advisor must submit a letter stating when the candidate will finish her degree and what requirements are as yet unfinished. This letter should also include reference to the applicant's prospects for future contributions to the geosciences. Two additional letters of recommendation are required.

Applications should be made by **January 31, 1990**, and sent to the Foundation. For more information or applications, write to Chrysalis Scholarship, Association for Women Geoscientists Foundation, c/o Resource Center for Association, 10200 West 44th Ave., #304, Wheat Ridge, CO 80033.

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MEETINGS

(Asterisk indicates new or changed information)

1990

ACM/SIAM Symposium on Discrete Algorithms, January 22-24, 1990, San Francisco, California. Information: SIAM Conference Coordinator, 3600 University City Science Center, Philadelphia, PA 19104-2688; (215) 382-9800; fax 215-386-7999.

2nd International Brachiopod Congress, February 5-9, 1990, Dunedin, New Zealand. Information: J. D. Campbell and D. E. Lee, 2nd International Brachiopod Congress, Geology Dept., University of Otago, P.O. Box 56, Dunedin, New Zealand; phone 64-024-791-100, ext. 7526; fax 64-024-741-607.

Source Rocks, Generation, and Migration of Hydrocarbons and Other Fluids in the Southern Midcontinent—Symposium/Workshop, February 6-7, 1990, Norman, Oklahoma. Information: Kenneth S. Johnson, Oklahoma Geological Survey, 100 E. Boyd, Room N-131, Norman, OK 73019; (405) 325-3031.

Workshop on Tertiary Stratigraphy of Highly Extended Terranes, Southern Basin and Range Province, February 9-12, 1990, Zyzzyx Springs, California. Information: Rick Hazlett, Dept. of Geology, Pomona College, 609 N. College Ave., Claremont, CA 91711-6339; (714) 621-8000, ext. 2952.

First PNG Petroleum Convention, February 12-14, 1990, Port Moresby, Papua New Guinea. Information: Mick McWalter, First PNG Petroleum Convention, c/o PNG Chamber of Mines and Petroleum, P.O. Box 7059, Boroko, Port Moresby, Papua New Guinea; phone 675-25-2836; fax 675-21-7107; telex NE 23482.

American Association for the Advancement of Science Annual Meeting, February 15-20, 1990, New Orleans, Louisiana. Information: AAAS Meetings Office, 1333 H St., N.W., Washington, DC 20005; (202) 326-6448.

National Water Well Association/Association of Ground Water Scientists and Engineers Cluster of Conferences, "Agricultural Impacts on Ground Water Quality," "Ground Water Geochemistry," "Ground Water Management and Wellhead Protection," and "Environmental Site Assessments: Case Studies and Strategies," February 20-22, 1990, Kansas City, Missouri. Information: NWWA/AGWSE, P.O. Box 182039, Dept. #017, Columbus, OH 43218; (614) 761-1711.

Workshop on a Deep Borehole in the Taconics, February 22-23, 1990, Troy, New York. Information: G. Friedman, Northeast Science Foundation, Inc., Box 746, Troy, NY 12181-0746, (518) 273-3247; or C. Skokan, Dept. of Geophysics, Colorado School of Mines, Golden, CO 80401, (303) 273-3474.

Society of Mining Engineers Annual Meeting, February 26-March 1, 1990, Salt Lake City, Utah. Information: Meetings Department, Society of Mining Engineers, P.O. Box 625002, Littleton, CO 80162; (303) 973-9550; fax 303-973-3845; telex 881988.

GSA South-Central Section, March 5-6, 1990, Stillwater, Oklahoma. Information: Scott M. Ritter, School of Geology, Oklahoma State University, 105 Noble Research Center, Stillwater, OK 74078-0451; (405) 744-6358.

GSA Northeastern Section, March 5-7, 1990, Syracuse, New York. Information: Henry T. Mullins or Donald I. Siegel, Dept. of Geology, Heroy Geology Lab., Syracuse University, Syracuse, NY 13244; (315) 443-4706 or 2672.

SIAM Conference on Applied Probability in Science and Engineering, March 5-7, 1990, New Orleans, Louisiana. Information: SIAM Conference Coordinator, 3600 University City Science Center, Philadelphia, PA 19104-2688; (215) 382-9800; fax 215-386-7999.

***Subsurface Science Program Annual Meeting**, March 5-7, 1990, Germantown, Maryland. Information: Judith Wright, P.O. Box 999, MS K6-84, Richland, WA 99352; (509) 376-7915, fax 509-376-7915.

AAPG Southwest Section Convention, March 11-13, 1990, Wichita Falls, Texas. Information: Will Tucker, Technical Program Co-Chairman, 825 MBank Building, Wichita Falls, TX 76301.

Prospectors and Developers Association of Canada 58th Annual Convention, March 11-14, 1990, Toronto, Ontario. Information: Cary McLeod, Prospectors and Developers Association of Canada, Suite 1002, 74 Victoria St., Toronto, Ontario M5C 2A5, Canada; (416) 362-1969; fax 416-362-0101.

Symposium on the Application of Geophysics to Engineering and Environmental Problems, March 12-15, 1990, Golden, Colorado. Information: SAGEEP '90, 133 S. Van Gordon, Suite 200, Lakewood, CO 80228; (303) 980-1648.

American Institute of Hydrology: Minimizing Risk to the Hydrologic Environment, March 12-16, 1990, Las Vegas, Nevada. Information: AIH, 3416 University Ave. S.E., Minneapolis, MN 55414; (612) 379-1030.

(continued on p. 33)

PEARCE ELEMENT RATIOS: THEORY AND APPLICATION TO GEOCHEMICAL DATA ANALYSIS

Organized by:

J.K. Russell, Univ. of British Columbia
C.R. Stanley, Queen's University

Contributions:

R. Ernst, Ottawa University
J. Nicholls, Univ of Calgary
R. Nielsen, Oregon State Univ.
T. Pearce, Queen's University

SHORT COURSE FOR GEOLOGICAL ASSOCIATION OF CANADA, VANCOUVER MEETING 1990

MAY 14 to 15, 1990

Information:

GAC-MAC-AGC-AMC
Secretariat
801-750 Jervis Street
Vancouver, B.C. V6E 2A9
Tel: (604)681-5226
Fax: (604)681-2503

MEETINGS (continued from p. 32)

21st Annual Lunar and Planetary Science Conference, March 12-16, 1990, Houston, Texas. Information: Pamela Jones, Lunar and Planetary Institute, 3303 NASA Road 1, Houston, TX 77058; (713) 486-2150. (Abstracts deadline: January 17, 1990.)

GSA Cordilleran Section, March 14-16, 1990, Tucson, Arizona. Information: William R. Dickinson, Dept. of Geosciences, University of Arizona, Tucson, AZ 85721; (602) 621-4051.

9th Industrial Minerals International Congress, March 24-28, 1990, Sydney, Australia. Information: Diana Little, Industrial Minerals, Park House, Park Terrace, Worcester Park, Surrey KT4 7HY, England; phone (01) 330-4311; fax 01-337-8943.

Symposium on Geology and Ore Deposits of the Great Basin, April 1-5, 1990, Reno, Nevada. Information: Geological Society of Nevada, P.O. Box 12021, Reno, Nevada 89510.

Engineering Geology and Geotechnical Engineering 26th Symposium, April 4-6, 1990, Pocatello, Idaho. Information: Lee Robinson, Engineering Geology Symposium, Box 8371, Idaho State University, Pocatello, ID 83209; (208) 236-3273.

Ninth Symposium on Coastal Sedimentology, April 5-6, 1990, Tuscaloosa, Alabama. Information: Richard Hummell, Energy and Coastal Geology Division, P.O. Box 0, Tuscaloosa, AL 35486.

GSA Southeastern Section, April 5-6, Tuscaloosa, Alabama. Information: William A. Thomas or C. Michael Leshner, SE-GSA, Dept. of Geology, University of Alabama, Tuscaloosa, AL 35487.

International Conference on High-Level Radioactive Waste Management, April 8-12, 1990, Las Vegas, Nevada. Information: American Society of Civil Engineers, 345 East 47th St., New York, NY 10017; (212) 705-7543; fax 212-421-1826; telex 422847 ASCE UI.

8th Petroleum Congress of Turkey, April 16-20, 1990, Ankara, Turkey. Information: Aytac Eren, Mudafaa Cad. 22, 06420 Bakanliklar, Ankara, Turkey; phone 90-4-117-91-60/288-285; telex 42-426 TPAO-TR.

International Conference on Mechanics of Jointed and Faulted Rock, April 18-20, 1990, Vienna University of Technology, Vienna, Austria. Information: H. P. Rossmann, Wiedner, Jaupstrasse 8-10/325, A-1040 Wien, Austria; phone 0222-588-01.

Orogenesis in Action: Tectonics and Processes in the West Equatorial Pacific Margin, April 18-20, 1990, London, England. Information: Robert Hall, Department of Geological Sciences, University College, Gower St., London, WC1E 6BT, England.

Conference on Subsurface Contamination by Immiscible Fluids, April 18-20, 1990, Calgary, Alberta. Information: K. Udo Weyer, Weyer Corp., Inc., 4827 Vienna Dr. N.W., Calgary, Alberta T3A 0W7, Canada; (403) 286-3777; fax 403-247-6074.

European Geophysical Society XV General Assembly, April 23-27, 1990, Copenhagen, Denmark. Information: EGS Office, Postfach 49, D-3411 Katlenburg-Lindau, Federal Republic of Germany; phone 49-5556-1140; fax 49-5556-4709; telex 965564 zil d. (Abstracts deadline: January 31, 1990.)

GSA North-Central Section, April 26-27, 1990, Macomb, Illinois. Information: John Klasner, Dept. of Geology, Western Illinois University, Macomb, IL 61455. (Abstracts deadline: January 5, 1990.)

V. M. Goldschmidt Conference (international conference for the advancement of geochemistry), May 2-4, 1990, Baltimore, Maryland. Information: Donna Ricketts, 409 Keller Conference Center, Pennsylvania State University, University Park, PA 16802.

***Pacific Rim Congress**, May 6-12, 1990, Gold Coast, Queensland,

Australia. Information: AusIMM PACRIM 90, P.O. Box 731, Toowoong, Queensland 4066, Australia; 61-7-371-7900.

SIAM Conference on Applications of Dynamical Systems, May 7-10, 1990, Orlando, Florida. Information: SIAM Conference Coordinator, 3600 University City Science Center, Philadelphia, PA 19104-2688; (215) 382-9800; fax 215-386-7999.

West Texas Geological Society and Permian Basin Section of SEPM Field Seminar to the Marathon Area, Brewster County, Texas, May 10-12, 1990. Information: WTGS/PBS-SEPM, P.O. Box 1595, Midland, TX 79702; (915) 683-1573.

13th Annual Spring Systematics Symposium: Evolutionary Ethics, May 12, 1990, Chicago, Illinois. Information: Symposium Coordinator, Dept. of Geology, Field Museum of Natural History, Roosevelt Rd. at Lakeshore Dr., Chicago, IL 60605-2496; (312) 922-9410, ext. 298.

Andean Geodynamics Symposium, May 15-17, 1990, Grenoble, France. Information: R. A. Oliver, Inst. Laue-Langevin, 156X, Centre de Tri, 38042 Grenoble Cedex, France.

Geological Association of Canada-Mineralogical Association of Canada Joint Annual Meeting, May 16-18, 1990, Vancouver, British Columbia. Information: R. I. Thompson, c/o GAC-MAC '90 Secretariat, 801-750 Jervis St., Vancouver, B.C. V6E 2A9, Canada; (604) 681-5226; fax 604-681-2503; telex 04-352848 VCR.

GSA Rocky Mountain Section, May 21-23, 1990, Jackson, Wyoming. Information: Ronald W. Marrs, Dept. of Geology & Geophysics, University of Wyoming, Laramie, WY 82071; (307) 766-3386. (Abstracts deadline: January 31, 1990.)

Geological Association of Canada Nuna-SEG Field Research Conference on Greenstone Gold and Crustal Evolution, May 24-27, 1990, Val d'Or, Quebec. Information: Francois Robert, Geological Survey of Canada, 601 Booth St., Ottawa, Ontario K1A 0E8, Canada; fax 613-996-9990.

***Symposium on Naturally Occurring Radionuclides in Agricultural Products**, May 29-June 1, 1990, Orlando, Florida. Information: IFAS Office of Conferences, University of Florida, 551 IFAS, Gainesville, FL 32611; (904) 392-5930.

***American Association of Petroleum Geologists Annual Convention**, June 3-6, 1990, San Francisco, California. Information: Jim Baroffio, Chevron Canada Resources Ltd., 500 5th Ave., SW, Calgary, Alberta T2P 0L7, Canada.

1st Joint Meeting of the Canadian Quaternary Association and American Quaternary Association, June 4-6, 1990, Waterloo, Ontario, Canada. Information: Alan V. Morgan, Quaternary Sciences Institute, Dept. of Earth Sciences, University of Waterloo, Waterloo, Ontario N2L 3G1, Canada.

***5th Symposium on the Geology of the Bahamas**, June 15-19, 1990. Information: R. J. Bain, Dept. of Geology, University of Akron, Akron, OH 44325-4101; (216) 375-7659.

USA/USSR Joint Conference on Global Environmental Hydrology and Hydrogeology, June 18-21, 1990, Leningrad, USSR. Information: Helen Klose, American Institute of Hydrology, 3416 University Ave., S.E., Minneapolis, MN 55414; (612) 379-1030.

4th International Conference on Geoscience Information (GeoInfo IV), June 24-29, 1990, Ottawa, Ontario. Information: David Reade, Conference Secretary-Treasurer, GEOSCAN Centre, Geological Survey of Canada, 601 Booth St., Ottawa, Ontario K1A 0E8, Canada; (613) 992-9550; fax 613-996-9990; telex 0533117 EMAR-OTT.

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9th International Conference on Basement Tectonics, July 2-6, 1990, Canberra, Australia. Information: IBT9 ACTS, GPO Box 2200, Canberra, A.C.T. 2601, Australia; phone 062-49-8015; fax 062-573256.

1990 Watershed Management Symposium, July 9-11, 1990, Durango, Colorado. Information: Robert Riggins, USACERL, P.O. Box 4005, Champaign, IL 61824-4005.

International Association on the Genesis of Ore Deposits 8th Symposium, August 12-18, 1990, Ottawa, Ontario. Information: L. M. Cumming, 8th IAGOD Symposium, Geological Survey of Canada, 601 Booth St., Ottawa, Ontario K1A 0E8, Canada. (Abstracts deadline: January 1, 1990.)

***International Sedimentological Congress**, August 26-31, 1990, Nottingham, England. Information: C. P. Summerhayes, Institute of Oceanographic Sciences Deacon Lab., Brook Rd., Wormley, Godalming, Surrey GU8 5UB, England.

International Conference on Water Resources in Mountainous Regions, August 27-September 1, 1990, Lausanne, Switzerland. Information: Aurèle Parriaux, Laboratory of Geology EPFL, 1015 Lausanne, Switzerland; phone 021-47-23-55; telex 454478 EPFV CH.

AEG General Meeting and 14th International Geochemical Exploration Symposium, August 29-31, 1990, Prague, Czechoslovakia. Information: Frantisek Mrna, Geological Survey of Prague, 118 21 Praha 1, Malostranske nam. 19, Czechoslovakia.

***Conference on Evolution of Upwelling Systems since the Early Miocene**, September 3-4, 1990, London, England. Information: C. P. Summerhayes, IOS Deacon Lab., Wormley, Godalming, Surrey GU8 5UB, England; 042-879-4141; fax 042-879-3066. (Abstracts deadline: February 1, 1990.)

Geological Association of Canada Nuna Research Conference, Late Proterozoic Rifting, Glaciation and Eustasy, as Illustrated by the Windermere Supergroup, September 8-14, 1990, Windermere and Valemount, British Columbia. Information: J. D. Aitken, Geological Survey of Canada, 3303 33rd St. NW, Calgary, Alberta T2L 2A7, Canada.

GOLDTech 4, September 10-12, 1990, Reno, Nevada. Information: Meetings Department, Society for Mining, Metallurgy, and Exploration, P.O. Box 625002, Littleton, CO 80162-5002; (303) 973-9550; fax 303-973-3845; telex 881988.

***AAPG-SEPM-EMD Rocky Mountain Section Meeting**, September 16-19, 1990, Denver, Colorado. Information: Matt Silverman, Gustavson Associates, Inc., 5757 Central Ave., Suite D, Boulder, CO 80301. (Abstracts deadline: February 1, 1990.)

3rd International Archaean Symposium, September 17-21, 1990, Perth, Western Australia. Information: Susan E. Ho, P.O. Box 435, Nedlands, Western Australia 6009, Australia.

7th International Conference on Geochronology, Cosmochronology and Isotope Geology, September 24-29, 1990, Canberra, Australia. Information: Organizing Committee, ICOG 7, Research School of Earth Sciences, Australian National University, G.P.O. Box 4, Canberra, A.C.T. 2601, Australia; phone 062-49-3406; fax 062-47-4639; telex 626993.

***European Geological Societies**, September 29-October 7, 1990, Lisbon, Portugal. Information: MEGS 6, Sociedade Geológica de Portugal, Apto. 2361, P1109 Lisboa Codex, Portugal. (Abstracts deadline: March 31, 1990.)

International Earth Sciences Congress on Aegean Regions, October 1-7, 1990, Izmir, Turkey. Information: IESCA-1990, D.E. University Dept. of Geology, P.K.74 (E.U.-PTT) Bornova, Izmir, Turkey; phone 51-182919 or 180680 or 181088; telex 52407 dbte tr; fax 51-220978.

***Clay Minerals Society 27th Annual Meeting**, October 6-11, 1990, Columbia, Missouri. Information: W. D. Johns, Dept. of Geology, University of Missouri, Columbia, MO 65211; (314) 882-3785.

5th Australasian Remote Sensing Conference, October 8-12, 1990, Perth, Western Australia. Information: Golden West Conventions, P.O. Box 411, West Perth, W.A. 6005, Australia; phone 619-3227922; telex AA 95380; fax 619-4814029.

***American Institute of Professional Geologists Annual Meeting**, October 9-12, 1990, Long Beach, California. Information: Stephen M. Testa, 6695 E. Pacific Coast Highway, Long Beach, CA 90803; (213) 430-6500.

Geodynamics of the Arabian Plate, October 20-25, 1990, Kuwait. Information: Waris E.K. Warsi, Dept. of Geology, University of Kuwait, P.O. Box 5969, Safat 13060, Kuwait; or Muawia Barazangi, INSTOC, Snee Hall, Cornell University, Ithaca, NY 14853-1504. (Abstracts deadline: April 1, 1990.)

Penrose Conferences 1990

Correlation of Nonmarine Cretaceous Strata, May 9-14, 1990, Breckenridge, Colorado. Information: Niall J. Mateer, Nonmarine Cretaceous Correlations, 1467 N. 17th, Laramie, WY 82070; (307) 721-4946; or Norman O. Frederiksen, USGS, 970 National Center, Reston, VA 22092; (703) 648-5277.

Large Lakes and Their Stratigraphic Record, September 9-13, 1990, Lake Tahoe, California. Information: Andrew S. Cohen, Dept. of Geosciences, University of Arizona, Tucson, AZ 85721; (602) 621-4691 (direct), (602) 621-6024 (dept.).

***Transpressional Tectonics of Convergent Plate Margins**, fall 1990, San Juan Islands, Washington. Information: Vicki L. Hansen, Dept. of Geological Sciences, Southern Methodist University, Dallas, TX 75275-0395; (214) 692-4179.

New Methods for Dating of Geomorphic Surfaces, October 12-17, 1990, Mammoth Lakes, California. Information: Fred M. Phillips, Dept. of Geoscience, New Mexico Tech, Socorro, NM 87801; (505) 835-5540 (direct), (505) 835-5634 (dept.).

1991

***SEPM Midyear Meeting—Continental Margins, Tectonics, Eustasy and Climate Change**, August 15-18, 1991, Portland, Oregon. Information: Susan Green, SEPM, P.O. Box 4756, Tulsa, OK 74159-0756; (918) 743-9765.

Send notices of meetings of general interest, in format above, to Editor, *GSA News & Information*, P.O. Box 9140, Boulder, CO 80301.

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This position is available Fall 1990. Deadline for application is February 15th. Send a resume, official transcripts of all college work and three letters of recommendation to: Dr. Florentin Maurrasse, Chairman, Department of Geology, Florida International University, Miami, Florida 33199. Florida International University is an equal opportunity/affirmative action employer.

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Applications should include a resume, a statement of research and teaching interests, citations of recent publications, and the names and ad-

resses of four persons from whom the department may request letters of recommendation. Applications will be accepted until February 15, 1990, or until the position is filled. Send applications to: Dr. R. Craig Kochel, Chair, Search Committee, Department of Geology, Southern Illinois University at Carbondale, Carbondale, IL 62901-4324. Southern Illinois University is an equal-opportunity/affirmative-action employer.

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