

G.S.A. ARCHIVES

GSA NEWS & INFORMATION

Monthly Newsletter of
The Geological Society of America

VOLUME 9 NUMBER 4

APRIL 1987

Wanted: GSA Members To Serve on Committees

The GSA Committee on Committees wants your help. As one of his duties, Vice-President Albert W. Bally has appointed a group to look for talent to serve GSA as members of our committees and as our representatives to other organizations.

The Committee on Committees will meet in late July or early August and will present at least two nominations for each open position to the Council at its October 28 meeting in Phoenix, Arizona. During that meeting, individual councilors may add other names to the lists for consideration. The entire Council will then select appointees for all positions, thus completing the process of bringing new expertise into Society affairs.

The Committee on Committees for 1987 consists of the following people: Chairman David E. Dunn, Natural Sciences & Mathematics, University of Texas at Dallas, Box 830688, Richardson, TX 75083-0688, (214) 690-2516; Priscilla C. Grew, Minnesota Geological Survey, 2642 University Avenue, St. Paul, MN 55114, (612) 373-3372; James Helwig, Schlumberger Research, Old Quarry Road, Ridgefield, CT 06877-4108, (203) 431-5249; David A. Stephenson, Dames & Moore, Suite 145, 7500 N. Dreamy Draw Drive, Phoenix, AZ 85020, (602) 371-1110; Bruce H. Wilkinson, Department of Geological Sciences, 1006 C.C. Little Building, University of Michigan, Ann Arbor, MI 48109-1063, (313) 764-1435.

This group is broadly based, both geographically and in disciplines, but its members cannot possibly know all the GSA members who are potential candidates for serving the Society. You can help them by volunteering yourself or by suggesting names of others you think should be considered for any of the openings and submitting your nomination on the form on page 83.

In making recommendations, please give serious consideration to the special qualifications of the individual for a particular committee. To assist you in nominating GSA members for these various positions, see the following brief summaries of what each committee does and what qualifications are desirable. Please be sure that your candidates are Members or Fellows of the Society and that they meet fully the requested qualifications.

All nominations received at headquarters on the official one-page form will be forwarded to the committee members. **DEADLINE: JUNE 15, 1987.** Information requested on this form will assist the Committee on Committees with their recommendations for the 1988 committee vacancies. Please use one form per

candidate. (Additional forms may be copied or requested from GSA headquarters.)

Listed below are the committees and the number of vacancies that will occur. Appointments will be made by the GSA Council at its meeting in Phoenix in October.

COMMITTEES AND QUALIFICATIONS

Day Medal (3 vacancies)

Selects candidates for the Arthur L. Day Medal.

Committee members should have knowledge of those who have made "distinct contributions to geologic knowledge through the application of physics and chemistry to the solution of geologic problems."

Geology & Public Policy (2 vacancies)

Translates knowledge of the earth sciences into forms most useful for public discussion and decision making.

Committee members should have an awareness of public policy and decisions involving the science of geology. They should also be able to develop, disseminate, and translate information from the geologic sciences into useful forms for the general public and for the Society membership; they should be familiar with appropriate techniques for the dissemination of information.

Honorary Fellows (2 vacancies)

Selects candidates for Honorary Fellows, usually non-North Americans.

Committee members should have knowledge of geologists throughout the world who have distinguished themselves through their contributions to the science.

Membership (2 vacancies)

Screens Member and Fellow applications; evaluates membership benefits and makes recommendations to the Council about them.

Committee members must be GSA Fellows and must be able to attend one meeting a year. Previous experience in recruitment programs and in the evaluation of professional qualifications is desired.

(continued on p. 82)

NOMINATION FOR GSA COMMITTEES FOR 1988

(One form per candidate, please. Additional forms may be copied.)

Name of candidate:
Address:
Phone:

(Please Print)

COMMITTEE(S) BEING VOLUNTEERED or NOMINATED FOR (please check):

Committee(s):

Comment on special qualifications:

GSA Fellow ()

Section affiliation:

GSA Member ()

Division affiliation(s):

Candidate's year of birth:

Brief summary of education:

Brief summary of work experience (include scientific discipline, principal employer—e.g., mining industry, academic, USGS, etc.):

If you are nominating someone other than yourself to serve GSA and are not volunteering, please give your name, address, and phone number (please print):

DEADLINE: Please return this form to headquarters by June 15, 1987.

The Decade of North American Geology DNAG



NOW AVAILABLE!

TRANSECTS

Continent Ocean Transects

Each transect contains all or most of the following information: Free-air gravity and magnetic anomaly profiles, heat flow measurements, geologic cross section with no vertical exaggeration, multi-channel seismic reflection profiles, tectonic kindred cross section with vertical exaggeration, geologic map, stratigraphic diagram, an index map. All transects are on a scale of 1:500,000 and include a text and file envelope.

A-2: Kodiak to Kuskokwim, Alaska

R. von Huene, S. Box, B. Detterman, M. Fisher, C. Moore, H. Pulpan, 1985. One sheet in color each 55" x 41"

TRA A-2 Rolled \$9.50; folded \$7.50

B-1: Intermontane Belt (Skeena Mountains) to Insular Belt (Queen Charlotte Islands)

C.J. Yorath, G.J. Woodsworth, R.P. Riddihough, R.G. Currie, R.D. Hyndman, C.G. Rogers, D.A. Seemann, A.D. Collins, 1985. Two sheets in color, each 52" x 39"

TRA B-1 Rolled \$17.00; folded \$15.00

B-2: Juan de Fuca Plate to Alberta Plains

J.W.H. Monger, R.M. Clowes, R.A. Price, P.S. Simony, R.P. Riddihough, G.J. Woodsworth, 1985. Two sheets in color, each 55" x 40"

TRA B-2 Rolled \$17.00; folded \$15.00

B-3: Juan de Fuca Spreading Ridge to Montana Thrust Belt

D.S. Cowan, C.J. Potter, 1985. Three sheets in color, each 50" x 40"

TRA B-3 Rolled \$26.30; folded \$24.30

C-2: Central California Offshore to Colorado Plateau (San Francisco to Socorro)

J. Saleeby and others, 1986. Two sheets in color, 40½" x 56"

TRA C-2 Rolled \$18.20; folded \$16.20

C-3: Pacific Abyssal Plain to the Rio Grande Rift

D.G. Howell, J.D. Gibson, G.S. Fuis, J.H. Knapp, G.B. Haxel, B.R. Keller, L.T. Silver, J.G. Vedder, 1985. Three sheets in color, each 54½" x 41"

TRA C-3 Rolled \$24.50; folded \$22.50

D-1: Northern Appalachian: (West sheet) Grenville Province, Quebec, to Newfoundland. (East sheet) Rifted Margin Offshore Northeast Newfoundland

R.T. Haworth, H. Williams, C.E. Keen, 1985. Two sheets in color, each 56½" x 41"

TRA D-1 Rolled \$17.00; folded \$15.00

D-2: Transform Margin South of Grand Banks: Offshore Eastern Canada

C.E. Keen, R.T. Haworth, 1985. One sheet in color, 38" x 57"

TRA D-2 Rolled \$ 9.50; folded \$ 7.50

D-3: Rifted Continental Margin Off Nova Scotia: Offshore Eastern Canada

C.E. Keen, R.T. Haworth, 1985. One sheet in color, 38" x 57"

TRA D-3 Rolled \$ 9.50; folded \$ 7.50

D-4: Rifted Continental Margin Off Labrador

C.E. Keen, R.T. Haworth, 1985. One sheet in color, 32" x 54½"

TRA D-4 Rolled \$ 9.50; folded \$ 7.50

G: Canadian Arctic, Somerset Island to Canada Basin

J.F. Sweeney and others, 1986. Two sheets in color, 40½" x 57", with 5-page text

TRA G Rolled \$19.40; folded \$17.40

VOLUMES

Centennial Special Volumes

Four topical volumes prepared by four of GSA's discipline-oriented Divisions.

Geologists and Ideas: A History of North American Geology.

edited by Ellen T. Drake and William M. Jordan, 1985. CSV-1, 520 p., ISBN 0-8137-5301-5, CIP, hard bound \$37.50

Centennial Field Guides

Six volumes prepared by each of the six sections of GSA describing 100 outstanding geologic localities within that Section.

Centennial Field Guide, Volume 6, Southeastern Section of GSA.

edited by T.L. Neathery, 1986. CFG-6, 477 p., ISBN 0-8137-5406-2, CIP, hardbound \$40.50

Geology of North America

The centerpiece of the DNAG project, a modern synthesis of the geology and geophysics of North America and adjacent oceanic regions.

Geology of North America, Volume M, The Western North Atlantic Region.

edited by P.R. Vogt and B.E. Tucholke, 1986. GNA-M, 720 p., with accompanying slip case for 11 plates, ISBN 0-8137-5202-7, CIP, hardbound 47.50

ADDITIONAL DNAG PROJECT PRODUCTS

Geologic time scales in four different formats

Package of 50, 8½" x 11", drilled for 3-ring binder. CTS-1 \$ 8.00
1 sheet, 8½" x 11", plastic coated, drilled for 3-ring binder. CTS-2 ... \$ 1.25
Wallet size, printed 2 sides, package of 25. CTS-3 \$ 6.00
Wall size, 30" x 36". MC-50 \$ 8.50

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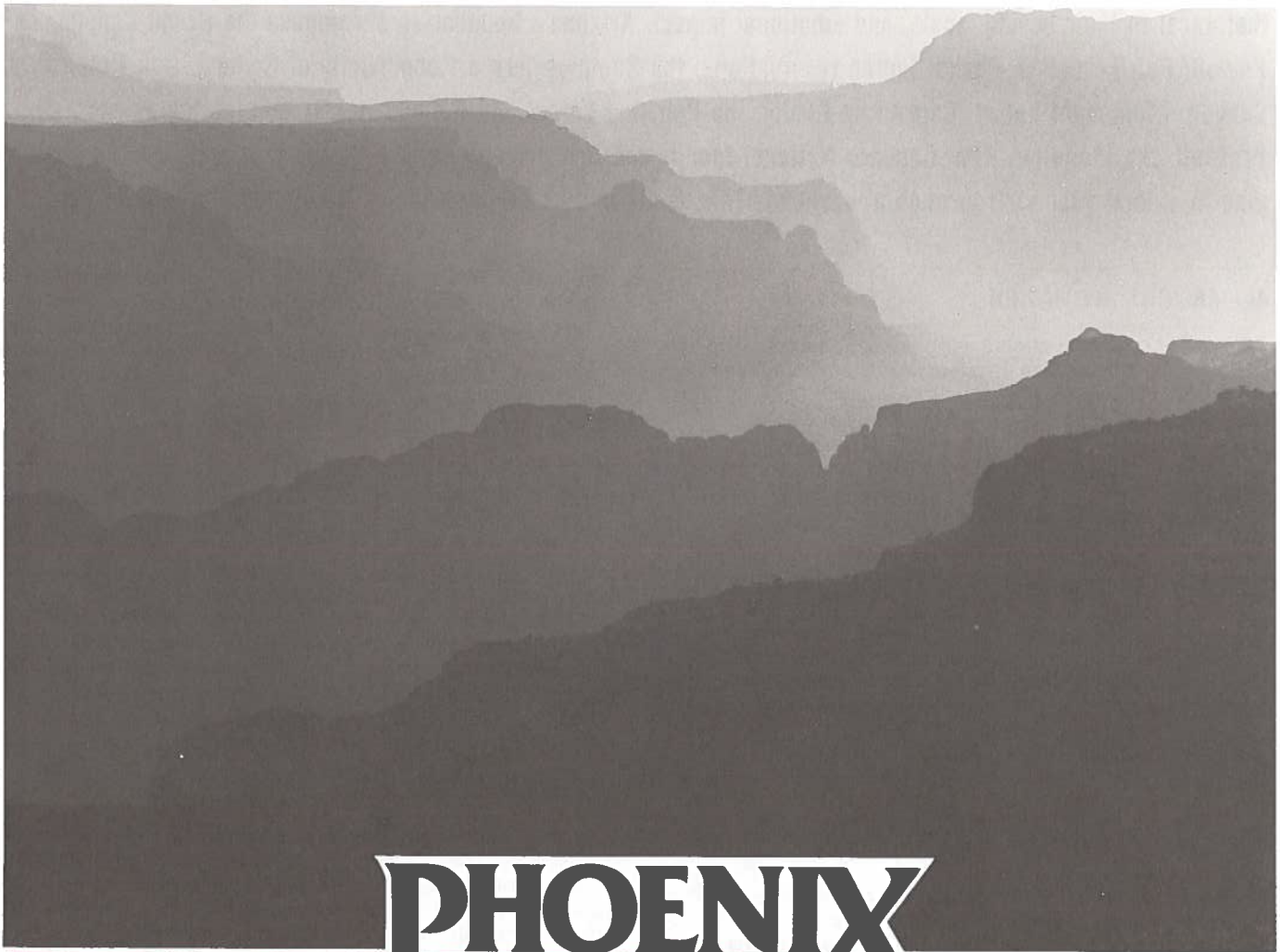
GEOLOGICAL SOCIETY OF AMERICA

P.O. BOX 9140

BOULDER, COLORADO 80301



1987 ANNUAL MEETING



PHOENIX

PHOENIX CIVIC CENTER • PHOENIX, ARIZONA • OCTOBER 26-29, 1987

ABSTRACTS DUE JUNE 11

for abstract forms 303/447-8850

PREREGISTRATION DUE SEPTEMBER 25

for meeting information 303/447-2020

ASSOCIATED SOCIETIES MEETING WITH GSA: Cushman Foundation • National Association of Geology Teachers
Geochemical Society • Paleontological Society • Geoscience Information Society • Society of Economic Geologists
Mineralogical Society of America



1987 ANNUAL MEETING

GSA's first visit to Phoenix will be well remembered. Arizona has an abundance of popular geologic destinations, so when the location is put together with an offering of 33 field trips and 27 well-selected symposia, this is shaping up as one of GSA's largest and most unusual meetings.

Using Phoenix as a gateway, visitors can reach impressive natural wonders and unusual cultures that excel in their beauty, scale, and emotional impact. Arizona's boundaries encompass the Grand Canyon, Lake Powell, San Francisco Peaks, Indian reservations, the Southwestern art community of Sedona, Oak Creek Canyon, Monument Valley, Canyon de Chelly, the Petrified Forest and Painted Desert, mining towns such as Prescott, the Mogollon Rim, Saguaro National Monument, and Arizona-Sonora Desert Museum. If at all possible, plan to extend your visit through a weekend. This really is a grand opportunity at an exquisite time of year.

ALL-ARIZONA INVITATION

This is a cooperative effort that pools the resources and talents of geologists throughout the state of Arizona. Our General Chairman, William R. Dickinson, University of Arizona, has gathered support from every corner of the state. Although it is in the best tradition of cliches to praise the efforts of committees, please accept our word that this group has been singularly creative, diligent, and effective in bringing you an absolutely dynamite annual meeting.

PRELIMINARY ANNOUNCEMENT AND CALL FOR PAPERS

Technical sessions consist of both volunteered and invited papers. Invited papers were preorganized into symposia. Papers submitted on a volunteered basis will be reviewed and then selected by the Joint Technical Program Committee in July. The final schedule for the entire technical program will appear in the August registration issue of *GSA News & Information*.

VOLUNTEERED PAPERS

Abstracts are usually volunteered on a general basis to one of the 35 disciplines listed on the abstract form. In addition, some abstracts will be submitted to specific theme sessions. Theme sessions are being tried in 1987 as a method of encouraging open submission to topical sessions. Papers will be reviewed simultaneously and then selected for either general or theme sessions. Papers not accepted for a theme session will continue through the process to be considered for a general session organized by discipline rather than topic.

Abstracts for all the technical sessions (both oral and poster presentations) must be submitted on 1987 abstract forms, available from the Abstracts Coordinator, GSA headquarters, and from the geology departments of most colleges and universities. The abstract form will be used as camera-ready copy for publication of **Abstracts with Programs**. Senior

authors will be charged a \$15 fee if retyping is necessary, and there will be no opportunity for authors to review or revise typed abstracts after they are submitted. Note: No more than one abstract from any person as sole or senior author will be accepted for publication, and due to scheduling difficulties, no author may present more than one volunteered paper. These restrictions do not apply to symposia.

DEADLINE FOR RECEIPT OF VOLUNTEERED ABSTRACTS AT GSA: THURSDAY, JUNE 11, 1987

Normal length of presentation is 15 minutes, including time for discussion. Projection equipment consists of TWO 35-mm (2" x 2") projectors, one overhead projector, and two screens. Each poster session speaker will be provided with three tackboards approximately 8' wide and 4' high. The boards are horizontal and free-standing in a 10' x 10' three-sided area. Poster presentations are scheduled in four-hour intervals.

THEME SESSIONS: NEW FOR PHOENIX 1987

To provide a *timely and coherent forum for exciting ideas and topics*, the Joint Technical Program Committee (JTTC) for the 1987 Phoenix meeting of the GSA invites you to use a new way of bringing together technical presentations: theme sessions. A theme session is a topically named technical session suggested to the JTTC by any individual or division or associated society of the Geological Society of America. The organizers provide to the JTTC a title, theme statement, and a list of abstracts that they wish to have considered for the theme session. The abstracts will be treated as volunteered rather than invited, and they are subject to the same rigorous review by outside reviewers as other volunteered abstracts. The JTTC, if it is able to accommodate the suggested theme session, may modify the list of abstracts to be included and may add other volunteered abstracts that seem appropriate.

If you would like to suggest a theme session for the 1987 national meeting, please follow these guidelines:

1. Send your proposed title, a one-page statement of why the topic is timely, the names and addresses of two persons who have agreed to act as chairpersons for the session if it is accepted, and a list of suggestions for abstracts and participants in the session to either JTPC Chair or Co-Chair by *May 15, 1987*.

Clement G. Chase
JTPC Chair
Department of Geosciences
University of Arizona
Tucson, Arizona 85721
(602) 621-2417

J. Dale Nations
JTPC Co-Chair
Department of Geology
Northern Arizona University
Flagstaff, Arizona 86011
(602) 523-7180

2. **DO NOT SEND ABSTRACTS WITH THE PROPOSAL.** Individual authors should send the abstracts directly to headquarters by the abstract deadline, June 11.
3. For each abstract you propose, please make sure that you list the exact abstract title and the names of all authors. *The speaker's name should be first.* This procedure will help the Abstracts Coordinator at GSA headquarters correctly identify the abstracts when they are submitted for consideration for this session.
4. By June 1, the JTPC Chairmen will decide which of the suggested theme sessions can be accommodated. The proposer will be notified immediately. *Acceptance of the theme session will not imply acceptance of any of the proposed abstracts.*
5. Again, *please do not send the abstracts with the proposal.* Ask each participant to write the title of the proposed theme session in pencil at the very bottom of the abstract form and to mail it directly to GSA by the abstracts deadline, *June 11*.

The following will be the procedure after June 11:

- All abstracts will be reviewed by the appropriate JTPC reviewer.
- On July 17, abstracts will be selected by the 26-member JTPC, which is composed of representatives from each division and society. The appropriate representatives will determine the schedule of abstracts for the theme session. The proposer will be notified approximately one week afterward.
- The theme sessions will appear in the meeting program identified by title and sponsoring individuals or organizations.

Although the themes will not have been published, due to the limited time we have for developing this new program for 1987, you may hear about a theme idea. *If you wish to submit an abstract for inclusion in a theme session someone else has suggested, write the title of the theme session in pencil at the very bottom of your abstract form, and mail it to be received at GSA headquarters by the volunteered abstract deadline, June 11.*

INVITED SYMPOSIA

Conveners for the following symposia have already chosen their speakers, who will submit invited abstracts directly to the convener. If you would like to talk with a convener directly, please call GSA for contact information.

1. **Geology of Human Origins and Cultural Evolution.** Archaeological Geology Division; Fekri Hassan,

Washington State University.

2. **Predicting Coal Quality by Means of Basin Analysis, Geophysical Data, and Geochemical Techniques.** Coal Geology Division; Frederick Kuellmer, New Mexico Institute of Mining and Technology.
3. **Neotectonics in Earthquake Evaluation.** Engineering Geology Division; Ellis Krinitsky, Waterways Experiment Station.
4. **California-Arizona Crustal Transect: Detachment Terrane to Colorado Plateau.** Geophysics Division; Keith Howard, USGS Menlo Park.
5. **History of Studies of Arid Lands: Ancient and Modern.** History of Geology Division; William Jordan, Millersville University.
6. **Geochemical Reactions and Related Physical Processes Associated with Organic Compounds in Ground Water.** Hydrogeology Division; Mary Jo Baedecker, USGS Reston.
7. **Global Change: A Geological Perspective on Earth-System Science.** Planetary Geology Division and Quaternary Geology and Geomorphology Division; Victor Baker, University of Arizona, and James Head, Brown University.
8. **Tectonic versus Eustatic Effects on Cretaceous Sedimentation of the Western Interior of North America.** Sedimentary Geology Division; Niall Mateer, Laramie, Wyoming.
9. **Structure and Tectonics of Accretionary Prisms.** Structural Geology and Tectonics Division; Darrel Cowan, University of Washington.
10. **Paleoceanography and Paleontology of the Gulf of California.** Cushman Foundation; James Ingle, Stanford University.
11. **Cenozoic Potassium-Rich Igneous Rocks of the Colorado Plateau and Surrounding Regions.** Geochemical Society; G. Nell Tyner, Florida Institute of Technology.
12. **Collections for the Future: Archivists, Curators, Historians, Bibliographers Speak.** Geoscience Information Society; Jean Eaglesfield, Massachusetts Institute of Technology.
13. **Synchrotron Radiation Research in Geological Sciences.** Mineralogical Society of America; Gordon Brown, Jr., Stanford University.
14. **Time, Life, and the Rock Record: New Implications for Teaching.** National Association of Geology Teachers; Robert Norris, University of California, Santa Barbara.
15. **Rates of Evolution in Fossil Lineages.** Paleontological Society; Bjorn Malmgren, University of Uppsala.
16. **Proterozoic Ores of the Southern Cordillera.** Society of Economic Geologists; Spencer Titley, University of Arizona.
17. **Ore-Bearing Granite Systems: Petrogenesis and Mineralization Processes.** Society of Economic Geologists; Holly Stein, USGS Denver.
18. **Geology and Tectonics of Mexico.** Joaquin Ruiz, University of Arizona.
19. **The Cordilleran-Caribbean Connection: Mesozoic Geology from the Mojave Desert to the Gulf of Mexico.** William Dickinson, University of Arizona.
20. **Sedimentary Facies, Biostratigraphy, and Paleocology of the Southwestern Margin of the Cretaceous Western Interior Seaway.** Dale Nations, Northern Arizona University.
21. **Tertiary Extensional Tectonics of the Colorado River Region.** Gary Axen, Northern Arizona University.
22. **Early Proterozoic Continental Assembly of Southwestern North America.** Karl Karlstrom, Northern Arizona University.

ABSTRACTS COORDINATOR 303/447-8850

ALL OTHER MEETING INFORMATION 303/447-2020

23. **"Anorogenic" Silicic Magmatism: Proterozoic to the Present.** Eric Christiansen, Brigham Young University.
24. **Inception and Timing of Deformation in the Late Mesozoic and Early Cenozoic Cordilleran Fold-Thrust Belt.** Tim Lawton, New Mexico State University.
25. **Geology in China.** B. Clark Burchfiel, Massachusetts Institute of Technology.
26. **Origins of Methane in the Earth.** Martin Schoell, Chevron Oil Field Research Company, La Habra, California.
27. **Structure and Evolution of the Rio Grande Rift.** Kenneth Olsen, Los Alamos National Laboratory.

FIELD TRIPS

Since Phoenix '87 will be the first time that an annual meeting of the Geological Society of America has been held in Arizona, it represents the first formal, comprehensive exposure of the geology of Arizona, as presented in the context and tradition of an annual GSA meeting. It is our hope that the range of choices, the quality of trip leadership, and the spectacular nature of the geology targeted will make your decision to participate easy, but your selection of trips difficult indeed. Late October/early November is a perfect time for field work in the southern Colorado Plateau and Basin and Range. Above and beyond the quality of exposure and the natural aesthetic appeal of the Southwest, the trips will provide a sense of the discovery and momentum that attends geological research in the Southwest, during this the close of the first century of GSA. How appropriate indeed that the 100th meeting of the Geological Society of America be held in the Grand Canyon state.

Editor's Note: Although 1987 will be GSA's 100th annual meeting, GSA's Centennial Celebration will be in 1988. GSA came into existence during the first meeting but did not celebrate its first anniversary until one year later. Consequently, the 100th meeting precedes the 100th anniversary.

Estimated costs are tentative and for planning purposes. They cover lodging, transportation, and some meals. Registration will begin August 1, 1987. Forms and additional information will be available in the August issue of *GSA News & Information*.

For further information contact George H. Davis (Chairman), Department of Geosciences, University of Arizona, Tucson, Arizona 85721, (602) 621-3592; Jon E. Spencer (Co-Chairman), Bureau of Geology/Mineral Technology, 845 N. Park Avenue, Tucson, Arizona 85719, (602) 621-7906; or the Field Trip Coordinator, GSA headquarters.

Co-Coordinator: Daniel J. Brennan, Oil and Gas Conservation Commission, State of Arizona, Phoenix; George E. Gehrels and Margaret Klute, University of Arizona, Tucson; Ronald C. Blakey and Larry T. Middleton, Northern Arizona University, Flagstaff; and Larry Fellows, Bureau of Geology & Mineral Technology, Tucson.

PREMEETING TRIPS

Mesozoic Thrust Faults, Tertiary Detachment Faults, and Associated Rocks, Fabrics, and Mineralization, Whipple-Buckskin-Harcuvar Area, Western Arizona and Southeastern California—Jon Spencer and Stephen Reynolds, Bureau of Geology, Tucson, Arizona; Gregory A. Davis and J. Lawford Anderson, University of Southern California, University Park, Los Angeles, California. Three days. Limit: 40 participants. Estimated cost: \$202.

Terraces of the Lower Salt River Valley in Relation to the Late Cenozoic History of the Phoenix Basin, Arizona—Troy L. Péwé, Arizona State University, Tempe, Arizona. One day. Limit: 35 participants. Estimated cost: \$65.

Lower Cretaceous Coral-Algal-Rudist Patch Reefs in Southeastern Arizona—Joseph F. Schrieber, Jr., University of Arizona, Tucson, Arizona; Robert W. Scott, Amoco Production Company, Tulsa, Oklahoma. Three days. Limit: 25 participants. Estimated cost: \$219.

Archaeological Geology of Paleo-Indian Sites in Southeastern Arizona—Michael R. Waters, Texas A&M University, College Station, Texas; C. Vance Haynes, Jr., University of Arizona, Tucson, Arizona. Two days. Limit: 40 participants. Estimated cost: \$122.

Paleoecology and Taphonomy of Recent to Pleistocene Intertidal Deposits, Gulf of California—Karl W. Flessa, University of Arizona, Tucson, Arizona; A. A. Ekdale, University of Utah, Salt Lake City, Utah. Three and one-half days. Limit: 30 participants. Estimated cost: \$229.

Late Paleozoic Depositional Systems, Sedona-Jerome Area, Central Arizona—Ronald C. Blakey and Larry T. Middleton, Northern Arizona University, Flagstaff, Arizona. Two days. Limit: 40 participants. Estimated cost: \$103.

Geomorphology and Structure of Colorado Plateau/Basin and Range Transition Zone, Arizona—Richard A. Young, SUNY Geneseo, Geneseo, New York; H. Wesley Pierce, Bureau of Geology & Mineral Technology, Tucson, Arizona; James E. Faulds, University of New Mexico, Albuquerque, New Mexico. Three days. Limit: 39 participants. Estimated cost: \$173.

Tectonic and Magmatic Contrasts Across a Two-Province Proterozoic Boundary in Central Arizona—Clay M. Conway, USGS, Flagstaff, Arizona; Karl E. Karlstrom, Northern Arizona University, Flagstaff, Arizona; Leon T. Silver, California Institute of Technology, Pasadena, California; Chester Wrucke, USGS, Menlo Park, California. Three days. Limit: 40 participants. Estimated cost: \$159.

Colorado River Float Trip To Examine the Geology of Eastern Grand Canyon, Arizona—Stanley S. Beus, Northern Arizona University, Flagstaff, Arizona; Ivo Lucchitta, USGS, Flagstaff, Arizona. Six and one-half days. Limit: 24 participants. Estimated cost: \$263.

Late Cenozoic Volcanism in the San Francisco and Mormon Volcanic Fields, Southern Colorado Plateau, Arizona—Richard F. Holm, Northern Arizona University, Flagstaff, Arizona; George E. Ulrich, USGS, Hawaii Volcano National Park, Hawaii. Two days. Limit: 38 participants. Estimated cost: \$162.

Geology of the Grand Canyon (backpack)—Wayne Ranney and Ralph Hopkins, Flagstaff, Arizona. Three days. Limit: 14 participants. Estimated cost: \$262.

Miocene Extension, Volcanism, and Sedimentation in the Eastern Basin and Range Province, Southern Nevada—Eugene I. Smith, University of Nevada, Las Vegas, Nevada; R. Ernest Anderson, USGS, Denver, Colorado; Robert J. Bohannon, USGS, Menlo Park, California; Gary Axen, Northern Arizona University, Flagstaff, Arizona. Three and one-half days. Limit: 35 participants. Estimated cost: \$226.

Late Pleistocene Alluvium and Megafauna Dung Deposits of the Central Colorado Plateau—Larry D. Agenbroad and Jim I. Mead, Northern Arizona University, Flagstaff, Arizona. Four days. Limit: 16 participants. Estimated cost: \$256.

Large-Scale Silicic Volcanism of the Jemez Mountains and Geology of the Adjacent Rio Grand Rift, New Mexico—Stephen Self and John Wolff, University of Texas, Arlington, Texas; Jamie Gardner and Fraser Goff, LANL, Los Alamos, New Mexico. Three days. Limit: 42 participants. Estimated cost: \$259.

Cretaceous of Black Mesa and Kaiparowits Basins, Northeastern Arizona and Southeastern Utah—Dale Nations, Northern Arizona University, Flagstaff, Arizona; James Kirkland and Jeff Eaton, University of Colorado, Boulder, Colorado; David Carr, Arizona Department of Water Resources, Phoenix, Arizona. Thomas A. Ryer, Research Planning Institute, Boulder, Colorado; Karen Franczyk, USGS, Denver, Colorado. Three days. Limit: 30 participants. Estimated cost: \$196.

Crustal Transect: Colorado Plateau–Detachment Terrane–Salton Trough—Eric G. Frost, CALCRUST, University of California, Santa Barbara, California. Four days. Limit: 69 participants. Estimated cost: \$282.

Coal Deposits and Facies Changes along the Southwestern Margin of the Late Cretaceous Seaway—Gretchen Roybal and Frank E. Kottowski, New Mexico Bureau of Mines and Resources, Albuquerque, New Mexico; Edward C. Beaumont, Albuquerque, New Mexico. Three and one-half days. Limit: 40 participants. Estimated cost: \$320.

Selected Hydrogeologic Problems in Central Arizona—Thomas L. Holzer, U.S. Geological Survey, Menlo Park, California; Mario R. Lluria, Boyle Engineering Corporation, Phoenix, Arizona. One day. Limit: 45 participants. Estimated cost: \$59.

POSTMEETING TRIPS

Geology of the Lower Grand Canyon and Upper Lake Mead by Boat—An Overview—Frederick W. Bachhuber and Stephen Rowland, University of Nevada, Las Vegas, Nevada. Three days. Limit: 45 participants. Estimated cost: \$539.

A Geologic Reconnaissance into the Western Grand Canyon, Arizona—George H. Billingsley, John D. Hendricks, and Ivo Lucchitta, USGS, Flagstaff, Arizona. Three days. Limit: 27 participants. Estimated cost: \$405.

Metamorphic Core Complexes, Mesozoic Thrusts, and Cenozoic Detachments: Old Woman Mountains–Chemehuevi Mountains Transect, California–Arizona—Keith A. Howard, USGS, Menlo Park, California; Barbara E. John, University of California, Santa Barbara, California; Calvin F. Miller, Vanderbilt University, Nashville, Tennessee; Calvin James, University of Texas, El Paso, Texas. Four days. Limit: 50 participants. Estimated cost: \$340.

Alkaline Rocks and Volcanic Structures of the Pinacate Volcanic Field, Sonora—Daniel J. Lynch and Peter Kresan, University of Arizona, Tucson, Arizona; James T. Gutmann, Wesleyan University, Middletown, Connecticut. Three days. Limit: 40 participants. Estimated cost: \$188.

Land Subsidence and Earth Fissure Formation in Eastern Maricopa and Northern Pinal Counties, Arizona—Troy L. Péwé, Arizona State University, Tempe, Arizona; Herbert Schumann, USGS, Water Resources Division, Phoenix, Arizona; Richard H. Raymond, Tempe, Arizona. One day. Limit: 35 participants. Estimated cost: \$51.

Late Cenozoic Mammal Faunas and Magnetostratigraphy, Southeastern Arizona—Everett Lindsay, University of Arizona, Tucson, Arizona; Neil D. Opdyke, University of Florida, Gainesville, Florida; Noye M. Johnson, Dartmouth College,

Hanover, New Hampshire. Two days. Limit: 40 participants. Estimated cost: \$134.

Geology of Porphyry Copper Ores in the Globe–Miami District—Spencer R. Titley, University of Arizona, Tucson, Arizona. One day. Limit: 80 participants. Estimated cost: \$48.

Ductile to Brittle Evolution of the South Mountains Metamorphic Core Complex—Stephen J. Reynolds, Arizona Geological Survey, Tucson, Arizona. One day. Limit: 80 participants. Estimated cost: \$38.

Structural Geology of the Rincon and Pinaléño Metamorphic Core Complexes, Southeastern Arizona—George H. Davis and Stephen J. Naruk, University of Arizona, Tucson, Arizona; Charles H. Thorman, USGS, Denver, Colorado. Two days. Limit: 37 participants. Estimated cost: \$104.

Tectonic Setting and Sedimentological Features of Upper Mesozoic Strata in Southeastern Arizona—William R. Dickinson and Margaret A. Klute, University of Arizona, Tucson, Arizona; William L. Bilodeau, University of Colorado, Denver, Colorado. Three days. Limit: 40 participants. Estimated cost: \$262.

Massive Sulfide Ores at Jerome, Arizona—Paul Lindberg, Sedona, Arizona. One day. Limit: 40 participants. Estimated cost: \$51.

Upper Holocene Alluvium of the Southern Colorado Plateau—Richard Hereford, USGS, Flagstaff, Arizona. Three days. Limit: 30 participants. Estimated cost: \$262.

Mesquite Mine—Stanley Watowich, Goldfields Mining Corporation, Yuma, Arizona. Two days. Limit: 60 participants. Estimated cost: \$174

Big Maria–McCoy–Mule–Chocolate Mountains Transect—Warren Hamilton, USGS, Denver, Colorado; Gordon Haxel, Richard Tosdal, and Paul Stone, USGS, Menlo Park, California. Three days. Limit: 40 participants. Estimated cost: \$225.

Cross-bedding and Other Eolian Structures in the Navajo and Entrada Sandstones—David M. Rubin and Ralph E. Hunter, USGS, Menlo Park, California. Three days. Limit: 41 participants. Estimated cost: \$185.

Superstition Volcanic Field—Michael Sheridan, Arizona State University, Tempe, Arizona. One day. Limit: 40 participants. Estimated cost: \$52

SHORT COURSES

Fossil Prokaryotes and Protists. Sponsored by the Paleontological Society. Sunday, October 25, 8:00 a.m. to 5:00 p.m. For information: Jere H. Lipps, Geology Department, University of California at Davis, Davis, CA 95616, (916) 752-2234.

Thermodynamic Modeling of Geological Materials: Minerals, Fluids, and Melts. Sponsored by the Mineralogical Society of America. Friday, October 23 through Sunday, October 25, 8:00 a.m. to 5:00 p.m. For information: Barbara Minich, MSA Business Office, 1625 I Street N.W., Suite 414, Washington, DC 20006, (202) 775-4344.

The following short courses will be sponsored by GSA. For further information, contact the Short Course Coordinator, GSA headquarters.

Fees will be approximately \$75–100 for the first day, and \$50–75 for the second day.

PREMEETING

Contaminant Hydrogeology. Saturday, October 24 and Sunday, October 25, 8:00 a.m. to 5:00 p.m. Frank W. Schwartz, University of Alberta; J. Leslie Smith, University of British Columbia.

Current Aspects of Basin Analysis and Sedimentary Geology. Sunday, October 25, 8:00 a.m. to 5:00 p.m. George deVries Klein, University of Illinois at Urbana.

Quantitative Sedimentary Basin Modeling. Saturday, October 24, 8:00 a.m. to 5:00 p.m. Charles L. Angevine and Paul L. Heller, University of Wyoming.

How To Do History of Geology. Sunday, October 25, 8:00 a.m. to 5:00 p.m. Mott T. Greene, University of Puget Sound; Michele Aldrich, American Association for the Advancement of Science; Cliff Nelson, U.S. Geological Survey.

Planetary Geology and Remote Sensing: Short Courses and Field Trips. Friday, October 23, Saturday, October 24, and Sunday, October 25, various times. Ronald Greeley, Arizona State University; Ray Arvidson, Washington University.

Site Characterization for High-Level Nuclear Waste Disposal. Saturday, October 24, and Sunday, October 25, 8:00 a.m. to 5:00 p.m. Richard G. Craig, Kent State University; Carol Hanlon, U.S. Department of Energy.

Spreadsheets on Microcomputers: Versatile Geological Tools. Sunday, October 25, 8:00 a.m. to 5:00 p.m. Carol A. Petersen, Computer Oriented Geological Society; R. Mark Maslyn, Colorado School of Mines.

POSTMEETING

Paleoseismology and Active Tectonics. Thursday, October 29, 7:00 p.m. to 9:00 p.m., Friday, October 30, 8:00 a.m. to 5:00 p.m., and Saturday, October 31, 8:00 a.m. to 3:00 p.m. Robert S. Yeats, Oregon State University; Clarence R. Allen and Kerry E. Sieh, California Institute of Technology.

WORKSHOPS

GeoRef Beginners' Workshop. Sponsored by the Geoscience Information Society and GeoRef. Wednesday, October 28, 8:00 to 10:00 a.m. For information: Barbara Chappell, USGS Library, National Center, MS-951, 12201 Sunrise Valley Drive, Reston, VA 22092. (703) 860-6695.

GIS Data Base Forum. Sponsored by the Geoscience Information Society. Wednesday, October 28, 10:00 a.m. to 12:00 noon. For information: Barbara Pearson, Research Librarian, Exxon Production Research Company, P.O. Box 2189, Houston, TX 77252, (713) 965-4541.

GeoRef Advanced Workshop. Sponsored by the Geoscience Information Society and GeoRef. Wednesday, October 28, 1:00 to 5:00 p.m. For information: Joanne Lerud, Montana Tech Library, Butte, MT 59701, (406) 496-4283.

EXHIBITS

The 200-booth Geoscience Exhibit opens Monday, October 26, at 9:00 a.m. Exhibitors will display and demonstrate computer hardware and software, measurement equipment, maps, X-ray diffraction and other instruments, cameras, spectrometers, microscopes, microanalysis equipment, publications, field supplies, and camping equipment. Booth

space in our expanding show will soon be sold out, so if you would like to become an exhibitor, please call the Exhibits Manager, GSA headquarters, immediately.

HIGHLIGHTS

Employment Service. For applicant and employer registration, see March *GSA News & Information* or contact the GSA Employment Service Coordinator.

Guest Program. Tours, golf, tennis, and a hospitality room will be available.

Welcoming Party. Sunday, October 25, 6:00-9:00 p.m.

All-GSA Awards Reception. Monday, October 26, 6:00-7:00 p.m., following the Presidential Address.

Alumni Night. Monday, October 26, 7:00-9:30 p.m.

Special Event Night. Wednesday, October 28.

TRAVEL AND LODGING

Accommodations. GSA has selected eleven official hotels, which offer special convention rates. A block of 600 rooms is reserved at the Hyatt Regency Phoenix, which, as headquarters, will host most of our social and business events. Hotel rates range from \$28 to \$80 for a single and from \$30 to \$90 for a double.

The Phoenix Civic Plaza will be the location of all technical sessions and exhibits. Approximately one-half of the rooms blocked in hotels are within easy walking distance of the Civic Plaza. Other rooms are a 20-minute drive. GSA will provide a convenient, all-day, free shuttle to these hotels.

Hotel forms will be available in the August issue of *GSA News & Information*. All housing will be processed in Phoenix by the official Housing Bureau.

Transportation. The major carriers into Phoenix are American, Continental, and United. Good fares also are available through basic service airlines such as American West and Southwest. Advance bookings are the best route to lowest fares, so check with your travel agent now. Everyone should be aware of cancellation penalties that often accompany the least-fare options. Official rental-car and travel agencies will be announced in the June issue of *GSA News & Information*.

Arizona Information. Abundant information and friendly people are available at the following contact numbers:

Arizona Office of Tourism
1480 E. Bethany Home Road
Phoenix, AZ 85014
(602) 255-3618

Grand Canyon National Park Lodges
P.O. Box 699
Grand Canyon Village
Grand Canyon, AZ 86023
(602) 638-2401

Phoenix and Valley of the Sun Convention and Visitors Bureau
505 North Second Street, Suite 300
Phoenix, AZ 85004
(602) 254-6500
(800) 221-5596



DOSECC Solicits Site Proposals

DOSECC (Deep Observation and Sampling of the Earth's Continental Crust) is soliciting proposals requiring the use of the drill as a scientific tool for experiments into the dynamics of crustal processes. Categories are as follows. (1) Dedicated holes: proposals to drill a hole dedicated to scientific experiment into crustal processes. Two subcategories are (a) holes with TD of 1-5 km, and (b) holes with TD greater than 5 km. (2) Add-on experiments: proposals to deepen a hole drilled for other purposes in order to reach a target of interest, or to take samples or make measurements in such a hole.

DOSECC is developing a balanced long-term program of continental scientific drilling. The program includes holes in the categories noted above. While the program is developing, however, the opportunities for funding are greatest in categories 1 and 2 because funds are limited and drilling costs increase exponentially with depth.

DOSECC Inc. is a nonprofit corporation representing 36 member universities and operates the Continental Scientific Drilling part of the Continental Lithosphere Program for the National Science Foundation. DOSECC cooperates closely with the Department of Energy and the U.S. Geological Survey in designing and funding drilling experiments of mutual interest. The DOSECC scientific program is developed and guided by the Science Advisory Committee. Inquiries about proposal submission procedures should be addressed to Francis G. Stehli, DOSECC Science Advisory Committee, 7711 SW 103rd Ave., Gainesville, FL 32608, or call (904) 495-9330 or 495-9331.

South Carolina Requires Registration of Geologists

The South Carolina General Assembly on June 10, 1986, enacted legislation requiring all geologists engaged in the public practice of geology in South Carolina to be registered. Anyone in the geosciences who meets the academic and work requirements as set forth in the act (Act 507) is eligible for registration during the 12-month "grandfather" period ending June 10, 1987. Send your name and address for notification of forms package to South Carolina State Board of Registration for Geologists, 1213 Lady Street, Suite 201, Columbia, SC 29201.

1988-1989 Competition Opens for Fulbright Scholar Awards

The Council for International Exchange of Scholars has announced the opening of competition for the 1988-1989 Fulbright grants in research and university lecturing abroad.

The awards for 1988-1989 include more than 300 grants in research and 700 grants in university lecturing for periods ranging from three months to a full academic year. There are openings in more than 100 countries and, in some instances, the opportunity for multi-country research is available. Fulbright awards are granted in virtually all disciplines, and scholars in all academic ranks are eligible to apply. Applications are also encouraged from retired faculty and independent scholars.

Benefits include round-trip travel for the grantee and, for most full-academic-year awards, one dependent; maintenance allowance to cover living costs of grantee and family; tuition allowance, in many countries, for school-age children; and book and baggage allowances.

The basic eligibility requirements for a Fulbright Award are U.S. citizenship; Ph.D. or comparable professional qualifications;

NACSN Elects Officers, Considers Code Changes

At the November 1986 meeting of the North American Commission on Stratigraphic Nomenclature, held in conjunction with the GSA Annual Meeting, GSA Fellow Susan A. Longacre (Texaco Exploration and Production Technology, 3901 Briarpark, Houston, TX 77042) was elected chairman, and Robert H. Fakundiny (New York State Geological Survey, New York State Education Department, Empire State Plaza, Albany, NY 12230) was elected vice chairman.

Over the next year NACSN will be asking for comment from the geologic community on a proposal to include hydrostratigraphic units in the 1983 North American Stratigraphic Code. They are also examining a proposal to eliminate the use of form terms in formal nomenclature; specifically, that the form terms batholith, intrusion, pluton, body, stock, dike, sill, diapir, and plug be used only as informal terms.

For further information on the work of NACSN and on the present Code (published in the *AAPG Bulletin*, v. 67, no. 5), contact Longacre or Fakundiny.

In Memoriam

André Calleux
St. Maur, France
December 27, 1986

Allan V. Cox
Stanford, California
January 27, 1987

Norman E. Flint
Pittsburgh, Pennsylvania
October 18, 1986

Allan K. Gibbs
Seabrook, Texas
December 3, 1986

Arthur R. Kinkel, Jr.
Silver Spring, Maryland
November 14, 1986

Vincent E. McKelvey
St. Cloud, Florida
January 23, 1987

Ferdinand Prantl
Prague, Czechoslovakia

Elmer M. Schell
Casper, Wyoming

William S. Strain
El Paso, Texas
November 26, 1986

university or college teaching experience; and, for selected assignments, proficiency in a foreign language. It should be noted that a new policy removes the limit of two Fulbright grants to a single scholar.

Application deadlines for the awards are *June 15, 1987* (for Australasia, India, and Latin America, except lecturing awards to Mexico, Venezuela, and the Caribbean); *September 15, 1987* (for Africa, Asia, Europe, the Middle East, and lecturing awards to Mexico, Venezuela, and the Caribbean); *November 1, 1987* (for institutional proposals for the Scholar-in-Residence Program); *January 1, 1988* (for Administrators' Awards in Germany, Japan, and the United Kingdom; the Seminar in German Civilization; the NATO Research Fellowships, and the Spain Research Fellowships); and *February 1, 1988* (for the France, Italy, and Germany Travel-Only Awards).

For more information and applications, call or write Council for International Exchange of Scholars, Eleven Dupont Circle N.W., Washington, DC 20036-1257; or telephone (202) 939-5401.

MEETINGS

(Asterisk indicates new or changed information)

1987

Workshop to Develop Scientific Drilling Initiatives in the South Atlantic and Adjacent Southern Ocean, April 6-8, 1987, Woods Hole, Massachusetts. Information: J. A. Austin, Jr., Inst. for Geophysics, University of Texas, 4920 North I.H. 35, Austin, TX 78751.

23rd Annual Symposium on Engineering Geology and Soils Engineering, April 6-9, 1987, Logan, Utah. Information: James McCalpin, Department of Geology, Utah State University, Logan, UT 84322-0705; (801) 750-1273.

7th Biannual Petroleum Conference of Turkey, April 6-10, 1987, Ankara, Turkey. Information: Necdet Pamir Türkiye, Petrolleri A.O. Üretim Grubu Müdafaa Cad. No: 22 Bakanlıklar, Ankara, Turkey; telephone 17 91 60/453-553.

Phanerozoic Ironstones and Related Deposits, April 7-8, 1987, Sheffield, England. Information: Gordon Taylor, Dept. of Science, Luton CHE, Park Square, Luton LU1 3JU, England.

Mathematical Geologists of the United States 1987 Conference, Emerging Concepts, April 13-15, 1987, Redwood City, California. Information: Harry M. Parker, Fluor Engineering, Inc., 10 Twin Dolphin Dr., Redwood City, CA 94065.

Geologic Causes of Natural Radionuclide Anomalies, April 21-22, 1987, St. Louis, Missouri. Information: GEORAD Conference, Missouri Dept. of Natural Resources, P.O. Box 250, Rolla, MO 65401; (314) 364-1752.

***9th Annual Geodynamics Symposium, Silver Anniversary Celebration of Plate Tectonics**, April 22-24, 1987, College Station, Texas. Information: Secretary, Geodynamics Research Institute, Texas A&M University, College Station, TX 77843-3114; (409) 845-8477.

Association for Women Geoscientists 10th Anniversary Conference, April 23-26, 1987, San Francisco, California. Information: Association for Women Geoscientists, Resource Center for Associations, 10200 W. 44th Ave., 304, Wheat Ridge, CO 80033; (303) 422-2615.

Society of Economic Paleontologists and Mineralogists Permian Basin Section Spring Field Conference, April 30-May 2, 1987. Information: Chris Chandler, P.O. Box 2990, Midland, TX 79702; (915) 675-0575.

National Association of Geology Teachers Eastern Section Annual Meeting and Field Trips, May 1-3, 1987, Stone Ridge, New York. Information: Lawrence R. Matson, Dept. of Geology, Ulster County Community College, Stone Ridge, NY 12484; (914) 687-7621, ext. 371.

Canadian Institute of Mining and Metallurgy 89th Annual Meeting, May 3-7, 1987, Toronto, Ontario. Information: Ivana Savic, CIM, 1130 Sherbrooke St. W., Suite 400, Montreal, Quebec H3A 2M8, Canada; (514) 842-3461.

Analysis of Naturally Fractured Reservoirs, May 4-8, 1987, Snowbird, Utah. Information: Jane Rider, AAPG Education Dept., P.O. Box 979, Tulsa, OK 74101-0979; (918) 584-2555.

10th Annual Spring Systematics Symposium, Evolutionary Ideas of Progress, May 9, 1987, Chicago, Illinois. Information: Matthew H. Nitecki, Field Museum of Natural History, Roosevelt

Rd. at Lakeshore Dr., Chicago, IL 60605-2496; telephone (312) 922-9410.

Institute on Lake Superior Geology Annual Meeting, May 11-14, 1987, Wawa, Ontario. Information: E. D. Frey, P.O. Box 57, Wawa, Ontario P0S 1K0, Canada; (705) 856-4883.

Geology of Industrial Minerals, 23rd Annual Forum, May 11-15, 1987, North Aurora, Illinois. Information: James W. Baxter, Illinois State Geological Survey, 615 E. Peabody Dr., Champaign, IL 61820; (217) 333-5107.

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

Geologic Hazards Symposium, May 12-17, Anchorage, Alaska. Information: William Pyle, 1987 Geologic Hazards Symposium, P.O. Box 101288, Anchorage, AK 99510.

Midwest Friends of the Pleistocene Annual Meeting, May 15-17, 1987, Mansfield, Ohio. Information: John P. Szabo, Dept. of Geology, University of Akron, Akron, OH 44325; (216) 375-7630.

***American Geophysical Union Spring Meeting**, May 18-22, 1987, Baltimore, Maryland. Information: Ann E. Singer, American Geophysical Union, 2000 Florida Ave., N.W., Washington, DC 20009; (202) 462-6903.

International Geoscience and Remote Sensing Symposium, May 18-21, 1987, Ann Arbor, Michigan. Information: Joan Eadie, Secretariat, University of Michigan Extension Service, Dept. of Conferences and Institutes, 200 Hill St., Ann Arbor, MI 48104-3297.

Coastal Lowlands Symposium: Geology and Geotechnology, May 25-27, 1987, The Hague, Netherlands. Information: Coastal Lowlands Symposium, c/o CONGREX, Keizersgracht 610, 1017 EP Amsterdam, The Netherlands; Telex NL-14527.

Geological Association of Canada-Mineralogical Association of Canada Annual Meeting, May 25-27, 1987, Saskatoon, Saskatchewan. Information: W. O. Kupsch, Dept. of Geological Sciences, University of Saskatchewan, Saskatoon, Saskatchewan S7N 0W0, Canada; (306) 966-5696.

28th U.S. Symposium on Rock Mechanics, June 29-July 1, 1987, Tucson, Arizona. Information: 28th U.S. Symposium on Rock Mechanics, Special Professional Education, Box 9, Harvill Bldg., University of Arizona, Tucson, AZ 85721; (602) 621-5104 or 621-3054.

Society of Professional Well Log Analysts 28th Annual Symposium, June 29-July 3, 1987, London, England. Information: SPWLA Symposium, c/o The Geological Society, Burlington House, Piccadilly, London W1V 0JU, England.

First International Congress, Geochemistry and Cosmochemistry, June 30-July 6, 1987, Paris, France. Information: C. J. Allegre, Lab. de Géochimie et Cosmochimie, 4 place Jussieu, Tour 14, 3 étage, 75252 Paris Cedex, France; telephone 43.54.84.63.

Growth of Continental Crust workshop, July 13-17, 1987, Oxford, England. Information: Pamela Jones, Lunar and Planetary Institute, 3303 NASA Road 1, Houston, TX 77058.

(continued on p. 93)

MEETINGS (continued from p 92)

Second Symposium on the South Atlantic Evolution, July 23-25, 1987, Rio de Janeiro, Brazil. Information: Dimas Dias-Brito, Ilha do Fundão, Quadra 7, Rio de Janeiro - 21.910 - Brazil; and P. Y. Berthou, Lab. de Géologie des Bassins Sédimentaires, Tour 14-15, 4 étage, 4 place Jussieu, 75252 Paris Cedex 05, France.

Tectonic Setting of Layered Intrusives, July 27-28, 1987, Pretoria, South Africa. Information: Secretary, Indaba Organising Committee, Dept. of Geology, University of Pretoria, Pretoria, South Africa.

4th International Congress of the Regional Committee on Pacific Neogene Stratigraphy (affiliated with IUGS) and joint meeting of **IGCP Project 246**, July 29-31, 1987, Berkeley, California. Information: Charlotte Brunner, Chairperson of Organizing Committee, Dept. of Paleontology, University of California, Berkeley, CA 94720.

***International Union for Quaternary Research (INQUA) 12th Congress**, July 31-August 9, 1987, Ottawa, Ontario, Canada. Information: Alan V. Morgan, Dept. Earth Sciences, University of Waterloo, Waterloo, Ontario N2L 3G1, Canada.

5th Magmatic Sulphide Field Conference, August 3-13, 1987, Zimbabwe. Information: A. Martin, Geological Society of Zimbabwe, P.O. Box 8427, Causeway, Harare, Zimbabwe.

International Symposium on Erosion and Sedimentation in the Pacific Rim, August 3-7, 1987, Corvallis, Oregon. Information: 1987 Corvallis Symposium, Conference Coordinator, College of Forestry, Oregon State University, Corvallis, OR 97331; (503) 754-2004.

Devonian System 2nd International Symposium, August 17-20, 1987, Calgary, Alberta. Information: Second International Symposium Devonian System, c/o Canadian Society of Petroleum Geologists, 505, 206 - 7 Ave. S.W., Calgary, Alberta T2P 0W7, Canada; (403) 264-5610.

7th International Conference on Basement Tectonics, August 17-21, 1987, Kingston, Ontario, Canada. Information: Bob Mason, c/o Events Management Inc., 4 Catarqui St., Suite 209, Kingston, Ontario K7K 1Z7, Canada; (613) 547-5093.

Society of Economic Paleontologists and Mineralogists Fourth Annual Midyear Meeting, August 20-23, 1987, Austin, Texas. Information: SEPM, P.O. Box 4756, Tulsa, OK 74159; (918) 743-9765.

XVI Pacific Science Congress, August 20-30, 1987, Seoul, Korea. Information: Choon Ho Park, XVI Pacific Science Congress, K.P.O. Box 1008, Seoul 110, Korea; telephone (2) 733-4478; Telex ILSKOR 23881.

International Symposium on Nonmarine Cretaceous Correlations, August 25-30, 1987, Urumqi, China. Information: Shen Yanbin, Nanjing Institute of Geology & Paleontology, Nanjing, People's Republic of China; or Niall J. Mateer, 1467 N. 17th, Laramie, WY 82070.

International Congress on Geology, Structure, Mineralization, and Economics of the Pacific Rim, August 26-29, 1987, Queensland, Australia. Information: C/-Aus. IMM Congress Secretariat, P.O. Box 731, Toowong 4066, Queensland, Australia.

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

Third International Symposium on Observation of the Continental Crust through Drilling, September 7-10, 1987, Mora and Orsa, Sweden. Information: Deep Drilling in Crystalline Bedrock, c/o Stockholm Convention Bureau, Box 6911, S-10239 Stockholm, Sweden.

XI International Congress of Carboniferous Stratigraphy and Geology, September 7-11, 1987, Beijing, China. Information: Yang Jingzhi, Nanjing Institute of Geology and Paleontology, Academia Sinica, Nanjing, China.

International Workshop on Computerized Basin Analysis, September 7-12, 1987, Szeged, Hungary. Information: Laszlo Somos, Geological Survey of Hungary, Pf. 106, H-1442, Budapest, Hungary; telephone (36-1) 634 431; Telex 225 220 mafi h.


International Symposium on the Terminal Precambrian and Cambrian Geology, September 8-14, 1987, Yichang, China. Information: Wang Xiaofeng, secretariat, Yichang Institute of Geology and Mineral Resources, Chinese Academy of Geological Sciences, P.O. Box 502, Yichang, Hubei, China.

American Association of Petroleum Geologists Rocky Mountain Section meeting, September 13-16, 1987, Boise, Idaho. Information: David H. Hawk, J.R. Simplot Co., 999 Main St., Boise, ID 83707; (208) 336-2110.

***GeoTech '87** (microcomputer applications in earth science), September 19-22, 1987, Denver, Colorado. Information: Stephen A. Krajewski, 9525 West 77th Dr., Arvada, CO 80005.

18th Annual Geomorphology Symposium on Catastrophic Flooding, September 26-28, 1987, Oxford, Ohio. Information: Larry Mayer, Dept. of Geology, Miami University, Oxford, OH 45056; (513) 529-3218.

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**1987
GEOLOGIC HAZARDS
SYMPOSIUM**

MAY 12 - 17, 1987
including Field Trips and
Technical Sessions


at
THE
ANCHORAGE HILTON HOTEL
ANCHORAGE, ALASKA
USA

TECHNICAL SESSIONS

<p>EARTHQUAKES</p> <ul style="list-style-type: none">• Landslides• Faults• Tsunamis	<p>SHALLOW DRILLING HAZARDS</p> <ul style="list-style-type: none">• Permafrost• Gas-hydrates• Biogenic Gas
<p>HYDROLOGIC HAZARDS</p> <ul style="list-style-type: none">• Aufeis• Water Supply Problems• Septic Fields• Avalanches• Outburst Floods	<p>CONSTRUCTION PROBLEMS</p> <ul style="list-style-type: none">• Settlement• Slope Stability• Frost Heave
	<p>VOLCANOES</p> <ul style="list-style-type: none">• Lahars• Ash-falls

SUMMARY SESSION
General - for the Public

CONTACT: WILLIAM PYLE
1987 GEOLOGIC HAZARDS SYMPOSIUM
P.O. BOX 101288
ANCHORAGE, ALASKA 99510
(907) 561-1020



MEETINGS (continued from p. 93)

International Conference on Geophysical and Geochemical Exploration for Minerals and Groundwater, September 27–October 1, 1987, Toronto, Ontario. Information: Exploration '87, c/o 222 Snidercroft Rd., Concord, Ontario L4K 1B5, Canada; (416) 669-2280; Telex 06-964570.

Fifth International Flint Symposium, September 27–October 2, 1987, Bordeaux, France. Information: 5th International Flint Symposium, Secrétaire General, c/o Michel Lenoir, Institut du Quaternaire, Batiment de Géologie, Avenue des Facultés, Université de Bordeaux I, 33405 Talence Cedex, France.

***National Association of Geology Teachers Far Western Section Fall Conference**, October 2–4, 1987, Hayward, California. Information: Elwood Brooks, Dept. Geological Sciences, California State University, Hayward, CA 94542; (415) 881-3486.

Troodos 87: Ophiolites and Oceanic Lithosphere, October 5–10, 1987, Nicosia, Cyprus. Information: Troodos 87 Symposium, Geological Survey Dept., Nicosia, Cyprus.

Society of Economic Paleontologists and Mineralogists Great Lakes Section Annual Meeting and fall field trip, October 9–11, 1987, southern Indiana. Information: J. R. Dodd, Dept. of Geology, Indiana University, Bloomington, IN 47405; (812) 335-5322 or 5581.

Geothermal Resources Council Annual Meeting, October 12–16, 1987, Sparks, Nevada. Information: Geothermal Resources Council, P.O. Box 1350, Davis, CA 95617-1350; (916) 758-2360.

Mathematical Methods in Geology, 16th Annual Geochautauqua, October 12–16, 1987, Pribiam, Czechoslovakia. Information: V. Nemec, Geindustria, Geologicka 2, 152 00 Praha 5, Barrandov, Czechoslovakia; telephone (42-2) 590228 or (42-2) 7811801.

***Indiana Geological Survey Sesquicentennial Celebration**, October 15–16, 1987, New Harmony, Indiana. Information: Robert H. Shaver, Indiana Geological Survey, 611 North Walnut Grove, Bloomington, IN 47405; (812) 335-7428.

Society of Economic Paleontologists and Mineralogists Gulf Coast Section 8th Annual Research Conference, Paleontological Applications in Petroleum Exploration, December 6–9, 1987, Houston, Texas. Information: Charles L. McNulty, Dept. of Geology, University of Texas, UTA Box 19049, Arlington, TX 76019; (817) 273-2979.

***American Geophysical Union Fall Meeting**, December 7–11, 1987, San Francisco, California. Information: Ann E. Singer, American Geophysical Union, 2000 Florida Ave., N.W. Washington, DC 20009; (202) 462-6903.

***First Arab Conference on Geological Education**, December 12–14, 1987, Baghdad, Iraq. Information: Conference Secretariat, Arab Conference on Geological Education, Arab Geologist Association, P.O. Box 1247, Baghdad, Iraq; Telex 212197 JAMIT IK.

GSA 1987

Section Meetings

North-Central Section, April 30–May 1, 1987, St. Paul, Minnesota
Rocky Mountain Section, May 2–4, 1987, Boulder, Colorado
Cordilleran Section, May 20–22, 1987, Hilo, Hawaii

Annual Meeting, October 26–29, Phoenix, Arizona

Penrose Conferences

Late Quaternary Sea Level: The Marine and Terrestrial Record, April 6–12, 1987, Ferry Reach, Bermuda. Information:

James L. Carew, Dept. of Geology, College of Charleston, Charleston, SC 29424; (803) 792-5589.

The Construction of Geological Cross Sections: Techniques, Assumptions, and Methods, May 3–8, 1987, Rosendale, New York. Information: Peter A. Geiser, Dept. of Geology and Geophysics, University of Connecticut, Storrs, CT 06268; (203) 486-4432 or 4433.

Glacial Facies Models, May 3–8, 1987, Scarborough, Ontario. Information: Nicholas Eyles, Dept. of Geology, Scarborough Campus, University of Toronto, Scarborough, Ontario M1C 1A4, Canada; (416) 284-3336.

Geological Decisions for the 21st Century, July 12–17, 1987, Steamboat Springs, Colorado. Information: David A. Stephenson, Dames & Moore, Pointe Corporate Centre, 7500 North Dreamy Draw Dr., Suite 145, Phoenix, AZ 85020; (602) 371-1110.

Paleoenvironmental Interpretation of Paleosols, September 11–17, 1987, Warm Springs Indian Reservation, Oregon. Information: Greg Retallack, Dept. of Geology, University of Oregon, Eugene, OR 97403-1272; (503) 686-4573.

Cordilleran Metamorphic Core Complexes, Revisited: Implications for Crustal Extension and Shortening in the North American Cordillera, September 13–18, 1987, Elko, Nevada. Information: Arthur W. Snoke, Dept. of Geology and Geophysics, P.O. Box 3006, University of Wyoming, Laramie, WY 82071; (307) 766-5457.

Exposed Cross Sections through the Continental Crust, September 27–October 2, 1987, Killarney, Ontario, Canada. Information: David M. Fountain, Dept. of Geology & Geophysics, University of Wyoming, P.O. Box 3006, University Station, Laramie, WY 82071; (307) 766-6299.

1988

***Sixth Thematic Conference on Remote Sensing for Exploration Geology**, March 28–31, 1988, Houston, Texas. Information: Thematic Conference, Environmental Research Institute of Michigan, P.O. Box 8618, Ann Arbor, MI 48107; (313) 994-1200, ext. 3382; Telex 4940991 ERIMARB.

***V. M. Goldschmidt Conference** for geochemistry, May 11–13, 1988, Baltimore, Maryland. Information: Goldschmidt Conference Coordinator, Pennsylvania State University, 410 Keller Bldg., University Park, PA 16802. (*Abstracts due December 18, 1987.*)

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

Bicentennial Gold 88, May 16–20, 1988, Melbourne, Australia. Information: R. R. Keays, Dept. of Geology, University of Melbourne, Parkville, Victoria 3052, Australia; telephone (03) 345 1844; Telex AA35185. (*Abstracts due September 30, 1987.*)

Geological Association of Canada–Mineralogical Association of Canada–Canadian Society of Petroleum Geologists Joint Annual Meeting, May 22–25, 1988, St. John's, Newfoundland. Information: John Fleming, Newfoundland Dept. of Mines and Energy, P.O. Box 4750, St. John's, Newfoundland A1C 5T7, Canada; (709) 576-2768.

Case Histories in Geotechnical Engineering 2nd International Conference, June 1–5, 1988, St. Louis, Missouri. Infor-

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on Evolution of the Caribbean Region

with objectives of defining scientific drilling initiatives for the Ocean Drilling Program

Nov. 17-21, 1987

Runaway Bay, Jamaica

Convener: R. C. Speed
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This working conference will consider major problems of the origin of the Caribbean region: tectonics, water-masses, sedimentation, and magmatism. Participants will then develop a plan to attack problems by ODP drilling legs. The conference sponsor is Joint Oceanographic Institutions Inc., U. S. Science Advisory Committee. Funds from a JOI-USSAC contract will be available to support travel and subsistence based on eligibility and need of applicant. Attendance in limited. Apply to R. Speed by June 1, 1987.

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MEETINGS (continued from p. 94)

nation: Shamsheer Prakash, Room 308, Dept. of Civil Engineering, University of Missouri, Rolla, MO 65401; (314) 341-4461.

Seismic Probing of the Continents and Their Margins International Symposium, July 6-8, 1988, Canberra, Australia. Information: Jim Leven, Bureau of Mineral Resources, P.O. Box 378, Canberra, ACT 2601, Australia; telephone (062) 499111; Telex AA62109.

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

International Symposium on Engineering Geology: Study, Preservation and Protection of Ancient Works, Monuments and Historical Sites, September 19-23, 1988, Athens, Greece. Information: Paul G. Marinos, Greek Committee of Engineering Geology, 1988 Symposium Secretariat, P.O. Box 19140, GR-117 10 Athens, Greece; Telex 45 4312 POLX. (Summaries of papers due April 30, 1987.)

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

CORRECTION: Rocky Mountain Section Meeting

The price for the Annual Banquet of the Rocky Mountain Section Meeting, May 2-4, Boulder, Colorado, is \$18, not \$45 as given on the preregistration form printed in the February 1987 issue of *GSA News & Information*. Tickets for the banquet will be available at the registration desk in the University Memorial Center, University of Colorado, Friday, May 1 (the banquet is Saturday, May 2).

PEOPLE

GSA Fellow **Lee C. Gerhard** has been appointed director of the Kansas Geological Survey.

Fulbright grants for 1986-1987 have been awarded to Fellows **Mohamed A. Gheith**, Boston University; **Erle Kauffman**, University of Colorado; **Robert D. Lawrence**, Oregon State University; **H. Gray Multer**, Fairleigh Dickinson University; and **Spencer R. Titley**, University of Arizona; and to Member **Stanley N. Williams**, Louisiana State University.

JUNE 11th IS ABSTRACTS DEADLINE

FOR THE ANNUAL MEETING IN PHOENIX

Abstracts must be typed on 1987 abstract forms, available from Abstracts Secretary, Geological Society of America, P.O. Box 9140, Boulder, CO 80301 [or call (303) 447-8850]. Volunteered abstracts should be mailed to the same address in time to arrive on or before June 11, 1987.

PHOENIX

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