What Should My Neighbor Know?
by Allison R. (Pete) Palmer

What should my neighbor know about the geological sciences—or more broadly, about the earth sciences—or more broadly still, about science in general?

Probably all of you have read something about the current crisis in science education. Survey after survey seems to show that the public hasn’t learned much about science, despite Sputnik. A major initiative to address the crisis is being developed by the American Association for the Advancement of Science (AAAS). It is called Project 2061, and subtitled Science for All Americans. Its essential theme is that less is better. If you don’t know about it, you should. Well-written and stimulating summary reports of the first phase of this project—to assess what the professionals in all areas of science and technology suggest should be the scientific property of all educated citizens—have already been published and are available from the AAAS.

The essence of the present problem with science education has been eloquently stated by K. C. Cole in an outstanding special section on education in the January 7th edition of The New York Times. Cole wrote, “What’s happening from grade school to grad school is the suffocation of curiosity under an avalanche of fact.” This goes on not only at the precollege level, but in a number of our introductory nonmajor courses as well. Cole went on to point out that by eighth grade as many as 2/3 of the students have decided that they don’t like science; that more new terms are introduced in a typical high school biology text (we could substitute earth science) than in the first two years of a foreign language; and that teachers feel forced to cover everything because the students (and parents) say, “They have to know it for the Regents or the SAT,” and we repeat a lot of the stuff in our introductory college courses. No wonder a lot of the populace is turned off by science. Hardly anybody has told them what part of the avalanche is worth remembering!

Science is the intelligent pursuit of curiosity about the natural world. To quote once more from Cole, “Students who are made to memorize and reproduce facts are practicing an activity that has little in common with meaningful use of scientific knowledge.” The AAAS is saying that we should stand back and take a hard look at what we’re doing. Maybe less is better. What does every high school graduate really need to know about science? At GSA we have translated this into “What should my neighbor know?” Ask yourself this question as you prepare for any class that deals with the future public. Are you focusing on what your neighbor should know, or are you teaching the vocabulary of a science major and hoping those who learn it well will follow careers in science?

So much for the preamble. I’m an optimist. I’m an optimist to believe that it is possible to provide effective and useful science education for all Americans. I’m also an optimist to believe we can make a serious dent in the problem of reform of science education in this decade. That’s why GSA is developing a major effort in public education at all levels, to be called the SAGE Program. SAGE is an acronym for Science Awareness through Geoscience Education.

This problem of reform is much like the weather. Everybody talks about it, but ... it’s easy to talk, and it’s hard to act. At this point in time talking is still important; we’re still spreading the word that there is a problem! The level of concern about science education (as well as other areas of education) is fast approaching a critical mass. This leads me to the second phrase from this talk (in addition to the title) that I want you to export to your friends and community, “If you think education is expensive, try ignorance.” Let me give some examples from our own backyard:

- Ignorance of processes that control the landscape leads people to build summer mansions on barrier beaches or on steep California mountain slopes, and then want a government bailout when the once-a-generation hurricane or landslide carries their house away.
- Ignorance of the limits of resources permits builders to expand cities across the arid West and Southwest with no concern about where the water will come from for lawns and swimming pools, not to mention dishwashers and toilets; or it permits farmers to deplete ground-water reserves for irrigation at rates that far exceed the rate of recharge.
- Ignorance of the fragility of the environment permits us, as “free Americans,” to drive anywhere, hike anywhere, or build anywhere that we wish.
- Ignorance of the clear evidence for the vastness of geologic time in relation to human history permits vocal minorities to waste the time of the judicial system, and of school boards, and to diminish the quality of school texts, by resisting the teaching that we live in a universe of change—which includes the biosphere.

Your Neighbors continued on p. 278

Editor’s note: Pete Palmer adapted this article from two talks he gave at the GSA North-Central Section 1990 meeting. He will retire from GSA as Coordinator of Education Programs and Centennial Science Program Coordinator at the end of this year.
We live in a universe of change, infinite in its time and space dimensions. This is a fundamental understanding derived from the earth sciences that is not clearly understood even among large segments of the "educated" populace. We also live on a planet with finite, heterogeneously distributed resources; we face a variety of natural hazards that limit our use of the land; and we can only function within a tenuous band of atmosphere and hydrosphere that needs to stay within rather narrow limits of temperature and chemistry for us to survive. We spend our lives on a landscape that has a history. An appreciation of that history and how we learn about it can be an enriching experience and can also affect how we treat it.

Transmitting these basic earth science ideas, and the consequences that accompany this knowledge, are the responsibility of science educators. An example of our lack of success is the asbestos problem. We are spending billions of dollars on what is mostly a nonproblem, because all asbestos fibers have been lumped in one basket. Until recently, it seems, policy makers had not thought of asking for input from mineralogists. The mineral chrysotile is the dominant asbestos fiber used worldwide. It is not the "bad" asbestos. Among miners and among the workers in friction materials plants, whose exposure to chrysotile asbestos is many times greater than it is for individuals in an insulated public building, the lifetime risk for workers employed in these industries, breathing air with fiber content at about twice the proposed OSHA standard, is a small fraction of that associated with smoking one cigarette a day! For this we're spending precious millions of dollars? If you think education is expensive, try ignorance.

Let's consider the problem of public education at the university level. Too few research universities (which includes most of the major large-enrollment state universities) care much about the teaching of science to nonmajors. As a consequence, professors get few brownie points for their efforts at teaching these courses; exciting young instructors commit academic suicide by caring about students instead of raising overhead monies on research grants so the dean can run the university; and too often it's the marginal major who is advised to become the school teacher. A good student who is considering a career as a teacher is thought to be a bit strange.

For many of us, I may have just described the other guy. However, too few universities at any level are seriously approaching the question of what the content of science education should be for the 98% of the populace that chooses careers outside of science and, perhaps more importantly, what the content of science education should be for those who will be the future teachers of that 98%.

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More on SAGE

As Chairman of GSA's Education Committee, I am pleased to see that SAGE (Science Awareness through Geoscience Education) is now an official GSA program. GSA's mission is "to advance the science of geology, the scientific growth and development of its members, and the application of geology to the wise use of the Earth." Three of the goals within that mission are: (1) public scientific awareness through geological education; (2) a program on geology and public policy; and (3) a program to enhance participation of minorities in geology. SAGE encompasses many of these goals. (SAGE does not replace the three GSA Standing Committees that were formed to meet the three goals listed above. SAGE activities will support programs of the Standing Committees.) SAGE marks a new direction for the Society. Its challenge is to reach the public through the active support and participation from student associates, members, and fellows. It is also a program designed to encourage increasing numbers of students to seek careers in the geosciences.

SAGE will be administered by the Coordinator for Educational Programs (Pete Palmer until he retires, and then by a newly hired staff person). The Coordinator will work with a SAGE Steering Committee that includes: the Chairs of the Education Committee, the Committee on Geology & Public Policy, and the Committee on Minorities and Women in the Geosciences; the GSA Foundation President; the USGS Education Coordinator; and a teacher representative from the GSA Education Committee. The Education Committee chairperson, who also represents the GSA Council, will chair this Steering Committee.

We ask GSA members to learn more about the 15 active and planned projects within SAGE, and to become involved by visiting the SAGE booth at the Dallas meeting. There will also be a SAGE PAGE inside your registration packet (printed on sage-green paper, of course) that will highlight SAGE activities.

Resource-policy makers are part of the public to be reached via SAGE activities. The GSA Council has just approved a Guide on Developing and Promoting Testimony on Geologically Significant Public Policy Matters. This adoption of guidelines for an advocacy position is sure to generate discussion. In fact, discussion is requested. Both GSA's Committee on Geology and Public Policy and the SAGE program staff have a major interest in your responses.

An Educational Division?

A major activity for the Committee on Education for the coming year (in addition to implementing SAGE) will be exploring the interest in and potentially proposing a new Education Division for GSA. Why a new Division? It would facilitate communication between the various education-oriented members by providing a grass-roots discussion format, provide critical funding to help support GSA's educational programs, give GSA's educational endeavors more visibility, and serve as a vehicle for presentation of awards for outstanding educational service. If you are interested, a petition for signatures will be available at the SAGE booth in Dallas. At least 100 signatures of GSA members are required prior to submitting a proposal to the Committee on Long-Range Planning.

Next month's guest columnist will be Steve Stow—one of the principal authors of the SAGE program, and originator of the SAGE title.

Your Neighbors continued from p. 278

Do you teach user-friendly geoscience to the public at every opportunity? What should your neighbor know about the geosciences? The classification of igneous rocks? The nomenclature of landforms? A few dozen mineral and fossil names? The geologic time scale? I don't think so. What should your neighbor know? Think about it.

GSA 50-Year Fellows To Be Honored

GSA annually honors those individuals who have attained their 50th year of membership in the Society. Each of the 50-year members listed below, all of whom are GSA Fellows, will receive a specially designed lapel pin and a certificate of recognition. This list of 50-year Fellows includes all current members who joined the Society in 1941.

R. Wright Barker
Bellaire, Texas

Carleton A. Chapman
Urbana, Illinois

Christina Lochman-Balk
Socorro, New Mexico

George W. H. Norman
British Columbia, Canada

E. C. Olson
Los Angeles, California

C. F. Stewart Sharpe
Falls Church, Virginia

Thomas P. Thayer
St. Petersburg Beach, Florida

Officers of the North American Commission on Stratigraphic Nomenclature for the 1989–1990 term are: Chairman—Fred W. Chandler, Geological Survey of Canada, Continental Geoscience Division, 601 Booth Street, Ottawa, Ontario K1A 0E8, Canada; Vice-Chairman—Robert R. Jordon, Delaware Geological Survey, University of Delaware, Newark, DE, 19716.

Trustee Huffington Appointed Ambassador

Foundation Trustee Roy M. Huffington has been appointed by President Bush as U.S. Ambassador to Austria. Following confirmation by the Senate Foreign Relations Committee in mid-July, he began his service in Vienna in late August. Huffington succeeded Henry Grunwald, former editor-in-chief of Time magazine, in the diplomatic post.

Roy M. Huffington received the Ph.D. degree in geology from Harvard University in 1942 and was later employed as a geologist by Humble Oil and Refining Company. In 1956 he formed Roy M. Huffington, Inc., which grew into a highly successful international exploration and producing company. Its primary assets included a 20% interest in the giant Badak field and other gas fields in Indonesia. In April 1990 the company was sold to Chinese Petroleum Corporation, the Taiwan national oil company.

The new ambassadorship is a culmination of Roy Huffington’s many civic works over the years. In addition to his membership on the GSA Foundation Board, he has been a leader in many public service groups in the United States and worldwide. Most notably he has served as Chairman of the Asia Society and has been a trustee of several universities and medical organizations.

As a consequence of this move into government service, Huffington has resigned from the Foundation’s Board of Trustees. GSA President Ray Price and GSA Foundation Chairman Phil LaMoreaux both expressed regret at Roy Huffington’s resignation, but, on behalf of GSA, extended congratulations and gratitude for his leadership and support of GSA and geology.

Frye Fund Grows Rapidly

The announcement that an Environmental Geology Award has been established in memory of former GSA Executive Director and Illinois State Survey Director John C. Frye (see July GSA News & Information) has brought about a surge of interest in the John C. Frye Memorial Fund. Led by contributions from Foundation Trustees Peter Flawn and William Heroy and Frye’s Illinois Survey successor Jack Simon, the Frye Fund has increased 46% during 1990, to a balance of $12,000.

The Environmental Geology Award for the best paper on the subject published each year by either GSA or one of the state geological surveys will be given to a geoscientist by the American Association of State Geologists. The Fund’s rapid growth can be attributed to the high esteem in which John Frye was held by fellow scientists and the importance geologists are attaching to the field of environmental geology.

Contributions to the Frye Fund are still being accepted by the Foundation.

Donors to the Foundation in July

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Steven Eslong
Leslie Dean Reed
Sigmund Snelson

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Carol Mankiewicz
Carl Mendelson

Unrestricted
John S. Klasner* (SAGE)

*Second Century Club: gifts of $100 or more.

Enclosed please find my contribution to the
John C. Frye Memorial Fund
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by June Forstrom
Research Grants Administrator

General Grants

The purpose of the general research grants program is to provide partial support of master's and doctoral thesis research for graduate students at universities in the United States, Canada, Mexico, and Central America. Applicants need not be members of GSA.

To apply for one of these grants, you must fill out an application form, available from GSA Campus Representatives, from geology departments in the United States and Canada, or from GSA headquarters (Research Grants Administrator, Geological Society of America, P.O. Box 9140, Boulder, CO 80301). Evaluations from two faculty members are required for master's and doctoral candidates. The deadline for applications for the 1991 research grants program is February 15, 1991. Applications must be submitted on 1991 forms. The GSA Committee on Research Grants evaluates all applications and at its early spring meeting at GSA headquarters chooses those to be funded. Grants are awarded in April. In 1990 244 grants were awarded. Grants ranged from $100 to $1520; the average amount awarded was $787.

Specialized Grants

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

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

The John T. Dillon Alaska Research Award is to support scientific research that addresses earth science problems particular to Alaska. Special consideration may be given to students whose proposals are (1) field-based studies dealing with the structural and tectonic development of Alaska and (2) studies that include some aspect of geochronology (either paleontologic or radiometric) to provide new age control for significant rock units in Alaska. Candidates with other Alaskan earth-science research objectives will also be considered. Award winners are selected by the Committee on Research Grants from applicants to the general research grants program. Applicants must be master's or doctoral candidates. Applications for this grant are available from GSA headquarters (address under General Grants) and for 1991 must be submitted by February 15, 1991.

Division Grants

The Coal Geology Division of GSA and the Symposium on the Geology of Rocky Mountain Coal jointly sponsor scholarships for research on coal in the Rocky Mountain and northern Great Plains coal provinces. Applicants must be master's or doctoral candidates doing research on coal in Arizona, Alberta, British Columbia, Colorado, Idaho, Montana, New Mexico, North Dakota, Saskatchewan, South Dakota, Utah, or Wyoming. However, the college or university where applicants are doing the work need not be in those states or provinces. Applications for Rocky Mountain Coal Scholarships can be obtained from GSA (address under General Grants) or from Gary B. Glass, c/o Geological Survey of Wyoming, Box 3008, University Station, Laramie, WY 82071. The deadline for 1991 applications is February 1, 1991.

The Coal Geology Division Antoniette Lierman Medlin Scholarship Award is awarded annually to the full-time graduate or undergraduate student who submits the best proposal of a research project in the field of coal geology. Detailed guidelines are available from the chairman of the Coal Geology Division Awards Committee: Robert B. Finkelman, U.S. Geological Survey, 956 National Center, Reston, VA 22092. The deadline for 1991 applications is February 15, 1991.

The Engineering Geology Division supports an annual grant for research in engineering geology through the GSA Research Grants Program.

The Geophysics Division awards the Allan V. Cox Student Research Award for outstanding student research. This grant is awarded annually to an applicant for the general GSA research grants who is working in the field of geophysics. Applicants must be master's or doctoral candidates. Applications for this grant are available from GSA headquarters (address under General Grants) and for 1991 must be submitted by February 15, 1991.

The Hydrogeology Division Graduate Research Grant is awarded annually to an applicant for the general GSA research grants who is working in the field of hydrogeology. Applicants must be master's or doctoral candidates. Applications for this grant are available from GSA headquarters (address under General Grants) and for 1991 must be submitted by February 15, 1991.

GSA's Quaternary Geology and Geomorphology Division established its J. Hoover Mackin Research Grants in 1974 to support graduate student research on Quaternary geology or geomorphology. Applications for this grant are available from the secretary of the division, Deborah R. Harden, Dept. of Geology, San Jose State University, San Jose, CA 95192-0102. The deadline for applications for 1991 is February 15, 1991. Grant awardees are announced in April.

The Sedimentary Geology Division Grant is awarded annually to an applicant for the general GSA research grants who is working in the field of sedimentary geology and stratigraphy. Applicants must be master's or doctoral candidates. Applications for this grant are available from GSA headquarters (address under General Grants) and for 1991 must be submitted by February 15, 1991.

The Structural Geology and Tectonics Division Grant is awarded annually to an outstanding student applicant for the general GSA research grants who is working on structural geology or tectonics. Applicants must be master's or doctoral candidates. Applications for this grant are available from GSA headquarters (address under General Grants) and for 1991 must be submitted by February 15, 1991.


Section Grants

Recipients for research grants from the North-Central Section are selected from applicants to the general research grants program. Eligibility is restricted to graduate students attending a college or university within the geographic area of the North-Central Section. Applications are available from GSA Grants Support continued on p. 284
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headquarters (address under General Grants). Deadline for 1991
applications is February 15, 1991.

The South-Central Section awards grants to students
attending a college or university in the South-Central Section
geographic area. Graduate student recipients are selected from
applicants for the general research grants program (applications
available from GSA headquarters (address under General
Applications for undergraduate student grants are available from
Rena M. Bonem, Department of Geology, Baylor University, Waco,
TX 76798. Undergraduate student recipients are selected by the
Management Board of the South-Central Section. The deadline for
undergraduate student applications is October 15, 1991; the grants
will be awarded in late December.

The Southeastern Section awards grants for graduate and
undergraduate research to GSA Student Associates who are
attending colleges and universities within the geographical
boundaries of the Southeastern Section. Application forms can be
obtained from the Southeastern Section secretary, Michael J.
Neilson, Department of Geology, University of Alabama,
Birmingham, AL 35294. The deadline for 1991 applications is
March 1, 1991. The grants will be awarded in late April.

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**Award Winners for 1990**

The 1990 award winners announced by the Council at its May 1990 meeting are as follows:

**Archeological Geology Division Award**

*David M. Hopkins*
Department of Geology and Geophysics
University of Alaska
Fairbanks, Alaska 99709

**Gilbert H. Cady Award (Coal Geology Division)**

For 1990, no award to be given

**E. B. Burwell, Jr. Award (Engineering Geology Division)**

*Perry H. Rahn*
Department of Geology and Geological Engineering
South Dakota School of Mines and Technology
Rapid City, South Dakota 57701-3995

**George P. Woollard Award (Geophysics Division)**

*Jack E. Oliver*
Department of Geological Sciences
Snee Hall
Cornell University
Ithaca, New York 14853

**History of Geology Division Award**

*Gordon Y. Craig*
James Hutton Professor (Emeritus)
University of Edinburgh
W. Mains Road
Edinburgh EH9 3JW, Scotland

**O. E. Meinzer Award (Hydrogeology Division)**

*John D. Hem*
U.S. Geological Survey
Office of Regional Hydrology
345 Middlefield Road, MS-472
Menlo Park, California 94025

**G. K. Gilbert Award (Planetary Geology Division)**

*Harold Masursky (posthumously)*
U.S. Geological Survey
2255 North Gemini Drive
Flagstaff, Arizona 86001

**Kirk Bryan Award (Quaternary Geology and Geomorphology Division)**

*Arthur S. Dyke*
Geological Survey of Canada
601 Booth Street
Ottawa, Ontario, Canada K1A 0E8

**Victor K. Prest**
Geological Survey of Canada
601 Booth Street
Ottawa, Ontario, Canada K1A 0E8

**Structural Geology and Tectonics Division Career Contribution Award**

*John Graham Ramsay*
Geologisches Institut
ETH-Zentrum
Sonneggstrasse 5
Zurich Ch 8092, Switzerland

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**PEOPLE**

GSAC Member Lincoln S. Hollister, Princeton University, received the Past Presidents' Medal of the Mineralogical Association of Canada.

GSAC Fellow Gordon P. Eaton, Iowa State University, was named director of Columbia University's Lamont-Doherty Geological Observatory, beginning November 1, 1990.

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**IN MEMORIAM**

Hugh N. Frenzel
Midland, Texas
January 1, 1990

Guillermo P. Salas
Mexico City, Mexico
June 29, 1990

Seymour O. Schlanger
Evanston, Illinois
July 1, 1990

Harold Masursky
Flagstaff, Arizona
August 24, 1990
The Geological Society of America invites applications for the 1991–1992 Congressional Science Fellowship. The Fellow selected will spend a year (September 1991–August 1992) 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 limited health insurance, relocation, and travel allowances. The fellowship is funded by GSA and the U.S. Geological Survey which supports 47% of the program with a $21,000 grant. (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 February 15, 1991
Preliminary Announcement and Call for Papers

ROCKY MOUNTAIN (44th) and SOUTH-CENTRAL (25th) SECTIONS, GSA,
Annual Meeting
Albuquerque, New Mexico
April 21–24, 1991

The Rocky Mountain and South-Central Sections of the Geological Society of America, the Rocky Mountain Section of the Paleontological Society of America, and the New Mexico Geological Society will meet jointly in Albuquerque, New Mexico. The meeting is sponsored by the University of New Mexico Department of Geology and Institute of Meteoritics, assisted by the New Mexico Bureau of Mines and Mineral Resources, and the University of Texas at El Paso Department of Geological Sciences.

ENVIRONMENT
With scenery that is a veritable textbook of geology, New Mexico has from early days attracted pioneer geologists like Jules Marcou, J. S. Newberry, F. V. Hayden, Benjamin Silliman, Jr., J. W. Powell, G. K. Gilbert, Clarence Dutton, Waldemar Lindgren, N. L. Darton, Kirk Bryan, and E. H. Colbert. Pre-Columbian native Americans digging for turquoise and Spanish conquistadors seeking the gold of Cibola were forerunners of geologists who made New Mexico a leading producer of oil and gas, coal, uranium, copper, molybdenum, gold, silver, and potash. Albuquerque lies near the intersection of four major geologic provinces. To the west and northwest is the Colorado Plateau–San Juan basin region. Precambrian-cored foreland uplifts of the Nacimiento and southern Sangre de Cristo–Taos ranges are exposed to the north. Features related to the Cenozoic Rio Grande Rift continue southward from south-central Colorado through New Mexico. East of the Sandia Mountains and behind Albuquerque is the Great Plains province.

CALL FOR PAPERS
Papers are invited for technical sessions, symposia, and poster presentations. The technical sessions will provide 15 minutes for presentation and 5 minutes for discussion. Symposia conveners may assign more time to invited key speakers. Papers of regional interest to geologists in the Rocky Mountain and South-Central areas as well as papers of general interest will be considered for the program. Poster presentations are encouraged. Please note that abstracts for symposia should be submitted directly to the appropriate conveners.

REGISTRATION
Preregistration will be by mail. Forms will accompany the Final Announcement in the January 1991 issue of GSA News & Information. On-site registration will take place on Sunday, April 21, 1991, from 3:00 to 8:00 p.m. and will continue daily from 7:45 a.m. to 5:00 p.m. through Wednesday, April 24. For lower registration fees and to assist the local committee in planning, please PREREISTER BY MARCH 15, 1991.

FIELD TRIPS
Both premeeting and postmeeting field trips will be offered. Unless otherwise noted, all field trips begin and end in Albuquerque, a well-serviced, regional air-travel center. For details about particular field trips, contact the field trip leaders listed, or Gary A. Smith, Field Trip Coordinator, Department of Geology, University of New Mexico, Albuquerque, NM 87131, (505) 277-2348; Betsy Julian, Department of Geological Sciences University of Texas, El Paso, TX, (915) 747-5503.

Premeeting
1. Modern Rifts and Anorogenic Magmatism (3 days). Elizabeth Anthony, Department of Geological Sciences, University of Texas, El Paso, TX 79968-0555, (915) 747-5501; Calvin Barnes, Texas Tech University; Jerry Hoffer, Randy Keller, Kathleen Marsaglia, and Virginia McMlomore, University of Texas at El Paso. Begins in El Paso and ends in Albuquerque.

2. Open System Magmatic Evolution of the Summer Coen and Del Norte Volcanoes, Conejos Formation, San Juan Mountains, Colorado (1-1/2 days). Don J. Parker, Department of Geology, Baylor University, Waco, TX 77515-7354, (817) 755-2361; D. Anne Grau, Baylor University.

3. Geomorphic and Tectonic Evolution Along the Margin of the Colorado Plateau and Rio Grande Rift, North-Central New Mexico (2 days). Mark Gonzalez, Department of Geology, University of New Mexico, Albuquerque, NM 87131, (505) 277-4204; David P. Dethier, Williams College.

4. Stratigraphy and Correlation of Triassic Strata, Colorado Plateau to High Plains (1 day). Spencer G. Lucas, New Mexico Museum of Natural History, P.O. Box 7010, Albuquerque, NM 87104, (505) 841-8837; Adrian Hunt, New Mexico Museum of Natural History.


6. Proterozoic Tectonic History of the Manzano Mountains, Central New Mexico (2 days). Amy Thompson, Department of Geology, University of New Mexico, Albuquerque, NM (505) 277-2502; Jeffrey Grambling, University of New Mexico.

7. Educational Geology of the Albuquerque, New Mexico Area (1 day, April 21). Rachel Cowan, Leader. Open to school teachers only, grades K-12. Organizer: Douglas C. Brookhires, University of New Mexico, (505) 277-2301 or 277-4204.

During Meeting
8. Pennsylvanian Paleocology of the Kinney Brick Quarry, Manzanita Mountains, New Mexico (1/2 day). Spencer G. Lucas, New Mexico Museum of Natural History, P.O. Box 7010, Albuquerque, NM 87194, (505) 841-8837; John Lorenz, Sandia National Laboratory.

Postmeeting
9. A Tale of Two Volcaniclastic Aprons: Espinaso Formation (Oligocene) and Peralta Tuff (Miocene), North-Central New Mexico (2 days). Gary A. Smith, Department of ROCKY MOUNTAIN/SOUTH-CENTRAL continued on p. 297
ROCKY MOUNTAIN/SOUTH-CENTRAL continued from p. 286
Geology, University of New Mexico, Albuquerque, NM 87131, (505) 277-2348.

10. Geology of the Valles Caldera and Jemez Volcanic Field (1 day). Jamie Garner, Los Alamos National Laboratory, ESS-1, MS D462, Los Alamos, NM 87545, (505) 667-1799; Fraser Goff, Los Alamos National Laboratory.


12. Cenozoic Magmatism and Tectonics of the Southeastern Colorado Plateau, New Mexico (3 days). W. Scott Baldridge, Los Alamos National Laboratory, ESS-1, MS D462, Los Alamos, NM 87545, (505) 667-4338; Frank V. Perry, Los Alamos National Laboratory and University of New Mexico; A. William Laughlin, Los Alamos National Laboratory.


SYMPOSIA

The following symposia are planned for the Albuquerque meeting. Please note that abstracts for symposia should be submitted directly to individual conveners.

1. Gold Deposits of the New Mexico Alkaline Porphyry Belt. Lee A. Woodward. Send abstracts to Lee A. Woodward, Department of Geology, University of New Mexico, Albuquerque, NM 87131.


3. Geology and Paleontology of the Kinney Brick Quarry, Late Pennsylvanian, Central New Mexico. (Sponsored by the Rocky Mountain Section of the Paleontological Society) Spencer Lucas and Robyn Burnham. Send abstracts to Spencer Lucas, New Mexico Museum of Natural History, P.O. Box 7010, Albuquerque, NM 87104.


5. Early, Middle, and Late Proterozoic Tectonic Evolution of Southwestern North America. Jeffrey A. Grable and William A. Grilland. Send abstracts to Jeffrey A. Gramble, Department of Geology, University of New Mexico, Albuquerque, NM 87131.

6. Genesis and Mineralogy of Pegmatites in the Central and Southern Rocky Mountains. William B. Simmons and Gene Ford. Send abstracts to Wm. B. (Skip) Simmons, Department of Geology, University of New Orleans, New Orleans, LA 70148.


9. Hydrogeology and Geochemistry of Waste Disposal and Contaminant Migration in Arid Lands. Michael Campana, Douglas Brookins, and Carol L. Stein. Send abstracts to Michael Campana, Department of Geology, University of New Mexico, Albuquerque, NM 87131.


11. Time Framework and Geologic History of the Carboniferous. (Sponsored by the Midcontinent Section of the Paleontological Society) Walter L. Manger. Send abstracts to Walter L. Manger, Department of Geology, University of Arkansas, Fayetteville, AR 72701.

12. Geoscience Education in Public Schools. Doug Brookins and Monte Wilson. Send abstracts to Doug Brookins, Department of Geology, University of New Mexico, Albuquerque, NM 87131.

13. The Geology of New Mexico. This is a special full-day symposium sponsored by the New Mexico Geologists and Geoscientists. Conveners are David W. Love, Bill Chavez, and Neil Whitehead III. Send abstracts to David Love, NMGS, Campus Station, Socorro, NM 87801.

14. Plate Margin and Foreland Deformation: The Ouachita Orogeny and Ancestral Rocky Mountains. Kent Nielsen and Kristian Svegaard. Send abstracts to Kent Nielsen, Programs in Geosciences, University of Texas at Dallas, Richardson, TX, 75083-0688.

15. Pennsylvanian and Wolfcampian Cyclic Sedimentation in the Ancestral Rocky Mountains and Ouachita-Marathon Foreland. Gary Smith and Thomas Yancey. Send abstracts to Gary A. Smith, Geology, University of New Mexico, Albuquerque, NM, 87131.

ABSTRACTS

Abstracts are limited to 250 words and must be submitted camera-ready on the official 1991 GSA abstract form, available from Abstracts Coordinator, Geological Society of America, P.O. Box 9140, Boulder, CO 80301, (303) 447-2020.

Send one original and five copies of abstracts to be considered for technical sessions and poster sessions to: Michael Campana or Lee A. Woodward, GSA Technical Program Co-Chairs, Department of Geology, University of New Mexico, Albuquerque, NM 87131, (505) 277-3269 (Campana), 277-5309 (Woodward); Kathleen Marsaglia, Department of Geological Sciences, University of Texas, El Paso, TX 79968, (915) 747-5968.

Abstracts deadline: December 20, 1990

PROJECTION EQUIPMENT

Projection equipment will be provided for 2" x 2" slides and a standard 35 mm carousel tray. Please bring your own carousel tray if possible. Two projectors and two screens will be provided for each session.

EXHIBITS

Exhibits representing education, research, and industry will be displayed at the meeting site. For further information, contact: ROCKY MOUNTAIN/SOUTH-CENTRAL continued on p. 288
ROCKY MOUNTAIN/SOUTH-CENTRAL continued from p. 287
contact: Crayton J. Yapp, Exhibits Coordinator, Department of Geology, University of New Mexico, Albuquerque, NM 87131, (505) 277-2000.

STUDENT SUPPORT
The GSA Rocky Mountain and South-Central sections have funds available for grants to GSA Student Associates who are contributing to the meeting. Students are encouraged to apply for these grants. Most students who qualify will be funded to some degree. Send applications to either the Rocky Mountain Section Secretary or the South-Central Section Secretary: Kenneth E. Kolm, Rocky Mountain Section Secretary, Department of Geology and Geological Sciences, Colorado School of Mines, Golden, CO 80401, (303) 273-3651; Rena M. Bonem, South-Central Section Secretary, Department of Geology, Baylor University, Waco, TX 76798, (817) 755-2361.

Application letters must be sent by March 1, 1991. Letters should include certification that the student is a GSA Student Associate in either the Rocky Mountain or South-Central Section and is presenting a paper or poster at the Albuquerque meeting.

SPECIAL EVENTS AND ACTIVITIES
Everyone is invited to socialize at Sunday evening’s get acquainted or reacquainted party. Tuesday evening features a New Mexican feast combined with full admittance to the New Mexico Museum of Natural History. Tickets are available by advance registration. Guest program activities include bus tours of the Jemez Mountains–Santa Fe and the Sandia Mountains. Albuquerque is a rapidly expanding southwestern city which still clings to a strong Hispanic and Native American heritage. The mid-April climate is generally mild and clear. Several golf courses are located near the meeting headquarters. At the headquarters, you can play tennis, swim, or relax in the sauna or jacuzzi. Albuquerque’s Old Town, with numerous restaurants, art galleries, and shops, is less than 3 km away and easy to reach by trolley bus.

DETAILED INFORMATION
Information concerning registration, accommodations, and activities will appear in a future issue of GSA News & Information and as a part of Abstracts with Programs for 1991. Requests for additional information or suggestions should be addressed to the General Co-Chairs: John W. Geissman, Wolfgang E. Elston, Department of Geology, University of New Mexico, Albuquerque, NM 87131, (505) 277-3433 (Geissman), 277-5339 (Elston), fax 505-277-8843; G. Randy Keller, Department of Geological Sciences, University of Texas, El Paso, TX, 915-747-5501, fax (915) 747-5111.

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Penrose Conference on Flow and Associated Transport in Basins

A GSA Penrose Conference “Flow and Associated Transport in Basins: Driving Forces, Coupling, and Geologic Controls” will be held February 25–March 1, 1991, in the Napa Valley, California, area. Conveners are Stuart Rojstaczer, Dept. of Geology, Old Chemistry Bldg., Duke University, Durham, NC 27706, (919) 684-5843 (direct), (919) 684-5847 (dept.); Kenneth Belitz, Dept. of Earth Sciences, Dartmouth College, Hanover, NH 03755; John D. Bredehoef't, USGS, 345 Middlefield Road, Menlo Park, CA 94025; Patrick A. Domenico, Dept. of Geology, Texas A&M University, College Station, TX 77843, (409) 845-0636; Victor V. Palciauskas, Chevron Oil Field Research, P.O. Box 446, La Habra, CA 90631.

There has been an increasing awareness of the importance of basin-scale subsurface flow and transport in a number of geologic processes. Both theoretical and site-specific studies indicate that the direction and rate of regional flow can be a critical control on such geologic problems as the occurrence of ore deposits, petroleum reservoirs, and large-scale fracturing and faulting. The extent that basin-scale flow influences these processes depends upon a number of common elements such as: (1) the magnitude and variability (both spatial and temporal) of permeability within the basin; (2) the magnitude of topographic driving forces; (3) the rate and magnitude of sedimentation and erosion; (4) the presence or absence of fluid and heat sources. The objective of this conference is to bring together scientists from a number of disciplines to discuss what is known or can be inferred about the driving forces and controls on basin-scale transport.

The emphasis of this conference is on basin-scale flow and its influence on geologic processes in the shallow crust. We are interested in research that explores the coupling between fluid flow and its driving forces such as deformation and heat. Most of the research on flow and transport at the regional scale has only recently been concerned with coupling between fluid flow and its driving forces. In addition, research on geologic controls on flow and transport at the regional scale and over geologic time is only just beginning. Previous conferences on crustal fluids have focused primarily on petrologic and geochemical evidence for the presence and movement of fluids deep in the crust. The conference will provide a forum for the exchange of current information and exciting ideas concerning topics that are germane to a broad suite of problems involving basin-scale flow and transport.

The organizers are attempting to bring together a diverse group of earth scientists who are united by their interest in low-temperature, upper crustal processes in which basin-scale fluid flow plays a role. These scientists include hydrogeologists, sedimentary petrologists, geophysicists, and petroleum and ore geologists. We intend to utilize the diversity of the attendee's backgrounds by asking that they focus on the implications of their findings on the nature of the driving forces and geologic controls on basin-scale flow and transport.

Prospective participants should send a letter of application stating the relevance of their research to the conference to Stuart Rojstaczer or Patrick Domenico. THE DEADLINE FOR APPLICATIONS IS NOVEMBER 16, 1990. The conference fee, which is not yet determined, will include registration, food, lodging, and the field trip. Limited support will be available for qualified graduate students.
THE EARTH HAS A HISTORY
GSA Educational Video/Film Series 1 • 1989

In this study-module, A.R. Palmer demonstrates the simple principles that form the basis for understanding geologic time, literally "walking the viewer through time" in the colorful Flatirons area of the Rocky Mountain Front Range near Boulder, Colorado. Geologic time—or "deep time"—and the changes to the Earth's surface over time are mind-boggling ideas, beyond the human scale of perception and thus difficult for students to comprehend. Yet, understanding these ideas is essential to an education in the sciences, and should be part of the curriculum of all students.

Educators can now help their students grasp these ideas in one class period with this 20-minute presentation, and give them a powerful and lasting perception of deep time and an introduction to the processes at work in our ever-changing Earth.

Recommended as an opening module for the geology section of earth science courses or for a biology section on the record of life on Earth.

Best for grades 7 and above. Available in VHS and PAL video or 16mm film. (Specify VHS or PAL when ordering.)
EVS001 VHS or PAL cassette (1/2"), 20 min., $25.00
ESF001, 16mm film, 20 min., $200.00

Educational Institutions: Receive a 15% discount for prepaid orders on your letterhead or purchase order. Pro forma invoice sent upon request.

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The Geological Society of America

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Preliminary Announcement and Call for Papers
NORTH-CENTRAL SECTION, GSA
25th Annual Meeting
Toledo, Ohio
April 18–19, 1991

The North-Central Section of the Geological Society of America will meet at the University of Toledo SeaGate Centre. The meeting will be hosted by the Department of Geology at the University of Toledo. Several associated societies will be meeting in conjunction with the GSA North-Central Section: the North-Central Section of the Paleontological Society, the Great Lakes Section of SEPM, and the East Central Section of the National Association of Geology Teachers.

CALL FOR PAPERS
Technical sessions will include all topics listed on the GSA abstracts form. Papers, poster sessions, and symposia on these and other subject areas (including symposia listed below) are solicited. Special sessions focused on specific themes or subjects will be arranged by the local program committee after review of the abstracts. The time allotted for the oral presentations will be 15 minutes followed by 5 minutes for discussion.

There will be a special symposium of interest to many, involving consultants' and industries' innovative approaches to solving environmental problems. This session is especially organized so students can be exposed to various methodologies and technologies utilized in hydrogeological, geophysical, and engineering geological investigations.

To further GSA's focus on geoscience education, a special symposium is planned on resources available to geoscience teachers, with special emphasis on state geological surveys and museums. Elementary, junior high, high school, junior college, and college and university teachers of earth science or general science are encouraged to attend.

REGISTRATION
Preregistration will be by mail. On-site registration will take place on Wednesday, April 17, from 6 to 9 p.m. at the Sheraton Westgate Hotel. Thereafter, registration will continue daily at the UT SeaGate Centre from 7:30 a.m. to 5:30 p.m. for the duration of the meeting. Preregistration fees will be $40 for professional GSA members or members of associated societies and $10 for GSA Student Associates. For those not affiliated with GSA, preregistration fees will be $45 for professionals and $15 for students. On-site registration will be $5 more for professionals and students. Please take advantage of the lower preregistration fees.


SYMPOSIA
The following symposia have been organized. Authors are encouraged to contact the individual symposia organizers for information.

1. The Geology of Radon. James A. Harrell, University of Toledo; Michael C. Hansen, Geological Survey, Ohio Department of Natural Resources.
2. Quaternary Paleoecology of the Lower Great Lakes. Barry Miller, Kent State University.
3. Tectonics of the Northern Cincinnati Arch Area. Stuart L. Dean, University of Toledo; Byron R. Kulander, Wright State University.
4. State Geological Surveys and Natural History Museums—A Resource for the Earth Science Teacher (East-Central Section, National Association of Geology Teachers). Mark J. Camp, University of Toledo; Charles E. Mason, Morehead State University.
5. Late Quaternary Time Classification in the Great Lakes Region. Paul F. Karrow, University of Waterloo.
8. The Biological Underpinning of Global Diversity Trends (North-Central Section, Paleontological Society). Arnold Miller, University of Cincinnati.
9. Scientific Drilling and Geophysical Investigation in the Mid-Continent. Jeffrey Daniels, Ohio State University.

FIELD TRIPS
Field Trip Coordinator is V. Max Brown, (419) 537-4571.

1. Kellys Island, Ohio: Subglacial and Shoreline Erosion Features, Carbonate Petrology and Paleontology. R. Scott Snow, Department of Geology, Ball State University, Muncie, IN 47301; Thomas V. Lowell, Department of Geology, University of Cincinnati, Cincinnati, OH 45221; Robin Frank Rupp, Bloomington, Indiana.
2. Joint Patterns and Geomorphological Features of Northern Ohio. Stuart L. Dean, Department of Geology, University of Toledo; Byron R. Kulander, Department of Geological Sciences, Wright State University, Dayton, OH 45435; Jane L. Forsyth, Department of Geology, Bowling Green State University, Bowling Green, OH 43403; Ronald M. Tipton, France Stone Co., Sylvania, OH 43560.
3. Middle Devonian Silica Shale of Northwest Ohio. Craig B. Hatfield and Mark J. Camp, Department of Geology, University of Toledo, Toledo, OH 43606.
4. Slumps, Slides, Mud Diapirs, and Associated Fracturing in Mississippian Delta Deposits, Berea Sandstone, Cleveland, Ohio. Neal A. Wells, Alan H. Coogan, and Judy J. Majoras, Department of Geology, Kent State University, Kent, OH 44242.

POSTER SESSIONS
We strongly encourage student and professional members to take advantage of this highly effective means of communication. Please indicate "poster session" on the GSA abstracts form. Each poster booth will provide three 4' x 4' boards arranged at table height. Poster sessions will be scheduled adjacent to the exhibits and will be available for viewing for one-half day.

NORTH-CENTRAL SECTION continued on p. 291
NORTH-CENTRAL SECTION continued from p. 280

ABSTRACTS

Abstracts must be submitted camera-ready on official 1991 GSA abstract forms in accordance with instructions on the forms. Abstracts forms are available from:

Abstracts Coordinator
Geological Society of America
P.O. Box 9140
Boulder, CO 80301
(303) 447-8850

and from the GSA Campus Representatives at most college and university campuses.

Abstracts deadline: December 12, 1990

Send one original and five copies to:
Donald J. Steierman
Program and Abstracts Coordinator
Department of Geology
University of Toledo
Toledo, OH 43606
(419) 537-2046

All abstracts will be reviewed for informative content, correctness, reliability of data, appropriate geographic coverage, and originality. Authors will be notified of acceptance well in advance of the meeting.

STUDENT PAPERS AND TRAVEL ASSISTANCE

The North-Central Section of GSA will award $100 for each of the four best papers written and presented solely by graduate or undergraduate students. Abstracts submitted for these awards must be clearly indicated. In addition, awards for travel assistance will be made to students who are members of the GSA North-Central Section as of January 1, 1991. To receive a travel grant, the student must present a paper (oral or poster) at the meeting (can be a co-author). Applications for awards may be obtained by writing to the General Chairman. Applications must be submitted by February 7, 1991.

PROJECTION EQUIPMENT

One standard 35 mm carousel projector will be provided for 2" x 2" slides only in each meeting room. Please bring your own loaded carousel trays identified with your name, session, and speaker number. A speaker ready room equipped with projectors will be available for review and practice.

BUSINESS MEETING

The GSA North-Central Section Management Board will hold its business meeting with breakfast at the building SeaGate Centre, Room 310, on April 18, 1991, at 7 a.m.

EXHIBITS

Exhibits of educational and commercial organizations will be on display at SeaGate Centre in proximity to the area for poster sessions. Exhibit space must be reserved by February 1, 1991. For further information, contact:

James A. Harrell
Exhibits Chairman
Department of Geology
University of Toledo
Toledo, OH 43606
(419) 537-2193

SOCIAL EVENTS

A reception will be held on the evening of Wednesday, April 17, 1991, at the Sheraton Westgate Hotel from 7:00 to 9:00 p.m. On Thursday evening the annual banquet of the North-Central Section will be held at 7:00 p.m. in SeaGate Centre.

The Society of Economic Paleontologists and Mineralogists will hold a luncheon on Thursday, April 18, and the Paleontological Society will hold a luncheon on Friday, April 19. The National Association of Geology Teachers and NCGSA Education Committee will hold a joint luncheon on Friday, April 19. The NCGSA Campus Representatives will hold a breakfast on Friday, April 19 at 7 a.m.

HOUSING

Hotel accommodations will be available at both the downtown area adjacent to the SeaGate Convention Centre and at the Westgate area in West Toledo, which has easy access to Interstate 475 and a variety of restaurants. A shuttle service will provide free transportation between the Westgate area and SeaGate Centre on Thursday and Friday. This service will also be available for transportation to and from the banquet on Thursday evening.

TRAVEL ARRANGEMENTS

Toledo is on Interstate 80-90 (the Ohio Turnpike) and Interstate 75. UT SeaGate Centre is located approximately 5 miles from the University of Toledo main campus in downtown Toledo. Convention hotels are centered at the Secor Road intersection of Interstate 475 and adjacent to SeaGate Centre.

Toledo Express Airport is served by Delta and US Air. Airlink service connects with O'Hare Airport (United Express, American Eagle) in Chicago, with Detroit Metro Airport (Northwest Mesaba Express), and with Hopkins International Airport (Continental British Express) in Cleveland. Amtrak provides daily east-west service.

DETAILED INFORMATION

All sessions, registration, and the banquet will be held at the UT SeaGate Centre. Special arrangements can be made for luncheons and/or special meetings by contacting the NCGSA General Chairman. Information concerning registration, hotel accommodations, and other activities will appear in a future issue of GSA News & Information and as part of Abstracts with Programs for 1991. Symposia and field trips listed for this meeting are tentative; further suggestions are always appreciated. Inquiries, additional information, requests, or suggestions should be directed to:

Lon C. Ruedisili
General Chairman
Department of Geology
University of Toledo
Toledo, OH 43606
(419) 537-2634

or

Mark J. Camp
Vice-Chairman
Department of Geology
University of Toledo
Toledo, OH 43606
(419) 537-2398
Call for Nominations for 1991 Penrose and Day Medals and Honorary Fellows

Nominations for GSA's Penrose and Day Medals and for Honorary Fellowships of the Society are due at headquarters by February 1, 1991. Members and Fellows of the Society are encouraged to participate in this important process by nominating candidates for these high honors.

Penrose Medal
The Penrose Medal was established in 1927 by R.A.F. Penrose, Jr., to be awarded in recognition of eminent research in pure geology, for outstanding original contributions or achievements that mark a major advance in the science of geology. The award is made only at the discretion of the Council. Nominees are selected by the Council, may or may not be members of the Society, and may be from any nation. Penrose's sole objective in making the gift was to encourage original work in purely scientific geology. Scientific achievements should be considered rather than contributions in teaching, administration, or service. Mid-career scientists who have already made exceptional contributions should be given full consideration for the award.

Day Medal
The Day Medal was established in 1948 by Arthur L. Day to be awarded annually, or less frequently, at the discretion of the Council, for outstanding distinction in contributing to geologic knowledge through the application of physics and chemistry to the solution of geologic problems. Day's intent was to recognize outstanding achievement and inspire further effort, rather than reward a distinguished career.

Honorary Fellows
Geologists who have distinguished themselves in geological investigations or in notable service to the Society may be elected as Honorary Fellows. In practice, nearly all candidates have lived and worked outside of North America. The most noteworthy exceptions were astronauts.

Most Honorary Fellows have been elected toward the evenings of their careers, after lifetimes of outstanding and internationally recognized contributions to the science.

How To Nominate
To ensure thorough consideration by the respective committees, please submit for each candidate a brief biographical sketch, such as used in American Men and Women of Science and Who's Who in America, a summary of the candidate's scientific contributions to geology that qualify the individual for the award, and a selected bibliography of no more than 20 titles. In choosing candidates for the Penrose and Day Medals, scientific achievements should be considered rather than contributions in teaching, administration and service.

A nomination for any one of these three awards MUST BE SUPPORTED by signed letters from each of five (5) GSA Fellows or Members. The letters may be attached to this form or may be sent to the Executive Director separately. For Honorary Fellow nominations, please verify degrees received, publications, positions held, etc.

The names of unsuccessful candidates proposed to the Council by the respective committees will remain for consideration by those committees for three years. FOR THOSE STILL UNDER CONSIDERATION, IT IS RECOMMENDED THAT AN UPDATED LETTER OF RENOMINATION BE SENT TO THE EXECUTIVE DIRECTOR.

The deadline for receipt of nominations at the office of the Executive Director is FEBRUARY 1, 1991.

The form for submitting the name of a candidate for any one of the awards is on pages 295–296.

Recipients of the awards to date are listed on p. 294.

About the Honorary Fellow Program
In this issue of GSA News & Information you will find a form to be used in nominating candidates for Honorary Fellowship in the Geological Society of America. Each year this honor is bestowed on those individuals who have lived and worked outside of North America and have distinguished themselves in geological investigations or in notable service to the Society. Under exceptional circumstances, North Americans have been named Honorary Fellows. This amendment to the bylaws was made in 1969 when the Apollo II astronauts who first walked on the moon—Neil Armstrong, Edwin A. Aldrin, Jr., and Michael Collins—were elected.

The program was established by the GSA Council in 1909, and since then, except during a few war years, one or more Honorary Fellows have been elected annually. Most Honorary Fellows have been elected after many years of outstanding and internationally recognized contributions to the science. At present there are 55 living geologists who have received this honor.

The Council of the Society encourages the membership to submit the names of qualified candidates for this honor. In preparing a nomination, it is imperative that the original research and scientific advances of the candidate be stressed. All supporting data, especially degrees received, publications, positions, etc., should also be verified by the nominator. The form for nominating a candidate for Honorary Fellow is on p. 295-296.
Call for Nominations for 1991 Young Scientist Award (Donath Medal)

The Young Scientist Award was established in 1988 to be awarded to a young scientist (35 or younger during the year in which the award is to be presented) for outstanding achievement in contributing to geologic knowledge through original research that marks a major advance in the earth sciences. The award, consisting of a gold medal called the Donath Medal and a cash prize of $10,000, was endowed by Dr. and Mrs. Fred A. Donath.

For the year 1991, only those candidates born on or after January 1, 1956, are eligible for consideration. In choosing candidates for the Young Scientist Award, scientific achievement and age will be the sole criteria. Nominations for the 1991 award must include:
- biographical information,
- a summary of the candidate’s scientific contributions to geology (200 words or less),
- a selected bibliography (no more than 10 titles),
- supporting letters from five scientists.

Nominations for the 1991 Young Scientist Award must be received at GSA headquarters by February 1, 1991. The form for submitting the name of a candidate for the Young Scientist Award is on p. 297–298.

Recipients to date: 1989 .... Mark Clos 1990 .... Leigh H. Royden

Call for Nominations for Distinguished Service Award

The GSA Distinguished Service Award was established by Council in 1988 to recognize individuals for their exceptional service to the Society. GSA Members, Fellows, Student Associates, or, in exceptional circumstances, GSA employees may be nominated for consideration. Any GSA member or employee may make a nomination for the award. Awardees will be selected by the Executive Committee, and all selections must be ratified by the Council. Awards may be made annually, or less frequently, at the discretion of Council. This award will be presented during the Annual Meeting of the Society. Nominations and any supporting information may be addressed to:

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

Deadline for nominations for 1991 is March 1.

Recipients to date: 1988 ....... Campbell Craddock
                      Robert D. Hatcher, Jr.
                      Eldridge M. Moores
                      William A. Thomas

1990 ....... William B. Heroy, Jr.

1990 Honorary Fellows Named

The work of two internationally known geologists will be recognized at the 1990 GSA Annual Meeting this month in Dallas. German K. Müller and B. P. Radhakrishna will be named GSA Honorary Fellows, following action last May by the GSA Council. Honorary Fellowship is awarded to foreign geologists who have distinguished themselves through their geological work or have rendered special service to the Society.

German K. Müller

Müller is considered one of the most outstanding European scientists in environmental and geochemical sedimentology. In recent years he has directed his research efforts to geochemistry and problems of heavy metals and toxic wastes in the environment. He has, through his many publications on these subjects, set the standard for research in this field and influenced environmental policy on waste disposal in Germany and surrounding European countries.

Müller received his B.A. degree from the University of Cologne in 1950 and a Dr. rer. nat from the University of Bonn in 1952. Upon graduation he headed the Sedimentology Laboratory for Mobil Oil AG Germany. In 1957 he worked in Addis Ababa, Ethiopia, as a geologist for the Texas Africa Exploration Company. Three years later Müller began teaching, serving as an assistant and associate professor at the University of Tübingen and later as a full professor of mining and petrology at the University of Heidelberg. Finally, as director of Heidelberg University’s Institut für Sedimentforschung, Müller developed one of the most respected sedimentological centers in Germany.

Müller’s honors include Aapg Distinguished Lecturer (1974); President of the 8th International Conference on Heavy Metals in the Environment; Diploma of Honor for Outstanding Contributions to the Petroleum Industry; Pi Epsilon National Petroleum Engineering Society; and the Morris Prize for his 20 years of research into the accumulation and deposition of heavy metals in rivers and lakes in western Europe.

Müller’s scientific achievements and personal dedication to his students and the advancement of the geological sciences continues in Heidelberg, Germany, where he lives and works.

B. P. Radhakrishna

Over the past 50 years, the science of geology in India has benefited from the work of B. P. Radhakrishna. His contributions include original research on the Precambrian geology of southern India, distinguished service as a public servant, leadership of the Geological Society of India, and inspiration to many young geologists. Recognizing the urgency of conservation and development of groundwater in drought-prone southern India, Radhakrishna has vigorously worked toward advancing research and educational and institutional aspects of ground-water development in India.

Honorary Fellows continued on p. 294
Richard A. F. Penrose, Jr., Medalists

1927 Thomas Crowder
1928 Jakob Johannes Sederholm
1929 No award given
1930 Francois Alfred Antoine Lacroix
1931 William Morris Davis
1932 Edward Oscar Ulrich
1933 Waldemar Lindgren
1934 Charles Schuchert
1935 Reginald Aldworth Daly
1936 Arthur Philemon Coleman
1937 No award given
1938 Andrew Cooper Lawson
1939 William Berryman Scott
1940 Nelson Horatio Darton
1941 Norman Levi Bowen
1942 Charles Kenneth Leith
1943 No award given
1944 Bailey Willis
1945 Felix Andries
1946 T. Wayland Vaughan
1947 Arthur Louis Day
1948 Hans Cloos
1949 Wendell F. Woodring
1950 Morley Evans Wilson
1951 Pentti Eskola
1952 George Gaylord Simpson
1953 Esper S. Larsen, Jr.
1954 Arthur Francis Buddington
1955 Maurice Gignoux
1956 Arthur Holmes
1957 Bruno Sander
1958 James Gilluly
1959 Adolf Knopf
1960 Walter Herman Bucher
1961 Philip Henry Kuenen
1962 Alfred Sherwood Romer
1963 William Walden Rubey
1964 Donnel Foster Hewett
1965 Philip Burke King
1966 Harry H. Hess
1967 Herbert Harold Read
1968 J. Tuzzo Wilson
1969 Francis Birch
1970 Ralph Alger Bagnold
1971 Marshall Kay
1972 Wilmot H. Bradley
1973 M. King Hubbert
1974 William Maurice Ewing
1975 Francis J. Pettijohn
1976 Preston Cloud
1977 Robert F. Sharp
1978 Robert M. Garrels
1979 J Harlen Bretz
1980 Hollis D. Hedberg
1981 John Rodgers
1982 Aaron C. Waers
1983 G. Arthur Cooper
1984 Donald E. White
1985 Rudolf Truempy
1986 Laurence L. Stoss
1987 Marland P. Billings
1988 Robert S. Dietz
1989 Warren Bell Hamilton
1990 Norman D. Newell

Arthur L. Day Medalists

1948 George W. Morey
1949 William Maurice Ewing
1950 Francis Birch
1951 Martin J. Buerger
1952 Sterling Hendricks
1953 John F. Schairer
1954 Marion King Hubbert
1955 Earl Ingersoll
1956 Alfred O. C. Nier
1957 Hugo Benioff
1958 John Verhoogen
1959 Sir Edward C. Bullard
1960 Konrad B. Krauskopf
1961 Willard F. Libby
1962 Flatten Schuyler Yoder
1963 Keith Edward Bullen
1964 James Burleigh
1965 Thompson, J.
1966 Walter H. Munk
1967 O. Frank Tuttle
1968 Frederick J. Vine
1969 Harold C. Urey
1970 Gerald J. Wasserburg
1971 Hans P. Eugster
1972 Frank Press
1973 David T. Griggs
1974 A. E. Ringwood
1975 Allan Cox
1976 HansRamberg
1977 Akio Miyashiro
1978 Samuel Epstein
1979 Walter M. Elsasser
1980 Henry G. Thode
1981 Donald L. Turcotte
1982 Eugene M. Shoemaker
1983 Harmon Craig
1984 Wallace S. Broecker
1985 Freeman Gilbert
1986 Ean Zen
1987 Don L. Anderson
1988 Claude J. Allègre
1989 Dan McKenzie
1990 William S. Frye

Young Scientist Award (Donath Medal)

1989 Mark Cloos
1990 Leigh H. Royden

Honorary Fellows

Neil Armstrong
Jean A. Aubouin
V. V. Belousov
Krzysztof Ludwik Birkenmajer
Roland Brinkmann
S. Warren Carey
Maria Bianca Cita
Michael Collins
William Compston
Douglas Saxon Combs
Gabriel Dengo
Kingsley C. Dunham
Stanislaw Dzulynski
William S. Fyfe
Augusto Gansser
David Headley Green
Dorothy Hill
Kenneth J. Hsu
Qijing Huang
Emile Jager
Ihsan Kedin
Teiichi Kobayashi
Henno Martin
Michael W. McElhinny
Mervyn Silas Paterson
Leo Y. Piccard
Wallace S. Pitcher
Jean Piveteau
Isabella Premoli-Silva
Desmond A. Pretorius
Hans Ramberg
John G. Ramsay
Alfred Rittmann
Alexander B. Ronov
Rupert W. R. Rutland
Rushdi Said
Hitoshi Sakai
Mircea Sandulescu
Harrison Hagan Schmitt
Eugen Seibold
Ahti J. Simonen
Boris Sergeevich Sokolov
John Sutton
Rashid A. Khan Tahirkhel
Bernard P. Tissot
Livio Trevisan
Rudolf Trümpy
Guangzhi Tu
Harry B. Whittington
Alwy Williams
Quido Zaruba

Honorary Fellows continued from p. 293

Radhakrishna received his B.S. degree in geology with honors and a Gold Medal in 1937 from Central College in Bangalore. Immediately following his graduation he joined the state agency, the Mysore Geological Department (MGD), as a geological assistant. He was director of the department from 1965 to 1974, when he retired, earning the Rajyotsava Award of the State of Karnataka for distinguished public service. During his tenure with the MGD he obtained his Ph.D. from the University of Mysore in 1954; organized the Board of Mineral Development for the state; founded the Geological Society of India; organized the Groundwater Cell within MGD, to work toward rational development of the state's ground-water resources; was founder Secretary of the Geological Society of India; was an advisor to the Government of India on ground-water resource development between 1975 and 1979; and served as the chairman and managing director of the Karnataka Copper Consortium, where he was instrumental in setting up a copper extraction plant using hydrometallurgical methods. Recently he has devoted his time to geological research and his position as editor of the Journal of the Geological Society of India, which, under his leadership, has attained international status.

Radhakrishna’s many awards include a Fellowship from the Indian Academy of Sciences, Bangalore; the Indian government’s National Mineral Award; election to the Indian National Science Academy; and Honorary Fellowship in the Geological Society of London.

Radhakrishna’s work has enriched the science of geology as a whole and contributed greatly to the advancement of the science in India. He continues to work as the editor for the Journal of the Geological Society of India and to do geological research. He lives in Bangalore.
THE GEOLOGICAL SOCIETY OF AMERICA
Nomination for Penrose Medal, Day Medal, or Honorary Fellowship
(please circle one)

DEADLINE: Please return this form to headquarters by February 1, 1991

NAME OF CANDIDATE:

ADDRESS:

BIOGRAPHICAL INFORMATION: (suggested sources)
American Men and Women of Science
Who's Who in America
GSA Service Record (obtainable from headquarters)
Other

SUMMARY OF SCIENTIFIC CONTRIBUTIONS TO GEOLOGY: (not more than 200 words)
SELECTED BIBLIOGRAPHY: (no more than 20 titles)

A nomination for any one of these three awards MUST BE SUPPORTED by signed letters from five (5) GSA Fellows or Members. The letters may be attached to this form or may be sent to the Executive Director separately. Supporting letters must discuss the original research and scientific advances of the candidates. Please also verify all other supporting data.

Name of person making the nomination: __________________________________________________________

Address: __________________________________________________________________________________

Date: ______________________________ Signature: ________________________________________________

LETTERS OF SUPPORT WILL BE SUBMITTED BY:

1. ________________________________________________________________________________________

2. ________________________________________________________________________________________

3. ________________________________________________________________________________________

4. ________________________________________________________________________________________

5. ________________________________________________________________________________________

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

DEADLINE: Please return this form to headquarters by February 1, 1991.
THE GEOLOGICAL SOCIETY OF AMERICA
Nomination for 1991 Donath Medal (Young Scientist Award)

DEADLINE: Please return this form to headquarters by February 1, 1991

NAME OF CANDIDATE:

ADDRESS:

BIOGRAPHICAL INFORMATION: (similar to that found in American Men and Women of Science, Who's Who in America)
Date of birth: __________________________
(For the year 1991, only those candidates born on or after January 1, 1956, are eligible for consideration.)

SUMMARY OF SCIENTIFIC CONTRIBUTIONS TO GEOLOGY: (not more than 200 words)
SELECTED BIBLIOGRAPHY: (no more than 10 titles)

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

Name of person making the nomination: ______________________________________________________

Address: ______________________________________________________________________________

Date: __________________________ Signature: ____________________________________________

LETTERS OF SUPPORT WILL BE SUBMITTED BY:

1. ________________________________________________________________

2. ________________________________________________________________

3. ________________________________________________________________

4. ________________________________________________________________

5. ________________________________________________________________

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

DEADLINE: Please return this form to headquarters by February 1, 1991.
GeoVentures Grow and Go in 1991
by Sue Beggs
Meetings Manager

Where will you be spending your free time next year? Some of GSA's members and friends will be enjoying trips to New Zealand, Great Britain, Grand Canyon, and Colorado as part of GSA's 1991 GeoVenture program. GeoVentures offer an array of trips and classroom experiences. They are especially designed for geologists who would like to experience an interesting travel destination in the company of other geologists who share similar educational interests.

GeoVentures are a special benefit created for members, but they are open to guests and friends also. GeoVentures is the overall name for adult educational and adventure experiences of two kinds: GeoTrips or GeoHostels. Both are known for expert scientific leadership. Fees for both are low to moderate (relative to the destination and length of time) and include lodging and meals as designated. There are some differences between them, though:

<table>
<thead>
<tr>
<th>GSA GeoVentures</th>
<th>GeoHostels</th>
<th>GeoTrips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>5 days</td>
<td>1 to 4 weeks</td>
</tr>
<tr>
<td>Cost</td>
<td>Under $500</td>
<td>Over $1000</td>
</tr>
<tr>
<td>Site</td>
<td>College campuses or resort towns, North America</td>
<td>Worldwide</td>
</tr>
<tr>
<td>Time of year</td>
<td>Summer</td>
<td>Anytime</td>
</tr>
<tr>
<td>Traveling</td>
<td>Limited. Possibly one or two half-day field trips</td>
<td>Daily change of site</td>
</tr>
<tr>
<td>Ground transportation</td>
<td>May need to be provided by participants</td>
<td>Provided by GSA</td>
</tr>
<tr>
<td>Physical requirements</td>
<td>None</td>
<td>May be physically demanding</td>
</tr>
<tr>
<td>Education</td>
<td>Half-day daily classroom programs plus one to two field excursions</td>
<td>Informal, Outdoor field instruction</td>
</tr>
</tbody>
</table>

GeoTrips

GSA's first GeoTrip was its memorable 1988 Grand Canyon trip led by Stan Beus and Ivo Lucchitta. Its enormous success prompted the recent 1990 Grand Canyon trip led by the same dynamic duo plus Ken Hamblin. These trips have been welcomed so enthusiastically by members that GSA is sponsoring the following trips in 1991:

Douglas S. Coombs, Otago; Jarg Pettinga, Canterbury

Cosponsored by NAGT.

George Billingsley, Ken Hamblin
Full descriptions of these trips will appear in the December issue of GSA News & Information.

All of GSA's trips are popular and fill immediately. The New Zealand trip, for example, filled within two weeks. So keep us in mind come January 2.

Registration requires a deposit of $200 per person which is accepted by mail, fax, or phone on a first-come, first-served basis. Credit card charges are welcomed. To register call 1-800-GSA-1988 or 1-303-447-2020.

REGISTRATION BEGINS JANUARY 2

GeoHostels

A GeoHostel is a learning experience for geologists. It is site-specific and has a combination of classroom and field experiences that start from the same location each day. A GeoHostel is held for five to seven days at a place that is rich in geological interest as well as plentiful in opportunities for side excursions.

GeoHostels offer:
• an enjoyable experience with an educational focus on topics appealing to a wide range of geologists and their guests
• ample free time to enjoy the special environmental and cultural aspects of the location
• leadership by enthusiastic, well-organized geologists who can speak well and who can cover the topics at a level appropriate for the nonexpert.

1991 GeoHostel Colorado Program:
Golden, Colorado, Estimated cost: $325
Ken Kolm and Greg Holden, Colorado School of Mines
Sunday, June 23 through Thursday, June 27.

Morning classes:
GH1A. Evolution of Geologic Landscapes in the Colorado Rockies, 8:00–9:30
GH2B. Environmental and Engineering Issues in Colorado, 9:30–11:00
GH3B. Old Mining Towns of the Rockies, 9:30–11:00
Fee includes classroom programs, field excursion, lodging (double occupancy), breakfast, welcoming, and farewell events.
More information will appear in the December issue of GSA News & Information.

REGISTRATION BEGINS JANUARY 2 with the same guidelines shown for GeoTrips.

If you would like to receive information on any of the GeoVenture programs as soon as it becomes available, please let us know:
Name ________________________________
Address ________________________________
City/State/Country ________________________________
Phone: (Home) ________________________________ (Work) ________________________________

Please send information on the following 1991 GeoVentures:
☐ GT912 GeoTrip: Great Britain Classical Geology
☐ GT913 Grand Canyon
☐ GH911 GeoHostel: Golden, Colorado
☐ All of the above

Mail to: GeoVentures, Meetings Dept., GSA, P.O. Box 9140, Boulder, CO 80301
1990  GSA Annual Meeting  
Dallas, Texas  
October 29–November 1, 1990

For registration and housing information: see August,  
GSA News & Information

For Technical Program Schedule: see September, GSA  
News & Information

For general information: GSA Meetings Department,  
P.O. Box 9140, Boulder, CO 80301, (303) 447-2020

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1991  GSA Annual Meeting  
San Diego, California  
October 21–24, 1991

R. Gordon Gastil, General Chair, Dept. of Geological  
Sciences, San Diego State University, San Diego, CA 92182

*Short course proposals due: December 1, 1990*

*Theme session and symposia proposals due:  
January 2, 1991*

---

**Air Transportation to 1990 Annual Meeting**

**SAVE 40% OR MORE!**

GSA's official travel agent, Cain Travel Group, has  
negotiated discounted rates of 40% or more with the major  
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already discounted fares, Cain will offer 5% off. In addition,  
Cain will meet or beat any fare offered by another travel  
agency.

As with all airline reservations, please use caution regarding  
change and cancellation penalties that accompany low-fare  
tickets. This applies especially to field trip participants whose  
trips may be canceled after the September 28 preregistration  
deadline.

Advance bookings with Saturday night stays are the  
best route to lowest fares. So call today for best availability.

To make a reservation:

• Call 1-800-346-4747 (toll-free outside Colorado) or  
(303) 443-2246 (collect from Colorado or Canada), fax  
303-443-4485.

• Hours: Monday through Friday, 8 a.m. to 5:30 p.m., Mountain  
Daylight Time.

• Identify yourself as a GSA traveler.

• Be sure that you understand the restrictions on the type of  
ticket you purchase.

• Tickets can be paid for by check (payable to Cain Travel) or  
major credit card or can be invoiced to your company. The  
final payment must reach Cain Travel no later than seven  
days prior to departure to allow for mailing time.

• All tickets will be mailed via certified mail upon receipt of  
payment unless requested otherwise.

• After tickets are issued, you are protected from fare *increases*;  
if a fare *decreases*, call Cain Travel for an adjustment.

• Cain Travel will have an on-site Customer Service Desk at  
the Dallas Convention Center.

---

1991 Annual Meeting • October 21-24 • San Diego, California  
1992 Annual Meeting • October 26-29 • Cincinnati, Ohio

**CALL FOR SHORT COURSE PROPOSALS**

Have you thought about giving a short course?  
The GSA Committee on Short Courses invites those  
interested in proposing a GSA sponsored or cospon-  
sored short course to contact GSA headquarters for  
proposal guidelines.

Short courses may be conducted in conjunction  
with all GSA annual or section meetings, but we are  
particularly interested in identifying short courses to be  
ofered during the 1991 Annual Meeting in San Diego or  
the 1992 Annual Meeting in Cincinnati.

Proposals for the San Diego meeting must be  
received by December 1, 1990. Selection of courses  
will be made by February 1, 1991, leaving eight months  
for preparing course manuals and making arrangements.

For proposal guidelines or information contact:  
Edna A. Collis, Short Course Coordinator, GSA  

---

In conjunction with the 1990 Annual Meeting, GSA's Geology  
and Public Policy Committees is hosting a session, Antarctic Mineral  
Resources Policy, to be held on Sunday, October 28, 1990 at the  
Dallas Hyatt Regency from 2:00 to 4:30 p.m. The session will include  
panel members representing the government, environmental or-  
izations, mining companies, and leading scientific researchers.  
For more information contact Eileen McLellan, (301) 454-3548.
More than anything else, plate tectonics called attention to the need for a global perspective in geology. Global perspective emphasizes the worldwide occurrence of many geologic processes and phenomena as well as the devotion of geological scientists, internationally, to the task of describing and understanding the earth. The meeting theme also relates to our global environment: atmosphere, hydrosphere, and lithosphere. Geoscientists play a role in preserving the environment of planet Earth while extracting and utilizing resources necessary for the support of society. The rapid growth of environmental geology as a discipline and source of employment attests to the importance of its role in today's world. It is time to emphasize a global perspective in our GSA Annual Meeting.

The 1991 Annual Meeting program will be built around symposia, theme, and discipline sessions.

- Symposia are organized only by GSA divisions and associated societies.
- Theme sessions serve to focus volunteered presentations, frequently from a variety of disciplines, on a topic of broad interest.
- Discipline sessions consist of volunteered papers submitted to scientific (rather than topical) classifications.

Theme topics may be proposed by any individual or group. Proposed topic titles and a short explanatory paragraph should be submitted to either Richard W. Berry, Technical Program Chairman, or Gary H. Girty, Technical Program Co-Chair, Dept. of Geological Sciences, San Diego State University, San Diego, CA 92182, (619) 594-5586. *Submission of theme topics is due by January 2, 1991.*

Organizations or groups of individuals submitting theme topics should designate one person as official theme advocate. The theme advocate may solicit contributions but may not guarantee acceptance of any abstract. Abstracts contributed to theme sessions are entirely volunteered and are reviewed by three independent reviewers appointed by the Joint Technical Program Committee (JTPC). The advocate may serve as a fourth reviewer.

Abstracts submitted to a theme session but not deemed relevant to the topic by the official advocate will be reviewed and considered for presentation in a discipline session.

The following ideas have been compiled by the 1991 Annual Meeting Local Committee. They are not intended to be comprehensive nor exclusive. Neither are they necessarily the ones that will emerge as the final titles of theme sessions to which abstracts will be submitted.

**1991 Candidate Themes**
1. Neotectonics and structural geology of Baja California
2. Sedimentary records of terrain accretion
3. San Andreas fault system seismicity and prediction
4. Geologic maps of southern California
5. Environmental geology, techniques, and case histories

**Preliminary List of Theme Topics to Date**
- T1. Correlation of Devonian stratigraphic boundaries in marine and nonmarine facies
- T2. Jurassic magmatism and tectonics of the North American Cordillera
- T3. Mesozoic structural and tectonic evolution of the southwestern margin of North America
- T4. Sands and sandstones: Clues to paleoclimatic and paleotectonic settings
- T5. Comparison of transpressional and transtensional tectonics and landforms.
GSA Section Meetings

1991

Cordilleran
Cathedral Hill Hotel
San Francisco, California
March 25–27

Contact:
Raymond Sullivan
Dept. of Geosciences
San Francisco State University
San Francisco, CA 94132
(415) 338-7730

North-Central
University of Toledo
Toledo, Ohio, April 18–19

Contact:
Lon Ruedisili or Mark Camp
Dept. of Geology
University of Toledo
Toledo, OH 43606
(419) 537-2099

Northeastern-Southeastern
Omni Inner Harbor Hotel
Baltimore, Maryland
March 14–16

Contact:
Emery Cleeves
Maryland Geological Survey
2300 St. Paul Street
Baltimore, MD 21218
(301) 554-5504
or
Juergen Reinhardt
U.S. Geological Survey
926 National Center
Reston, VA 22092
(703) 648-6789

Rocky Mountain–South-Central
University of New Mexico
Albuquerque, New Mexico
April 22–24

Contact:
G. Randy Keller
Dept. of Geological Sciences
University of Texas at El Paso
El Paso, TX 79968-0555
(915) 747-5501
or
John Geissman or Wolfgang Elston
Dept. of Geology
University of New Mexico
Albuquerque, NM 87131
(505) 277-4204

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MEETINGS

(Asterisk indicates new or changed information)

1990


Geoscience Data Conference, October 7–9, 1990, Dallas, Texas. Information: Informart Registration Services, 1950 Stemmons Freeway, Dallas, Texas 75207; (214) 746-3500, fax 214-746-3501.


International Symposium on Environmental Studies on Tropical Rain Forests, October 7–13, 1990, Manaus, Brazil. Information: Organizing Committee–Forest ’90, P.O. Box 3591, 2001 Rio de Janeiro, RJ, Brasil; phone 55-21-211-5581; telex 55-21-22395; fax 55-21-252-9269.

Petroleum Computing in the ’90s Symposium, October 8–9, 1990, Midland, Texas. Information: Permian Basin Graduate Center, P.O. Box 1518, Midland, TX 79702; (915) 683-2832.

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.


Society of Vertebrate Paleontology 50th Anniversary Meeting, October 10–13, 1990, Lawrence, Kansas. Information: SVP 90, Vertebrate Paleontology Division, Museum of Natural History—Dyche Hall, University of Kansas, Lawrence, KS 66045-2454; (913) 864-3216.

FOCUS Conference on Eastern Regional Ground Water Issues, October 17–19, 1990, Springfield, Massachusetts. Information: FOCUS Eastern Conference, National Water Well Association, P.O. Box 182039, Dept. #017, Columbus, OH 43218; (614) 761-1711.

Geodynamics of the Arabian Plate, October 20–25, 1990, Sufat, 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.


Alberta Geological Survey Field Trip to the San Juan Basin, October 24–26, Edmonton. Information: Dennis Nikols, Alberta Geological Survey, Alberta Research Council, P.O. Box 8330, Station F, Edmonton, Alberta T6H 5X2, Canada; (403) 438-7622; fax 403-438-3364.


Geological Society of America Annual Meeting, October 29–November 1, 1990, Dallas, Texas. Information: GSA, Meetings Department, P.O. Box 9140, Boulder, CO 80301; (303) 447-2020. 

MEETINGS continued on p. 304
*Large Igneous Provinces, November 4–6, Woods Hole, Massachusetts. Information: M. F. Coffin, Institute for Geophysics, 8701 Mopac Boulevard, Austin, TX 78759-8345; (512) 471-0429; fax 512-471-8844; Email: mkec@utig.ig.utexas.edu.


Computational Science in Industry and the Comprehensive University, November 8–10, 1990, Pomona, California. Information: Bruce P. Hillam, Dept. of Computer Science, California State Polytechnic University, 3801 West Temple Avenue, Pomona, CA 91768; (714) 869-3440.

Supercomputing '90, November 12–16, 1990, New York, New York. Information: Joanne L. Martin, IBM T. J. Watson Research Center, P.O. Box 218, Rte. 134, Yorktown Heights, NY 10598; (914) 945-3285.


**Penrose Conferences**

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


1991


Society for Mining, Metallurgy, and Exploration Annual Meeting, February 25–28, 1991, Denver, Colorado. Information: Meetings Department, Society for Mining, Metallurgy, and Exploration, P.O. Box 625002, Littleton, CO 80162; (303) 973-9550; fax 303-979-3461.


Second International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics (including special session on the Loma Prieta [California] earthquake of October 17, 1989), March 11–15, 1991, St. Louis, Missouri. Information: Shamsber Prakash, Dept. of Civil Engineering, 308 Butler Carlton Hall, University of Missouri, Rolla, MO 65401-0249; (314) 341-4489; fax 314-341-4729.


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*GSA North-Central Section, April 18–19, 1991, Toledo, Ohio. Information: Lon Ruedisil or Mark Camp, Dept. of Geology, University of Toledo, Toledo, OH 43606. (Abstracts deadline: December 12, 1990.)

International Symposium on Geophysical Hazards in Developing Countries and Their Environmental Impacts, April 21–27, 1991, Cairo, Egypt. Information: T. S. Murty, Hazards-91, c/o Institute of Ocean Sciences, P.O. Box 6000, Sidney, B.C. V8L 4B2, Canada; (604) 356-6311; telex 04-97281; fax 604-356-6390; Mohammed I. El-Sabh, Hazards-91, Dept. Oceanographie, Université du Québec, 300, Allée des Ursulines, Rimouski, Québec G5L 3A1, Canada; (418) 724-1707; telex 051-31623; fax 418-723-7234.

*GSA Rocky Mountain and South-Central Sections, April 22–24, 1991, Albuquerque, New Mexico. Information: G. Randy Keller, Dept. of Geological Sciences, University of Texas, El Paso, TX 79968-0555; (915) 747-5501; John Geissman or Wolfgang Elston, Dept. of Geology, University of Albuquerque, Albuquerque, NM 87131; (505) 277-4204. (Abstracts deadline: December 20, 1990.)


11th International Symposium on Ostracoda, July 8–13, 1991, Warrnambool, Victoria, Australia. Information: Peter J. Jones, Bureau of Mineral Resources, P.O. Box 378, Canberra A.C.T. 2601, Australia; phone (06) 249 9737; fax 06-257 6465.

*Sixth International Symposium on the Ordovician System, July 15–19, 1991, Sydney, Australia. Information: Earth Resources Foundation, Edgeworth David Building, University of Sydney, Sydney, N.S.W., Australia, 2006; (02) 692 2038 (Int. 61+2); fax (02) 692 0184 (Int. 61+2).

*150th Anniversary Conference on the Permian System, August 1991, Perm, USSR. Information: A.E.M. Nairn, Perm Conference, Earth Sciences & Resources Institute, University of South Carolina, Columbia, SC 29208; (803) 777-6484; fax 803-777-6437; telex 9102501347 USC ESI UQ.

Sedimentary and Paleolimnological Records of Saline Lakes, August 13–16, 1991, Saskatoon, Saskatchewan. Information: Robin W. Renaut, Dept. of Geological Sciences, University of Saskatchewan, Saskatoon, Saskatchewan S7N 0W0, Canada; fax 306-966-8593; W. M. Last, Dept. of Geological Sciences, University of Manitoba, Winnipeg, Manitoba R3T 2N2, Canada; fax 204-261-7581.


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Notice of Council Meeting

The Council of the Society reminds you that meetings of Council are open to all Fellows, Members, and Student Associates as observers, except during executive sessions. Only Councilors, officers, and section representatives may speak to agenda items, except by invitation of the chair. Because of space and seating problems, notification of attendance must be received by the Executive Director in advance of the meeting. The next meeting of the Council will be Wednesday morning, October 31, 1990, at the Annual Meeting in Dallas.

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Geometry of Naturally Deformed Rocks (John Ramsay Meeting), September 9–11, 1991, Zürich, Switzerland. Information: E. Pour, Geologisches Institut, ETH-Zentrum, CH-8092, Zürich, Switzerland; phone 256 36 80; fax 252-70-08. (Abstracts deadline: June 1, 1991.)


Second International Conference on the Abatement of Acidic Drainage, September 16–18, 1991, Montreal, Québec. Information: Pamela Friedrich, Centre des Recherches Minérales, 1665, boulevard Hamel, Édifice 2, 1er étage, Québec, Québec G1N 3Y7, Canada.


*Fifth International Congress on Pacific Neogene Stratigraphy and IGC 246, October 6–10, 1991, Shizuoka, Japan. Information: V-CPNS-IGCP246 Organizing Committee, Geoscience Institute, Faculty of Science, Shizuoka University, Shizuoka 422, Japan; fax 81-542-37-9895.

International Symposium on Debris Flow and Flood Disaster Protection, October 14–20, 1991, Emeishan City, Sichuan Province, China. Information: Tong Yuling, International Research and Training Centre on Erosion and Sedimentation (ITCES), P.O. Box 366, Beijing, China 100044; phone 8413372; telex 22786 ITCES CN; fax 8412539.


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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Apply by December 1, 1990 with a letter of application, resume, copies of all transcripts and names of three individuals who may be contacted for letters of recommendation. Address all communications to Maryellen Cameron, Chair, Department of Geology, Miami University, Oxford, Ohio 45056. Women and minority candidates are encouraged to apply. Miami University offers equal opportunity in education and employment. X10/90

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