

NEWS &
INFORMATIONMonthly Newsletter of
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JULY 1983

1983 GSA Research Grants Awarded

By Faith Rogers

Working with a budget of \$96,816, the GSA Committee on Research Grants this year recommended 147 proposals for support. Chairman Donn S. Gorsline (University of Southern California), members Clifford A. Hopson (University of California, Santa Barbara) and Robert F. Riecker (Los Alamos Scientific Laboratory), and National Science Foundation conferee James F. Hays met at GSA headquarters in Boulder, Colorado, April 14-15, 1983, to make the selections.

Sources of Funds

Money for the grants came from donations (\$10,500 from oil companies), the Harold T. Stearns Fund (\$3,663), the Arthur L. Day Fund (\$600), contributions to the GSA Foundation (\$2,053), and interest from the Penrose endowment (\$80,000).

Applications Increase

The 147 proposals recommended for support were chosen from 510 proposals received, compared to 391 received for 1982. Of the 147, 76 were doctoral proposals and 71 were master's proposals. Of the applications, 29% were recommended for funding, compared to 37% in 1982. The average grant was \$663, compared to \$623 in 1982. Women geologists represented 20% of the total applicants, up from 110 in 1982 to 135 in 1983. Of the

510 proposals received, 163 were doctoral, up from 143 in 1982, but they constituted 31% of the 1983 proposals, compared to 37% in 1982.

The committee noted that master's applications had increased significantly, probably reflecting increased enrollments and greater emphasis on the master's degree because of heavy industrial hiring over the past three years.

Dollars Requested Far Exceed Available Budget

Grant requests this year totaled almost \$490,000, five times the available \$96,816. Twenty percent of the dollar requests were met, down from 21% in 1982. "A need for increased funds is obvious," the committee report notes.

How the Committee Works

Proposals are sorted into approximately equal groups, and each set is reviewed and graded by two or three committee members. The NSF conferee reads all the proposals. Grading of proposals is discussed by the committee as a whole and a consensus grade is assigned. At the same time, the committee agrees on a suggested level of funding as a first estimate. After all proposals have been graded, the committee reviews the rankings, and a final funding level and grade are assigned. The committee then establishes the priority for funding and lists alternates for funds in the event that any nominees return grant money. (In 1982, 7 researchers returned their grants to GSA for various reasons: they received enough money from other sources; a project was cancelled; costs were lower than expected.)

Awards

Robert K. Fahnestock Award. Gary A. Smith, Oregon State University, is the 1983 nominee for the Fahnestock award, which goes to the best proposal in alluvial geomorphology and sediment transport. Smith will receive support for his proposal, "Analysis of Sedimentary and Volcanic Processes in a Non-marine Back-arc Basin: Deschutes Formation (Neogene) of Central Oregon."

Harold T. Stearns Fellowship Award. The four nominees for this award, which is earmarked for research on aspects of the geology of the Pacific islands and the circum-Pacific region, are Bradley G. Erskine, University of California, Berkeley, for "Petrogenesis of the Santa Rosa Mountain Mylonite Zone, Southern

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Research Grants Committee Chairman Donn Gorsline (left) and NSF Conferee James Hays.



Committee member Clifford Hopson



Committee member Robert Riecker

Research Grants Awarded

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California"; David M. Harwood, Ohio State University, for "Cretaceous and Paleogene Diatom Biostratigraphy and Marine Geology in the Pacific Sector of the Antarctic"; Peter L. K. Knuepfer, University of Arizona, for "Tectonic Geomorphology and Neotectonics of the Alpine Shear System, Northern South Island, New Zealand"; and Joshua E. Lieberman, University of Oregon, for "Pressure-Temperature-Composition Relations during Progressive Metamorphism: Kigluaik Mountains, Seward Peninsula, Alaska."

Gladys W. Cole Memorial Research Award. No applications were received for this award, established by W. Storrs Cole in 1980 to assist a GSA Fellow between 35 and 60 years old in investigation of the geomorphology of semi-arid and arid terrains in the United States and Mexico. This year \$1,200 was available for the award.

Industry Grants. Donations from Conoco (\$4,000), Marathon (\$4,500), and Mobil (\$2,000) provided funds for grants to the following nominees:

- Brian F. Butler, University of Washington, for "The Relationship of the Bodie Mountain Detachment Fault to Epithermal Mineralization in the Sheridan District, Okanogan County, Washington"
- Yen-Nien Cheng, University of Texas at Dallas, for "Biostratigraphic Investigations of Late Paleozoic-Meramecian (Late Mississippian) and Wolfcampian (Early Permian) Radiolaria in the Southern Buck Mountains, White Pine County, Nevada"
- Pansy DuBose, University of South Florida, for "Geochemical Determination of Sedimentation Rates in a Youthful Mesotidal Salt Marsh: Sapelo Island, Georgia"
- Ted Leonard Eggleston, New Mexico Institute of Mining & Technology, for "The Taylor Creek Tin District: Petrology, Ore Deposits, and Regional Geology"
- Carolyn H. Eyles, University of Toronto, for "Facies Models from Glaciomarine Environments and Their Application to Hydrocarbon Exploration"
- David A. Fulton, University of Missouri, Columbia, for "Facies Relations and Thermal Maturity of a Portion of the Lower Atoka Formation, West-Central Arkansas"
- R. Kevin Given, University of Michigan, for "Geochemical and

- Petrographic Examination of Dolomitization in the Permian Reef Complex of West Texas and New Mexico"
- Catherine W. Gortner, Stanford University, for "Sedimentology, Structure, Tectonic Setting, and Hydrocarbon Potential of Radiolarian Earths on Barbados"
- Norman MacLeod, University of Texas at Dallas, for "Macro-evolutionary Studies of the Mesozoic Radiolarian Families *Pantanellidae* and *Parvicingulidae*"
- Paula S. Peterson, Mackay School of Mines, for "An Integrated Geological, Geochronological and Geochemical Investigation of the Chonta Caldera and Genetically Associated Precious-Metal Mineralization, Southern Peru"
- David Scott Shafer, University of Tennessee, for "Late Quaternary Geologic, Paleocologic, and Paleoclimatic History of the Southern Appalachian Mountains"
- Anthony Sprague, University of Texas at Dallas, for "A Submarine Fan Depositional Model for the Lower Member of the Atoka Formation (Pennsylvanian), Ouachita Mountains, Arkansas and Oklahoma"
- David R. Turner, University of Utah, for "A Petrologic and Fluid Inclusion Study of the Zinc Skarns Associated with the Hanover Intrusion, New Mexico"
- Robin Turner, University of California, Santa Cruz, for "Cenomanian-Turonian Dinoflagellates and Acritarchs from the Greenhorn Limestone of the Western Interior Basin"
- Manuel Valenzuela, University of Texas at Dallas, for "Paleo-

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Prepared from contributions from the staff and membership. Executive Director: F. Michael Wahl; Managing Editor: Faith Rogers; Associate Editor: Lee Gladish; Production and Advertising Manager: James R. Clark; Production Assistants: Ann H. Fogel and June E. Thomas.

geographic Studies in the Cambrian Terrane of NW Sonora, Mexico"

Steven J. Van Kauwenbergh, University of Akron, for "Diagenetic Study of the Carbonate Rocks of the Island of San Salvador, Bahamas"

Grant R. Woodwell, Yale University, for "Fluid Migration in an Overthrust Sequence of the Canadian Cordillera"

Outstanding Mention

The Research Grants Committee designated 17 other nominees as having proposals of high merit in conception and presentation:

Robert S. Anderson, University of Washington, for "A Study of Eolian Process and Form Using Examples from the Western U.S."

Pamela C. Burnley, University of California, Davis, for "Metamorphic Petrology and Structure of the Funeral Mountains, Death Valley, California"

Sandra J. Carlson, University of Michigan, for "The Brachiopod Hinge Mechanism: Origin, Evolution, and Functional Morphology"

Joy Anne Miller Crisp, Princeton University, for "The Compositional Zonation and Nature of Emplacement of Ash Flow 'E' on Gran Canaria, Canary Islands"

Julie M. Dyer, University of Minnesota, for "Isotopic Examination of Mid-Tertiary to Recent Volcanism of Western Turkey: Evolution of a Magma Source in a Changing Tectonic Environment"

Christopher J. Fridrich, Stanford University, for "Geology and Petrology of the Grizzly Peak Cauldron, Sawatch Range, Colorado"

Anita Grunder, Stanford University, for "The Calabozos Volcanic System—I. The Origin of Compositional Zonation in Intermediate Magma: The Loma Seca Tuff; II. Structure of the Resurgent Calabozos Caldera"

Neil F. Hurley, University of Michigan, for "Geology of the Oscar Range Oolite Complex, Canning Basin, Western Australia"

Robert B. Jacobson, Johns Hopkins University, for "Geomorphic Timescales in an Appalachian Plateau Watershed, Buffalo Creek, West Virginia"

Peter Boushall Kelemen, University of Washington, for "The Big Jim Complex, Chiwaukum Mountains, North Central Cascades, Washington"

Thomas C. Moyer, Arizona State University, for "The Geochemical and Volcanologic Evolution of a Bimodal Volcanic Center in Arizona"

Andrew A. Nyblade, University of Wyoming, for "Magnetic and Thermal Investigation of the East African Rift Zone in Tanzania"

Hugh Edward O'Brien, University of Washington, for "Petrologic and Geochemical Investigation of the Bimodal Alkali-rich Volcanics of the Highwood Mountains, Montana, USA"

Kristin E. Orr, University of Washington, for "Structural Relationship between the Thompson Assemblage and the High-grade Rocks of Kettle and Okanogan Domes, Northeastern Washington and Southern British Columbia"

Peter J. Vrolijk, University of California, Santa Cruz, for "Vein Systematics: Paleohydrology of the Kodiak Accretionary Complex"

Gary R. Wilkins, University of Tennessee, for "Quaternary Paleogeology of Central Kentucky: Implications for Vegetation Succession and Deciduous Refugia"

Charles D. Winker, University of Arizona, for "Late Paleozoic Paleogeography and Depositional Systems of Northeastern Mexico"

Others Recommended for Grants

The other 107 nominees for funding are George V. Albino, James F. Allan, Marian R. Allen, Paula E. Allen, Lawrence M. Anovitz, Ahmet T. Arguden, Russell B. Axelrod, Suzanne L. Baldwin, Bret S. Beall, Jane M. Beiswenger, K. Jeffrey Bickart, John L. Biederman, Robert B. Blodgett, Timothy G. Bromage, Robyn J. Burnham, Pamela H. Carter, Barbara Castens-Seidell, Stephen C. L. Clark, Bernard J. Coakley, Brian D. Collins, Kenneth F. Collins, Gregory Cunningham, Grant Cushing, William J. Devlin, Fredric A. Diegel, Jr., James O. Eckert, Jr., Andrea C. Eddy, Kenneth D. Ehman, Kevin M. Engel, Douglas H. Erwin, Victoria J. Fabry, Michael F. Follo, Lynne J. France, Karen H. Fryer, William M.B. Gavin, James E. Geitgey, Ellen Gitlin, Catherine K. Gockley, Laurel B. Goodwin, Charles M. Gorman, William C. Haneberg, Jonathan M. Harbor, Mark O. Heuberger, Michael W. Howell, Brian T. Huber, Douglas P. Imperator, Don Irwin, James Irwin, Michael J. Jackson, Peter D. Jewett, Keith Kaneda, Jill L. Karsten, Paul L. Koch, Jane Kozinski, Timothy M. Kisky, Robert J. Langridge, Charles A. Laymon, Peter D. Lea, Jeffrey Lee, Thomas M. Lehman, Katherine E. Leonard, Rob B. Leslie, Stephanie A. Lovett, Gale D. Martin, Arnold I. Miller, James D. Miller, Jr., John D. Miller, David L. Moffett, Kimberly P. Morris, Barbara J. Munn, Marc D. Norman, Steven W. Novak, Claudia Owen, James P. Owens, James B. Paces, Bernhardt L. Pederson, Brian R. Pratt, Victoria J. Pursell, Wanda J. Ratliff, Paul R. Renne, Brady P. Rhodes, Margaret P. Ricci, Stephanie K. Riess, Sarah M. Roeske, Elizabeth L. Rolle, Delfino C. Ruvalcaba-Ruiz, James C. Sample, David B. Sams, Martin P. Sander, Arndt Schimmelmann, Kenneth P. Severin, Zachary D. Sharp, Pamela G. Sikkink, Neptune Srimal, Elizabeth L. Srogi, Laura B. Stokking, Michael J. Takacs, K.C.N. Touy-sinhthiphonexay, Yen Touy-sinhthiphonexay, Danita B. Velbel, Frederick W. Vollmer, Rebecca Weed, Steven I. Weiss, Nancy W. West, James D.L. White, Mark J. Wiechmann, Michael A. Young, and Rebecca H. Young.

1984 Applications Available

Forms and detailed instructions for applying for 1984 GSA Research Grants are available on request from Executive Director, Geological Society of America, P.O. Box 9140, Boulder, CO 80301. Applications must be postmarked by February 15, 1984.

PEOPLE

The Ohio Academy of Science has chosen a paper by GSA Fellow **Kennard B. Bork** as Paper of the Year for 1982. Bork is a professor of geology and geography at Denison University in Granville, Ohio. His paper, "Kirtley Fletcher Mather's Life in Science and Society," was published in the Ohio Journal of Science in June 1982. It was selected from more than 50 papers for the award.

In Memoriam

Maxim K. Elias
Lincoln, Nebraska
May 6, 1982

Robert M. Grogan
Swarthmore, Pennsylvania
December 26, 1982

1984 GSA Section Meetings and Annual Meeting

Northeastern Section

Holiday Inn & Biltmore Hotel
Providence, RI
March 15-17, 1984

Abstract Deadline: October 19, 1983

Submit completed abstracts to
Prof. Peter Gromet
Dept. of Geological Sciences
Brown University
Providence, RI 02912
(401) 863-3338

South-Central Section

University of Texas at Dallas
Richardson, TX
March 26-27, 1984

Abstract Deadline: November 7, 1983

Submit completed abstracts to
Dr. Richard Mitterer
Geosciences Program
Univ. of Texas at Dallas
P.O. Box 688
Richardson, TX 75080
(214) 690-2401

North-Central Section

Southeastern Section (joint meeting)

Hyatt House
Lexington, KY
April 4-6, 1984

Abstract Deadline: November 9, 1983

Submit completed abstracts to
Dr. John Thrailkill
Dept. of Geology
University of Kentucky
Lexington, KY 40506
(606) 257-3758

GSA Annual Meeting

November 5-8, 1984

Abstract Deadline: June 11, 1984

Send completed abstracts to
Abstracts Coordinator, GSA
3300 Penrose Place
P.O. Box 9140
Boulder, CO 80301
(303) 447-8850

Rocky Mountain Section

Fort Lewis College
Durango, CO
May 11-12, 1984

Abstract Deadline: December 19, 1983

Submit completed abstracts to
Dr. Jack A. Ellingson
Dept. of Geology
Fort Lewis College
Durango, CO 81301
(303) 247-7934

Cordilleran Section

Anchorage Convention Facility
Anchorage, AK
May 30-June 1, 1984

Abstract Deadline: January 9, 1984

Submit completed abstracts to
Dr. John N. Davies
903 Koyukuk Avenue North
University of Alaska
Fairbanks, AK 99701
(907) 474-7190

NSF ANNOUNCES PRESIDENTIAL YOUNG INVESTIGATOR AWARDS PROGRAM

A new program of research awards to the nation's most outstanding and promising young science and engineering faculty, initiated by the National Science Foundation (NSF) at the request of President Reagan, is expected to help universities meet a wide demand for highly qualified personnel for academic and industrial research and for teaching.

The Presidential Young Investigator Awards will provide cooperative research funds from \$25,000 to \$100,000 per year for up to five years to a maximum of 200 young science and engineering faculty each year. "Young" in this case means faculty who are no more than seven years beyond receiving the doctorate degree. The program is aimed at providing the incentive to remain on campus to those top-quality faculty members who would educate the students needed by industry. The program calls for cooperative funding by the industrial sector.

Minimum awards will consist of \$25,000 of Foundation funds. To help forge strong links between the academic and industrial sectors, NSF will provide additional funds of up to \$37,500 on a dollar-for-dollar matching basis for contributions from industrial sources. The institutions concerned will be responsible for providing full academic-year salary for each awardee and arranging for the industrial support.

NSF expects that in the first year up to 100 awards will be made in engineering fields, up to 60 in mathematical and physical sciences, up to 25 in the biological sciences and up to 15 in the astronomical, atmospheric, earth and ocean sciences.

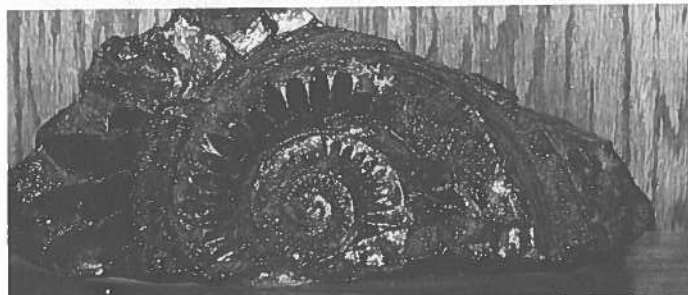
U.S. institutions granting doctorates in fields supported by NSF may nominate outstanding faculty members who have received their doctorates after September 1, 1976, and who hold full-time, regular appointments in tenure track or tenure positions when nominated. Graduate and postdoctoral students who have accepted appointments to such positions may also be nominated.

Nominations are open to citizens or nationals of the United States and permanent residents of the U.S.

Individuals nominated may conduct research in any branch of the mathematical, physical, and biological sciences and engineering. NSF will emphasize those fields where there are substantial needs for faculty development.

For further information: Presidential Young Investigator Awards, National Science Foundation, Room 414, Washington, DC 20550; (202) 357-7536.

SPECIMEN OF THE MONTH



No wonder *Helicoprion* became extinct. Unlike more modern sharks, which shed teeth as they are replaced by new ones, *Helicoprion* retained all its older teeth and buried them in a complex spiral in its jaw. That many impacted teeth would drive anyone to extinction.

This unusual specimen of Permian age (more than 180 m.y. old) is from phosphate mines in the Phosphoria Formation, near Soda Springs, Idaho, and was a gift to GSA from the Department of Geology, Idaho State University, Pocatello, through H. Thomas Ore. You are cordially invited to view *Helicoprion* when you visit your Society's headquarters in Boulder, Colorado.



CENTENNIAL NEWS

by Allison R. (Pete) Palmer

DNAG Participation Continues To Grow

Recently completed computerization of the DNAG files has permitted us to compile a summary of the affiliations of the contributors to the 10 volumes of *The Geology of North America* that have had organizational workshops through April of 1983. They represent 89 universities, 17 provincial and state geological surveys, 19 oil or mining companies or consulting firms, 18 countries, and 17 national agencies of the United States, Canada, Mexico, Central America, and South America. Still to be compiled are the data on individuals and their affiliations for the 9 volumes of *The Geology of North America* being

produced by the Geological Survey of Canada and for the remaining 8 GSA-produced volumes that have not yet had organizational workshops. And then there are the contributors to the Centennial Field Guides . . . etc.! Well over 500 individuals are now involved in this project.

Financial support has been received from 45 organizations and 750 individuals. If you are not yet a supporter or a contributor, now is the time to become a participant in the celebration of GSA's Centennial. Contributions should be made to the DNAG Fund of the GSA Foundation.

There's a Leprechaun in the Basement

By Lee Gladish

Go down into the basement of GSA, take a turn past the large storage room, turn again past the computer room, and then left at the loading dock and you will probably find a young man with sparkling dark eyes smiling at you from the other side of his jet-black beard and a big stack of mail. This is Shawn Collins, and he is the alpha to omega of GSA's internal mail system.

All of GSA's departments depend heavily on the mail, as evidenced by the sacks that arrive and depart each day and the clamor that arises if it is delayed. That's why Shawn's first duty each day, through Boulder's nice weather or its December, February, and May blizzards and/or high winds, is to head to the postal annex where P.O. Box 9140 is located. He throws the sacks and packages in the back of GSA's 1966 Ford panel truck and then heads back to the headquarters building, where he sorts the mail, with a background of classical music on his radio.

The speed of Shawn's reading as he quickly sorts the mail is partly due to his voracious appetite for reading—just about anything; fantasy, science fiction, and mysticism are favorites.

An envelope from Sweden, China, or one of the Spanish-speaking nations will give Shawn reason to pause. He speaks and reads Swedish well, understands Spanish, and knows some Chinese, all self-taught. He has traveled in Sweden, Switzerland, and England and hopes to get back to Europe and go to Asia and South America

At mid-morning the mail has been sorted and distributed, some early outgoing mail has been collected, and Shawn turns to a different set of duties. Orders for publications must be delivered to the warehouse, a deposit must be made at the bank, and perhaps something ordered from a local supplier must be picked up.

Early afternoon finds Shawn back at his mail duties. Since morning the Administrative office has worked up an important mailing to Council members that absolutely must go out today; Shawn obliges. The Marketing Department has produced a bulk mailing to let some individuals who signed up at a Section meeting know the price of that brand-new *Memoir*; Shawn will take care of it. The Membership Department has a stack of dues in-



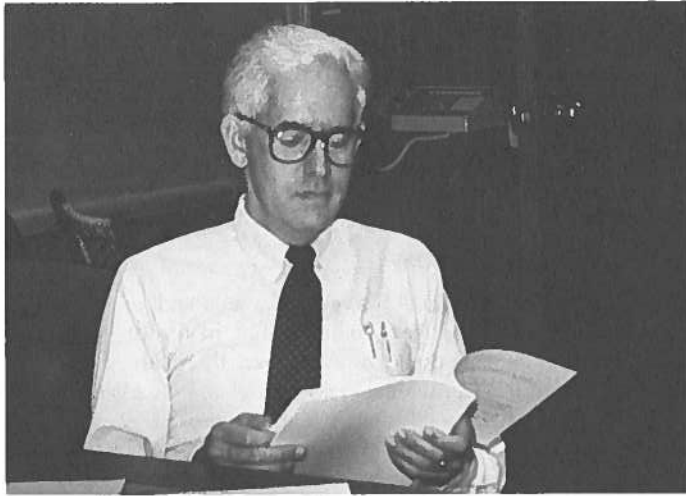
Shawn Collins cheerfully handles the large amounts of GSA headquarters mail every day.

voices that must go into the mail; no problem for Shawn. The Meetings Department shipped a package two weeks ago that didn't reach its destination; Shawn will put a tracer on it. The Production Department has checked the proofs for a book in process. Those proofs "absolutely positively" have to be in Ann Arbor, Michigan, by tomorrow; Shawn sees to it. The Publications Department has some manuscripts that must be mailed to reviewers, and galley proofs for a new book must go to authors in Germany, Australia, Thailand, and Lawrence, Kansas; Shawn knows how.

Shawn's job reaches several peaks during the year—just before the Annual and Section Meetings, when dues statements are mailed, and before GSA Council and committee meetings. "Other than those," Shawn says, "things run on a fairly smooth basis."

GSA's other mailings—fulfillment of subscriptions for *Geology*, *GSA Bulletin*, this newsletter, the *Membership Directory*, *Abstracts with Programs* volumes, and a few others—are handled by contract mailing firms.

Shawn worked with a banking firm before joining GSA in September 1982. His current highest off-the-job interest (after fixing a gourmet meal each evening) is teaching himself computing on his new Commodore VIC-20.



Bob Hatcher, *Bulletin* Editor



Chuck Pillmore, Committee Member

Publications Committee Assesses Success, Problems

By Faith Rogers

The backlog of manuscripts awaiting publication in the *Bulletin* is just about gone and efforts are being made to reduce the acceptance-to-publication time to 4-5 months. Meanwhile, submissions to *Bulletin* and *Geology* continue to increase, and books are being published at a steady rate, according to reports presented to the Publications Committee at its spring meeting held April 23, 1983, at GSA headquarters in Boulder.

Committee members include Chairman and GSA Councilor Robert D. Hatcher, Jr. (University of South Carolina), William A. Thomas (University of Alabama), Eldridge M. Moores (University of California, Davis), Campbell Craddock (University of Wisconsin), John C. Reed, Jr. (U.S. Geological Survey, Denver), John W. Rold (Colorado Geological Survey), Charles L. Pillmore (U.S. Geological Survey, Denver), and, not in attendance, Councilor Maria Luisa B. Crawford (Bryn Mawr College).

Bulletin Submissions Up

Bulletin Editors Bob Hatcher and Bill Thomas reported that the backlog they inherited when they began their stint in fall 1981 has been eliminated with the additional pages allocated for the journal in 1982 and 1983. Manuscript submissions have increased,

however. In 1982, 228 papers were submitted to the *Bulletin*; 120 papers were accepted and 51 were rejected. As of April 30 this year, 83 manuscripts have been submitted (a 9 percent increase over a comparable period in 1982); 32 papers have been accepted and 17 rejected.

Time from acceptance to publication is now 10-12 months, Hatcher and Thomas told the committee. This period includes author review of copy editing, typesetting, author check of galley proofs, layout of articles, and printing. The Editors want to reduce this time to 4-5 months. They are asking authors, reviewers, and *Bulletin* Associate Editors to help cut the size of manuscripts by condensing text and by putting some tables and all appendices into GSA's Data Repository.

Geology Activity Increases

Geology Editor Eldridge Moores reported that manuscript submissions continue to increase. In 1982, 279 papers were submitted to *Geology*; 157 papers were accepted and 84 were rejected. In the first 4 months of 1983, *Geology* has received 102 manuscripts (a 9.7 percent increase over a comparable period in 1982); 65 papers have been accepted and 30 have been rejected.



Eldridge Moores, *Geology* Editor



Jack Reed, Maps and Charts Editor



Cam Craddock, Books Editor

Moore has been insistent that authors condense papers, and their compliance, coupled with the increased number of pages allocated for *Geology*, has produced an average of 12 articles per issue so far in 1983, compared to an average of 8.4 in 1982.

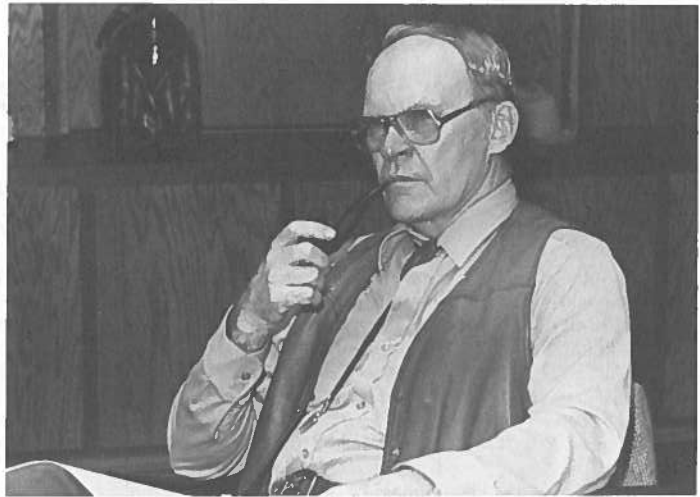
Moore has recruited geologists in industry and applied fields for *Geology's* Editorial Board in an effort to attract a greater variety of articles. He also reported to the committee the results of the questionnaire about *Geology* published in the January 1983 issue. Answers to the questionnaire indicate that the journal is fulfilling its role as a means of rapid publication of short papers on new concepts and that its readers want to see more papers on applied geology, public policy, and current research—and some humor.

Books Editor Formulates Review Guidelines

Campbell Craddock, appointed GSA Books Editor in November 1982, reported a steady flow of manuscripts for *Memoirs* and *Special Papers*. As of April 30, GSA has published 2 *Special Papers*, 1 *Memoir*, and 1 *Microform Publication* in 1983. Six *Memoirs* and *Special Papers* are now in press, and another 6 are in progress. Craddock is working on guidelines for authors and reviewers to help determine whether a book manuscript is well organized, complete, and salable.



Bill Thomas, Bulletin Editor



John Rold, Committee Member

Few Maps on Tap

The number of maps submitted for GSA's Map and Chart Series remains small, Editor Jack Reed told the committee, perhaps because fewer maps are being produced by geologists. The one Map and Chart Series publication so far in 1983 is an 86-map atlas. Six more maps are in press or in preparation. Reed has developed a detailed guide for reviewers for the MC Series.

Data Repository Grows

The GSA Data Repository, which contains supplementary material—tables, appendices, and the like—for articles in the *Bulletin* and *Geology*, was established in 1974. Additions to the repository have increased in 1983, as the *Bulletin* and *Geology* Editors encourage authors to put backup data for their papers there, relieving some of the space crunch in the journals. Material in the repository is available on request, as stated in a footnote to an article with supplementary data. When a request comes in, the material is photocopied at GSA headquarters and sent to the requester. There is no charge for the service. The Publications Committee agreed that duplicates of everything in the repository should be stored away from headquarters as a backup safety measure. Implementing this recommendation requires Council approval.

Abstract Deadline

Noting that the lead time now required for submitting abstracts for GSA's annual meeting can preclude inclusion of important data, the Publications group agreed to recommend that the Program Review Committee (PRC) reduce that lead time. The recommendation includes an offer to help the PRC solve the problem of the early deadline for abstracts.

Next Meeting, Nominations

The Publications Committee will meet again at GSA's annual meeting, in Indianapolis in October. The committee will need two new members, to replace Chuck Pillmore and John Rold, whose terms end this year. If you want to nominate someone for the Publications Committee for 1984-1986, contact Brian J. Skinner, Dept. of Geology, Yale University, New Haven, CT 06520; phone (203) 436-1073, or GSA's Administration, P.O. Box 9140, Boulder, CO 80301, phone (303) 447-2020, before the end of July. (See the April 1983 issue of *News & Information*, p. 56-57 for details.)

NEW MEMBERS

The following 523 Members have been elected to Membership by Council action during the period from September 1, 1982, through February 28, 1983 (* indicates transfer from Student Associate to Member).

Dallas H. Abbott
Beth S. Abramson
Dawn R. Ackerman*
Ronald H. Affolter
Hassan M. Ali*
Mark R. Alvis*
Mohammed S. Ameen
Mark H. Anders
John L. Appel*
Shigeo Aramaki
Steven M. Aronoff
Allan H. Atkinson
Brian F. Atwater
Harry S. Audell
Timothy D. Ault
Robert A. Ayuso

Miriam Baltuck*
Calvin G. Barnes*
Melanie A. W. Barnes
Jeanie Barnett*
Theodore P. Barnhard
Stephen F. Barrett*
James W. Batchelor
Nancy J. Bauch
Raymond J. Beach
L. Sue Beard*
Thilo G. Bechstaedt
Raymond E. Beiersdorfer*
William M. Belvin
Bruce A. Benoit
D. Joe Benson
Pilimon L. Benyamin
Linda Lee Berg
S. Jane Bertschinger
Mary Lou Bevier*
David A. Bickford
John S. Biedenbarn*
Ralph L. Biel
Bruce P. Birge, Jr.
Richard G. Bizub
Malvin Bjoroy
Geoffrey A. Black
Robert E. Blackett
Jeff L. Blass
Jim M. Bloomfield*
Gregory D. Bly
Paul A. Bodin
Gilbert Boillot
G. A. Bollinger
William R. Boltin*
Jeffrey L. Bowen*
Penelope Ann Bowen*
Stephen D. Boyd
Harold S. Boyne
G. Robert Brakenridge*
Thomas W. Brannon
Mary L. Bremer
Alan L. Bressler
Eugene Brickman
Stephen S. Briggs*
Sean D. Broadhead
William E. Brooks
David M. Brown
Roger B. Brown
Jeffrey A. Bruneau
William A. Bryant

Karin E. Budding*
John C. Bullock
Tim Burmeier
Adam W. Burnett
Arthur B. Busbey*
Steven E. Bushnell*

Noralynn J. Caduff
Katherine G. Caldwell
Donald E. Calhoun III *
Gary R. Cameron
Bruce S. Campbell
Andrew Cardamone
Don F. Carlos
Timothy R. Carr
Bruce Applegate Carter*
Paul L. Cepulis
Julie A. Chambers*
Arthur L. Champine
James G. Clark
Vickie L. Clay*
David B. Coddling*
Jennie E. Coe
Andrew S. Cohen*
David L. Cole
James D. Collier*
Cathy L. Connor*
Michael O. Cook*
Kevin P. Corbett
Mark N. Corbett
Susan H. Corderman
Rodolfo J. J. Corona-Esquivel
Barbara A. Cosens
Robert I. Coward*
Russell D. Crawley
Robert M. Creed
Thomas P. Cronin
Vincent S. Cronin*
Don R. Crownover
Thomas J. Culkun
Lana A. Czerniakowski

William E. Daly
Christopher S. Davidson
Mark T. Davin
Michael T. Dealy
John D. Dean
Douglas M. Deason
Glenn R. Dembroff
Carlos A. Dengo*
Neal R. Desmarais*
Douglas B. Dickey*
Peter A. Dickson
Wesley W. Diehl
John A. Diemer*
Eric J. DiEsposti*
Rebecca L. Dodge*
James M. Doesburg
David J. Doherty
David M. Dolberg
Eugene W. Domack
Leo A. Donahue
Bruce J. Douglas*
Marc M. Druckman*
Frank T. Dulong
Lance C. Duncan
Ned R. Dunkin, Jr.

Dennis G. Dunlap
Thomas Dunne
Gary J. D'Urso
Shirley P. Dutton
J. Russell Dyer*

Robert M. Easton*
Karen Maxey Edelson*
Janell D. Edman*
William G. Elton
Kyle D. Emerson
Susan C. Eriksson
Valerie M. Ewing*
Nicholas Eyles

Mark R. Fahan
Paul E. Fairbanks
G. Thomas Farmer, Jr.
Christine M. Farrens*
Alan N. Federman*
Alton D. Ferrell
Martin A. Fife*
Anthony A. Finnerty
Clark S. Fletcher
John J. Flynn*
Sara S. Foland*
Jeffrey Y. Foley
Norman O. Frederiksen
Mark P. Frenzel
Terrence J. Frest*
Jenny C. Fryxell*
L. W. Funkhouser

Gregory L. Gabel
John V. Gadd
Kathleen E. Galloway*
David L. Garner*
Grant Garven*
Tibor Gasparik*
R. Mark Gasser*
Dale A. Gaudreau*
John W. Geissman
Joseph P. George*
Mark P. Germinario*
Lawrence M. Gilpin
Gary H. Girty
James R. Giusso
Lori B. Glassgold*
William D. Glover
Patrick J. Gooding
Robert G. Goodwin*
Steven P. Gordey
John P. Graham*
V.J.S. Grauch
Robert A. Grazer*
Peter H. Greaney
Stephen M. Greenlee*
Jay M. Gregg
Gerald J. Grimes
Marianne C. Guffanti
Kevin P. Guilbeau*
Gerald L. Gulley, Jr.*
Leah J. Gundy
David A. Gust*

Richard C. Haack
Charles A. Haddox

Janet A. Haggerty*
James W. Halvorson
Janet Griswold Hammond*
Patricia M. Hanbury*
Bruce Handley*
Francis D. Hansen
Richard E. Hanson*
Lucy E. Harding*
James F. Hardwick, Jr.
Anita G. Harris
W. Burleigh Harris
Edward J. Hasenohr*
Donald M. Haskins
Ernest C. Hauser*
Wayne D. Haydon*
John M. Hayes
Martha A. Hayes
Lynn David Haynes
David R. Hazen
Donald F. Heinrichs
Fredrick W. Helms
Tucker F. Hentz
Heroel Hernandez
Robert S. Hildebrand*
Paula A. Hoffman
Robin T. Holcomb
James M. Hollywood*
Wendel J. Hoppe
Kevin C. Horstman
Arthur W. Hounslow
Perry C. Howard*
Judith M. Hoyer
Donna M. Hrabik
Scott S. Hughes*

Ken M. Ichikawa*
James C. Inasi
Kerry F. Inman*

David E. Jackson
Richard A. Jackson
Donald M. Jacobs
Jeremy B. Jay
William S. Jefferson*
Devon E. Jercinovic*
Michael J. Jercinovic
Gregg A. Jilson
Kurt J. Johnson*
Samuel Y. Johnson, Jr.*
Peter C. Johnston
Crandall D. Jones
Raymond H. Jones
Shannon E. Jones
Thomas F. Jorstad

Eric T. Karlstrom
Kim Anne Kastens*
Kerry L. Keen*
Alice Repsher Kelley
Michael G. Kelley
Richard A. Kerr
Katherine A. Kilduff*
Robert S. Kimmel
Jo Ann Kimzey
John W. King*
Dorothy D. Kintas
Kent C. Kirkby

Russell A. Klase II
Igor L. Kleopov
Robert P. Koeppen
Melissa M. Kolb*
Walter J. Koop
Deborah A. Kopsick
Michael H. Kortenhof
Kenneth A. Krahulec
Lawrence A. Krissek*
Charles S. Kuntz
Frederick W. Kunzinger, Jr.*
Lynne M. Kurilovitch
Jeffrey P. Kurtz*
Mark D. Kurz*

David D. Lambert*
Helen M. Lang*
Paul A. Larson
Gary L. Lass
John S. Latta IV
James R. Lauffer
Ken W. Laurie*
Charles G. Law*
David T. Lawhon*
Timothy F. Lawton*
Mark Leach
George W. Lee, Jr.
Patrick J. Lehmann
Cecilia Lenk
Stephen D. Lewis*
Michael F. Liebelt
Timothy G. Lignoul
Martin H. Link*
Paul W. Lipinski
Lorance D. Lisle*
Michael J. Liszewski
Richard F. Livaccari
Kathleen A. Locke*
Jeffrey S. Loen
Stephen T. Lofholm
William Loskutoff*
Barbara J. Lowery*
Baerbel K. Lucchitta
Michael E. Lukk
Neil Lundberg*
Susan M. Lundquist-Thurston*
Alan J. Lutenegger
John H. Lyle*

Ian D. MacGregor
James A. Madison
Peter Maggiore*
Richard Makdisi*
Lynn P. Malbrough
Lawrence L. Malinconico*
Maryann L. Malinconico
Harrison E. Matson
Joel K. Mattern
Joseph J. Mauch*
William B. Maze*
Salvatore J. Mazzullo
Michael L. McCarty*
William C. McClelland*
William Douglas McCoy*
Daniel P. McCune
Timothy J. McCutcheon
Robert D. McDonald*

NEW FELLOWS

The following candidates were elected to Fellowship by Council action at the May 1983 meeting.

Etta Gaynell McGary
Janet D. McLaughlin
Ronald J. Meepos
Diane K. Messmann*
Bill Millard*
Andrew B. Miller
Andrew J. Miller*
Jill Miller*
Joseph M. Millo
A. Wallace Mitchell
Heidi-Lynn Mitchell*
Mark P. Molinari*
Charles B. Morgan III*
Lynn J. Moses
Falma J. Moye*
Ellen D. Mullen*
C. H. Murrish

Jay S. Namson
J. Dale Nations
Anthony S. Nelson
David E. Nelson
Robert E. Nelson*
Barbara B. Nevins*
Claudia M. Newbury
Evelyn B. Newman
James Nicholls
Keith B. Noyes*

James D. O'Brien
James D. O'Brient
Timothy J. O'Hearn*
Christine C. Onasch*
Howard M. Orlean
Louis A. Orlowski
Lisa E. Osterman*

Karen E. Pace
Christopher M. Palmer
J. Michael Parrish
Judith Totman Parrish
Randall R. Parrish*
Thomas L. Patton*
Robert T. Paulsen*
Carl A. Pearson*
Thomas A. Perry
Todd A. Petersen*
Dixie Jo Philippe
Fred E. Pierson, Jr.*
Jean M. Pijan
James L. Pindell*
James E. Pizzuto*
Joseph S. Polovina
Harriet E. Powell*
Richard J. Powell
Mark A. Prchal
Barbara J. Priest
James P. Prieur*
Donald R. Prothero*
Ron C. Pullins
Steven A. Pullman*

Linda D. Raedeke*
Leonard G. Rafalko
Kelvin W. Ramsey*
Robert S. Rasmussen
David S. Ratner*

Finley C. Bishop
Glenn R. Buckley
Donald A. Coates
Lindrih Cordell
John Crawford Crelling
Jerome V. DeGraff
William Lloyd Effinger
Brooks B. Ellwood
Louis A. Fernandez
Albert J. Froelich
William L. Graf
George R. Hallberg
William J. Hinze
Rodney John Holcombe
David G. Howell

Peter J. Hudleston
Charles S. Hutchinson, Jr.
Peter E. Isaacson
Peter B. Jones
Diana C. Kamilli
Erle G. Kauffman
Thomas B. Kellogg
Kerry Kelts
John Duncan Keppie
John S. Klasner
Andrew H. Knoll
Noel Krothe
Albert M. LaSala, Jr.
David A. Lienhart
Joseph S. Long, Jr.

Michael T. Lukert
Richard F. Mast
Judith Ann McKenzie
Gregory F. Moore
Clifford M. Nelson, Jr.
Rachel K. Paul
William H. Price
Erwin Seibel
Dale R. Sparling
Charles H. Thorman
Bruce H. Tiffney
Francis Ta-Chuan Ting
Jean-Claude Vicente
David L. Weide
Robert G. Wiese, Jr.

David L. Read
J. Frederick Read
Mark A. Redline
Ingrid B. E. Reich
Chris W. Reynolds
Lance R. Richman
J. Keith Rigby, Jr.
James G. Rigby*
Catherine A. Rigsby*
Ray J. Ring
Sheila M. Roberts
Brad A. Robison
Michael F. Roden*
J. David Rogers*
Ralph D. Rogers*
Michael A. Rosen*
Robert Rosman
Lisa A. Rossbacher*
Brian D. Rovelli
David B. Rowley*
James R. Ruef
Joseph H. Rule
Martin S. Rutstein
Timothy H. Ryan
Jenny L. Rytel

Ronald B. St. John
Galo A. Salcedo
Margaret H. Sand*
Marilyn Sartor*
Joseph I. Satterfield
Jeffrey J. Sawlan
Wendy E. Schaftenaar*
Mary E. Schlemmer*
John P. Schmal*
Curtis A. Schmidt*

James Schmitt*
Mark E. Schmoll
Stephen R. Schutter*
Jeffrey N. Schuyler*
Anne M. Schwab*
Andrew R. Scott
David C. Scott
Frank P. Seabeck
R. Thomas Segall
Errol D. Sehnke
Wayne P. Seward
John W. Shuttleworth
Wayne R. Sigleo
Robert I. Simon
H. Catherine W. Skinner
Suzanne M. Smaglik*
Richard C. Smalley
Arthur T. Smith*
Cathlee Smith
Ellen D. Smith
Gerard T. Smith
Randall B. Smith*
David R. Smuin
Mindi B. Snoparsky*
George C. Solomon*
Bernd Sondors
Mohan K. Sood
Jean-Pierre Soulas
C. Scott Southworth
Jeffrey M. Spatz*
A. F. Spilhaus, Jr.
Carl I. Steefel
Deborah Deibler Steele
Jack Steele
Gene M. Stevenson

Robert A. Stewart*
Joann M. Stock*
Thomas A. Stone*
Scott Mitchell Strathouse*
Robert G. Strauss
Tanya R. K. Strobusch*
Paul K. Strother
David L. Sturrock
David Sussman*
Patricia A. Sutton*
Eric C. Swanson
Peter Szatmari
Larisa Szumakow*

Pradeep Talwani
Joseph J. Tanski
Bryan Tapp*
Alberto J. Terrones L.
Robert E. Thomason*
James E. Thurber*
Stephen Pollock Thurston*
John R. Tillman
Carolyn A. Tucker*
Jan Tullis
Alvydas Turminas*
Michael A. Tuohy
Terry R. Twyman*

Michael B. Underwood*
Nathaniel F. Usher

Charles L. Vavra*
Richard F. Venters*
Alvaro Villamizar
David H. Voorhees*

David G. Waggoner*
Paul D. Wagner*
Alan R. Wallace*
Gerard J. Walter
Richard E. Waltrip
Douglas C. Ware
Jay Warner
Michael Fred Weber*
Stephen H. Webster*
John H. Weitz, Jr.*
Ray E. Wells*
Brian P. Wernicke*
David E. Westhoff
Stephen J. White*
James L. Whitford-Stark
Rick R. Whitman
John E. Wiegand
Brian D. Wiggins
Steven W. Wiler
James H. Willemín*
Daniel B. Williams
Kenneth H. Williamson
Terry J. Wilson*
Gustav F. Winterfeld
John M. Wolner
Larry N. Wood*
John C. Woodhouse II*
Albert S. Wylie, Jr.*

Mark E. Yarlot
Betsy Yount*

Pedro V. Zalan
James H. Zigmont
Janet A. Zilczner
Regula D. Zimmermann

(See next page for new Student Associates.)

NEW STUDENT ASSOCIATES

Listed are 702 Student Associates who became affiliated with the Society during the period from September 1, 1982, through February 28, 1983.

Richard J. Abitz
Thomas J. Algeo
Timothy F. Allaire
Donald M. Allamong
Thomas W. Allen
Robert J. Altamura
Jose A. Alvarez
Penny L. Alwin
Cornelius A. Amindyas
Carole A. Anderson
Desideria W. Anderson
John W. Anderson
Kurt S. Anderson
Noel P. Anderson
Robert D. Anderson
Mark S. Andrews
Michael T. Angelich
James C. Armstrong
Gayland T. Arp
Katherine E. Aschaffenburg
Isaac Asemota
Heather M. Atwood
Kent E. Ausburn

Jack A. Bacchia
Christopher T. Bade
Bill R. Banowsky
Christopher K. Barber
Brian L. Barfus
Robert S. Barnsbee
Charles P. Barrie
Gregory C. Bartholomae
J. R. Bartolino
Craig D. Batchelder
Eric C. Batchelder
Alan R. Batcheller
Samuel H. Baughman II
Kelly J. Beatley
Ronald P. Beaver
Ward J. Beebe
Paul J. Bembia
Joanne M. Benante
Constance A. Benardos
Jacob Bendix
Tony H. Bengner
Vicki L. Benson
Mark R. Bergmann
Joan M. Bernhard
David T. Berry
Margaret E. Berry
Randall P. Biang
Carol C. Birney
Daniel Bishuk, Jr.
Frank L. Blackett
Carol L. Blanton
Kenneth C. Bohman
Kent W. Boler
Gerald E. Bolmer
Gregory N. Bonn
Marcus X. Borengasser
Stephen K. Boss
Keith D. Bowers
Ronald J. Bowers
Stephen E. Box
T. Lee Boyd
Suzanne L. Bragg
Tracy D. Branam
Patrick F. Breen
Debra E. Breining

John E. Bretches
John J. Brice III
Ricardo J. Briceno
Jim Britt
Kenneth A. Broberg
A. Richard Brockman
Lynn D. Broede
Karl S. Bromley
Julia T. Brown
Mark C. Brown
Pamela T. Brown
Sara E. Brown
Teresa L. Brown
Phillip C. Bryan
James V. Bunker
David A. Burke
John C. Burson
Cameo A. Burt
Richard M. Busch
James A. Bush

Nancy M. Caffall
James P. Calzia
Allan G. Campbell
Mark B. Campbell
Martin A. Cannon
Jeffrey B. Cantrell
William A. Capaul
Mary E. Caress
Kenneth H. Carleton
Kristine D. Carter
Joseph G. Casey
Edward C. Cazier III
Mark A. Chapman
Burns A. Cheadle
Joseph R. Chepega, Jr.
Robert M. Chernow
Douglas C. Chichester
Allan T. Chiulli
Lief G. Christenson
Peter E. Church
Catherine A. Cipolla
Philip F. Clappin
Charles W. Clark
Lee F. Clark
William W. Clopine
Curt W. Close
Richard Lee Clouser
Bernard J. Coakley
Millard F. Coffin
Daniel L. Colella
Brian D. Collins
Susan M. Collins
William H. Collins III
Faith S. Connolly
Kathryn F. Connors
Diane L. Conrad
Sandra C. Cooper
Helen E. Corbett
Winton C. Cornell
Robert S. Cowden
Richard W. Cranford II
Greg T. Cranham
J. Warner Cribb
Randolph J. Cumbest
David O. Cummings
Laura E. Cummins
Bruce Read Cushing
Matthew Czerniak

W. Brian Dade
Lynn E. Dailey
Paul M. Daugherty
Gregory D. Deal
Jeff W. DeFreest
Richard F. DeLong
Joseph N. DiBenedetto
Jennifer L. Dienger
Michael J. DiMarco
Michael C. Dix
Andrea Donnellan
Brigid J. Donnelly
Marianne C. Doyle
Leslie Anne Droege
Tom E. Dube
Joseph D. Duminuco
Mayo D. Dunn
Lorie A. Dunne
Keith D. DuPont
Gregory F. Durocher
James F. Durrett
Mary D. Dylewski
Iyh-Ping Leon Dzou

Cynthia J. Ebinger
David P. Edwards
Virginia I. Edwards
Ted L. Eggleston
Ron Elan
Richard Eliazarian
Ali A. El Makhrouf
Rebecca Elwood
Joan S. Esterle
Richard W. Evoy
Carolyn H. Eyles

Richard E. Fafalak
Sadat Feiznia
Sharon A. Ferguson
Mark A. Ferlin
Lynn J. Feucht
Malcolm S. Field
Michael J. Flaherty
Daniel W. Folan
Michael F. Follo
Deborah H. Forester
Robert J. Foresti
Jeff A. Forgang
Lance M. Forsythe
Cary L. Foulk
Joel S. Fradel
Leah S. Frei
Russell G. Frost
Craig S. Fulthorpe

James S. Gainey
Michael J. Gallagher
Lynnette A. Gandl
John D. Garr
Paul T. Gayes
Edward E. Geary
Beth C. Geiger
James E. Geitgey
Michael M. Gemmell
John W. Gephart
Diane W. Gesell
Suhas L. Ghatge
Jacqueline A. Ghiron
Billy E. Giles

Gregory S. Giles
Joanne Glosser
Richard R. Gnat
David B. Goings
Paul B. Gold
John A. Golden, Jr.
Howard M. Goodman
Jodi L. Gorden
Richard R. Gottschalk
Carol A. Gotway
Helene M. Grall
David C. Greene
Laurence R. Greene
John A. Griscti
Louis H. Groffman
William F. Grosser
Effie A. Grossnickle
Matthew Gubitosa
Patricia L. Gunsch
Ronald Gutier
Cynthia J. Gwinn

Daniel J. Hafley
Katrin Hafner
Jonathan T. Hagstrum
Dominique R. Hall
Peter C. Hall
Michael W. Hamburger
Nasir A. Hamidzada
Joan E. Hamre
Eric F. Hanson
James G. Harcourt
Hughey E. Hardy
James B. Harlan
Jean M. Harper
John R. Hartley
Larry D. Hartzell
Stanley C. Hatfield
Gisela Hauert
Leah A. Haworth
Benjamin R. Hayes
Jennifer A. Hayward
Anna-Marie Hazelwood
Randi L. Hedberg
Carl A. Hehnke
Robert E. Heide
Catherine L. Helseth
Diane A. Henderson
Russell S. Henderson
Rhonda L. Henry
Stephen P. Hertig
Richard H. Heyman
Kristy A. Hicks
Frank L. Hillemeier
Dorinda S. Himes
Linda A. Hobert
David A. Hodell
Drew D. Hoffman
Robert L. Hooper
David C. Hopp
Todd B. Houch
Betty Green Houston
Harold S. Hovdebo
Susan D. Howes
Loren M. Hubert
Ian D. Huggins-Luff
Robert G. Hulet
Erik A. Hund
Jacqueline E. Huntoon

Jeffrey P. Hutton
Alisa K. Hylton

C. Kui-Bin Im
Jewelle A. Imada
Douglas P. Imperato
Hilary I. Inyang
John S. Isby
Gregory W. Isphording

Daniel P. Jackson
Marian L. Jackson
Michael J. Jackson
R. Bradford Jackson
Susan R. Jackson
Christian E. Jahrling
Janelle L. Janssen
David H. Jastram
Lori A. Jedlica
Gordon A. Jenner
Robert H. Jennings
John M. Jensen
Diane M. Johnson
Katherine Johnson
Lance A. Johnson
Michael J. Johnson
Robert E. Johnson
W. Howard Johnson
John Edward Johnston
Edward J. Jones
Mark L. Jones
Mary L. Jones
Scott W. Jones
Tracy Jones
William E. Jones
Thomas C. Juster

Ray N. Kahler
John M. Kammer
Barry C. Kane
Lisa Kaplan
Margaret F. Kasim
Tanya S. Kasper
Randy L. Kath
Keith L. Katzer
Dennis R. Kerr
David L. Kidder
Mary E. Kile
Michael L. Kincer
Charles S. King
William M. Kite
Michael P. Klimetz
Michael D. Knight
John P. Knightly
Deborah A. Kobilis
Julie A. Kohout
Daniel J. Kontak
Andrew A. Kopania
Marwan M. Koudmani
Jane Kozinski
Michael A. Kozischek
Jennifer L. Kraft
Candace K. Krebs
Kim G. Kroeger
Eirik J. Krogstad
Robert W. Kubler
Valerie-Ann Kulyk
Timothy M. Kusky
Kevin J. Kveton

Dennis M. Laduzinsky
P. Jean Lafleur
Michael D. Lancaster
Edwin F. Lang
Scott E. Lawless
Elizabeth K. Leach
Alain D. Leclair
Jung H. Lee
Elana L. Leithold
Joseph Bradley Lessman
Michele D. Levers
Barry R. Levine
Joshua E. Lieberman
L. Joy Liesman
Scott R. Linneman
Elliott W. Lips
Clinton B. Little
Shirley P. Little
Paul R. Lockhart
Laura K. Long
Mark R. Longden
Julio C. Lopez
Mark L. Lord
Cynthia K. Loudon
Theodore N. Loukides
Stephanie A. Lovett
Dennis J. Low
Michael D. Luken
James A. Luker
Iris M. Lutz
Robert D. Luzitano
Cheryl A. Lykens

Cheryl Maldonado
Ned Mamula, Jr.
Gregory B. Mandryk
Papu D. Maniarc
Carol Mankiewicz
Craig E. Manning
Michael A. Manship
Robert A. Marryott
Louise D. Marshall
David A. Marshburn
Angela Martello
Barton S. Martin
Bradley C. Martin
Joshua D. Marvil
Daven H. Mashburn
James E. Mason
Lawrence G. Matheson
Kris C. Matson
Jess D. Mattison III
Elizabeth A. Mauch
Garry C. Maurath
Lynn M. Maybury
Randall L. McAlister
Lisa A. McBroome
Charles L. McCabe
William C. McCabe
Daniel W. McCall
Douglas R. McCoy
Kenneth McDaniel
Scott F. McDonald
James W. McDougall
Andrew F. McFarland
Jim G. McGahan
John H. McGahan
Martha M. McGinn
Michael L. McKinney
Gary L. McMullan
W. Mark McNay
Lee E. McRae
Peter S. Meyer
Alvin F. Mihalick
Christopher C. Miksic
Leeann M. Mikulich
Kimberlee W. Millberry

Timothy M. Millen
Carol Linn Miller
Jeffrey D. Miller
Jeffrey K. Miller
Sarah B. Miller
Scott H. Miller
John P. Mills
Randall C. Mills
Hazem A. Mohamed
Susan E. Monahan
Joseph Monti
Cynthia A. More
Leonard C. Moretz
Fred T. Moring, Jr.
Marion F. Morris
Bradley P. Morrison
Kenneth L. Moss
Joseph L. Motes III
Lise A. Movall
William F. Mullen
T. Clinton Mullins
Barbara J. Munn
Mark T. Murphy
Michael Joseph Murphy
Gary A. Myers

Stephen J. Naruk
Terry R. Naumann
Karen S. Nelson
Kevin T. Nelstead
Marc D. Norman
Eyo E. Nyong

David K. O'Brien
Michael J. O'Brien
Dennis B. O'Connell
Lawrence J. O'Connor
Daniel C. Oliver, Jr.
Ramon A. Olivo
Scott N. Opdyke
Nancy E. Ordway
Richard A. Ossinger
Michael R. Owen
James Patrick Owens
James C. Ozment

Timothy J. Pac
James B. Paces
George R. Pafumi
Samuel D. Palmer
Chris J. Papadopoulos
Michael B. Papahronis
Federico Pardo-Casas
David W. Parson
Bruce L. Pataky
Scott R. Paterson
Gregory C. Patrick
Joseph B. Paul
Kenneth G. Paul
Hannah F. Pavlik
English C. Pearcy
Andrew S. Pearlstein
Sandra M. Pelowski
Jenn-Yih Peng
Stanley J. Perry
Stephen K. Perry
Barry P. Petersen
Virginia L. Peterson
Andrew W. Phelps
Sallie R. Phelps
Paula Phillips
David A. Pickett
Wade A. Pigott
Kathryn A. Pillmore
Hillar Pintson
Timothy A. Pish
John C. Pitlick

W. Michael Pittard
Thomas G. Plymate
Donna L. Pollard
Clark A. Poore
Andre R. Potochnik
Jean-Francois L. Poupeau
Thomas J. Prestia
Gregory J. Preziosi
David D. Proctor
Victoria L. Purcell
David G. Pyles

Fei Qi
Bradley J. Quiambao
Sarah M. Quillian
Daniel L. Quoidbach

Nina M. Rach
Michael P. Raffoni
B. Catherine Ragland
Marian L. Rakestraw
Douglas H. Rappuhn
Kenneth A. Rasmussen
Robert A. Ratliff
Wanda J. Ratliff
R. Craig Ray
Brian H. Reck
W. Steve Rector
Ali Abdul-Reda Reda
Mark R. Reichert
Gayle A. Reising
James F. Renner
James K. Rice
Charles J. Richman
Jack B. Rickards
Herbert W. Ritzman
J. Scott Roberts
Donna I. Robinson
Timothy J. Roepke
Sarah M. Roeske
Daniel T. Rogers
John L. Roland
Elizabeth L. Rolle
Frank W. Root
James C. Rose
Michael R. Rosen
Paul S. Rosenberg
Victor Rossinsky, Jr.
Charles W. Rovey II
David W. Rowe
Gilberto R. Royo
Jeffrey N. Rubin
Larry N. Ruiz
Merlin D. Russell, Jr.

David M. Sackett
Paul E. Sacks
Richard E. Sacks
Jayne E. Sakal
James P. Salisbury
James C. Sample
Brian D. Sampson
Scott D. Samson
Peter A. Sanders
William E. Sanford
Nick A. Sassarini
Charles E. Savrda
Gary A. Scanlon
Lewis G. Schaeneman III
Gabrielle A. Schavran
Geary M. Schindel
Mark T. Schmidt
William M. Schneck
Dennis L. Schubbe
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Steven A. Young

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Looking for a new job?

The GSA Employment Service offers an economical way to locate a new position in the field of geology. Potential employers utilize the service to find the qualified individuals they need.

You may register any time throughout the year, and your name will be provided to all participating employers seeking individuals with your qualifications. If possible, take advantage of GSA's Employment Interview Service conducted each fall in conjunction with the Society-wide Annual Meeting (this year in Indianapolis, Oct. 31-Nov. 3) where potential employers will be available for face-to-face interviews.

To register, complete the application form on the following page, make up a one-page typed resume, and mail with your check, money order, or MasterCard or VISA number to the address given below. A one-year listing for GSA Members and Student Associates in good standing is \$20, for nonmembers, \$40.

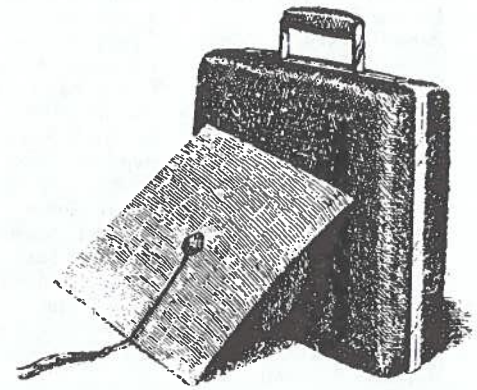
Note to Applicants: Completed application forms, a one-page resume, and your \$20 or \$40 payment must be received at GSA headquarters **no later than August 22, 1983**, in order for your record to be included on the computer printouts sent to the employers prior to the meeting. **Get maximum exposure by getting your forms in early, and don't forget to indicate whether you are attending the meeting for interviewing purposes!**

Looking for a new geoscientist employee?

Your nation-wide search for geoscientists can be as simple as filling out the Employer's Request for Earth Science Applicants on the following page. You specify educational and professional experience required and specialty area or areas, and GSA's computerized file will take it from there. You will be provided with a printout that includes applicants' names, addresses, phone numbers, areas of specialty, type of employment desired, degree held, years of professional experience, and current employment status. For 1983 the cost of a printout of one or two specialty codes is \$120. Each additional listing is \$40. A printout of the entire applicant listing is \$325.

GSA also conducts the Employment Interview Service each fall in conjunction with the Society-wide Annual Meeting (this year in Indianapolis, Oct. 31-Nov. 3). Interview space may be rented in half-day increments, and our staff will schedule all interviews with attending job applicants for each recruiter. Additional services available for employer participants include a message service, complete listing of applicants, copies of resumes at no additional charge, and posting of all vacancies.

For additional information and submission of forms, contact
Clara Hodgson, Membership Coordinator
Geological Society of America
P.O. Box 9140, Boulder, Colorado 80301
(303) 447-2020



**APPLICANT AND EMPLOYER
FORMS ARE BACK-TO-BACK
ON THE FOLLOWING PAGES**

SPECIAL NOTICE ABOUT 1984 ABSTRACT FORMS

For 1984, there will be **only one form**. It may be used for any of the five 1984 section meetings and for the annual meeting as well. It is clearly marked in this manner.

These new 1984 abstract forms are available now. Each form includes detailed instructions for preparation.

Forms are being widely distributed to most university and

college geology departments, to all major U.S. Geological Survey offices, to all state geologist offices, to many business and industrial offices, and to all those who submitted abstracts for 1983.

If you need forms and cannot find one locally, please complete the coupon below and mail it. They will be provided promptly.

1984 ABSTRACT FORM REQUEST

To: GSA Abstracts Coordinator, P.O. Box 9140, Boulder, CO 80301

Please send _____ copies of the 1984 GSA abstract form. I understand that the same form may be used for all 1984 GSA meetings — the five Section Meetings and the Annual Meeting.

Name _____

Organization _____

Address _____

City _____ State _____ Zip _____

_____ Please check here if you have not been receiving mailings about GSA's publications sales but would like to be added to our mailing list.



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Ck # _____
Ltr. _____
GSA _____
Add. _____

APPLICATION FOR EMPLOYMENT MATCHING SERVICE (Please type or print legibly with black ink)

NAME _____ Date _____
(last name first)

Mailing Address _____

City _____ State _____ Zip Code _____

Date Available _____ Telephone () _____ Visa _____
area code Business Home If not U.S. citizen, list visa

EXPERIENCE

Must use specialty codes listed below. Choose as many as three that best describe your expertise in order of importance. **MUST have at least one listed.**

* 1. _____ 2. _____ 3. _____

TYPE OF POSITION DESIRED

Interested in	Specific interest	Will accept employment in
<input type="checkbox"/> Academic	<input type="checkbox"/> Administration	<input type="checkbox"/> U.S. only
<input type="checkbox"/> Government	<input type="checkbox"/> Exploration/Production	<input type="checkbox"/> U.S. with foreign assignments
<input type="checkbox"/> Industry	<input type="checkbox"/> Field	<input type="checkbox"/> Either
<input type="checkbox"/> Other	<input type="checkbox"/> Research	
	<input type="checkbox"/> Teaching	

* PRESENT SPECIALTY

Choose one from codes listed below _____ YEARS EXPERIENCE IN THIS SPECIALTY _____

PRESENT EMPLOYER _____ May he/she be contacted? Yes No

If you do not wish to be listed for employment with a specific organization, check here and list organization on an attached sheet.

Give number of years experience for any of the following that are applicable:

Administrative _____ Exploration/Production _____ Field _____ Research _____ Teaching _____ Total geological working experience _____
Foreign languages _____ Spoken (fluency) _____ Written _____

ACADEMIC TRAINING

College or University	Degree (rec'd or expected)	Year	Major	Minor

Postgraduate work beyond highest degree in (field) _____ Number of years _____

SPECIALTY CODES Select those that best describe your ability. Use codes in bold face only when other breakdowns are inadequate.

100. Economic Geology	223. stable isotopes	352. statistical geology	500. Petroleum Geology	650. Sedimentology
101. coal geology	224. unstable isotopes	400. Mineralogy	501. exploration	700. Seismology
102. geothermal, etc.	250. Geomorphology	401. crystallography	502. subsurface stratigraphy	720. Stratigraphy
103. metallic deposits	251. Pleistocene geology	402. clay mineralogy	520. Petrology	721. Cenozoic
104. nonmetallic deposits	300. Geophysics	410. Museum (curator)	521. igneous	722. Mesozoic
105. mining geology	301. exploration	420. Oceanography	522. metamorphic	723. Paleozoic
120. Engineering Geology	302. paleomagnetism	421. marine geology	523. sedimentary	724. Precambrian
121. rock mechanics	303. theoretical	422. coastal geology	550. Planetology	750. Structural Geology
150. Environmental Geology	320. Hydrogeology	450. Paleontology	600. Regional Geology	751. tectonics
151. public education & communication	321. hydrochemistry	451. invertebrate	620. Remote Sensing	752. tectonophysics
200. General Geology	322. ground water	452. vertebrate	621. photogeology	800. Volcanology
220. Geochemistry	323. surface water	453. micropaleontology	622. photogrammetry	
221. organic	330. Library	454. paleobotany	630. Science Editing	
222. inorganic	350. Mathematical Geology	455. paleoecology		
	351. computer science			

- * Resume must be attached. Only one page typewritten on one side will be accepted for reproduction to employers. Include concise detail of work experience and college majors and minors on degrees.
- * Fee: \$20 if you are a Member or Student Associate of GSA in good standing (Member # _____); \$40 if you are not a member of GSA. Payment in U.S. funds (check or money order, or charge information, MasterCard or VISA) **MUST ACCOMPANY FORM.**

MAKE CHECK PAYABLE TO THE GEOLOGICAL SOCIETY OF AMERICA

Check or Money Order Card Expires Mo Yr _____ Card Number _____

MasterCard VISA Signature _____ (Required for credit card payment)

I agree to release GSA or their representatives from responsibility for errors that may occur in processing or distributing this data. I understand that GSA makes no guarantees of contact by an employer in this service. I agree to notify GSA Employment Service immediately of (1) change of address, (2) acceptance of a position.

I will attend the 19____ GSA Annual Meeting in _____

*SIGNATURE (required) _____

*THESE ITEMS ARE ABSOLUTELY NECESSARY TO PROCESS THIS APPLICATION

This application will be active for 1 year



**THE
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P.O. Box 9140, Boulder, Colorado 80301

EMPLOYER'S REQUEST FOR EARTH SCIENCE APPLICANTS

(Please type or print legibly with **Black Ink**)

R _____ -1

Name _____ Date _____

Organization _____

Mailing address _____

R _____ -2

City _____ State _____ Zip code _____ Telephone number (____) _____
Area code Number

SPECIALTY CODES (see list below)

List the specialty code numbers that you wish to order, or check here if you want entire file of applicants in **ALL** specialties.

1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____

SPECIALTY CODES					
100. Economic Geology	222. inorganic	350. Mathematical Geology	453. micropaleontology	621. photogeology	
101. coal geology	223. stable isotopes	351. computer science	454. paleobotany	622. photogrammetry	
102. geothermal, etc.	224. unstable isotopes	352. statistical geology	455. paleoecology	630. Science Editing	
103. metallic deposits	250. Geomorphology	400. Mineralogy	500. Petroleum Geology	650. Sedimentology	
104. nonmetallic deposits	251. Pleistocene geology	401. crystallography	501. exploration	700. Seismology	
105. mining geology	300. Geophysics	402. clay mineralogy	502. subsurface stratigraphy	720. Stratigraphy	
120. Engineering Geology	301. exploration	410. Museum (curator)	520. Petrology	721. Cenozoic	
121. rock mechanics	302. paleomagnetism	420. Oceanography	521. igneous	722. Mesozoic	
150. Environmental Geology	303. theoretical	421. marine geology	522. metamorphic	723. Paleozoic	
151. public education and communication	320. Hydrogeology	422. coastal geology	523. sedimentary	724. Precambrian	
200. General Geology	321. hydrochemistry	450. Paleontology	550. Planetology	750. Structural Geology	
220. Geochemistry	322. ground water	451. invertebrate	600. Regional Geology	751. tectonics	
221. organic	323. surface water	452. vertebrate	620. Remote Sensing	752. tectonophysics	
	330. Library			800. Volcanology	

Applicants seeking employment in:

- Academic
- Government
- Industry
- Other _____

Minimum degree required

- None
- B.A. or B.S.
- M.A. or M.S.
- Ph.D.

Minimum professional experience

- None
- 1-5 yrs
- 6-plus

Experience desired (yrs)

	None	1-5	6-plus
Administrative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exploration/Production	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Field	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Teaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I am interested in interviewing applicants through the GSA Employment Service at the 19____ Annual Meeting in _____.

See attached sheet for current fee schedule.

- 1. I agree to use this service for valid recruiting purposes.
- 2. I agree that no placement charges will be assessed to any applicant participating in the GSA Employment Matching Service.

Total fee enclosed \$ _____
or invoice requested \$ _____

Signature (required)

MEETINGS

GSA

Joint Technical Program Committee, July 8-9, 1983, Boulder, Colorado.

1983 Annual Meeting, October 31-November 3, 1983, Indianapolis.

Penrose Conferences

Blueschists and Related Eclogites

Bellingham, Washington, September 5-9, 1983

Conveners: Edwin H. Brown, Department of Geology, Western Washington University, Bellingham, WA 98225; Bernard W. Evans, Robert B. Forbes, and Peter Misch, Department of Geological Sciences, University of Washington, Seattle, WA 98195.

Cretaceous Climates

Florissant, Colorado, October 2-7, 1983

Conveners: Eric J. Barron, National Center for Atmospheric Research, P.O. Box 3000, Boulder, CO 80307; William W. Hay and Erle G. Kauffman, University of Colorado, Boulder, CO 80309.

The West African Connection

Riviera, France, January 1984

Conveners: John Rodgers, Department of Geology and Geophysics, Yale University, New Haven, CT 06520; Xavier T. Le Pichon, Paris University, 52 Rue Marillac, Trosly-Breuil, Cuise La Motte 60350, France, Jean Sougy, Marseilles University, St. Jerome Faculty of Science, Marseilles, CEDEX 13, France.

Processes and Products of Multistage Melting and Metasomatism in the Mantle

Apache Junction, Arizona, April 29-May 4, 1984

Conveners: Jane E. Pike, U.S. Geological Survey, 345 Middlefield Rd., MS 75, Menlo Park, CA 94025; Frederick A. Frey, Department of Earth & Planetary Sciences, MIT, Cambridge, MA 02139; Arthur L. Boettcher, Institute of Geophysics and Planetary Physics, University of California, Los Angeles, CA 90024; Frank M. Richter, Department of Geophysical Sciences, University of Chicago, Chicago, IL 60637.

Melanges of the Appalachian Orogen

Stephenville, Newfoundland, June, 23-30, 1984

Conveners: Harold Williams, Department of Earth Sciences, Memorial University of Newfoundland, St. John's, Newfoundland A1B 3X5, Canada; Nicholas Rast, Department of Geology, University of Kentucky, Lexington, KY 40506; Brenna E. Lorenz, Department of Earth Sciences, Memorial University of Newfoundland, St. John's, Newfoundland A1B 3X5, Canada.

1983

International Conference on Permafrost, July 18-22, 1983, Fairbanks, Alaska. Information: Louis DeGoes, Polar Research Board, National Academy of Sciences, 2101 Constitution Ave. NW, Washington, DC 20418; (202) 389-6071.

International Symposium and Workshop on Borehole Geophysics for Mining and Geotechnical Applications, August 29-31, 1983, Toronto, Ontario. Information: KEGS/GSC Symposium, Suite 109, 7305 Woodbine Ave., Markham (Toronto), Ontario L3R 3V7, Canada.

American Institute of Professional Geologists Annual Meeting, September 7-10, 1983, Jackson, Wyoming. Information: Gene R. George, Box 2775, Casper, WY 82601; (307) 265-9199.

American Mining Congress Annual Meeting, September 11-14, 1983, San Francisco. Information: Chester N. Truax, AMC Headquarters, 1920 N St. NW, Suite 300, Washington, DC 20036; (202) 861-2800.

Association of Engineering Geologists Annual Meeting, October 3-8, 1983, San Diego. Information: Dennis L. Hannon, Leighton & Associates, 7290 Engineer Rd., Suite H, San Diego, CA 92111; (619) 292-8030.

Society of Mining Engineers Fall Meeting, October 19-21, 1983, Salt Lake City. Information: Darline D. Daley, SME Headquarters, Caller D, Littleton, CO 80127; (303) 973-9550.

Symposium on Neotectonics, Seismicity and Geologic Hazard in the Caribbean and Venezuela, October 23-28, 1983, Caracas, Venezuela. Information: A. Singer, Depto. Ciencias de la Tierra, FUNVISIS, Apto. Postal 1892, Caracas 1011, Venezuela; Telex 26453.

Mineral Fluid Equilibria in Hydrothermal Systems, short course, October 26-30, 1983, Indianapolis. Information: Paul B. Barton, MS 959, U.S. Geological Survey, Reston, VA 22092; (703) 860-6601.

Underwater Mining Institute, November 7-8, 1983, Madison, Wisconsin. Registration information: Gene Woock, Sea Grant Advisory Services, University of Wisconsin, 1800 University Ave., Madison, WI 53705; (608) 262-0905. Program information: J. R. Moore, Marine Science Institute, University of Texas, 200 East 26 1/2 St., Austin, TX 78705; (512) 471-4816.

North American Coal Petrographers, November 16-18, 1983, Merrillville, Indiana. Information: Dennis D. Kaegi, Inland Steel Research Laboratories, 3001 East Columbus Dr., Chicago, IN 46312; (219) 392-5800.

American Geophysical Union Fall Meeting, December 5-9, 1983, San Francisco. Information: American Geophysical Union, 2000 Florida Ave. NW, Washington, DC 20009; (202) 462-6903.

1984

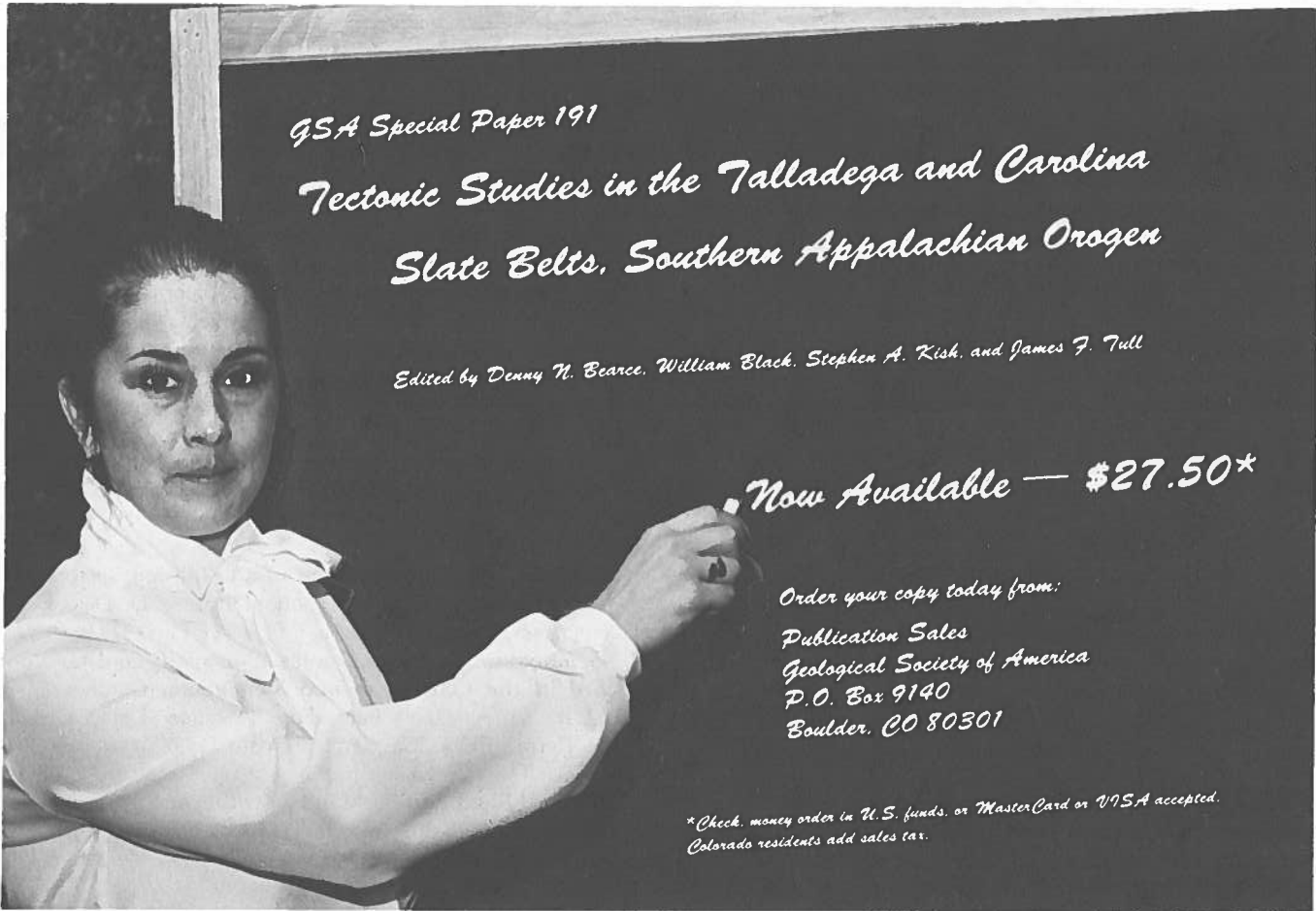
Ocean Sciences Meeting, January 23-27, 1984, New Orleans. Abstract deadline October 19, 1983. Information: American Geophysical Union, 2000 Florida Ave. NW, Washington, DC 20009.

COMING IN AUGUST

Final Announcement for GSA and Associated Societies 1983 Annual Meeting, Indianapolis, October 31-November 3

Will include outline of technical program, preregistration and housing information and forms,
field trip descriptions—and more!

Watch for the August issue of *GSA News & Information* and plan to join
an estimated 5,000 geoscientists at GSA's 1983 Annual Meeting.



GSA Special Paper 191

*Tectonic Studies in the Talladega and Carolina
Slate Belts, Southern Appalachian Orogen*

Edited by Denny N. Beane, William Black, Stephen A. Kish, and James F. Tull

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