Do you have a publishable map?

GSA Maps and Charts Aid Geoscientists, Students

by Wallace R. Hansen
GSA Maps and Charts Editor

This winter hundreds of students across the nation will find it easier to grasp some of the mysteries of the geology of plate margins because a copy of Greg Wessel's chart will be hanging in their classroom. Other students will get a good look at the geology of the northwest Cascades because the map compiled by E. H. Brown and 14 of his graduate students will be in their hands. Still other students will get a close look at an active fault because Thom Davis's and Ernie Duebendorfer's strip map of the San Andreas fault will be in front of them.

Maps and charts make excellent teaching and study aids, not only for students but for their professors and other geologists as well, and the ones mentioned above are just three from the growing selection available through GSA's Map and Chart Series. How did they come to be?

Wessel's chart grew out of a course requirement at the Colorado School of Mines. Brown and his students, as a classroom and field project, built on earlier studies by taking advantage of new road access and improved base maps and geologic tools and cooperatively produced a geologic map. The San Andreas map is a result of Duebendorfer's M.A. thesis and Davis's Ph.D. thesis. Why didn't these efforts, like so many others, end up gathering dust on a top shelf somewhere? Because the authors knew of GSA's Map and Chart Series and submitted their work to be considered for publication.

Series Content

GSA's Map and Chart Series (formerly MC, now MCH series) provides an outlet for stand-alone "oversize" illustrations, such as the DNAG Geologic Time Scale (MCH050), The Geology of Plate Margins (MCH059), and a great variety of geologic, magnetic, gravity, and bathymetric maps. GSA's free publication catalog lists all of the maps and charts currently available. The Decade of North American Geology transects and continent-scale maps are series unto themselves and are not open to volunteer contributions.

GSA considers for publication maps and charts covering all fields of the earth sciences, preferably contributions of broad, general interest. The most common items submitted are geologic maps of areas larger than a 7½-minute quadrangle, but a great variety of other items, such as the Summary Sheets of Sedimentary Deposits (MCH008), International Atlas of Ophiolites (MCH033), and the CLIMAP Seasonal Reconstruction of the Earth's Surface at the Last Glacial Maximum (MCH036), were also appropriate for consideration and publication.

How Big Can They Be?

Size is mainly a matter of convenience for the user: a sheet size of 30 x 40 inches with an image area about 1 inch smaller all around is about as large as one can handle easily, but when the nature of the material requires, sheets as large as 40 x 60 inches can be accommodated. Both sides of the sheet can be printed, when appropriate, to reduce the amount of bulk when the sheets are folded to fit a 9 x 12 inch file envelope. Maps and charts are also available flat (unfolded) and shipped rolled in a mailing tube. Flat maps of near maximum size may not be available to foreign purchasers because of shipping restrictions, another reason for designing close to the optimum size of 30 x 40 inches or smaller.

Who Does What in Preparation?

The author is responsible for all preparation work and costs through camera-ready art or color separation negatives. The Society will pay for printing the map or chart, the file envelope, and the text (if any) and for advertising and distribution.

Copy should be prepared on scale-stable base material, such as Mylar, and any necessary overlays should be carefully registered. Linework should be drafted in black ink on a blue line or greenline scale-stable copy of the base map. A screened blackline half-tone copy of the base should also be provided for combined printing. Authors, however, should not prepare final copy until after critical review and acceptance by the Society. Next hand lettering is adequate for review purposes. Titles can be set later in suitable type by the Society.

Use of Color

The use of color where appropriate to enhance understanding is encouraged. Commonly, black is all that is needed, but in some cases a single-color overlay highlighting one or two particular map units is desirable for appearance and understanding. Maps or charts (continued on p. 262)
Penrose Conference on Paleozoic–Early Mesozoic Cordilleran Paleogeography to Meet in June

A GSA Penrose Conference "Paleozoic–Early Mesozoic Paleogeographic Relations Between the Klamath Mountains, Northern Sierra Nevada, and North America" will be held June 5–10, 1988, in the Redding area of northern California. Conveners are David S. Harwood, U.S. Geological Survey, 345 Middlefield Road (MS 975), Menlo Park, CA 94025, and M. Meghan Miller, Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, CA 91125.

Paleozoic and lower Mesozoic volcanic-arc sequences in the Klamath Mountains and northern Sierra Nevada obviously formed outboard of the Cordilleran migmatozone and are thus suspect terranes in the sense of Coney et al. (1980). Whether these terranes are far-traveled oceanic fragments unrelated to each other and exotic to North America or whether they formed along our plateau margin is a significant question with far-reaching consequences for Cordilleran geology. The accreted terrane concept began in the Klamath Mountains, yet controversy still exists about the origin of the Paleozoic volcanic-arc terranes, their relation to similar rocks in the northern Sierra Nevada, and the tectonic development of the western continental margin. Did the western margin grow by successive accretion of exotic island arcs or was it an active margin fringed by active island arcs and marginal basins throughout the late Paleozoic and early Mesozoic? This question has been asked and answered many times, but none of the answers has been backed by a sufficiently broad array of data to be convincing.

In the past five years much new stratigraphic, structural, geophysical, geochemical, geochronologic, and biogeographic data have been gathered from these terranes as well as from allochthonous rocks in northwestern Nevada. The data have generated new conclusions about possible and impossible paleogeographic relations between the island-arc sequences, the allochthons, and the migmatozone. The purpose of this Penrose Conference is to provide a forum to stimulate lively discussions of these data and hypotheses.

The format of the conference will emphasize poster sessions for the presentation of data, formal and informal topical discussions, and one-day field trips to both the eastern Klamath and northern Sierra terranes. Technical sessions will cover the following topics:

- Basement rocks
- Volcanic and depositional histories
- Biogeography
- Geophysical correlations
- Relations to other Cordilleran terranes
- Paleogeography.

The conference will be limited to 60–70 participants, including graduate students and foreign scholars. Interested persons should write to David S. Harwood at the address above and state reasons for wishing to attend the conference. Include a brief description of past or present research relevant to any of the conference sessions. Deadline for applications is February 1, 1988.

We hope to have available limited support for a few qualified graduate students. The registration fee has not yet been determined.

---

In Memoriam

Conrad R. Burri
Bern, Switzerland
September 5, 1987

Milton W. Corbin
Huntsville, Texas
February 8, 1987

James M. Foggston
Shreveport, Louisiana
May 18, 1987

William H. Cross
Toronto, Ontario
August 1987

W. Ernest Hale
Fredericton, New Brunswick
September 23, 1986

Stanton B. Keith
San Diego, California

Peter Misch
Seattle, Washington
July 1987

Thomas G. Payne
Eugene, Oregon

John S. Stevenson
Montreal, Quebec
September 7, 1987

Michael J. Woods
Hillsboro, Oregon
July 1987

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Vol. 9, no. 12 GSA News & Information December 1987

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CENTENNIAL NEWS

by Allison (Pete) Palmer

Another Book Wrapped Up!

Congratulations to the authors and editors of The Atlantic Continental Margin: U.S., who are listed below, for completing the third book of The Geology of North America. Because of all of the delays in obtaining the last two chapters from Kim Klitgord and John Grow and getting those chapters through the copy editing and typesetting process, this book will now carry a 1988 date. It should be available by early February. Editors Bob Sheridan and John Grow are very pleased with the mass of good information that is now gathered in one place about the geology and geophysics of the U.S. Atlantic Margin, and the good work of all authors (listed below) is greatly appreciated.

J. G. Armbruster
J. A. Austin, Jr.
M. M. Ball
D. F. Belknap
J. K. Costain
H. Cousminer
J. Z. de Boer
J. B. Diebold
W. P. Dillon
C. L. Drake
D. B. Duane
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T. G. Gibson
G. S. Gohn
X. Golovchenko
S. M. Greenlee
J. A. Grow
H. J. Hansen
D. R. Hutchinson
R. H. Johnston
K. D. Klitgord
F. A. Kohut
J. W. Ladd
G. W. Leve
J. Libby-French
W. Manspeizer
F. T. Manheim
R. E. Matick
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W. J. Neal
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H. D. Palmer
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W. C. Pitman
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W. L. Stubblefield
J. A. Thorne
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P. C. Valentine
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A. B. Watts
D. Whittington

Other Books

We still await the last two chapters for the South-Central Section Centennial Field Guide. As soon as Jim Jones and Dave LeMone come through, the DNAG Centennial Field Guide series will be complete. This book is now also delayed to early 1988.

The long-awaited chapter by Charlie Collinson on the Illinois Basin for the volume Sedimentary Cover of the Craton has been received completed. We can now begin to wrap that volume up.

Nineteen substantive chapters, all of which are more than 28 months overdue, are all that are needed to complete seven more volumes of The Geology of North America. More on some of those missing chapters next month. All of the authors received a special reminder in mid-October.

HAVE YOU PAID YOUR 1988 DUES?

Last year, most members remitted their annual dues payment before the November 30 deadline. As a result, they received their GSA publications without delay. This year, the timing is again critical because all section meeting Abstracts with Programs will be mailed to members early in 1988. If we do not receive your dues payment before mid-December, you may not receive that much-needed Abstracts with Programs in time for the section meeting that you plan to attend. Remember, back orders take 6 to 8 weeks to reach you! Please use the 1988 dues and publications selection form mailed to you earlier. Dues for 1988 are $70 for Members and Fellows and $32 for Students (the same as 1987).

Don’t miss out on the excitement during 1988—GSA’s Centennial Celebration year!

If you have any questions, please call or write the GSA Membership Department, P.O. Box 9140, Boulder, CO 80301, (303) 447-2020.
Two New Trustees Appointed
by Robert L. Fuchs

F. Beach Leighton and Brian J. Skinner have been appointed to the board of trustees of the Geological Society of America Foundation. Leighton will begin a five-year term and Skinner will initially serve until 1988, filling the remaining term of former trustee Thomas D. Barrow.

Beach Leighton is chairman of the board and chief executive officer of Leighton and Associates, an engineering geology consulting firm located in the Los Angeles area. Leighton is well known for his work in engineering geology, particularly as it relates to urban planning and land use. He has published extensively on landslides, urban geology, and earthquakes. He is a recognized leader in the rapidly expanding application of geology to the urban environment.

Brian Skinner has been professor of geology and geophysics at Yale University since 1966, serving as chairman of the department for six years during that period. He is a well-known expert in economic geology and the geochemistry of ore deposits. Skinner has been editor of Economic Geology for 17 years. Currently he is chairman of the U.S. National Committee on Geology, the Board of Earth Sciences, and the board of overseers of the American Journal of Science. Skinner has held numerous important posts in the Geological Society of America, including president and chairman of the Special Publications and Path to 2000 committees.

Trustee chairman Harrison Jamison noted that the addition of Beach Leighton and Brian Skinner to the Foundation’s board of trustees “is most significant, not only because they are renowned geoscientists but also because of their demonstrated leadership within their respective sectors of the profession.”

The Taxman Cometh . . . But Perhaps Taketh Not!

Death and taxes are inevitable, but in the case of taxes, one can exercise some degree of control in the amount to be paid. In the November issue of GSA News & Information, we pointed out that charitable contributions in 1987 have a special importance. Because of changes in the tax law, 1987 is a transition year between higher income tax rates in the early 1980s and lower tax rates in the years ahead. A charitable contribution this year will cause a greater reduction in an individual’s taxes than one made next year.

Congress has removed or restricted the use of many former deduction items, such as interest and sales taxes. Thus, charitable contributions to the GSA Foundation and other such organizations are one of the few remaining ways to reduce one’s tax bill.

Cash gifts are the most common form of charitable contribution. However, gifts of property are used effectively by many donors. Such gifts could be real estate; oil, gas, or mineral interests; works of art; or securities. The significance of making a gift of property is that the value of the gift for tax-deduction purposes is the market value at the time of the gift, not the donor’s cost, which might be much lower. Further, there is no capital-gains tax payable by the donor on the appreciated value of the property. We have a booklet entitled “The Magic of Gifts of Appreciated Property” dealing with this subject. Call or write for a copy.

Because of the stock-market rise of the past few years, many GSA members hold securities that have appreciated greatly in value. A year-end gift of stock to the Foundation would provide you with a 1987 tax deduction in the amount of the market value of the stock on the day of the transfer, regardless of your original cost. The benefit is twofold: you receive a 1987 tax deduction and the Foundation’s assets increase along with its ability to support geologic research.

There is not much time left in 1987 to make contributions to the Foundation. Checks can be mailed to the GSA Foundation, P.O. Box 9140, Boulder, CO 80301. We can assist you with gifts of property. A contribution of appreciated securities is handled through the company’s transfer agent. If you will call the Foundation at (303) 447-2020, we will provide the instructions that will enable you to complete a stock transfer to the GSA Foundation.

GSA Foundation
3300 Penrose Place, P.O. Box 9140
Boulder, CO 80301
Charitable contributions are worth more in 1987, and I would like to support the GSA Foundation.
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THE GEOLOGICAL SOCIETY OF AMERICA
Report from Washington
by Jennifer Hess
GSA Congressional Science Fellow

In past GSA News & Information articles, I have focused generally on how an individual geologist can make a difference on the Hill. In this article, I would like to report on how an individual geologist did make a difference.

The Issue
The high-level-waste disposal program has drawn increasingly intense political opposition as the Department of Energy (DOE) has narrowed the list of candidate sites for waste-storage facilities and permanent underground repositories. Under the 1982 Nuclear Waste Policy Act, DOE has selected three western sites—the federal Hanford nuclear reservation in Washington; Yucca Mountain, Nevada; and Deaf Smith County, Texas—as candidates for the nation’s first permanent high-level-waste repository. Extensive shaft drilling and underground excavation, or “site characterization,” is to be carried out at the candidate sites to determine which could best hold waste safely for thousands of years.

DOE is also required to search for a second repository site and has identified seven eastern and midwestern states as possibly suitable locations. After encountering intense hostility from those states, the department announced indefinite postponement of the search, angering some lawmakers. DOE now says it will resume the search for the second repository unless Congress approves the delay.

Currently, four bills are pending in the House and Senate which seek to amend the Nuclear Waste Policy Act. Two of the bills have been proposed by the House Interior Chairman Morris Udall. Udall’s main bill (HR2967), introduced July 15, 1987, would halt Energy Department work at candidate waste sites for 18 months. That pause would give a congressionally appointed commission a year to study the program and would allow Congress six months to act on the commission’s recommendations before DOE waste-site activities resumed. Besides setting up a study commission, the bill would require the president to appoint a “nuclear-waste negotiator” who would try to reach voluntary agreement with a state or Indian tribe to host a permanent high-level-waste repository, rather than have DOE select a site. An earlier Udall bill (HR2898), introduced July 1, would suspend DOE waste-site work until Congress voted to restart it.

Senate efforts to solve the nuclear-waste stalemate have focused on a bill (S1668) by Senate Energy Chairman J. Bennett Johnston and ranking Republican James McClure. The measure is intended to save $140 million in fiscal 1988 by delaying excavation of exploratory shafts at the three candidate waste sites until 1989. At that time, DOE would be required to choose one of the three sites for detailed characterization.

The bill is designed to soften local opposition to nuclear-waste sites by offering $100 million per year to a state agreeing to host a permanent repository and $50 million per year to a state hosting a monitored retrievable storage facility. The bill would authorize construction of the facility, although DOE would have to start over again in its search for a site. DOE’s search for a second permanent repository, planned for the East or Midwest, would be suspended.

Senators Reid, Sasser, and Adams have introduced legislation to block DOE’s waste-disposal program and to impose a moratorium on choosing a site for the high-level-waste facility.

Both the site selection of the high-level nuclear-waste facility and the above-mentioned changes to the Waste Policy Act are highly controversial issues.

A Geologist’s Input
In October I received a call from a geologist working in the nuclear-waste field. He expressed two concerns with the current political climate as it affected the nuclear-waste facility. First, he had a general concern that political pressure to identify a site quickly would compromise the scientific characterization of the site, and the decision on where to locate a site would be made on some basis other than geologic characteristics. Second, he was worried that an 18-month stall or an indefinite moratorium in the waste program would result in the loss of capable scientists currently involved in the program. Thus, the costs to the program would be much greater than had previously been considered.

Since Environment and Public Works has jurisdiction over nuclear issues, I was able to refer him to a staff member working on the issue. The man’s comments were considered so important that staff members are working to draft an amendment to the Johnston bill which would address and clarify both of these concerns.

For me, this experience was personally gratifying. I have always felt that a persistent individual with specific expertise could contribute to the legislative process. Now I have seen this work. This individual geologist, who cared enough to call, made a difference.

For those of you who would like to be involved, I reiterate that knowing the committee of jurisdiction is of utmost importance. Committees with jurisdiction over earth science issues are listed below. Remember that your Congressional Science Fellow can be a helpful first contact.

Committee Jurisdiction and Phone Numbers

<table>
<thead>
<tr>
<th>Senate</th>
<th>House</th>
</tr>
</thead>
<tbody>
<tr>
<td>Committee on Appropriations</td>
<td>Appropriations</td>
</tr>
<tr>
<td>Appropriations and spending authority</td>
<td>Commerce, Science and Transportation</td>
</tr>
<tr>
<td>Science, engineering, and technology research and development and policy</td>
<td>Coastal zone management</td>
</tr>
</tbody>
</table>

GSA NEWS & INFORMATION, December 1987

(continued on p. 268)
Report from Washington (continued from p. 267)

Committee on Energy and Natural Resources (202) 224-4971
- Strategic petroleum reserves
- Outer continental shelf leasing
- International energy affairs
- Natural gas pricing and regulation
- Nuclear waste and insurance programs

Committee on Environment and Public Works (202) 224-6176
- Environmental policy
- Environment research and development
- Ocean dumping
- Environmental aspects of the outer continental shelf
- Solid waste disposal and recycling
- Water resources
- Flood control
- Water pollution
- Air pollution
- Nonmilitary environmental regulation and control of nuclear energy

House

Committee on Appropriations (202) 225-2771
- Appropriations and spending authority

Committee on Energy and Commerce (202) 225-2927
- National energy policy
- Measures related to exploration, production, storage, supply, marketing, pricing, and regulation of energy resources, including all fossil fuels and solar energy and other unconventional or renewable energy resources
- Conservation of energy resources
- Measures related to commercial application of energy technology

Committee on Interior and Insular Affairs (202) 225-2761
- Forest reserves and national parks
- U.S. Geological Survey
- Mineral resources of public lands
- Mining interests
- Mining schools and experimental stations
- Petroleum conservation on public lands
- Regulation of domestic nuclear industry

Committee on Science, Space and Technology (202) 225-6371
- National Science Foundation
- Scientific research and development
- Energy research development

Memorial Preprints

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

Alexander Kennedy Baird, by Douglas M. Morton, William B. Wadsworth, and Donald H. Zenger

Earl F. Cook, by Allen F. Agnew

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Robert Abraham Laurence, by Thor H. Kiilsgaard

Ira Wendell Marine, by John K. Costain

William Samuel Strain, by J. M. Hoffer

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This used to be pegmatite.

Or it could have been blast-furnace slag, raw cement mix, bone fragments, a ceramic teacup, volcanic ash, corrugated cardboard, or even a rubber duck.

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GSA NEWS & INFORMATION, December 1987
Geological Society of America

CONGRESSIONAL
SCIENCE
FELLOWSHIP
1988–1989

The Geological Society of America invites applications for the 1988–1989 Congressional Science Fellowship. The Fellow selected will spend a year (September 1988–August 1989) in the office of an individual member of Congress or a congressional committee advising on a wide range of scientific issues as they pertain to public questions. Guided by the American Association for the Advancement of Science, the Fellow selects a congressional staff position in which he or she can work on major legislative issues.

CRITERIA
The program is aimed at highly qualified earth scientists in early or mid-career. Candidates should have exceptional competence in some area of the earth sciences, cognizance of a broad range of matters outside the Fellow's particular area, and a strong interest in working on a range of public policy problems.

AWARD
The GSA Congressional Science Fellowship carries with it a $28,000 stipend and a limited relocation and travel allowance.

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

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

Deadline for receipt of all application materials is March 15, 1988
FINAL ANNOUNCEMENT
NORTHEASTERN SECTION, GSA, 23rd Annual Meeting
Portland, Maine
March 10–12, 1988

The Northeastern Section of the Geological Society of America will meet at the Holiday Inn by the Bay and the Sonesta Hotel, Portland, Maine, March 10–12, 1988, together with the Eastern Section of the Society of Economic Paleontologists and Mineralogists, the Northeastern Section of the Paleontological Society, and the Eastern Section of the National Association of Geology Teachers. The meeting is sponsored by the University of Southern Maine together with the University of Maine at Farmington, Bowdoin College, the Maine Geological Survey, and the Geological Society of Maine.

Local Committee: Chairman—Stephen Pollock, Department of Geosciences, University of Southern Maine, Gorham, ME 04038, (207) 780-5350; Vice-Chairman—Irwin Novak, Department of Geosciences, University of Southern Maine; Technical Program—Arthur M. Hussey II, Department of Geology, Bowdoin College, Brunswick, ME 04011, (207) 725-3000; Symposia—Carolyn LePage, Department of Environmental Protection, Augusta, ME 04333, (207) 289-2651; Poster Session—Mark Swanson, Department of Geosciences, University of Southern Maine; Treasurer—Walter Anderson, Maine Geological Survey, Augusta, ME, (207) 289-2801; Registration—William Berry and Thomas Eastler, Department of Geology, University of Maine, Farmington, ME 04938, (207) 778-3501, ext. 458; Exhibits and Short Course—John D. Tewhey, John D. Tewhey Associates, Inc., P.O. Box 86 DTS, Portland, ME 04112, (207) 839-6653; Student Volunteers and Audiovisual—James Pendleton, Department of Geosciences, University of Southern Maine; Nontechnical Activities—Gloria Tewhey, John D. Tewhey Associates.

REGISTRATION
All persons participating in any event of the meeting must be registered, and admission to all activities is by badge only.

Preregistration: You are encouraged to preregister at the reduced rate to assist the local committee. Preregistration forms, with payment, must be postmarked no later than Monday, February 8, 1988. Complete registration forms and payment should be sent to: NECSA Registration, Geology Building, 120 Main St., Farmington, ME 04938.

On-Site Registration: Registration will be available at the Holiday Inn by the Bay during the meeting. Registration times will be Wednesday, March 9, 1988, 6–10 p.m.; Thursday and Friday, March 10 and 11, 7 a.m.–5 p.m.; and Saturday, March 12, 8 a.m.–noon.

TECHNICAL PROGRAM
General technical sessions, symposia, and poster sessions are scheduled from Thursday morning, March 10, through Saturday, March 12, 1988. Sessions will be held in the Holiday Inn by the Bay and the Sonesta Hotel. Walking time between the two hotels is about 3–5 minutes. The local committee is making every effort to balance the program and to minimize conflicts.

SYMPOSIA
1. Human Occupation of Late Pleistocene Ice-Marginal Environments. Sponsored by the GSA Archaeological Geology Division. Harold W. Borns, Jr., Institute for Quaternary Studies, University of Maine, Orono, ME 04469.
2. The Bedrock Geology of Coastal New England and New Brunswick East of the Kearsarge—Central Maine Syncline. Charles V. Guidotti and Daniel R. Lux, Department of Geological Sciences, University of Maine, Orono, ME 04469, and Arthur M. Hussey II, Department of Geology, Bowdoin College, Brunswick, ME 04011.
8. Stratigraphic and Structural Analysis of Mountain Belts: A Symposium in Honor of Leo M. Hall. Rolfe S. Stanley, Department of Geology, University of Vermont, Burlington, VT 05405; Peter Robinson, Department of Geology, University of Massachusetts, Amherst MA, 01003; Philip H. Osberg, Department of Geological Sciences, University of Maine, Orono, ME 04469; Norman L. Hatch, Branch of Eastern Environmental Geology, U.S. Geological Survey, Reston, VA 22092. Parts I and II will consist of oral presentations; part III will be an evening poster session.

SPECIAL POSTER SESSIONS
2. More Classic Field Sites for Teaching Earth Science in the Northeast. Sponsored by the New England Section of NAGT; (continued on p. 271)
Northeastern Section (continued p. 270)
William Berry, Department of Geology, University of Maine,
Farmington, ME 04938

SHORT COURSE
Hydrogeochemistry. Faculty: John D. Tewhey, John D. Tewhey
Associates, Inc., P.O. Box 86 DTS, Portland, ME 04112. This one-
day short course will be held on Wednesday, March 9, 1988,
8 a.m. - 5 p.m., in the Connecticut Room, Holiday Inn by the Bay.
Preregistration is required. Fee: $70 professional; $35 student.
Students must provide verification. Fee includes lunch at the
Holiday Inn and course materials. This short course will provide an
introduction to the broad spectrum of hydrology and hydrogeo-
chemistry. Subject matter includes weathering and water chemistry,
geochemo processes in groundwater (redox equilibria, mineral
equilibria, clay mineral adsorption and desorption), and geochemical
processes influencing the fate and transport of organic and inorganic
solutes in groundwater.

This short course replaces the one announced in the September
1987 issue of GSA News & Information.

SPECIAL EVENTS
Welcoming Party. Wednesday, March 9, 1988, 8-11 p.m., Holiday
Inn by the Bay. Reunions will be held in the same area. In order to
schedule a reunion please contact Irwin Novak at (207) 780-5350.
Reception. Thursday evening, March 10, 1988, at the Holiday Inn.
Annual Banquet. Friday, March 11, 7:30-9 p.m. Cost: $15.
Paleontological Society Northeastern Section Business
Meeting. This will follow the Paleontological Society symposium.
Society of Economic Paleontologists and Mineralogists
Eastern Section Business Meeting and Presidential Address.

Friday, March 11, 1988, following the afternoon technical sessions.
A reception is planned.
Association for Women Geoscientists Breakfast. Friday,
National Association of Geology Teachers (NAGT) Special
Poster Session: More Classic Field Sites in the Northeast.
Saturday, March 12, 1988. This special poster session will follow up
the last two years’ sessions with more localities in the Northeast.
One-half day registration is offered for teachers to attend this
session. See registration form for details.
NAGT Eastern Section Business Meeting and Luncheon.
Postmeeting Boat Trip (weather permitting). Saturday, March
12, 1988. This trip, featuring the “boat-side” geology of Casco Bay,
will be in an enclosed passenger ferry. It will be led by Arthur M.
Hussey II, Bowdoin College, and Joseph Kelley, Maine Geological
Survey.
Guest/Spouse Activities will include gallery tours of the Portland
Museum of Art and a shopping trip to L.L. Bean and other outlet
stores in Freeport, Maine.

STUDENT PAPERS
Four cash awards will be made for papers, oral or poster,
written and presented exclusively by students.

PROJECTION EQUIPMENT
All slides must be 2” x 2” format and must fit a standard 35-mm
carousel tray. One projector and one screen will be provided in each
of the technical sessions. Overhead projectors will not be available.
Please bring your own loaded carousel tray, if possible. Please label
(continued on p. 274)

HOUSING REQUEST FORM
GSA 1988 Northeastern Section Meeting
Deadline: February 8, 1988

Mail to: GSA Housing Bureau
Convention and Visitors Bureau
140 Free St.
Portland, ME 04101

Arrival Date _______________ Departure Date _______________

Person requesting housing (type or print)
last name _______________ first _______________
name of Institution or firm ________________________
street address or P.O. box number ________________________
city ________________________ state _______________ ZIP code _______________
Phone ( ) _______________ day _______________ ( ) _______________ evening _______________

Person requesting is responsible for acquiring roomate(s).
Remittance for one night must accompany this form. Make
checks payable to: Housing Bureau 1988 NEGSA.
If remittance is by credit card: Card number _______________

__ VISA __ MasterCard __ American Express

Expiration date _______________

GSA NEWS & INFORMATION, December 1987
PREREgISTRATION FORM
Northeastern Section, GSA, 23rd Annual Meeting
March 10–12, 1988, Portland, Maine

IMPORTANT
2. FULL payment and form MUST accompany all preregistration requests.
   Unpaid purchase orders are NOT accepted as valid registration.
3. Cancellation deadline: March 1, 1988. No refunds on cancellations received after this date.
4. Your check will be your receipt. Copy this form for your records.
5. Register one professional or one student per form.

Please print or type

Name

last

first

mi.

Registered as (check one)   ___ Professional   ___ Student   ___ Guest

Member Affiliation   ___ GSA   ___ NAGT   ___ SEPM   ___ Paleontological Society

GSA Student Associate:   yes   no

Name for badge

Affiliation

Professional address

_________________________  ________________________  ___________  ___________

Phone:  business ( )  ___________  residence ( )  ___________

Preregistration (before February 8, 1988)

___ GSA Member (or affiliate checked above) .................................................. $40.00

___ Other professional ................................................................. $45.00

___ Student (see verification requirement below) ........................................ $18.00

___ Guest or other nontechnical ....................................................... $15.00

___ Half-day (for earth science teachers attending NAGT Poster Session on Saturday, March 12) .................. $10.00

Registration (after February 8, 1988)

___ GSA Member (or affiliate checked above) .................................................. $45.00

___ Other professional ................................................................. $50.00

___ Student (see verification requirement below) ........................................ $20.00

___ Guest or other nontechnical ....................................................... $18.00

___ Half-day registration as above .................................................. $12.00

Special Events

Short Course

___ Professional ................................................................. $35.00

___ Student (see verification requirement below) ........................................ $70.00

___ Northeastern Section banquet and business meeting (Friday, March 11) .... $15.00

___ Association for Women Geoscientists breakfast (Friday, March 11) .... $7.00

___ Casco Bay cruise (Saturday, March 12) ............................................ $20.00

___ NAGT luncheon (Saturday, March 5) ................................................ $11.00

___ Abstracts with Programs—reserved (on-site pick-up) ....................... $8.50

Total fees ............................................................................... $

Enclose check or money order in U.S. funds payable to Northeastern Section GSA

Student verification

Signature of dept. head or GSA Campus Representative

Mail completed meeting preregistration form and full payment to:

NEGSa REGISTRATION
Geology Building
120 Main Street
University of Maine
Farmington, ME 04938

GSA NEWS & INFORMATION, December 1987
Exhibits will be on display in the Ballroom of the Sonesta Hotel. The exhibit area is centrally located and secure. The morning and afternoon coffee breaks will be held in the exhibit area. Single and multiple 8' x 8' booths are available to educational and nonprofit organizations for $135 per booth, and $270 per booth to commercial exhibitors. An exhibit directory will be printed for the meeting and will be included within the registration materials distributed at the meeting. For additional information, contact John D. Tewhey Associates, Inc., P.O. Box 86 DTS, Portland, ME 04112, (207) 839-6653.

TRANSPORTATION AND PARKING
Portland is easily accessible by air and bus. Limousine and taxi services are available from the airport.

Delta Airlines, in cooperation with the Northeastern Section, is offering special rates, which afford 5% off Delta’s published restricted round-trip fares within the United States and to and from San Juan, providing all rules and conditions of the air fares are met. If you can’t meet the conditions for restricted fares, you can still get 40% off Delta’s unrestricted regular round-trip coach rates (Canada-originating attendees will save 35%); seven days advance reservation and ticketing will be required. To take advantage of all of these discounts call Delta, or have your travel agent call 1-800-241-6760 between 8 a.m. and 8 p.m. Eastern time daily; the file no. for this offer is H0215.

Those driving to Portland should follow the Maine Turnpike (I-95) north to exit 6A, and connect with I-295 north. Follow I-295 north to Forest Avenue South (exit 6). Proceed on Forest Avenue South (also U.S. Route 1 South) to State Route 77 South. Proceed on Route 77 South, and turn left onto Spring Street. Follow Spring Street to the Holiday Inn. For those staying at the Sonesta, turn left from Spring Street onto High Street and proceed to the Sonesta. For those staying at the Best Western, turn left from High Street onto Congress Street and proceed to the Best Western. Those who are driving and are not staying in one of the designated hotels are cautioned to expect difficulty in securing all-day parking near the meeting hotels.

HOUSING
See the accompanying housing form to make reservations. Reservations will be accepted at the GSA Housing Bureau through February 8. After February 8, rooms may be secured on a space-available basis directly with the hotels. The GSA rate will prevail for all attendees from March 8 through March 13, 1988.

WEATHER
Early March weather in Portland varies from year to year. You should be prepared for winter weather. For those of you wishing to extend your stay, early spring skiing should be good at the numerous ski areas. Many of these are within an easy 2- to 4-hour drive from Portland. Depending on the temperatures, ice skating may be available in Portland’s Deering Oaks Park, approximately a 20-minute walk from the hotel. A commercial ice rink is available in South Portland at a nominal fee.

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

For more information:
Call the GSA Foundation
303-447-2020
800-GSA-1988
or mail contribution form to:
GSA FOUNDATION
3300 Penrose Place
P.O. Box 9140
Boulder, CO 80301-9974

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

Name

Address

Signature
CENTENNIAL SPECIAL VOLUMES

Four special, topical volumes prepared by four of GSA's Divisions as their contribution to the Society's centennial project, DNAG. The Divisions participating are: The History of Geology Division, the Quaternary and Geomorphology Division, the Engineering Geology Division, and the Archeological Geology Division. Volumes are hardbound, 8-1/2" X 11", with spines color coded as indicated.

edited by Ellen T. Drake and William M. Jordan, 1985

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


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

New ideas, new techniques, new data, even new access to extraterrestrial worlds -- all these are in greater abundance now than ever, making this, the editor says, a marvelous time to be a geomorphologist! This 14-paper volume has been prepared by the Geomorphology Division of GSA as its contribution to DNAG. Subjects treated are Regional Geomorphology of N. America; Appalachian Mountains and Plateaus; Atlantic and Gulf Coast Province; Central Lowlands; Canadian Shield; Great Plains; Rocky Mountains; Colorado Plateau; Basin and Range; Central America and the Caribbean; Columbia and Snake River Plains; Interior Mountains and Plateaus; Pacific Coast and Mountain Systems; and Arctic Lowlands. Yellow spine.


GEOLOGY OF NORTH AMERICA

The centerpiece of the DNAG project. When complete, this modern synthesis of the geology and geophysics of North America and the adjacent oceanic regions will contain 28 matched volumes, in two sets: 19 U.S. and Mexican volumes, and nine from Canada. Both of these sets, and all single volumes will be available from GSA. All volumes are hardbound, 8-1/2" X 11" and most include separate slip cases containing oversize plates.

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

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


COMING SOON...

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

Heritage of Engineering Geology
edited by George A. Kiersch, 1987
FINAL ANNOUNCEMENT
South-Central Section, GSA, 22nd Annual Meeting
Lawrence, Kansas
March 14-15, 1988

The South-Central Section of the Geological Society of America will meet at the Kansas Union on the campus of the University of Kansas. The meeting is sponsored by the Department of Geology of the University of Kansas and the Kansas Geological Survey.

LOCAL COMMITTEE
Chairman: Anthony W. Walton, Department of Geology, University of Kansas, Lawrence, KS 66045-2124, (913) 864-4974
Technical Program Chairman: Frank W. Wilson, Kansas Geological Survey, 1930 Constant Ave., Lawrence, KS 66044-2598, (913) 864-3965
Field Trip Chairman: Wakefield Dort, Department of Geology, University of Kansas, Lawrence, KS 66045-2124, (913) 864-4974
Publicity Chairman: Rex Buchanan, Kansas Geological Survey, 1930 Constant Ave., Lawrence, KS 66044-2598, (913) 864-3965
Meeting Treasurer: Roger Kaesler, Department of Geology, University of Kansas, Lawrence, KS 66045-2124, (913) 864-4974
Local Arrangements: Karl Kapplerman, Division of Continuing Education, University of Kansas, Lawrence, KS 66044-2124, (913) 864-3284.

REGISTRATION
Registration is required for all participants in any event, including technical sessions, symposia, exhibits, planned social events, and field trips.

Preregistration. You are urged to register in advance to aid the local committee in making final plans. A discount is offered to those who preregister before February 7, 1988, using the accompanying forms. Preregistration is required for those who plan to attend premeeting or postmeeting field trips. Return completed preregistration forms with check or money order in U.S. currency (made payable to South-Central Section GSA Annual Meeting) to South-Central GSA, Department of Geology, University of Kansas, Lawrence, KS 66045-2124. Preregistration must be postmarked by February 7, 1988, to qualify for discounted registration rates. Refunds on canceled registrations will be made until February 7, 1988. After that date, no refunds will be made except for field trips or other events that are canceled or oversubscribed.

Registration for Students. Full-time students qualify for a lower registration rate. Students who agree to serve as projectionists or meeting assistants for ½ day will be able to register without paying the student fee (although they must pay to participate in such optional events as field trips and the banquet).

On-Site Registration. From 3 to 8 p.m. Sunday, March 13, participants can register and preregistrants can pick up meeting materials in the lobby of the Holiday Inn Holidome, 200 West Turnpike Access Road, Lawrence. On Monday and Tuesday, March 14 and 15, registration will be held in the Kansas Union from 8 a.m. until 4:30 p.m.

Partial Registration. In order to encourage broader public participation, single-event registration fees have been established for the symposium on Pollution and Contamination of Shallow Aquifers in the Midcontinent and the field trip on Mined-Lands Reclamation and Coal Geology in Southeastern Kansas. Preregistration will be necessary for the field trip.

WELCOMING PARTY
A welcoming party for those attending the meeting will be held Sunday evening, March 13, from 6 to 9 p.m., in the Holiday Inn Holidome, 200 West Turnpike Access Road, Lawrence.

TECHNICAL PROGRAM
Technical sessions on a variety of topics and symposia will be presented on Monday and Tuesday, March 14 and 15. In addition to general technical sessions, the following symposia will be presented during the meeting. Contact the convener(s) of symposia for further information.

1. Geology and Geophysics of the Precambrian of the Midcontinent. M. E. Bickford and W. R. Van Schmus, Department of Geology, University of Kansas, Lawrence, KS 66045.

2. The Tippecanoe Sequence in the Western Interior. W. Lynn Watney and John Doveton, Kansas Geological Survey, Lawrence, KS 66046.

3. Geological Reconnaissance of the Trans-Mississippi West. Rex Buchanan, Kansas Geological Survey, Lawrence, KS 66046, and Daniel Merriam, Department of Geology, Wichita State University, Wichita, KS 67208.

4. Geology and Paleontology of the Unique Hamilton Quarry Locality. Royal H. and Gene Mapes, Department of Geological Sciences, Ohio University, Athens, OH 45701, and Thomas Bridge, Department of Geology, Emporia State University, Emporia, KS 66801.


6. Pollution and Contamination of Shallow Aquifers in the Midcontinent. Margaret Townsend and Marinos Sophocleous, Kansas Geological Survey, Lawrence, KS 66046. This symposium is planned to appeal to the educated and concerned general public as well as professional geologists and students. A fee of $5 is charged for admission of individuals who do not register for the meeting.

7. Cyclicality and Periodicity Throughout the Geologic Record. Wakefield Dort and Edward J. Zeller, Department of Geology, and Larry D. Martin, Museum of Natural History, University of Kansas, Lawrence, KS 66045.

8. Origin and Development of Large Cenozoic Lake Basins in the Southern Great Plains. Thomas C. Gustavson, Bureau of Economic Geology, University of Texas, Austin, TX 78713.

STUDENT AWARDS
The South-Central Section will present three cash awards ($200, $100, $50) for the best student papers. Only student-written and student-presented papers are eligible.

FIELD TRIPS
Participants in premeeting and postmeeting field trips must preregister for the meeting. Field-trip registration is on a first-come
first-served basis. Preregistration for field trips, accompanied by full payment, must be postmarked by February 7, 1988. Requests for refunds will be honored until that date. Trips may be canceled by South-Central GSA if registration is insufficient or for reasons beyond our control. If a trip is oversubscribed or canceled, the field-trip fee will be refunded. Notification of cancellation will be made if possible by March 1, 1988. All field trips will depart from the Lawrence Holiday Inn Holdome.

Preregistration is preferred for the trip to visit Allen Press during the meeting.

Premeeting

1. Regional Geology and Paleontology of the Unique Hamilton Paleochannel

In southeastern Kansas, limestone beds of the Hamilton paleochannel in the Topeka Group record local repetitive marine and terrestrial oscillations during late Pennsylvanian–Early Permian time. The carbonate-clastic sequence contains remains of aquatic and terrestrial vertebrates, marine, fresh-to-brackish water, and terrestrial vertebrates, and superbly preserved walchian conifers and associated upland plants. The field trip will examine the regional context of the Topeka Group and lithic and fossil variation within the channel deposit.

Leaders: Thomas Bridge, Department of Geology, Emporia State University, Emporia, KS 66801, and Royal H. Mapes, Department of Geological Sciences, Ohio University, Athens, OH 45701

Date: March 13, 1988
Cost: $30 (includes transportation, guidebook, lunch, and refreshments)
Limit: 44

2. Cretaceous Lamproites of the Silver City and Rose Domes

The Silver City and Rose Domes are situated 9 km apart along a southwest-northwest linear trend in southeastern Kansas (Wilson and Woodson counties). The two domes were formed by nonviolent intrusion of lamproite magma into Paleozoic country rock. The lamproite is porphyritic and has phenocrysts of serpentinized olivine, augite, richterite, and phlogopite set in a groundmass of phlogopite and serpentine. The age of the bodies, dated by K-Ar methods, is about 90 Ma, Late Cretaceous. At Rose Dome, xenoliths of Precambrian granite (1100-1300 Ma) are common. Some partial melting of the granite occurred. The field trip will examine these structures in the context of origin and relation to the surrounding formations. Recent seismic data detailing the subsurface of the Silver City Dome will be available for inspection.

Leaders: Pieter Berendsen and Ralph Knapp, Kansas Geological Survey, University of Kansas, Lawrence, KS 66046, (913) 864-3965

Date: March 13, 1988
Cost: $30 (includes transportation, guidebook, lunch, and refreshments)
Limit: 27

During Meeting

1. Allen Press, a Leading Publisher of Scientific Journals

Allen Press of Lawrence will hold tours during the late afternoon of Monday, March 14. Allen Press prints about 150 scientific journals, including the Journal of Sedimentary Petrology and the Journal of Paleontology. This is an opportunity to see how manuscripts are turned into articles. Two trips, limited to 20 participants, will leave the Kansas Union at 4 and 5 p.m. and last about 1 hour.

Cost: $5 (includes transportation)

Postmeeting


One hundred years of underground and strip mining of Pennsylvanian coals in southeastern Kansas have left large areas of abandoned mines. Strip mining continues today. Trip participants will see some of the economically important coals, abandoned reclaimed mined lands, and reclaimed mined land that is now put to various productive purposes. In the extreme southeastern corner of the state, lead and zinc were mined by underground room-and-pillar methods in the Tri-State Mining District. Mines extend to depths of nearly 500 feet. Numerous cave-ins and open mine shafts dot the landscape, and contaminated water that has flooded the mines is a threat to surface and subsurface water supplies. Trip participants will view some of the few reclamation and remedial efforts that have been made and will also see the numerous physical and environmental hazards that remain.

Leaders: Lawrence L. Brady and James R. McCauley, Kansas Geological Survey, University of Kansas, Lawrence, KS 66046, (913) 864-3965

Date: March 16, 1988
Cost: $30 (includes transportation, guidebook, lunch, and refreshments)
Limit: 27

CORE AND SAMPLE WORKSHOP

A workshop featuring cores and samples will be held during the meeting in Room 302 Lindley Hall, on the University of Kansas campus.

Precambrian of the Midcontinent—A Field Trip in a Room

A large part of the Proterozoic continental crust of North America is buried beneath Phanerozoic rocks of the U.S. Midcontinent. During an "in-house" field excursion, an extensive suite of drill cores and cuttings from the subsurface Precambrian will be displayed along with thin sections, sample location maps, analytical data, regional geophysical information, and interpretive geologic maps. During the "field trip" we will examine the data from the major subsurface Precambrian terranes and discuss their origin and evolution. Participants are encouraged to bring any samples, data, or maps that are relevant.

Leaders: M. E. Bickford and W. R. Van Schmus, Department of Geology, University of Kansas, Lawrence, KS 66045, (913) 864-4974

Date: March 15, 1988
Cost: $7.50 (includes guidebook and refreshments)
Limit: Open to all interested persons

PUBLICATIONS

Abstracts with Programs for the meeting and copies of the field-trip guidebooks can be purchased at the registration desk. After the meeting, copies of guidebooks will be available from the Kansas Geological Survey, 1930 Constant Ave., Lawrence, KS 66046-2598, (913) 864-3965.

PROJECTION EQUIPMENT

All slides must be 2" x 2" and fit in a standard carousel tray. Two projectors and two screens will be provided in each technical session. Please bring your own loaded carousel, if possible. Overhead projectors will not be available.

EXHIBITS

Exhibits will be adjacent to the technical session rooms. The cost of booths will be reduced for educational and nonprofit organizations.

(continued on p. 281)
Map of Lawrence and the campus of the University of Kansas

NOT TO SCALE
PREREgISTRATION FORM
South-Central Section, GSA, 22nd Annual Meeting
March 14-15, 1988, Lawrence, Kansas

Important
1. Full payment must accompany registration.
2. Register one professional or student per form.
3. Your check will be your receipt. Copy this form for your records. If you wish acknowledgment of your preregistration, please enclose a self-addressed, stamped envelope.
4. Preregistration deadline: Must be postmarked no later than February 7, 1988. Preregistration deadline for premeeting or postmeeting field trips is also February 7, 1988.

Name ____________________________
(last or family name) (first) (middle)

Registered as: ______ Professional ______ Student ______ Spouse or Guest

Affiliation (abbreviate for badge) __________________________________________

Professional address _______________________________________________________

Street _____________________________ (city, state, ZIP) Phone: ( ) ____________

Nickname for badge ____________________________

GSA Member: yes no GSA Student Associate: yes no

Students only: I am willing to serve as a student assistant ______
(If you are needed to serve as an assistant for 1/2 day, you will be notified before the meeting and your registration fee will be returned. You must preregister.)

Preregistration (postmarked by Feb. 7, 1988)
GSA Member ................................................................. $35
Other professional .......................................................... $40
GSA Student Associate .................................................. $12
Other student ............................................................... $15

Registration (postmarked after Feb. 7, 1988)
GSA Member ................................................................. $40
Other professional .......................................................... $45
GSA Student Associate .................................................. $15
Other student ............................................................... $18

Spouse or guest registration ................................................... $10

Partial Registration
Symposium: Pollution and Contamination of Shallow Aquifers in the Midcontinent $ 5

Registration for Special Events
South-Central Section Banquet (March 14) .................................................. $18
Texas and Oklahoma-Kansas Sections NAGT Luncheon (March 14) ............ $ 8
Chairmen's Breakfast (March 15) .............................................................. $ 6

Field Trips
(Preregistration must be postmarked by February 7, 1988)

Premeeting
1. A Visit to Hamilton Quarry (Sunday, March 13) .................................... $30
2. Cretaceous Diatremes of Wilson County, Kansas (Sunday, March 13) .... $30

During the Meeting
1. Allen Press (Monday, March 14) ........................................................... $ 5
(Preregistration recommended, not required)

Postmeeting
1. Mined-Lands Reclamation and Coal Geology in Southeastern Kansas (Wednesday, March 16) ................................................................. $30
Mined-Lands trip without a meeting registration ........................................... $35

Core and Sample Workshop (preregistration recommended)
Precambrian of the Midcontinent—A Field Trip in a Room (Tuesday, March 15) $ 7.50

Total Fees ........................................................................ $ ______

Enclose check or money order (U.S. funds) payable to South-Central GSA

Mail completed registration form and full payment to
South-Central GSA
Department of Geology
University of Kansas
Lawrence, KS 66045-2124

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GSA NEWS & INFORMATION, December 1987
South-Central Section (continued from p. 277)

institutions. For further information contact A. W. Walton, Department of Geology, University of Kansas, Lawrence, KS 66045-2124.

SPECIAL EVENTS

Annual Banquet of the South-Central Section of the Geological Society of America. Monday, March 14, 1988, 7 p.m. (appetizers and cash bar, 6 p.m.), Holiday Inn Holidome, Lawrence, National Association of Geology Teachers, Texas Section and Missouri-Oklahoma Section Luncheon. 12 noon, Monday, March 14, 1988, Kansas Union, University of Kansas.

Breakfast for Department Chairmen. 7:30 a.m., Tuesday, March 15, 1988, Holiday Inn Holidome, Lawrence.

TRAVEL

Lawrence is located between Kansas City and Topeka, along Interstate 70, the Kansas Turnpike, and easily accessible by car or bus. Excellent air service is available from all points in the south-central area into Kansas City International Airport, about 52 miles from Lawrence. Corporate Coach of Lawrence (913) 841-5466 or (816) 891-7770] operates a scheduled limousine to Lawrence four times daily. Reservations for limousine service must be made in advance.

HOUSING

Blocks of rooms have been reserved at the Holiday Inn Holidome and the Park Inn, at special rates. The welcoming party and banquet will be held at the Holidome, and the registration desk will be located there on May 13. Meeting attendees should contact the motels directly to make reservations.

<table>
<thead>
<tr>
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<th>Holiday Inn</th>
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<tr>
<td>Telephone</td>
<td>(913) 841-7077</td>
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Motel listed below are shown on the accompanying map but will not be served by the shuttle and have not been asked for reduced rates.

All Seasons (913) 843-9100
Econo Lodge (913) 843-6611
Eldridge Hotel (913) 749-5011
Halcyon House (bed and breakfast) (913) 841-0314
Hallmark Inn (Best Western) (913) 841-6500
Super-8 Motel of Lawrence (913) 842-5721
Travelodge (913) 842-5100
Westminster (913) 841-8410

SHUTTLE SERVICE

Shuttle buses and vans will operate between motels (Holiday Inn Holidome and Park Inn) and the Kansas Union. They will operate from 7:30 a.m. to 5 p.m. on March 14 and 15. In the event of inclement weather, vans will operate between the Park Inn and the Holiday Inn Holidome for the welcoming party (March 13) and the banquet (March 14).

THE GSA SEAL
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SOLID-BRASS
BELT BUCKLE
FOR FIELD OR EVERYDAY WEAR

The distinguished GSA seal rendered as a husky, solid-brass belt buckle. This gold on black DynaBuckle® is a deeply etched casting, 2-3/4" diameter, slightly curved for comfort, for belts to 1-7/8" wide at buckle loop, and has an angled adjusting tooth.

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GSA NEWS & INFORMATION, December 1987

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POWELL REVISITED
A Trip Down the Grand Canyon
April 29–May 6, 1988

On the occasion of its Centennial Celebration, GSA is providing an experience in the Grand Canyon for GSA members and their friends. As a happy circumstance, we will also be celebrating John Wesley Powell as an early GSA member and explorer/geologist in the grand old tradition.

SCIENTIFIC LEADERSHIP
The trip will be led by geologists who have had extensive research experience in the Grand Canyon.
Stanley S. Beus, Scientific Leader
Northern Arizona University, Flagstaff, Arizona
William K. Hamblin
Brigham Young University, Provo, Utah
Ivo Lucchitta
U.S. Geological Survey, Flagstaff, Arizona

These geologists will be joined on the trip by several expert interpreters. They will represent other interesting aspects of the Grand Canyon, such as archaeology, biology, or ornithology. Having this array of scientific expertise on hand is an opportunity planned just for this GSA trip. It will be an enriching and unusual experience for learning in a unique and adventurous environment.

GREAT RATE
Fee of $1125. $100 less for GSA members, plus early registration discounts.

GREAT RATE includes . . .
☐ Knowledgeable, expert scientific leadership and interpretive advisors, and passengers who have interests similar to your.
☐ Knowledgeable and well-trained river guides with experience in the Grand Canyon.
☐ Convenience in getting to and from the canyon. No gear to carry, mules to ride, or strenuous hikes.
☐ Waterproof edition of one of the river's best general guidebooks: Larry Steven's Guide to Grand Canyon.
☐ Transportation:
  • At the start of the trip: By air from Las Vegas to Lee's Ferry (1 1/2 hours overflight of the Grand Canyon).
  • At the end of the trip: From Pierce Ferry (Lake Mead) to Las Vegas by speedboat and bus.
☐ Waterproof bags for your clothes.
☐ Waterproof ammo can for your camera and other small personal items.
☐ USCG-approved life jacket.
☐ Duffel package (camping gear).
  • Two-person dome tent and ground cloth.
  • Sleeping bag.
  • Inflatable foam sleeping pads (very comfortable).
  • Eating utensils, cups, and plates.
☐ Continental breakfast before put-in on the first day.
☐ All meals (breakfast, lunch, and dinner).
☐ Lemonade, water, softdrinks, and beer on the river.
☐ Wine with evening meals.

DEPOSIT AND PAYMENT
$150 is due with your reservation. It will be applied to the balance. The balance is due on February 22, 1988.
If you make your reservation before December 31, 1987 $50 less per person
Between January 1 and February 22, 1988 $1025 for GSA members*
$1125 for nonmembers
February 23 or after $100 more per person

RESERVATION FORM
Deposit of $150 per person is due with the reservation. You will be invoiced for the balance.

Name
Institution/Employer
Mailing address
City State ZIP
Business phone Home phone
Guest name
GSA Member #(s)

Mail reservation form and check to:
1988 Grand Canyon Trip
GSA Meetings Department
P.O. Box 9140
Boulder, CO 80301

1888—Geological Society of America

CALL TODAY FOR MORE INFORMATION: GSA MEETINGS DEPT., P.O. BOX 9140, BOULDER CO 80301; (303) 447-2020
The 84th Annual Meeting of the Cordilleran Section of the Geological Society of America, hosted by the Department of Geoscience, University of Nevada, Las Vegas, will meet at the Las Vegas Hilton Hotel, March 29, 30, and 31, 1988. The meeting will be held jointly with the Paleontological Society, Pacific Coast Section. The Local Committee (all members of the Department of Geoscience, University of Nevada, Las Vegas, NV 89154, phone (702) 739-3262) includes: General Chairman—David L. Weide; Program Committee—Frederick Bachhuber, Ernie Duebendorfer, Margaret Rees, Stephen Rowland, and Eugene Smith; Treasurer—Anne Wyman.

REGISTRATION

For your convenience, general information and registration for the meeting (including all field trips) are being handled by the Meetings Department, GSA Headquarters, P.O. Box 9140, Boulder, CO 80301. Send preregistration forms to the Boulder office. For information about registration, call the Registration Coordinator at (303) 447-2020 between 8:30 a.m. and 4:30 p.m. MST.

GENERAL INFORMATION

Las Vegas, the focal point of southern Nevada, lies in the heart of the southern Great Basin, midway between the Colorado Plateau and the Mojave Desert of California. Because of its location, the city is a natural center for geological research. Tertiary volcanic and Paleozoic sedimentary rocks, Cenozoic structures, deposits, and andforms, all of fascinating complexity, combine to give the region a unique lithologic and tectonic framework that has attracted geologists for more than 70 years. The climate during the last week of March is excellent for field work; temperatures range between 45 and 70 °F. Precipitation during the month is negligible. In addition to geologic attractions, the city offers a broad spectrum of entertainment and recreational activities. Affordable housing, a wide selection of inexpensive meals, well-appointed meeting rooms, and an interesting roster of geological exhibitors promise to make the 1988 Cordilleran Section Meeting a rewarding event for all geologists.

SHORT COURSE

Waste Disposal Geology

Monday, March 28, 1988, 9 a.m. to 4:30 p.m. Sponsored by Science Applications International Corporation

This course is designed to teach participants the principles of applied waste disposal geology. The course content is geared toward those with a general background in geology but with limited experience in waste disposal applications and strategies. This course will be structured around case histories, practice problems, group discussion, and demonstrations, and it will be of interest to working professional geologists and graduate students. Topics will include geologic constraints on waste disposal sites, interactions between wastes and the geologic environment, hydrogeologic problems and applications, and case histories of waste-disposal-site investigations.

Faculty: James D. Crabtree, Science Applications International Corporation (SAIC) Las Vegas, Nevada. Crabtree has more than 10 years experience in the field of applied hydrogeology at disposal sites for hazardous high-level nuclear and conventional waste throughout the United States. He has received special commendation from the U.S. Army Corps of Engineers for his studies at Rocky Mountain Arsenal, Conservation Chemical Company in Kansas City, and Petro Processors of Louisiana, Inc. Additional faculty will be drawn from SAIC staff scientists and will include experts on mixed hazardous and nuclear wastes as well as low-level nuclear wastes. Limit: 50. Cost: $120 for professionals, $25 for students (with verification). (Includes lecture notes and handouts; lunch will not be included.)

For further information contact Cecelia McCloy, SAIC, 101 Convention Center Drive, Suite 820, Las Vegas, NV 89109, (702) 733-9958.

TECHNICAL PROGRAM

The technical program will include the topics listed on the GSA abstract form and will consist of volunteered papers presented in oral or poster sessions and invited papers presented in symposia.

Symposia

1. Suspect and Exotic Terranes, Synthesis and Application to Undergraduate Education. Greg R. Wheeler, California State University, Sacramento.
5. Geology and Geophysics of Basin Interiors in the Southern Basin and Range Province. Larry McKague, University of California, Lawrence Livermore Laboratories.
7. Cenozoic Crustal Evolution of the Mojave Desert. Roy Dokka, Louisiana State University; Michael McCurry, New Mexico State University; Eric Frost, University of California, Santa Barbara; Michael Woodburne, University of California, Riverside.

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Cordilleran Section (continued from p. 283)
Rowland H. Brady III, California State University, Fresno; James
Schmidt, Montana State University.
Alamos National Laboratory; Michael McCurry, New Mexico State
University.
11. Pre-Cenozoic Crustal Evolution of the Eastern Mojave
Desert and Adjacent Regions. Calvin Miller, Vanderbilt University;
Joseph Wooden and Keith Howard, U.S. Geological Survey,
Menlo Park; Karl Karlstrom, Northern Arizona University.
12. Oil and Gas Exploration in the Great Basin. Alan K.
Chamberlain, Cedar Strat Corporation, Reno.
13. Characterization of Yucca Mountain, Nevada, for Assess-
ing the Suitability of the Site for a High-Level Nuclear Waste
Repository. Maxwell B. Blanchard, U.S. Department of Energy,
Las Vegas.
14. Paleobiology of Reefal Organisms. Sponsored by the Pacific
Section of the Paleontological Society. Phil Signor, University of
California, Davis.
In addition, we are planning an evening meeting of all geologists
interested in the CALCRUST program. For information, contact
Eric Frost, University of California, Santa Barbara.

PROJECTION EQUIPMENT
One projector for standard 2" x 2" slides will be in each
meeting room. In addition, a limited number of overhead projectors
will be available for informal and postpresentation discussions.
Speakers are expected to bring their own preloaded slide
carousel. A preview room next to the meeting rooms will be open
beginning on Monday morning.

FIELD TRIPS
Registration. Field-trip registrants must register for the
meeting. If you do not plan to attend the meeting but do plan to
participate in a field trip, you may register using the one-day
registration fee. This will entitle you to a one-day badge for the day of
your choice.

Owing to extremely tight housing and transportation limitations
(many of the trips are designed for 4-wheel-drive vehicles),
attendance is limited and will be determined on a first-come, first-
served basis.

Registration procedures, deadlines, and forms are provided in
this announcement. Preregistration is required for all premeeting
trips. Registration at the meeting for postmeeting field trips may be
possible if trip logistics and space permit.

All trips originate and end at the Las Vegas Hilton Hotel unless
otherwise specified. Information on specific departure points and
times will be sent to participants three to four weeks in advance of
each trip. Trips are technical in nature and can be physically rigorous.

CANCELLATION DEADLINE FOR FIELD TRIPS IS MARCH 4, 1988. All refund
requests must be made in writing and postmarked by this date. No
refunds for cancellation will be given after this date.

If the Cordilleran Section is forced to cancel a trip after March 4
because of logistical problems or insufficient registration, full refunds
will be given to those who have preregistered. Please be aware of can-
cellation deadlines and penalties imposed by airlines if you wish to
change you flight arrangements because a trip you have registered for is canceled. It is a good idea to plan alternatives ahead of time.

The Field Trip Chairman is Dave Weide (702) 739-3118 (office)
or (702) 739-3262 (department). General field trip information and
registration are being handled by the GSA Registration Coordina-

Guidebooks. Field-trip guidebooks are included as part of a
field-trip package. Copies may also be purchased on site in the regist-
ration area. After the meeting, contact David L. Weide, Department
of Geoscience, University of Nevada, Las Vegas, NV 89154.

PREAMMETING
1. Tertiary Tectonics Along a Transect from Pioche to
Railroad Valley, Nevada. Leaders: John Bartley and Warda
Taylor, (801) 581-6553, University of Utah, Salt Lake City; Gary
Axen and Joan Fryxell, Harvard University. Note: This trip will
leave from Las Vegas at 6 p.m. Friday, March 25. Three and one-
half days, March 25-28.

On this trip we will examine a 150-km transect across the
eastern Great Basin near lat 38°N. The first two days will focus on
style and timing of Tertiary extension around Dry Lake Valley,
including the nature and role of low-angle faults, evidence for several
discrete periods of extension, and the temporal relations between
extension and volcanism. We will also examine "anomalous"
structural geometry caused by multiple, discrete extension events,
including highly extended but gently dipping strata and low fault
in which dip increases up section. On the third day we will
visit the Quinn Canyon and Grant Ranges, where polyphase
extension was superposed on Mesozoic deformation, plutonism,
and metamorphism.

Limit: 30. Cost: $260, including guidebook, meals, lodging (3 nights),
and transportation.

2. Cenozoic Crustal Evolution of the Mojave Desert. Leaders:
Roy Dokka, (504) 388-3353, Louisiana State University; Michael
McCurry, New Mexico State University; Eric Frost, University of
California, Santa Barbara; Michael Woodburne, University of
California, Riverside. Note: This trip departs from Los Angeles
International Airport on the morning of Saturday, March 26.
Participants are responsible for arranging their own transportation to
Los Angeles. Three days, March 26-28.

This field trip provides an overview of the crustal structure
across the Mojave Desert from the intersection of the San Andreas
and Garlock faults east to the Colorado River. The trip will form ar
introduction to an all-day symposium on Cenozoic evolution of the
Mojave Desert.

Limit: 40. Cost: $220, including guidebook, meals, lodging (2 nights),
and transportation.

3. Detachment Surfaces in the Southern Great Basin
Leaders: Bennie Troxel, (702) 253-7083, University of California
Davis; Mike Carr, U.S. Geological Survey, Menlo Park. California
Brian Wernicke, Harvard University. Note: This trip will start in
Beatty, Nevada. Transportation from Las Vegas McCarran Airport
will leave at 4 p.m., Friday, March 25. Three and one-half days

This trip will feature major low-angle faults that separate
Precambrian to upper Tertiary rocks in the upper plates from mnt:
Precambrian rocks beneath the faults. Mike Carr will guide the
trip through the Bare Mountains near Beatty, where a low-angle
fault separates Tertiary sedimentary and volcanic rocks (above from late Precambrian and Paleozoic rocks (below). In the Funeral
Mountains, Bennie Troxel will show results of deformation an
metamorphism of upper Precambrian rocks beneath a low-angle
fault that underlies upper Precambrian to Pliocene rocks. Brian
Wernicke will show the effects of transportation of rocks on low
angle faults in the Tucki Mountain part of the Panamint Mountain.
Parts of the trip are physically strenuous. You will be away from
vehicles for several hours in the Funeral Mountains.

Limit: 37. Cost: $270, including guidebook, meals (except dinner
March 25), lodging (3 nights), and transportation.

(continued on p. 28)
Cordilleran Section (continued from p. 286)

This trip will visit a spectrum of gold deposits typical of the Mojave Desert region. At the Nelson District, Nevada, and the Jumbo Mine, Arizona, we will examine the interrelations between volcanic-style epithermal alteration and gold mineralization in a zone of detachment faulting. At the Reesy Mine, we will see a breccia pipe. We will also visit the Morningstar Mine, where mineralization may be related to thrust faulting. At the Hart District, we will see a Miocene, rhyolite-hosted gold deposit with newly discovered reserves now in excess of one million ounces. At the Van Deemen Mine, we will see a detachment-hosted gold deposit. Limit: 45. Cost: $130, including guidebook, lunches, lodging 2 nights, and transportation.


On this trip we will study the Mesozoic contractional and Cenozoic extensional tectonics of the eastern foreland, fold, and thrust-belt region of southern Nevada and adjacent California. Topics to be emphasized include the complex geometry and interrelations of Mesozoic structures in the eastern part of the Spring Mountains; basement-involved thrust faulting in the Clark Mountains, California; contrasts between brittle and ductile thrust-related deformation; and the distribution and style of superposed Miocene extensional tectonics. Limit: 35. Cost: $150, including guidebook, lunches, lodging 2 nights, and transportation.


Emphasis will be on the nature of volcanism during regional extension. During the mid-Miocene, the eruption of andesite to rhyolite lavas produced several stratovolcanoes and smaller calderas. The trip will examine the Hoover Dam "sag graben" caldera, the River Mountains stratovolcano, and the McCullough Pass caldera and will focus on the geometry of volcanoes produced during crustal extension, the volcanic stratigraphy, and the rock petrogenesis. There will be several hikes of moderate length. Limit: 35. Cost: $165, including guidebook, lunches, lodging 1 night, and transportation.


During this two-day trip we will explore the paleobiological and sedimentological implications of early infaunal metazoan activity as recorded in upper Precambrian through Ordovician strata. To do this, we will examine ichnofabric and discrete trace fossils in a variety of terrigenous clastic and carbonate nearshore and shelf environments. On the first day, we will examine bioturbation in upper Cambrian nearshore sandstones (Nopah Range) and Ordovician shelf sandstones (Tule City Hills). On the way to these stops we will pass through Death Valley and near Mount Whitney. The first night will be at Big Pine, California. On the second day, we will examine fossiliferous Cambrian to Lower Cambrian sequences in the White-Inyo Mountains of California that contain a variety of carbonate and terrigenous facies. This will provide an opportunity to observe some of the earliest known discrete trace fossils as well as ichnofabric. At the end of the second day we will return to Las Vegas through scenic southwestern Nevada.

Limit: 27. Cost: $85, including guidebook, lunches, lodging 1 night, and transportation.


Visit a classic area of southwestern Quaternary geology. Recent work, using techniques of quantitative pedology, focuses on the geomorphology and Quaternary geology of this large fan and on the development of calcic soils as a function of time and climate. Note: Fresh exposures in several backhoe trenches will be available for close inspection. Limit: 40. Cost: $180, including guidebook, meals, lodging 1 night, and transportation.


This field trip will explore the late Cenozoic volcanic and tectonic development of the Coso Range, California, and some of the surrounding areas. This is a rare opportunity to visit areas that are normally closed to the public. Note: Foreign visitors are required to bring visas with them. Also, the area is subject to closure, although this is considered unlikely. Limit: 24. Cost: $170, including guidebook, lunches, lodging 2 nights, and transportation.

Postmeeting
10. Depositional Environments and Paleotectonic Setting of Triassic and Jurassic Sediments and Volcanic Rocks, Southwestern Colorado Plateau to Eastern Mojave Desert: Implications for Cenozoic Extension. Leader: John Marzolf, (618) 453-3351, Southern Illinois University, Carbondale. Note: This trip will leave from Las Vegas at 4 p.m., Thursday, March 31. Three and one half days, March 31–April 3.

Following a line from the Kanab area of southwestern Utah to the Baker area of the Mojave desert, we will observe tectonic and stratigraphic relations that include the westward overstepping of the Lower Jurassic from Upper Triassic to Lower Triassic to deformed and thrust-faulted Paleozoic rocks; the interfingering of the Moenave/Kayenta-equivalent strata and the Aztec Sandstone with arc-derived volcanics; the Aztec Sandstone depositionally crosscutting deformed, thrust-faulted Paleozoic carbonates; and evidence for the correlation of volcanic rocks with the Middle Jurassic Carmel Formation of the Colorado Plateau. Trip participants will also examine evidence for a narrow tectonic moat lying west of the present Colorado Plateau and east of the Jurassic volcanic arc.

Limit: 25. Cost: $285, including guidebook, meals, lodging 2 nights, and transportation. Note: For participants wishing to camp out and who can bring their own camping gear and provide their own meals, the cost is $185.


The mid-Tertiary Shadow Mountain basin was developed, deformed, and covered with upper Tertiary gravity slide blocks and (continued on p. 286)
Cordilleran Section (continued from p. 285)
fanglomerates consisting primarily of Paleozoic carbonates, but
with other distinct lithologies that suggest their source was the
Mescal Range. Faulting and basinlastic eruption attributed to crustal
extension began at about 7 Ma. Pleistocene lacustrine sediments
have been offset 65 m vertically in the past 0.4 Ma.
Limit: 28. Cost: $125, including guidebook, meals, and transporta-
tion. Note: This is a camping excursion for the night of April 1. All
participants must have their own camping gear.

12. Geology of the Nevada Test Site. Leader: Richard V.
Wyman, (702) 739-3940, University of Nevada, Las Vegas. One day,
April 1
This field trip will be organized to visit sites of geological
interest. A probable itinerary will include a visit to Yucca Mountain,
site of a proposed major high-level nuclear-waste storage facility.
Visitors will also see the collapse craters on Yucca Flat, visit the
Sudan explosion crater, and go underground in one of the tunnels at
Ranier Mesa. A no-host buffet lunch at 1967 prices will be served at
Area 12. This is an all-day trip. Hiking shoes should be worn. Note:
Because of federal regulations, this trip is restricted to U.S. citizens.
No cameras are allowed on the Nevada Test Site.
Limit: 84. Cost: $20, including transportation.

13. Geology of the Waterman Hills Detachment Fault,
Central Mojave Desert, California. Leaders: Alan Glazner,
(919) 966-4516, University of North Carolina, Chapel Hill; John
Bartley, University of Utah. One day, April 1.
The newly recognized Waterman Hills detachment fault, located
about 5 km north of Barstow, California, is the first
documented example of "core-complex-like" crustal extension in the
Mojave Desert. Field trip participants will examine, on three
hikes, (1) development of intense mylonitic lineation near the fault in
footwall granodiorite and gneiss; (2) evidence for Miocene and
pre-Miocene deformation in footwall gneiss; (3) intense extensional
deformation and hydrothermal alteration of Miocene rocks in the
hanging wall; and (4) exotic clast assemblages in hanging-wall
debris flows.
Limit: 42. Cost: $50, including guidebook, lunch, and transportation.

14. Tertiary Extensional Basins of Northwestern Clark
County, Nevada. Leaders: Peter Guth, (609) 866-9565, PETMAR
Trilobite Breeding Ranch; Dwight Schmidt, U.S. Geological Survey,
Denver; Jim Yount, U.S. Geological Survey, Menlo Park; Jack
Deibert, University of Nevada, Las Vegas. Two days, April 1–2.
On this trip we will examine the interaction between Miocene
normal faulting and basin development in the Sheep Range
detachment. We will look at two extensional basins, the Gass Peak basin in the
Las Vegas Range and the Quijinnup basin west of the Sheen Range, which include elastic carbonate and detrital volcanic fill with
interbedded landslides of brecciated Paleozoic bedrock. We will also
look at the relation between sedimentation, landsliding, and faulting in
the Hoodoo Hills Harvic along strike with the Quijinnup basin.
The second day involves a hike with an elevation gain of 2000 feet.
Limit: 35. Cost: $160, including guidebook, lunches, lodging (1 night), and transportation.

15. Correlation of Early Mesozoic Thrusts in the Southern
Great Basin and Their Possible Indication of 25–300 km of Neogene
Crustal Expansion. Leecies: Brian Wernicke, (617)
495-2351, Harvard University; J. Douglas Walker, University of
Kansas; J. Kent Snow, Harvard University. Three days, April 1–3.
Recent mapping in the southern Great Basin suggests that
fragments of thrust faults, including the Wheeler Pass, Chicago
Pass, Nopah Peak, Shoveltown (new name), Butte Valley, and
Winters Pass faults, represent a single Mesozoic thrust. Because
the thrust cuts through bedding in hanging wall and footwall, its
original trajectory through the miogeocline prism could have been
no wider than a few kilometres in an east-west direction; yet the
fragments of the thrust are now scattered across an east-west
distance in excess of 120 km. The purpose of this trip is to examine
these thrust fragments and other data and to assess their implications
for the style and magnitude of Neogene extensional tectonism in the
southern Great Basin.
Limit: 40. Cost: $195, including guidebook, meals, lodging (2 nights), and transportation.

16. Tectonic History of the Last Chance Thrust System, Inyo
Mountains and Last Chance Range, California. Leaders: Kevin
Corbett, (213) 825-3880, and Clem Nelson, University of California,
Two and one-half days, April 1–3.
The Last Chance thrust is the largest and best exposed thrust of the early Mesozoic thrust belt in eastern California. Excellent
exposures of the upper and basal plates, as well as of the sole thrust,
occur in the eastern Inyo Mountains and western Last Chance
Range. The tectonic significance of the Last Chance thrust lies in
the additional constraints it offers for the nature and paleoepaleo
tectonic setting of the Sonoma orogeny. On this field trip we will
examine the deformation history and kinematics of the Last Chance
thrust in light of the continuing controversy concerning the Sonoma
orogeny and its role in the early Mesozoic orogenic evolution of
western North America. This will be a 2-day, 2-night trip with lodging
at the University of California White Mountain Research Station.
Note: This trip will begin at Las Vegas and will end at Los Angeles
International Airport.
Limit: 24. Cost: $180, including guidebook, meals, lodging (2 nights), and transportation.

17. Geometry and Kinematics of a Miocene Accommodation
Zone in the Central Black and Southern Eldorado Mountains, Arizonanr and Nevada. Leaders: James E. Faulds, (505) 277-3214,
University of New Mexico; F. L. (Bud) Hillemeyer, Fischer-Watt
Mining Co.; Eugene I. Smith, University of Nevada, Las Vegas.
Two days, April 1–2.
On this trip we will examine a major exhumed accommodation zone in highly extended terrane joining the central Black Mountains in
northwestern Arizona and the Eldorado Mountains in southern
most Nevada. Accommodation zones facilitate reversals in the
direction of block tilting and possibly inversions in the dip of
detachment systems. We will examine a well-exposed accommodation
zone in the highly extended Colorado River trough and inspect
low-angle normal faults and attendant mylonites, and we will discuss
the overall kinematics of detachment terranes.
Limit: 28. Cost: $90, including guidebook, meals, lodging (1 night), and transportation.

18. Cretaceous Interarc and Forearc Basins of Baja Cali-
ifornia, Mexico. Leaders: Cathy Busby-Spera, (808) 961-4068, and
William Morris, University of California, Santa Barbara; Patrick
Abbott, San Diego State University. Three days, April 1–3.
On this field trip we will view coastal exposures of Cretaceous
marine strata between Ensenada and El Rosario, Mexico (230 miles
south of the border). Paleoepaleoenvironments include deep-
sea fan, submarine canyon, shallow marine and nonmarine forearc
sedimentary rocks of the Rosario Group, and intra-arc marine
volcanic rocks of the Alisitos Group. The effects of magmatism,
tectonics, and global sea-level fluctuations on sedimentation will be
discussed. We will also consider provenance and paleomagnetic
evidence for or against large-scale translation of the Baja California
Peninsula since Late Cretaceous time.
Limit: 40. Cost: $230, including flight from Las Vegas to San Diego.

GSA NEWS & INFORMATION, December 1987
(continued on p. 288)
**PREREGISTRATION FORM**

GSA Cordilleran Section, 84th Annual Meeting, March 29-31, 1988, Las Vegas, Nevada

Preregistration MUST BE POSTMARKED BY NO LATER THAN February 26, 1988. FULL payment and form MUST accompany all preregistration requests. Unpaid purchase orders are NOT accepted as valid registration. One form per registrant, please. All field-trip registrants must register for the meeting. CANCELLATION deadline: March 4. No refunds on cancellations received after this date. A confirmation card will be your receipt.

**REGISTRATION INFORMATION: GSA HEADQUARTERS (303) 447-2020**

- **Type or print—Copy for your records**
  - Name (Last) ___________ (First) ___________
  - Institution/Employer ___________
  - Nickname for badge ___________
  - Mailing Address ___________
  - City ___________ State ___________ ZIP code ___________
  - Country ___________
  - Guest/Spouse Name (Last) ___________ (First) ___________
  - City ___________
  - Business phone ___________
  - Home phone ___________

- **Member Affiliation:**
  - (1) GSA
  - (2) PS

**PREREGISTRATION FEES**

<table>
<thead>
<tr>
<th>Professional Member (member affiliation checked above)</th>
<th>Fee</th>
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<th>Amount</th>
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<tbody>
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<td>Member, one-day (circle day: W T F )</td>
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<tr>
<td>Nonmember</td>
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<table>
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<th>Fee</th>
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<tr>
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<table>
<thead>
<tr>
<th>Student Member (member affiliation checked above)</th>
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<tr>
<td>Student, one-day (circle day: W T F )</td>
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<tr>
<th>Guest (fill in name above for badge)</th>
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<tr>
<td>Abstracts with Programs—reserved (on-site pick-up)</td>
<td>$6</td>
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**SPECIAL EVENTS**

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<thead>
<tr>
<th>Business Meeting Luncheon</th>
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<tbody>
<tr>
<td>Yucca Mountain Overflight</td>
<td>$148</td>
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**FIELD TRIPS (meeting registration required)**

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<thead>
<tr>
<th>Premeeting</th>
<th>Fee</th>
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<tbody>
<tr>
<td>Tertiary Tectonics, Pioche to Railroad Valley</td>
<td>$260</td>
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<tr>
<td>Cenozoic Crustal Evolution, Mojave Desert</td>
<td>$220</td>
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<tr>
<td>Detachment Surfaces, Southern Great Basin</td>
<td>$270</td>
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<tr>
<td>Gold Deposits, Las Vegas Region</td>
<td>$130</td>
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</tr>
<tr>
<td>Mesozoic Thrusts and Cenozoic Low-Angle Faults</td>
<td>$150</td>
<td>1</td>
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<tr>
<td>Mid-Miocene Volcanoes, Lake Mead</td>
<td>$165</td>
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<tr>
<td>Great Basin Precambrian and Paleozoic Biostratigraphy</td>
<td>$85</td>
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<tr>
<td>Geomorphology and Pedology, Kyle Canyon</td>
<td>$180</td>
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<tr>
<td>Volcanism and Tectonics, Coso Range</td>
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**Postmeeting**

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<tr>
<th>Depositional Environments and Paleotectonics, Colorado Plateau-Mojave Desert</th>
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<td>Gravity Slides, Halloran Range</td>
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<tr>
<td>Geology of Nevada Test Site</td>
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<td>Waterman Hills Detachment Fault</td>
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<tr>
<td>Tertiary Extensional Basins, Clark County</td>
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<tr>
<td>Mesozoic Thrusts and Neogene Crustal Expansion, Southern Great Basin</td>
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<tr>
<td>Last Chance Thrust System</td>
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<tr>
<td>Geometry and Kinematics, Black and Eldorado Mountains</td>
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<tr>
<td>Cretaceous Inter-arc and Forearc Basins, Baja California</td>
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**SHORT COURSE**

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<td>Waste Disposal Geology</td>
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Remit in U.S. funds, payable to: 1988 CORDILLERAN MEETING or charge: □ American Express □ VISA □ MasterCard □ Diners Club/Carte Blanche

Card expires: / __ __ __ __

Signature:

Mail to: 1988 GSA CORDILLERAN MEETING, GSA HEADQUARTERS, P.O. BOX 9140, BOULDER, CO 80301

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**FOR OFFICE USE ONLY**

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<td>Refund $</td>
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<tr>
<td>Refund Ck #</td>
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</tr>
<tr>
<td>Refund date</td>
<td></td>
</tr>
</tbody>
</table>
Cordilleran Section (continued from p. 286)
guidebook, meals, and transportation. Note: This trip terminates in
San Diego. Nights in Mexico will be spent camping. All participants
must bring their own sleeping bags and pads. Tents will be furnished.

Special Excursion—Yucca Mountain Reconnaissance Flight.
Leaders: Cady Johnson, (702) 798-0402, Mifflin and Assoc. Inc.,
Las Vegas; Carl Johnson, State of Nevada Nuclear Waste Project
Office; Eugene Smith, Department of Geoscience, University of
Nevada, Las Vegas.

Arrangements have been made to secure a slow, high-winged
aircraft with large windows for a geological overview of the
proposed high-level nuclear-waste repository at Yucca Mountain.
The suitability of Yucca Mountain as a high-level repository is the
focus of a major site-characterization effort that is currently under
way. Technical issues that must be resolved include estimation of
ground-water flow paths and travel times, assessment of ground
breakage, seismic and volcanic hazards, and evaluation of geologic
evidence bearing on paleoclimate.

Participants will observe, from a relatively low altitude, the
surficial features in the Yucca Mountain area that bear on technical
issues in the field setting. Emphasis will be on faulting and volcanism
in the Yucca Mountain—Crater Flat area, ground-water conditions
between Yucca Mountain and Ash Meadows, and paleohydrologic
features at Corn Creek Springs, Indian Springs, and Pahrump Valley.

Participants on the trip (and others attending the GSA
Cordilleran Section meeting) may purchase a videotape (from the
field trip leader) of the area made on an earlier reconnaissance flight.
The tape will be available in Beta, VHS, or 8-mm format. The trip will
leave from the Las Vegas Hilton at 5:30 a.m., Wednesday, March 30,
and will return in time for the 8 a.m. start of the technical sessions.
Limit: 17. Cost: $148, including air transportation and ground
transportation to North Las Vegas airport and return.

SUPPORT FOR STUDENTS
Funds are available to assist GSA Student Associates planning
to travel to Las Vegas to present a paper at this meeting. Deadline
for receipt of requests is January 26, 1988. Contact Bruce
Blackbury, GSA Student Support, Dept. of Geology, California
State University, Fresno CA 93740, (209) 294-3086.

BUSINESS MEETING
The Cordilleran Section will hold its business meeting luncheon
at the Hilton Hotel at 12 noon on Wednesday, March 30, 1988.

EXHIBITS
Exhibits of educational and commercial organizations will be
on display at the Hilton Hotel in proximity to the poster session
area. Exhibit space must be reserved by January 15, 1988. For
exhibitor information, contact the General Chairman.

SPECIAL EVENT
A reception of bacchanalian proportion will be held on the
evening of Monday, March 28, 1988, at the Hilton Hotel.

TRAVEL
The official travel agency for the 1988 Cordilleran Section is
Ambassador Travel, Las Vegas. For travel information, please call
Bob Conway (collect) (702) 385-7805. As part of the Ambassador
tavel package, we have also selected American Airlines as the
official carrier. American has set up toll-free reservations number
1-800-433-1790 for participants in the Las Vegas Meeting. By
calling that number, you can arrange all air travel, even non-U.S.
connecting flights. NOTE: American will make every effort to price
your flight package at a 40% discount. When calling for reservations
you should identify yourself as a participant in the 1988 Geological
Society of America Las Vegas meeting. Participants in field trips that
do not begin or end in Las Vegas may find this service of great value.
To facilitate ticketing via American's toll-free number, (1) state
that you are a member of GSA, (2) ask for the "star number" for the 1988
Cordilleran Section meeting, and (3) have a valid credit card
number and expiration date available. Because air traffic is extremely
heavy, we suggest that you make your travel arrangements early.
For other travel arrangements at the lowest possible rates, contact
Bob Conway at Ambassador Travel (phone number above).

Car Rental. Special daily and weekly low rates are offered by
Allstate Auto Rental, the Cordilleran Section's official rental car
agency for the 1988 Las Vegas meeting. For information, call toll-
free 1-800-634-6186. Be sure to state that you are attending the
GSA Cordilleran Section meeting.

HOUSING
Host Hotel
Las Vegas Hilton
P.O. Box 93147, Room Reservations
Las Vegas, NV 89109
1-800-732-7117 (toll free)

For the meeting, the Las Vegas Hilton has guaranteed a single
rate for all rooms. These room are king-size bed or double/queen bed
(which can be shared). The flat rate for all rooms is $60 per
night. To reserve your room please complete the room registration
form and send it to the Las Vegas Hilton. Deadline for room
reservations is February 26, 1988.

(continued on p. 289)
Cordilleran Section (continued from p. 288)
Alternate Hotels and Motels
Information regarding other hotels and motels can be obtained by calling the Las Vegas Convention Authority, (702) 733-2363.

REGISTRATION
Preregistration deadline: Must be postmarked no later than February 26, 1988.


1. There is a savings in registration fees if you register before February 26, 1988. Advance registration is suggested because of possible participation limits on the special activities. There will be no charge for spouse or guest registrants. Use the preregistration form provided in this announcement.
2. Registration is required for all attendees, including field trip participants.
3. Registration discounts are given to GSA and Paleontological Society members.
4. Full payment MUST accompany all registrations. Unpaid purchase orders are not accepted as valid registration. Credit cards are accepted as indicated on the preregistration form. If using a credit card, please recheck the card number given—error will delay your registration.
5. Register one professional or student per form. Copy the form for your records. One day registrants MUST indicate the day they plan to attend on the registration form.
6. Current student ID is required to obtain student rates for both preregistration and on-site registration.

REGISTRATION FEES

<table>
<thead>
<tr>
<th>Role</th>
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<th>On-Site</th>
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<tbody>
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<tr>
<td>GSA/Paleo Society Member</td>
<td>$50</td>
<td>$70</td>
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<td>Nonmember</td>
<td>65</td>
<td>70</td>
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<tr>
<td>One day (all professionals)</td>
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<td>40</td>
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<tr>
<td>Student:</td>
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<tr>
<td>GSA/Paleo Society Member</td>
<td>$15</td>
<td>$25</td>
</tr>
<tr>
<td>Nonmember</td>
<td>25</td>
<td>35</td>
</tr>
<tr>
<td>One day (all students)</td>
<td>30</td>
<td>40</td>
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<tr>
<td>Guest</td>
<td>n/c</td>
<td>n/c</td>
</tr>
</tbody>
</table>

ON-SITE REGISTRATION SCHEDULE
On-site registration will be in the Hilton.
Monday, March 28—5:00 p.m. to 8:00 p.m.
Tuesday, March 29—7:00 a.m. to 5:00 p.m.
Wednesday, March 30—8:00 a.m. to 12:00 noon
Thursday, March 31—8:00 a.m. to 12:00 noon

CANCELLATIONS AND REFUNDS
GSA will refund advance registration fees for cancellations received in writing by March 4, 1988. NO refunds will be made on cancellation notices received after this date. Refunds will be mailed rom GSA after the meeting; a $10 processing fee will be charged. Refunds for fees paid by credit card will be credited according to the card number on the preregistration form. NO refunds will be made on-site for registration or ticket sales.

HOUSING REQUEST FORM
GSA Cordilleran Section Meeting
March 29, 30, 31, 1988
Las Vegas Hilton, Las Vegas, Nevada

<table>
<thead>
<tr>
<th>Type</th>
<th>Room Rate</th>
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<tr>
<td>King</td>
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<tr>
<td>All rooms</td>
<td>$60</td>
</tr>
<tr>
<td>Specialty suite rates available upon request</td>
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</table>

Date of arrival ___________________ Hour __________ a.m. p.m.
Date of departure ________________ (Checkout time is 12:00 noon)

Name ____________________________
Address __________________________
City __________________ State ______ ZIP ______

Mail directly to
Las Vegas Hilton
P.O. Box 93147, Room Reservations
Las Vegas, NV 89193-9988

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THE GEOLOGICAL SOCIETY OF AMERICA

Annual research awards program

1988

The Geological Society of America will continue its annual research awards program in 1988. Eligibility is not restricted to GSA members. New application forms for the current year and detailed requirements are available each fall in the geology departments of colleges and universities offering graduate degrees in earth sciences. Forms are mailed annually to GSA Campus Representatives and department secretaries and chairmen in the United States and Canada. They are also available upon request from the Research Grants Administrator, Geological Society of America, P.O. Box 9140, Boulder, Colorado 80301. PLEASE USE ONLY THE 1988 APPLICATION AND APPRAISAL FORMS.

The primary role of the research grant program is to provide partial support of master's and doctoral thesis research for graduate students at universities in the United States, Canada, Mexico, and Central America. If necessary, applications may be submitted in Spanish or French.

The Geological Society of America awarded $176,000 in grants in 1987. The awards went to 199 students doing research for advanced degrees. The average amount awarded was $885. The largest award was $1,230, but there is no predetermined maximum amount.

Confidential evaluations from two faculty members are required from master's and doctoral candidates and must accompany applications submitted. PLEASE USE THE "APPRaisal OF APPLICANT" FORMS, WHICH ACCOMPANY THE 1988 APPLICATION FORMS.

Applications will also be accepted for the Harold T. Stearns Fellowship(s). These grants are awarded periodically in support of research on one or more aspects of the geology of Pacific Islands and of the circum-Pacific region. They are distinct from the GSA Penrose research grants and are restricted in their use to the particular region. The awardee(s) will be selected by the Research Grants Committee. Applications must be postmarked by February 15. Application forms are the same as those used for the Penrose research grants.

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

ALL APPLICATIONS MUST BE SUBMITTED ON THE 1988 FORMS AND POSTMARKED BY FEBRUARY 15, 1988
New GSA Fellows

The following candidates were elected to Fellowship by Council action at the October 1987 meeting.

James W. Clarke
Kenneth D. Collerson
Claire B. Davidson
Howard W. Day

René A. DeHon
Richard S. Fiske
Robert J. Jackens
Gail Mahood

Lucy McCcartan
Warren J. Nokleberg
R. J. Norris
Richard R. Parizek

Jack M. Rice
Eugene A. Shinn
Robert C. Thunell
Robert L. Wesson

New GSA Members

The following 301 Members have been elected to Membership by Council action during the period from February 1, 1987, through August 31, 1987 (* indicates transfer from Student Associate to Member).

Nelson J. Abrams
Nooreddin Alavi-Tharani
Hassan A. Al Hazmi
Dan C. Alfred Jr.
Jeffrey C. Alt
Gary D. Anderson
Julian R. Anderson
Richard L. Anderson
Martin J. Andrejko
David R. Annis
Richard G. Ashe
John H. Ashton
Barbara C. Atkin
Steven A. Atkin
John E. Axelson
Steven N. Balone
Michael F. Barlise
Douglas B. Barnett
John E. Beane
Catherine M. Beaudoin
Theodore E. Bedell III
William E. Bell
Victoria C. Bennett
Timothy B. S. Berge
Robert J. Beyke
Karen L. Bice
Robert T. Binnie
David B. Bodnar
Lorenz D. Boeckler
Kevin M. Bohacs
David B. Booth
Scott G. Begg
Alfonso Bosellini
Michael G. Boston
Ronald J. Bowers
Bryan R. Bracken
Don R. Braun
William C. Brice
Corey G. Brinkema
Craig W. Brouger
Damon F. Brown
Douglas W. Brown
Jeffrey D. Brown
Julia T. Brown
Melinda M. Brugman
Marc P. Brudyoka
William V. Bush
George E. Campbell
Kendra C. Carney
Maurit C. Carrara
James C. Carter
Johnennley
William G. Childs
William H. Chilton III
Philip R. Christensen
Mike Clarke
John P. Clinkenbeard
Jeffrey A. Coe
John S. Comey

K. Douglas Cook
Leo M. Coombs
*John O. Costello
*Mark P. Cotter
Peter F. Cowell
Bruce Cowie
James H. Craft
Donald H. Cranmer
*Greg T. Cranham
*Robert J. Creed
Laura J. Crosey
Colin E. Cunningham
William C. Currier
*John E. Czarnecki
Harold M. Dailey
William L. Danforth
Richard L. Dart
Ricky J. Dauzat
Phreddie J. Davis
*Edmilson Santos De Lima
*Anne Demitrack
Timothy M. Dent
Jean F. Demoule
Jan-Arco De Reus
Stephen M. Dickinson
Robert M. Dillipino
*Ross A. Dimmick
E. James Dixon
Thomas N. Dixon
Hugh A. Douglas
Rayburn L. Dye
Ernst K. Eidersen
*John M. Elder
C. Stewart Eldridge
Michael A. Ellis
George F. Engemann
Dean B. Eppler
William Estavillo
Wayne D. Estill
*Kathleen M. Farrell
Charles C. Ferrall, Jr.
Pamela P. Fiasco
William P. Fitzpatrick
Alfred J. Fleming
Anthony H. Fleming
Raymond E. Flood
Karl B. Follmi
Min J. Freeman
Michael Freiheit
Harold Fritz
Tod A. Frinkine
James D. Garry
*Beth C. Geiger
Eric L. Geist
Arthur L. Geldin
*J. Bruce Hemmell
Sheri M. George
Catherine S. Gibbons
David Gibson
Emily B. Giffin
John P. Gilleece
John H. Golden, Jr.
Basil Gomez
Glenn S. Goodman
*Elizabeth A. Gordon
*Timothy L. Gorey
William D. Gosnell
James T. Goyich
Eric C. Grimm
Christian J. Gross
Paul F. Guttmann
William E. Habert
Robert Hall
John W. Hap
W. Douglas Harrison
William J. Harrison
Margaret A. Hart
*Robert C. Hazlett
Nancy Healy-Williams
Mohamed T. Heikal
Jan G. Hertogen
David C. Hetherly
*Lee Higgins
*Elizabeth Hill
*Kenneth M. Hinkel
*Michael M. Hobby
Steven B. Hoffman
*R. Wade Holder
*Thomas J. Hollis
John W. Hopkins
Kevin S. Hopson
David R. Hose
*Eric J. Hubbard
Nazila E. Hummer
Charles D. Hunt, Jr.
Gregory L. Hunt
Craig C. Hyde
Yoqio Inouchi
Marie D. Jackson
Mary L. Jackson
Arthur F. Jacob
Sharon J. Jeffess
Thomas R. Jike
Nancy O. Jannik
James H. Jensen
Carl Johnson
Clarence R. Johnson
James S. Johnston
Susan B. Jones
Thomas E. Jordan
A. Timothy Jull
Teresa L. Katsins
Bruce D. Kay
*Jonathan R. Keilafant
*Timothy J. Kelly
George L. Kennedy
Robert R. Kilby
Ollie P. Kimber
Kevin A. Kincare
David A. King
*Dwight M. Kinnes
*Michael X. Kirby
Michael J. Kocurko
Andrew M. Koenigsberg
*Ronald J. Kotron
Robert J. Kondelin
*Doris J. Kovacs
Jess B. Kozman
Maurice Krafft
Lee R. Kump
Chikao Kurimoto
Anthony F. Kurpaska
Colette Marie Kussel
Patrick M. Lannon
Richard A. Laws
*Jeff M. Legato
John F. Lerbeke
Edie T. Lewis
*Danah A. Lilton
John F. Ligon
*Ronald J. Litwin
Richard S. Lively
Charles L. Loe Bue
*Kenneth M. Langer
Walter D. Longley
Steven L. Loz
*John W. Loo
Huan-Zhang Lu
Richard S. Luther
Thomas R. Lyon
Bertti M. MacGregor
Robert H. MacWilliams
Rosemary E. Manty
*Andrew J. Marino
*Brian C. Martinek
Elizabeth L. Mathieson
Mario M. Mazzi
Randall L. McAlister
Sandy G. McAllister
Anne E. McCaffety
Marlene L. McCauley
John R. McGinn
*Mary L. McHugh
Kenneth J. McMillen
Richard B. McMillen
Kevin McSweeney
Mark E. Meek
Brian H. Mende
Serge J. Meniaci
Christine M. Mennecke
*Paul A. Merewether
Michael J. Meyer
David W. Mittefeldhilt
Douglas W. Middleton
Martin D. Mifflin
Robert W. Milam
*Elizabeth J. Miller

*Scott H. Miller
Elaine C. Mims
Miguel A. Miranda-Gasca
Stuart D. Mitchell
Takashi Miyano
Charles A. Montero
Keith J. Moore
Sergio C. Mora
William J. Mulligan III
Stuart E. Munro
Diane K. Murbach
Monte L. Murbach
Ralph A. Murphy
Nathan C. Myers
Daniel E. Nedland
Mark E. Nelson
Kent D. Newman
Mark S. Norton
Michael L. Nicholas
Peter A. Nielsen
*Daniel C. Oliver, Jr.
*Randolph F. Olms
*Michael P. O'Neil
P. R. Oppenheimer
Mark R. Owen
Matthew G. Pajorowski
William K. Parrish
Jimmie B. Paterson
Suzanne S. Paschke
John Pastor
Colin J. Paterson
*Hannah E. Pavlik
Kenneth Perry
Colen R. Peters
*Randall F. Phaler
Sam E. Philer
Charles D. Phillips
*Karl F. Pohmann
William C. Pooler
Thomas L. Prather
Edwin H. Price
*Cynthia L. Prindmore
*Cecilio Quezada-Ochoa
Leslie D. Reed
David J. Reynolds
Michel Rheault
Bruce L. Rhoads
Scott A. Rice
Thomas Rice
Susan S. Richards
*Scott M. Ritter
*Francis W. Robinson
David A. Rodriguez
Robert P. Rogero
Allan B. Rogers
Timothy E. Rogers
Alessandro Rodro
Vincent J. Ruggiero

continued on p. 292

SA NEWS & INFORMATION, December 1987 291
New GSA Members (continued from p. 291)

*Alexander M. Rummell
Francesco Sabat
Joseph S. Sadik
John R. Sammon
Dewey D. Sanderson
Francisco C. San Juan, Jr.
David A. Sawyer
*Debra C. Sexton
Janine M. Schiavone
Allan T. Schmidt
Bennettha L. Schmidt
Timothy D. Schneider
Marcia K. Schulmeister
Maria Squatetti
Sultan J. Shalwy
Mark A. Shellhorn
*Dacia A. Short
Mark W. Shuster
Richard H. Shkbon
Mark A. Silverman
Richard B. Silverman
Toni J. Simo
*Stephen J. Simpson
John D. Skalbeck
Raymond C. Slagle
Robert L. Slama
Braven R. Smillie
James R. Smithner
Patrick R. Spencer
Howard J. Spero
Herbert M. Spitzi
*Pamela J. Stelf
David J. Stejavec
Julie K. Stratton

*Jay A. Stravers
*Manfred R. Strecker
*Jacqueline G. Strickland
Thomas C. Sullivan
Mohammad A. Sultan
Thomas F. Terranova
*E. Dale Theilig
Todd M. Thorsburg
Susan Tirm
William R. Tingle
Christopher A. Toles
Garri L. Tuford
Jack L. Umbaugh
Garland R. Upchurch, Jr.
*Joanne Urquhart
H. Leonard Vacher
Robert M. Valentine

*James W. Vallance
*葛乐芸
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Jeanne S. Wallberg
Virginia M. Walsh
*Constance Ward
William C. Ward
*Jo Ann T. Weber
Roger N. Weller
Kayles White
Russell J. White
C. D. Whiteman, Jr.
Rick Perry
Billie Wigley
Nancy A. Wildman
Michael L. Williams
Fred E. Winkler
Gerhardt M. Witt
Lyons Witten
Thomas E. Wonacott
*Mark R. Wood
Roy Wood
George E. Wyatt
Timothy J. Young
*Cheong-Yip Yuen
Craig E. Zamzow
Ivar Zemmel
Michael W. Zillmer
Jay Zimmerman

New GSA Student Associates

Listed are 378 Student Associates who became affiliated with the Society during the period from February 1, 1987, through August 31, 1987.

Eric R. Adams
Ibrahim Akpinar
Laurelle S. Allford
Kurt D. Allen
Kristin M. Alvarez
Evra R. Anderman
Suzanne E. Andrews
Robert F. Andrie
Theodore G. Apotria
Marc S. Arwist
Valerie A. Armstrong
Kirk M. Auer
David G. Bailey
Dan M. Baker
Alan Bartz
George T. Basabivazo
Christopher M. Baugues
Steven J. Baumgardner
Bobby J. Beaman
Lawrence E. Bean
Steven C. Bearc
Rudolf P. Beintner
Gaboury Benoit
Ray H. Bernhardt
Patricia Bianco
Alan R. Billingham
Dan A. Billman
Janet M. Blaubum
Curtis W. Block
Gale C. Blackmer
Peter K. Blomquist
Margaret C. Bobb
Mark A. Bogina
Marvin K. Booker
Barbara A. Bowles
Julia M. Branch
Stephen A. Bresett
Jeffrey P. Bristow
Rebekah Brooks
Terryl L. Browand
Patti J. Burkett
Stephen M. Byrnes
Jonathan Caine
Judith A. Calem
Angel F. Calegio
John B. Callihan
Edward M. Calvin
Curtis J. Cappelanno, Jr.
Dana W. Carson
Paul J. Carter, Jr.
Mario Castaneda
William W. Chadwick
Nilanjan Chatterjee
Guo Neng Chen
John K. Chenaut
Barbara D. Chinn
Matthew B. Clark
Tonia J. Clement
William P. Colby
Maurice Cadron
Et A. Compton
Linda M. Conlan
Mark E. Conrad
Nicholas D. Cook
Stephen J. Cook
Michael J. Cornelius
Deanna C. Couch
Donna L. Courington
Jeff P. Craul_IE
Andrew B. Cullen
Ben R. Curry
John P. Daddy
Margaret S. Daniel
Kimberley A. D'Arcy
Brandy R. Davis
Daniel W. Davis
Michel G. Debiche
Hugo Delgado-Granados
Robert A. Demetra
Donald N. Dickey, Jr.
Steven J. Di Lella
Pamela E. Dimmock
Joseph L. Domagalski
David J. Donovan
Dale F. Doughty
Joe D. Dragovich
Eric A. Draper
Cynthia D. Dresser
Mark A. Do Bois
Thomas S. Dunham
Eva M. Duvuis-Nouille
Laure V. Dutton
Clay P. Dyer
Denis J. Ebel
Ellen M. Eberhardt
Cheryl R. Emerson
Marc A. Ercikson
Chuck A. Ernst
Carole J. Estes
Colombo Fabrizio
Peter J. Feewett
Dolly Fazieli

Jeffrey G. Feehan
Alan V. Ferra
Peter S. Fiske
Jeffrey W. Fitzgerald
Michael J. Foote
James L. Foreman
Greg Forman
Brent D. Foster
Charles D. Frederick
Katherine H. Freeman
Gina M. Frost
Sharon L. Gabel
Jose S. Galeazzi
Carol L. Gallatin
Dora M. Gallegos
Jeffrey A. Gordemal
Peter E. A. Gerdes
M. Ishaq Ghaznavi
Fabio Giannetti
Maurice B. Gisler
Melanie J. Givain
Gayle C. Gleason
James D. Gleason
James R. Gordon
Ellen R. Graber
Kristin A. Grady
James C. Granahan
Gay N. Gutierrez
Polly L. Hesselt
Gregory D. Hall
Dann M. Halvorson
Willie E. Hames
Douglas O. Hamill
Debra L. Hanneman
Richard D. Harwood
Redwan N. Hassaan
Roger B. Haston
Stanley C. Hatfield
Joan N. Hayashi
Elizabeth M. Hayes
William A. Heins
George R. Hellrich
James V. Hengsh
Janet A. Henley
Stephen W. Herman
Margaret J. Herron
Christian E. Heubock
Glenn B. Hieshiba
Jerri L. Higgins
Tom W. Hill
John M. Hillenbrand
Michele M. Hluchy
John R. Hoagland III
Teresa C. Hobbs
Sarah E. Hoffman
Steven M. Hoffman
Laurea A. Hofesang
Peter F. Holterhoff
Kerry S. Howard
William L. Hughes
Michael D. Hylland
Timothy J. Jackson
Noreen A. Jasek
John D. Jeffers
Thomas F. Jenkins
Leslie A. Johnson
Lyne J. Johnson
Steve Jones
Frank J. Jordan, Jr.
Richard D. Kaiser
Susana Kalatafovic
Sanjeev M. Kalawad
Kenneth S. Kendall
Robert L. Kendall
Lawrence E. Kayte
Peter J. Kind
Jon R. Kirkpatrick
Robert Z. Kline
Michael P. Klish
Jason L. Knowlton
Bernard C. Koch
Mark S. Koehler
Michal J. Kowalski
Cynthia L. Kramer
Kathy E. Kretzer
Rebecca J. Krieg
Michael A. Krol
Michael E. Lamer
Lance J. Lambert
Mark R. Lambert
Ricky E. Lambert
Carol Lamoureaux-Rison
Cynthia M. Lampe
James R. Lang
Daniel Larsen
David C. Lawrence
Sybil M. Leatham
Jeffrey A. Lee
Todd Leeds
Ben H. Le Fevre
Richard L. Lehman
Kathleen M. Leibold
Peter J. Lemiszki
Robert M. Lent
Sally L. Letssinger
Beth A. Lettman
David F. Link
Angela R. Linse
Carolina Lihou-Berteloom
David J. Linse
Christina L. Lively
Ching-Hua Lo
Mark A. Loesch
 Cary L. Logins
John D. Long
David S. Lucas
Berry L. Lumpkin
Carl E. Lundgren, Jr.
Kevin Mallin
Joseph A. Marchesani
Vanadis M. Mares
Mark R. Markoff
Robert Marquis
Vito P. Marrone
James R. Mart
Linda G. Martin
Kevin M. Matheis
Richard G. Matson
Jerald R. Maughan
Peter Maizone
Michael E. McClain
Jeanne M. McClure
James M. McDonald
Gail A. McGarry
Kim McVey
Peter P. McLaughlin
Richard D. McLerran
Michael D. McVey
David P. Meaux
Andrew J. Meigs
Katherine A. Mills
Daniel M. Miller
Jerry R. Miller
Charles V. H. Mims
Timothy D. Mock
Vanessa Monell
Isabel P. Montane
David J. Moss
Ralph D. Mueller
Fred Murphy
Michele Murray
Halis Muffi

(continued on p. 293)
New GSA Student Associates (continued from p. 292)

David D. Nelson
David K. Nicholson
Martha Nicholson
Shang You Nie
Francis B. Nimick
Paula J. Noble
John E. Nordenstam
Jeffrey C. Nyff
Eric A. Oches
Kevin M. O’Dea
Eric H. Oellics
Kimberly A. Ogle
Christopher D. Olson
John L. Olson
Naomi Oreskes
Terry E. Osborne
Andrew J. Oventile
Lawrence L. Page
Glen P. Parsley
Carolyn P. Peddy
Jeffrey R. Perrine
Eugene M. Peters
Jonathan W. Peterson
Leonard E. Pecorcelli
Daniel R. Pingel
Norbert Plass
Ellen S. Platzman
Mark J. Pontius
Michael J. Portwood

David C. Potratz
David E. Price
Diane M. Pupa
Mohammed Y. H. T. Qari
Ali S. Rahbari
Merion E. Ransom
Gregory A. Ropp
Michael G. Rasmussen
Thomas L. Ratliff
Gordy W. Rattray
Robert L. Rau
Deborah E. Rausch
Jin-Han Ree
Jayne A. Reichhoff
Joseph B. Renk III
Steven W. Riddle
Catherine A. Rigsby
Patrick W. Risley
Anna Marie P. Ristic
Michael G. Roark
Kevin L. Robinson
Antoni L. Roca
Roke A. Rokovitch
Nicholas M. Rose
Nina D. Rosenberg
Timothy M. Ross
Michaëlle J. Rojeck
Robert G. Rowe III
Randy K. Ruff

Kristine L. Saboda
Scott D. Samson
David A. Sauer
Wayne C. Schneick
Carl D. Scharpf
John W. Scheetz
Linda M. Schieber
Robert Scholger
Kim E. Schroeder
Benjamin C. Schuraytz
James S. Scoates
Allan Scott
Gadi Shamir
Judy F. Shaw
Susanne A. Shelley
Paul F. Short
Linda S. Sickel
Paul J. Sikora
Sandra L. Simigian
Antonio Simonetti
Tatip H. Sirkka
Deanna L. Skapask
Kevin P. Slapp
Mike J. Slebdnisk
Eric L. Sleipnes
Gregory L. Small
Daniel J. Smith
Walter O. Sceechting
Indroyono Soesilo

Michael J. Soreghan
Michael J. Spicuzza
Linda J. Stanton
Carole H. Stearns
Martin Steiffl
Kurt R. Sterlno
David C. Still
David V. Stockar
Paul R. Stoddard
Linda Stone
Gary D. Storick
James P. Stratyon
Marc W. Sullivan
Cathy A. Summers
John P. Tandrine
Kenneth B. Tankersley
Paul L. Templet
Alan D. Thompson
Harold J. Tobin
Cynthia A. Torzynski
Daniel B. Uddall
John B. Wagner
James F. Watt
Brooks H. Wallin
Robert W. Wallin
Gregory J. Walsh
Stan Wallatt
Laura L. Walton
Michael D. Waltz

Monica C. Ward
Jeff J. Weatherly
Stephen G. Weaver
J. Michael Weinberg
Carol A. Weinfeld
Gary S. Weismann
Eric R. Wells
Kenneth S. Werner
Kelin X. Whipple
David N. Wilcox
Rene A. Wilson
Barbara M. Winsborough
Kenneth W. Wissian
Channa D. Witanachchi
Donna L. Woelfel
Ellen E. Wohl
Michael B. Wolf
Marvin O. Woods
David J. Wronkiewicz
Astrid K. Wuersten
Ming Qin Yang
James R. Young
Andrew P. Zdiksn
Jie Zhang
Andrew T. Zimmerman

GSA Divisions, Sections Announce Grant Awards

Quaternary Geology and Geomorphology Division
The Quaternary Geology and Geomorphology Division awarded Mackin grants to three students in 1987. Master’s degree candidate Kevin M. O’Dea, Humboldt State University, Arcata, California, received a grant for “Quaternary Terrace Formation and Deformation on Yager Creek, Humboldt County, California.” Two Ph.D. candidates were selected to share a Mackin grant: Leal A.K. Mertes, University of Washington, Seattle, for “Morphology and Construction of the Solimoes-Amazon River Flood Plain in Brazil” and Jim E. O’Connor, University of Arizona, Tucson, for “Hydraulics and Sediment Transport of Pleistocene Lake Bonnville Flooding on the Snake River.”

The first Mackin grant was awarded by the Division in 1974; 24 awards have been presented.

Sedimentary Geology Division
The Sedimentary Geology Division presented its first annual award for an outstanding student research proposal, submitted to the GSA Research Grants Program, to Jay S. Noller, a Ph.D. candidate at the University of Colorado, Boulder. The award was for his research project titled “History of El Niño in Soil Chronosequences of the Peruvian Desert.”

Structural Geology and Tectonics Division
The second student research award to be presented by the Structural Geology and Tectonics Division went to Mark H. Anders of the University of California, Berkeley, for “Episodic Late Cenozoic Faulting in the Overthrust Belt: Implication for the Origin of the Parabola Distribution of Seismicity and Active Faulting, Idaho-Montana-Wyoming.”

North-Central Section
The North-Central Section of GSA awarded six research grants to students in the section this year. Each $500 award is given to qualified students to support field work leading to a thesis or dissertation completion. To be eligible for an award, a student must be attending a college or university in the North-Central Section geographic area. Recipients are selected from students who have submitted applications to the GSA Research Grants Program. This is the third year that the North-Central Section has awarded student grants. Sixteen awards have been presented by the section.

The recipients and the titles of their research projects are:

Vee Ann Attnip, University of Michigan, “An Evaluation of Fluid Migration During Deformation of the Wyoming Overthrust Belt”;
Marrico Delcore, Michigan State University, “Hydrodynamics of Fractured Crystalline Rock Aquifers”;
David James Lepe, University of Iowa, “Metamorphic Petrology of a Precambrian Quartzite-Schist Sequence near Canon City, Colorado”;
Richard E. Terry, University of Cincinnati, “Paleo-community Analysis of Carbonate Buildups in the Fort Payne Formation (Mississippian), Dale Hollow Reservoir, Pickett County, Tennessee”;
J. G. M. Thewissen, University of Michigan, “Phylogeny, Ecology, and Evolution of the Phanerodonta (Conydrartha) and Their Relationship to Other Mammals.”

Southeast Section
GSA’s Southeastern Section has awarded research grants to the following students:

Ph.D. students: Clark Alexander, North Carolina State University, “Thin-Section Examination of Stratification and Clinoform Setting Within Shales and Mudrocks”; John Beuthin, University of North Carolina, “Paleogeomorphology Across the Mississippian-Pennsylvanian Boundary in Northwestern West

(continued on p. 293)
Grant Awards (continued from p. 293)


M.S. students: Steven Beare, Auburn University, “Characterization of Fracture Patterns in the Area in and Between Bartletts Ferry and Goat Rock Fault Zones, Lee County, Alabama”; Dan Billman, West Virginia University, Alleghenian Cover Strain in the Central Appalachians of Virginia and West Virginia”; John Callihan, University of Southwestern Louisiana, The Quaternary and Environmental Geology of Northwestern Iberia Parish, Louisiana”; Timothy Goist, University of Georgia, “Petrology and Geochemistry of the Serra de Lougoinha Pluton, Northeastern Brazil”; Ron Linton, West Virginia University, “Slack-Water Deposits Along the Cheat River in East-Central West Virginia”; Katherine Milla, Florida State University, “Geochemistry of the Gay Dike, Georgia: Implications for Relationship Between Dike Compositions and Regional Tectonics”; Mark Peebles, Auburn University, The Taphonomy of Benthic Foraminifera in Modern Reefs and the Pleistocene Cockburn Town Reef, San Salvador, the Bahamas”; Patricia Renwick, Emory University, “Paleoecology of Floodplain Lakes in the Durham Sub-basin of the Deep River Basin (Late Triassic), North Carolina.”

The 1987 Southeastern Section awards totaled more than $4000 to qualified students to support research leading to a thesis or dissertation completion. The average award in 1987 was $333, and the success rate was 25%.

The 1988 competition is open to all qualified students (i.e., student associate members of the Geological Society of America who are enrolled in a university or college within the Southeastern Section). Ph.D. students must also apply to the Geological Society of America research awards program; the deadline for applications for 1988 awards is February 15, 1988. Deadline for receipt of applications by the Southeastern Section is March 1, 1988. Awards will be made in April 1988.

Application forms are available from: Michael J. Neilson, Dept. of Geology, University of Alabama at Birmingham, Birmingham, AL 35294; (205) 934-5102.

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THE GEOLOGICAL SOCIETY OF AMERICA
MEETINGS

(Asterisk indicates new or changed information)

1987


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) 273-297.


1988

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


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


Anadarko Basin Symposium, April 5-6, 1988, Norman, Oklahoma. Information: Kenneth S. Johnson, Oklahoma Geological Survey, University of Oklahoma, Norman, OK 73091; (405) 325-3031.

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

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


Sixth Thematic Conference on Remote Sensing for Exploration Geology, May 16-19, 1988, Houston, Texas. Information: Thematic Conference, Environmental Research Institute of Michigan, P.O. Box 8618, Ann Arbor, MI 48107; (313) 994-1200, ext. 3382; Telex 490991 ERIMARB.


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.

Meetings (continued from p. 296)

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

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

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

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

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

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

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


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


Fifth International Symposium on the Ordovician System, August 9-12, 1988, St. John's, Newfoundland. Information: Chris R. (continued on p. 298)
Meetings (continued from p. 297)

Barnes, ISOS, Dept. of Earth Sciences, Memorial University, St. John's, Newfoundland A1B 3X5, Canada; (709) 737-8143.


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

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

Society of Economic Paleontologists and Mineralogists Midyear Meeting, August 21–24, 1988, Columbus, Ohio. Information: SEPM, P.O. Box 4756, Tulsa, OK 74109-0756; (918) 743-9765.


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


GSA 1988

Northeastern Section, March 9–12, Portland, Maine

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

Cordilleran Section, March 29–31, Las Vegas, Nevada

Southeastern Section, April 6–8, Columbia, South Carolina

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

Rocky Mountain Section, May 16–18, Sun Valley, Idaho

Annual Meeting, October 31–November 3, Denver, Colorado

Penrose Conferences


*Criteria for Establishing the Relative Timing of Pluton Emplacement and Regional Deformations, September 11–17, 1988, California. Information: Othmar T. Tobisch, Earth Science Board, University of California, Santa Cruz, CA 95064; (408) 429-2504.

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