

# GSA NEWS & INFORMATION

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The Geological Society of America

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JUNE 1986

## A Program Chairman's Lament

by Ivo Lucchitta  
U.S. Geological Survey, Flagstaff, Arizona

About two years ago, while I was abroad and thus not able to defend myself, some of my colleagues elected me Technical Program Chairman for a forthcoming GSA section meeting (Rocky Mountain Section, 1986). I seem to have survived, but the experience has featured a vivid learning process about the complexities of putting together a workable program, and the ease with which this effort can be torpedoed by seemingly insignificant departures from procedures established for preparing and submitting abstracts.

Many of the people who do the departing become sinners unwittingly, through ignorance of the steps that are involved in evaluating abstracts and welding them into a program. Clearly, there is much to be said for explaining in detail the manner in which a technical program is put together and the role that is played in this context by the various entries on the GSA abstract form. This knowledge should prove helpful to future program committee members, who will be alerted to potential impediments, and to authors interested in having their abstract viewed favorably and handled with accuracy and efficiency.

### The Procedure

The sections of the Geological Society of America enjoy a measure of independence regarding how they organize and run

their own meetings. Consequently, the procedures followed by the sections may differ in detail, but the fundamental architecture, outlined below, remains the same for all.

Organizing a section meeting begins about two years before the proposed date, when a few people, bold of spirit and rash of purpose, let it be known that they are willing to host the meeting two years hence. The audacious offer generally is made at a business meeting of the section. The proposers typically are university people, aided and abetted by a variable infusion from state and federal geological surveys and from private industry.

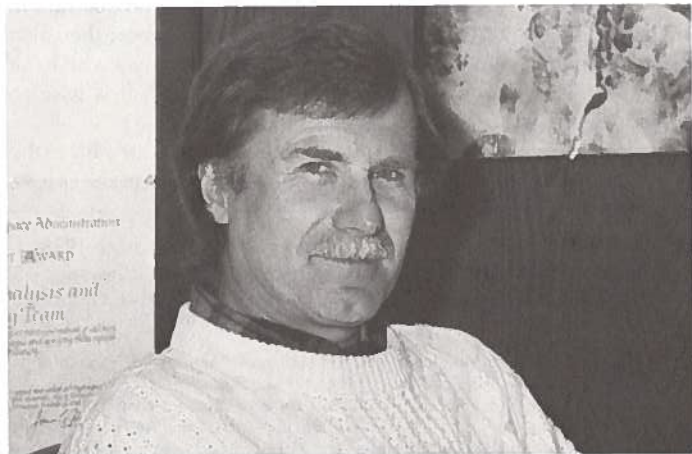
Should the offer be accepted, the keen light of reality instantly dispels earlier visions of glory: the work begins. The first job is to assemble the Local Committee, which consists of some 10 to 15 unfortunates, each charged with one of the tasks and responsibilities associated with a meeting (for example: symposia, field trips, registration). The Committee is led by a Chairman, a Vice-chairman, and a Technical Program Chairman, commonly the people who originally proposed hosting the meeting. The Committee begins by determining the general flavor of the meeting, in particular the kind of symposia and field trips that will be encouraged. A great deal of time is also taken up in discussing and working out such logistical aspects as headquarters facilities, housing, and transportation. Appropriate members of the Committee attend the Section meeting preceding their own, the purpose being to examine the procedures followed, determine what needs to be modified, and be entrusted officially with the job of hosting a meeting.

Back at the ranch, work begins on roughing out symposia, field trips, and logistical details. When ready, this information is sent to GSA headquarters, in Boulder, Colorado, where it is prepared for publication as a Preliminary Announcement and Call For Papers in a *GSA News & Information* issue dated about 7 months before the meeting. (A Final Announcement—see below—appears in *News & Information* about 3 months before the meeting.)

The deadline for abstracts falls about two months after the Preliminary Announcement. During the last few days of this interval, the floodgates open, abstracts pour in, and the telephone heats up with requests for information, complaints, and attempts to bypass the deadline.

Receipt of abstracts marks the beginning of intense activity for the Program Committee. Abstracts are sorted by author, intended

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Ivo Lucchitta can still smile after serving as Technical Program Chairman of the 1986 Rocky Mountain Section meeting.

### Chairman's Lament (continued from p. 97)

session, and type of presentation (oral or poster). They are then evaluated for acceptance or otherwise by people with expertise in the field of the abstract. Rejections are likely to be based on combinations of poor quality, geographic inappropriateness, limited interest, poor writing, wrong forms, incomplete or no auxiliary information on the form, and submission of more than one volunteered paper by the same speaker.

Accepted abstracts are compiled into general sessions on the basis of preference checked on the form; placement of abstracts with no expressed preference is left to the judgment (and ire) of the Committee. Symposia are built from invited papers and suitable volunteered ones as space permits. Chairmen for the general sessions are selected from those who have indicated on the abstract forms a willingness to serve in that capacity.

The number and subjects of symposia and field trips are determined by the Committee from a list of proposals received. General sessions, however, are largely created to accommodate the abstracts that have been received. Because of this, one of the last major activities of the Program Committee is to determine what general sessions are needed and then arrange these general sessions, the symposia, and the poster sessions into a coherent program that will accommodate the predicted number of participants while minimizing potential conflicts and overlaps between concurrent sessions.

The final major step is to organize the originals of the abstracts alphabetically and generate cover sheets for each session. The first of these sheets lists characteristics such as session number, title, room, starting and ending times, and chairmen. The second sheet lists, in chronological order, the papers of the session, identified by the name of the senior author. Also generated at this time are the front pages, consisting of the scheduling and logistical information that will be printed in the final announcement and in the *Abstracts with Programs* volume. The front pages, abstracts, session lists, and general schedule of events are manually cross-checked in several different ways.

At last, the Program Chairman mails the abstract originals, the program, the cover sheets, and the front pages to GSA headquarters, then repairs immediately to the nearest tavern, a wreck. But the work still is not done. Session chairmen must be notified and rejection letters written. The latter are signed by the Chairman but based on the recommendations of the Committee and often result in irate and imaginative phone calls or letters questioning, as a minimum, the intelligence and ancestry of the Chairman.

Abstracts packages are due at GSA headquarters about 5 weeks after the abstract deadline and 3-1/2 months before the meeting. Receipt of the abstracts package by GSA headquarters signals the start of another burst of activity: there is much to be done in a short time.

At GSA headquarters, the Abstracts Coordinator (a person of great patience) carefully checks all the material received and enters pertinent information from the abstracts, such as title, abstract number, author's name and address, whether oral or poster session, into the computer. Abstracts, authors, abstract numbers, and session lists are all cross-checked for consistency, redundancy, and other errors of commission and omission. Such errors unfailingly turn up because of the complexities of putting together a program and the many steps required for doing so. Also checked is the material pertaining to the meeting. Once these tasks are done, GSA mails cards to the authors whose abstracts have been accepted. These cards detail the date, time, place, and session where the paper is to be presented. The general information for the sessions goes to *News & Information*, where it is published together with the preregistration and housing forms, in the issue

appearing about 3 months before the meeting. All material to be included in the *Abstracts with Programs* volume is due at the printer about 1 month after its receipt by GSA, or 2-1/2 months before the meeting. *Abstracts* volumes are mailed out to customers about 7 weeks before the meeting.

Clearly, the procedure for putting together a technical program, printing it, and getting it into the hands of the users entails a long and complex sequence of steps, each carried out under short time leads, each fraught with the possibility of error or confusion.

### Abominations and Sins

Many of the difficulties that can wreak havoc with the orderly and accurate construction of a technical program stem from the complexity of the operation and the repeated handling, sorting, and filing of abstracts. Anything that interrupts the smooth flow or requires extra handling causes difficulties for the Program Committee and is a potential source for error.

Of the many sins that can be and are committed, the ten worst and most common are:

**Late submission of abstracts.** Scientists are busy people and thus tend to respond chiefly to crisis situations. It is no great news that many abstracts are written and submitted at the very end of the submission period. Program Chairmen know pretty well how things work, and therefore are prepared for a flood of express mail right at the deadline. But they are not prepared for people who send abstracts days, weeks, or even months late, then become irate when their abstract is not accepted. It is well to remember that members of a Program Committee are also busy people, who cannot convene endlessly, yet must still put together a program in a very short time, with minimal leeway. Each step hinges on previous ones, and it is neither possible nor proper to repeatedly start again at the beginning because abstracts come in late.

**Inappropriate abstract forms.** The matter of abstract forms brings out a high degree of ingenuity in authors. Abstracts are received on forms from previous years, on photocopied forms, or on forms whose number has been changed, written in, pasted on. This won't do, because the abstract number is a unique identifier that defines a particular abstract and enables it to be located or traced, whether in the computer or manually. Obviously, the only acceptable abstracts are those typed on the current year's form, with its original, unaltered number. Wrong years, photocopies, inventions won't work.

**Forms improperly or incompletely filled out.** The various entries in the abstract forms are not academic exercises in aggravation; they serve specific practical functions. For example, they enable the Program Committee to try to place an abstract in the session considered most appropriate by the author; they also help in selecting session chairmen from the list of those who have indicated their willingness to serve in that capacity. It is wise to provide all the information requested.

**Poor typing.** Abstracts are photocopied to produce the

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### Chairman's Lament (continued from p. 99)

received for the meeting is large. Abstracts should be submitted for the correct Section meeting, or for the GSA Annual Meeting, which is designed to accommodate any topic from any area.

**Subject of limited interest.** Not infrequently, submitted abstracts pertain to a subject so limited in scope and so restricted in interest that a minute audience is virtually guaranteed, especially if the paper competes with others presented at the same time. Allowing such a paper to be on the program would be a disservice to the author and a poor utilization of scarce resources as well.

**Too many volunteered abstracts.** A common experience for Program Committees is to receive more than one volunteered abstract to be presented by the same speaker. Although policies on this differ from section to section, the common approach is for one person to present one volunteered paper at any meeting. There is no restriction on invited papers. The rule is applied with different degrees of strictness, but it tends to be very firm when abstracts submitted exceed those that can be accommodated. Duplicate abstracts are then rejected.

**Requests for confirmation of receipt of abstracts.** Some people expect the Program Chairman to confirm by mail receipt of their abstract. But established procedures make no provision for this practice, which, if widely requested, would place an intolerable burden of time and expense on the amply harassed Chairman, who generally is a volunteer and not exempt from normal activities and obligations. Those anxious to receive confirmation should include with their abstract a stamped, pre-addressed, pre-annotated card or letter. This most likely will elicit a prompt confirmation.

**Requests for information, abstract forms, preregistration forms, etc.** Program Chairmen receive all kinds of requests, most commonly for information and for registration forms. But Program Chairmen are only responsible for—and knowledgeable about—the technical program. Those needing help should remember that information on meetings, and preregistration forms as well, are published in *GSA News & Information* well before the meeting. Moral: Don't throw *News & Information* into the wastebasket and then get on the horn demanding from the Chairman information contained in what you threw away. If you are not a member of GSA, find someone who is, and consult his or her copy. Better yet, become a member.

### Conclusions and Suggestions.

A few simple procedures on the part of authors will keep Program Committees and the GSA Abstracts Coordinator happy and efficient while putting together accurate and effective technical programs. This is much to the benefit of everybody.

1. Submit your abstracts on time.
2. Submit the correct abstract form—i.e., that for the proper year, and with its original (unique) number. Forms are available from GSA headquarters (P.O. Box 9140, Boulder, CO 80301) and from universities and geological surveys.
3. Follow instructions attached to the form scrupulously, and fill in *all* blanks.
4. Be sure your abstract is well written, well typed, complete. No revisions and changes (either before or after the deadline) to submitted abstracts, please.
5. Aim your abstract at the proper meeting and at a wide audience.
6. Limit your contributions to one volunteered abstract presented by you, unless multiple abstracts are explicitly welcome or you like taking chances.
7. Do not request confirmations unless you provide appropriate stamped and self-addressed material.

8. Check *GSA News & Information* frequently for information and registration forms for the meeting of interest.

9. Do not ask the Program Chairman for information and forms that he or she cannot provide and that are routinely printed in *News & Information*.

So much for what the authors can do to help. I think GSA could also periodically remind authors of where and how to obtain abstract forms for section meetings, where to get instructions, and why the various procedures are needed. A consistent policy on the number of volunteered abstracts that can be accepted from the same author would also be useful.

### Thanks

This impassioned plea would have been far less accurate and effective without the severe scrutiny and judicious comments of Faith Rogers, GSA Managing Editor of nearly everything; Stan Beus of Northern Arizona University, whose long experience as Secretary of the GSA Rocky Mountain Section has made him knowledgeable in matters pertaining to sections and their meetings; and Miriam Hansen, GSA Abstracts Coordinator, whose sharp eye will spot an error at ten paces, yet whose admirable patience somehow has remained unshaken even by so much frailty. To all of you, my friends, thanks.

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## PEOPLE

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GSA Fellow **Robert M. Garrels** has received the 1985 Florida Scientist of the Year award. Garrels was awarded GSA's Arthur L. Day Medal in 1966 and the Penrose Medal in 1978.

Fellow **J. Tuzo Wilson** is one of the five recipients of the newly established Britannica Awards, given for "exceptional excellence in the dissemination of learning for the benefit of mankind." Wilson was the 1968 GSA Penrose Medalist.

### Southeastern Section Honors Neathery

GSA's Southeastern Section has awarded a commemorative plaque to Thornton L. (Tony) Neathery for his work as editor of the *Southeastern Section Centennial Field Guide*. One of the Decade of North American Geology publications, the book will be the first of the six Centennial Field Guides to be published.

The citation stated: "During the past years, in his tireless and enthusiastic way, Tony has worked to obtain appropriate text and illustrations for guides to 100 significant field localities within the Southeastern Section. The coordination of the writing, drafting, and schedules of a small army of authors has been a monumental task that now stands complete. As we recognize Tony's singular achievement with respect to the *Southeastern Section Field Guide*, it is appropriate to recount some of his other contributions to the Section and the Society. During his several years as secretary of the Southeastern Section, formal lines of communication were established between the sections and the Council, and he subsequently served on the Council. Tony was almost single-handedly responsible for the Campus Liaison program of GSA, and the Southeastern Section continues as a leader in that program. He has served as member or chairman of numerous GSA committees. In whatever capacity, Tony has always worked hard for the success of the Southeastern Section and for GSA. The Section honors itself as it honors Tony."

GSA Executive Director F. Michael Wahl presented the plaque to Neathery at the combined Southeastern-South-Central Sections meeting in Memphis, Tennessee, in April.



San Antonio<sup>SM</sup>

GEOLOGICAL SOCIETY OF AMERICA

P.O. BOX 9140, BOULDER, COLORADO 80301 • 303/447-2020

## 99th ANNUAL MEETING AND EXPOSITION

NOVEMBER 10-13, 1986

SAN ANTONIO CONVENTION CENTER

SAN ANTONIO, TEXAS

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ABSTRACTS DUE JUNE 13

For Abstract Forms 303/447-8850

PREREGISTRATION DUE OCTOBER 10

For Meeting Information 303/447-2020

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ASSOCIATED SOCIETIES MEETING WITH GSA

Cushman Foundation • Geochemical Society • Geoscience Information Society  
Mineralogical Society of America • National Association of Geology Teachers  
Paleontological Society • Society of Economic Geologists

## 1986 Annual Meeting Short Courses

### GSA SHORT COURSES

All courses sponsored by GSA will be held immediately before and after the GSA Annual Meeting in San Antonio, Texas. Receive twice the benefits of attending the GSA meeting by participating in one of GSA's professional instruction programs. The courses are designed for several different professional levels. We think you will find one that meets your needs.

### ENROLLMENT

Course participation is open to GSA members and nonmembers. Registration for the Annual Meeting is not required. Registration forms for the short courses and the annual meeting will appear in the August issue of *GSA News & Information*. However, if you would like to register now, contact the Course Registrar and receive a registration form along with our GSA Short Course Brochure.

### PREREGISTRATION DEADLINE IS OCTOBER 10

On-site registration is based on availability. The on-site fee will be \$15 additional.

### CANCELLATION

Fees will be refunded if we are notified by October 17. Substitutions may be made at any time. No refunds will be made after the course is completed. For more information, contact

Course Registrar  
GSA Headquarters  
P.O. Box 9140  
Boulder, CO 80301  
(303) 447-2020

### Computer Graphics for Geological Applications

*Saturday, November 8, and  
Sunday, November 9, 8:00 a.m.  
to 5:00 p.m., Marriott Hotel*

This course is designed for those familiar with personal computers, for those who have used a mainframe, or for those with a need to use specialized graphic techniques to help solve geologic problems. The objective will be to provide the participant with an understanding of techniques for creating computer graphics to illustrate geologic information.

Faculty: *Richard G. Craig*, Department of Geology, Kent State University; Ph.D., Pennsylvania State University. Since joining the staff at Kent State in 1978, Craig has transformed a virtually noncomputer department into one of considerable strength in computer use. Well known in the field of computer graphics, Craig is listed in *Marquis's Who's Who in Frontier Science and Technology*. *Harlan P. Foote*, Battelle Memorial Institute, Pacific Northwest Labs. A specialist in the fields of computer graphics, remote sensing, and pattern recognition, Foote has worked for Battelle-Northwest since 1966. Most recently, Foote was selected by NASA as a Principal Investigator on the Landsat 4 project. *Barry L. Roberts*, M.S., Department of Geology, Kent State University. *Michael P. Singer*, URS Dalton, Cleveland; M.S., Department of Geology, Kent State University. Computer equipment provided courtesy of Hewlett-Packard. Travel arrangements for Foote provided by Battelle.

Fee includes course manual, lunch both days, and dinner Saturday evening. Limit: 24. Fee: \$280.

### Glacial-Marine Sedimentation

*Saturday, November 8, 1:00 to  
6:00 p.m., continues 7:30 to  
10:00 p.m.; Sunday, November  
9, 8:00 a.m. to 5:00 p.m.,  
Hilton Hotel*

Intended for a broad spectrum of participants ranging from student to professional, this course will present an up-to-date summary of what is known about glacial-marine sedimentation. Emphasis will be on the diverse nature of modern depositional environments and their resulting facies and deposits. Other discussions will analyze the temporal and spatial distribution of glacial-marine sediment in the rock record. The course will also include introductory sections that provide basic information about marine and glacial depositional environments. Hands-on core and seismic profile workshops will enhance the presentation. An informal reception will be held in conjunction with the workshop on Saturday evening.

Faculty: *Bruce F. Molnia*, Polar Research Board, National Research Council, National Academy of Sciences; Ph.D., University of South Carolina. Chief Scientist on more than a dozen research cruises, Molnia's main areas of investigation include the Gulf of Alaska, the Bering Sea, the North Atlantic Ocean, Alaskan fiords, and Antarctica. *John B. Anderson*,

Department of Geology, Rice University; Ph.D., Florida State University. Well known in the field of glaciomarine geology of Antarctic regions, Anderson is the author of *Sedimentation on the Antarctic Continental Slope* and recipient of the C. L. Herrick Fellowship in Paleontology.

Fee includes course manual and Saturday evening reception. Limit: 100. Fee: \$100.

## Contaminant Hydrogeology

Saturday, November 8, and  
Sunday, November 9, 8:30 a.m.  
to 4:30 p.m., San Antonio  
Convention Center

This course will provide an introduction to the theory and practice of contaminant hydrogeology. It will be of interest to working professionals and graduate students who want to develop a basic understanding of this field. The course will include an examination of

- fundamental concepts of physical mass transport, advection, dispersion, and diffusion,
- the most important geochemical processes that influence the spread of contaminants, including surface reactions, complexation, and mineral precipitation, and
- the mathematical formulation and solution of mass transport equations with an emphasis on approaches and concepts rather than detailed mathematics.

Examination of these topics will be linked to practice through the use of case histories and problems, group discussions, and demonstrations.

Faculty: *Frank W. Schwartz*, Department of Geology, University of Alberta; Ph.D., University of Illinois. Internationally known for his work in groundwater modeling, field and theoretical aspects of contaminant hydrogeology, watershed hydrology, and groundwater geochemistry, Schwartz is the author of more than 40 scientific publications. *J. Leslie Smith*, Department of Geology, University of British Columbia; Ph.D., University of British Columbia. As a consultant and researcher, Smith has worked on problems of the emplacement of high-level radioactive wastes in the subsurface, modeling of flow and transport in fractured media, and groundwater resource evaluation. Smith is internationally known for his work on stochastic modeling of groundwater flow. Schwartz and Smith were co-recipients of the O. E. Meinzer Award for 1984.

Fee includes course manual. Limit: 85. Fee: \$100.

## Seawater Chronostratigraphy Using Strontium Isotopes

Sunday, November 9, 1:00 to  
5:00 p.m., San Antonio  
Convention Center

Designed for upper-division undergraduates, graduate students, and professionals in the geosciences, this one-half day course will cover the theoretical basis and analytical methodology behind the application of the Sr isotopic evolution of seawater to the correlation and chronology of sedimentary marine carbonate sequences. Specific applications of the Sr isotopic chronostratigraphic method will be used to demonstrate the effectiveness and limitations of the technique. These include correlation of the Monterey Formation between coastal southern California basins, studies of brine migration, oil-source rock correlations, and paleoenvironmental analysis of uranium ore deposits in the San Juan Basin, New Mexico.

Faculty: *Richard W. Hurst*, Department of Geology, California State University; Ph.D., University of California, Los Angeles. Recently elected to the New York Academy of Sciences, Hurst has over ten years experience in the fields of isotope and trace element geochemistry, petrology, and environmental geochemistry and biogeochemistry. *Terry E. Davis*, Department of Geology, California State University; Ph.D., University of California, Santa Barbara. A consultant in geology and geochemistry since 1957, Davis is the author of more than fifty publications.

Fee includes course manual. Limit: 100. Fee: \$50.

## An Introduction to the Geologic Use of Microcomputers

Sunday, November 9, 8:00 a.m.  
to 5:00 p.m., Marriott Hotel

Choosing the right hardware and software for use by today's geologists can be both time-consuming and expensive. Designed to shortcut your search, this course will provide an overview of comparable software and microcomputers available for purchase and how to apply this software for both geological and other practical uses. The course will cover geological data management, analysis, display, and communication. It also will cover the use of word processing in the preparation, editing, and revision of reports and manuscripts.

Faculty: *Peter G. Sutterlin*, Professor, Wichita State University; Ph.D., Northwestern University. Sutterlin was employed with Gulf Oil of Canada for ten years and has over 20

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## 1986 Short Courses (continued from p. 103)

years experience in the field of computer applications for the geologist. *Daniel F. Merriam*, Distinguished Endowment Professor of Natural Science, Wichita State University; Ph.D., University of Kansas, D.Sc., University of Leicester, England. Merriam is well known in the fields of geology and computers and is the author of *Computer Applications in Geology* and more than 155 articles. *Mark A. Sondergard*, B.S., Computer Science, Wichita State University.

Fee includes course manual and lunch. Limit: 60. Fee: \$85.

### Geologic Applications of Fossil Radiolaria

Sunday, November 9, 8:00 a.m. to 5:00 p.m., Hyatt Regency

This course is designed for academic and industry paleontologists as well as field-oriented geologists working on both onshore and offshore marine sedimentary rocks. The primary objective of the course is to demonstrate the geologic utility of fossil radiolarians. Topics will include discussions on the major Paleozoic, Mesozoic, and Cenozoic radiolarian groups and their biostratigraphic, paleogeographic, and paleoecologic importance, as well as the various approaches to radiolarian collection, acid extraction, and observation.

Faculty: *Charles D. Blome*, U.S. Geological Survey, Paleontology and Stratigraphy Branch, Denver; Ph.D., University of Texas at Dallas. Blome has worked for the U.S. Geological Survey for the past six years and is well known for his work in North American radiolarian biostratigraphy. *Richard M. Casey*, Marine Studies Program, University of San Diego; Ph.D., University of Southern California. Casey has taught for more than 20 years and is a leading authority in the fields of Cenozoic radiolarian biostratigraphy and paleoecology. *Patricia Whalen*, Geoscience Department, University of Texas at Dallas; Ph.D., University of Texas at Dallas.

Fee includes course manual. Limit: 100. Fee: \$75.

### Basic Principles of Rock Mechanics

Friday, November 14, and Saturday, November 15, 8:30 a.m. to 4:00 p.m. Texas A&M University, College Station, Texas

This course assumes attendees have no prior knowledge of rock mechanics; it is intended for geologists who need to either teach or apply this material. The course will cover the basic principles of rock mechanics and their applications, with special emphasis on applications in structural geology and tectonics. During the laboratory time, small groups will see

- an actual experiment, including sample preparation, jacketing, and gauging
- deformed samples, including thin section, and
- a variety of experimental apparatus.

Organizers: *John H. Spang*, Head, Department of Geology, Texas A&M University; Ph.D., Brown University. *Winthrop D. Means*, State University of New York at Albany; Ph.D., University of California at Berkeley.

Primary faculty: *John Handin*, Ph.D., UCLA. Handin co-authored the classic papers on the effects of confining pressure, temperature, and pore pressure on the deformation of sedimentary rocks. He has served on numerous national and international panels on rock mechanics, waste isolation, and earthquakes. *John Logan*, Ph.D., University of Oklahoma. Logan is working on characterizing the constitutive relations and physical processes of frictional sliding and fault zones through experimental studies and field verification.

*Neville Carter*, Ph.D., UCLA. Carter studies flow properties and dislocation-activated processes under mantle conditions and halite under repository conditions. Additional faculty: *Melvin Friedman*, Ph.D., Rice University. *Andreas Kronenberg*, Ph.D., Brown University. Handin, Logan, Carter, Friedman, and Kronenberg are Research Associates at the Center for Tectonophysics and teach in the Department of Geology and/or Geophysics, Texas A&M University, College Station, Texas. The course instructors represent a combined total of more than 100 years experience in the field of industry, university, and government rock mechanics labs.

Fee includes course manual, transportation from San Antonio to College Station on Thursday evening, and an informal dinner on Friday evening. Return transportation to San Antonio will be arranged at an additional fee. Information on lodging in College Station will be sent to registrants. Limit: 60. Fee: \$135.



## FIELD TRIPS

San Antonio, Texas, via varied transportation means, offers ready access to diverse and unique geological exposures of Texas and adjacent states for which a representative sampling will be offered. Trans-Pecos calderas and structure, Marathon basin sedimentation and structure, Ouachita Mountains tectonics, Wichita Mountains stratigraphy and intrusives, High Plains morphology, Pennsylvanian cycles, Edwards limestone aquifer systems, Llano granites of the craton, salt domes, lignite reserves, and coastal processes on barrier islands offer great diversity. This menu will offer new experiences and concepts for igneous petrologists, geochemists, stratigraphers and sedimentary petrologists, structural geologists, hydrologists, geomorphologists, economic geologists, engineering geologists, archaeological geologists, and the generalist. It is hoped that many will participate in one or more trips.

For further information, contact Jerry Wermund, Bureau of Economic Geology, University of Texas at Austin, Austin, TX 78713, (512) 471-1534; Weldon Hammond, Division of Earth and Physical Sciences, Geology Program, University of Texas at San Antonio, San Antonio, TX 78285, (512) 691-5447; or Field Trip Coordinator, GSA headquarters.

Costs are tentative and for planning purposes. They cover lodging and transportation but for some trips do not include all meals. Trips will begin and end in San Antonio unless otherwise noted. Registration will begin August 1, 1986. Forms will be available in the Final Announcement.

## PREMEETING TRIPS

1. *Quaternary Geology and Geomorphology of the Rolling Plains, Texas Panhandle.*—Thomas C. Gustavson, Robert W. Baumgardner, Jr., Chris Caran, and Edward Collins, Bureau of Economic Geology, University of Texas, Austin, Texas 78713 (512/471-1534); Walter Dalquest, Midwestern State University, Wichita Falls, Texas 76308 (817/692-6611). Two days, Nov. 7–Nov. 9.

Evidence for interpretations of geomorphic processes and Quaternary history in parts of the Rolling Plains of the Texas Panhandle will be described. Particular attention will be paid to the dissolution of evaporites, primarily salt, and collapse of overlying strata as a process that has had a significant effect on landscape development and Quaternary stratigraphy in this area. A preliminary discussion of newly recognized Quaternary deposits covering several hundreds of square miles will be presented. The trip will originate in Lubbock, Texas, where a pre-trip evening meeting is planned.

Cost: \$215
2. *Archaeological Geology of Classic Paleoindian Sites on the Southern High Plains, Texas and New Mexico.*—Vance T. Holliday, Department of Geography, Texas A&M University, College Station, Texas 77843 (409/845-3010); Eileen Johnson, The Museum, Texas Tech University, P.O. Box 4499, Lubbock, Texas 79409; Vance Haynes, Department of Anthropology, University of Arizona, Tucson, Arizona 85721; Glen Evans, 9011 Fairway Hills, Austin, Texas 78759; Dennis Stanford, Smithsonian Institution, Washington, D.C. Two and one-half days, Nov. 7–Nov. 9.

The field trip will focus on the historical significance of the Lubbock Lake, Plainview, and Clovis (Blackwater Draw Locality #1) sites, the Paleoindian archaeology and geochronology, and the late Quaternary environmental records as related to the entire region. One other late Quaternary stratigraphic sequence in lower Blackwater Draw, near Lubbock Lake, may also be viewed. The trip should be of interest to archaeological geologists and Quaternary geologists and also those interested in the history of geology and, perhaps, vertebrate paleontology. The trip will originate in Lubbock, Texas.

Cost: \$215
3. *Igneous Geology of Trans-Pecos Texas*—Jonathan G. Price and Christopher D. Henry, Bureau of Economic Geology, University of Texas, Austin, Texas 78713 (512/471-1534); Don F. Parker, Department of Geology, Baylor University, Waco, Texas 76798 (817/755-2361); Daniel S. Barker, Department of Geological Sciences, University of Texas, Austin, Texas 78713 (512/471-5502). Three and one-half days, Nov. 6–Nov. 9.

The field trip will examine caldera structures, field relations of pyroclastic rocks, rheology of peralkaline ash-flow tuffs and lava flows, magma mixing within intrusions, and petrogenesis of silica-unsaturated and silica-saturated magmas. The Trans-Pecos region is an igneous province with some of the best exposures of alkalic rocks and calderas in the world. Highlights of the first full day of the field trip will be the Marble Canyon stock, an unusual alkalic intrusion that is zoned from a nepheline-bearing alkali-gabbro rim to a quartz-syenite core, and the Van Horn Mountains caldera, where many classic caldera structures are well exposed. Highlights of the second day will be exposures of peralkaline ash-flow tuffs, which exhibit spectacular secondary flow features, inside and outside the Buckhorn caldera and exposures of alkalic rocks on the Paisano volcano in the Davis Mountains area. On the return to San Antonio on the last day, the trip will focus on pyroclastic rocks of the Pine Canyon caldera in Big Bend National Park. The trip will originate in El Paso.

Cost: \$250
4. *Ouachita Mountain Geology—Structure, Stratigraphy, Depositional and Thermal History, Arkansas*—Charles G. Stone, Arkansas Geological Commission, Little Rock, Arkansas 72204 (501/371-1488); Boyd R. Haley, 7 Warwick Road, Little Rock, Arkansas 72205. Three and one-half days, Nov. 6–Nov. 9.

The trip examines the rather complex folded and thrust faulted Paleozoic sedimentary rocks in the east-central core and adjoining areas of the Ouachita Mountains, Arkansas, and attempts to demonstrate the apparent deep-water

(continued on p. 106)

1986 Field Trips (continued from p. 105)

depositional environments and the likely sediment sources of the Lower Ordovician Collier Shale through the Middle Pennsylvanian Atoka Formation; the major thrust faults, including the Alum Fork and other decollements; the respective stages, styles and intensities of deformation in several of the structural belts (Hooper, Mount Ida, Avilla, Aly, etc.); and the effects of episodes of late Paleozoic thermal activity and, locally, later overprinting by Cretaceous intrusives on these rocks. There will be rather lengthy discussion of the several published and other proposed tectonic models for the formation of the rocks in the fold belt; the oil and gas potential, including maturation and possible levels of degradation, and the probable exhalative base metal and other mineral occurrences. The trip will originate in Little Rock, Arkansas.

Cost: \$315

5. *Engineering Geology of San Antonio, Texas*—Jeffrey R. Walker and Edward G. Miller, Raba-Kistner Consultants, P.O. Box 32217, San Antonio, Texas 78216 (512/342-4216). One day, Nov. 9.

This trip will provide a general overview of the effect of geology on urban development in San Antonio. The general stratigraphy, structural geology, hydrogeology, and physiography of the San Antonio region will be presented. The two distinct geotechnical environments in the area—the Tertiary sands and expansive clay formations of southern San Antonio and the Cretaceous limestones and marls of northern San Antonio—will be examined. The geology and geotechnical engineering of several large construction projects will be inspected, with particular emphasis on the engineering geology and geotechnical aspects of construction on the Balcones fault zone and with the Edwards Group Limestone.

Cost: \$45

6. *Stratigraphy and Structure of the Maverick Basin and Devil's River Trend, Lower Cretaceous, Southwest Texas*—C. I. Smith, Department of Geology, University of Texas, Arlington, Texas 76019 (817/273-2987); Peter R. Rose, Telegraph Exploration, Telegraph, Texas; R. E. Webster, Dallas, Texas; C. H. Humphreys, Ensearch Exploration, Dallas, Texas. Three days, Nov. 7–Nov. 9.

The purpose of this trip is to describe, interpret, examine, and provoke discussion on (1) the stratigraphic and facies relationships of the Lower Cretaceous Fredericksburg–lower Washita (Albian) strata between the Maverick basin and the Devil's River trend formations of the southern Edwards Plateau, (2) surface structural patterns and their relationship to Paleozoic (Ouachita) structural and tectonic trends, and (3) the hydrocarbon potential of the Lower Cretaceous sequence in the Maverick Basin. The field trip will focus not only on clarifying the genetic stratigraphic relationships but also on examination of Cretaceous structure, including the relationship between Cretaceous and Paleozoic structures.

Cost: \$215

7. *Petrology of the Cambrian Wichita Mountains Igneous Suite*—M. C. Gilbert, Department of Geology, Texas A&M University, College Station, Texas 77843 (409/845-2451); B. N. Powell, Phillips Petroleum, Bartlesville, Oklahoma 74004; D. London, School of Geology and Geophysics, University of Oklahoma, Norman, Oklahoma 73019. Three days, Nov. 7–Nov. 9.

This trip will begin with examination of the Meers fault, the largest surface-breaking fault scarp east of the Rocky Mountains. The trip will familiarize participants with the layered mafic intrusion and/or A-type sheet granites and magma mixing associated with the Southern Oklahoma Aulacogen. The aulacogen extends approximately 450 km from southeastern Oklahoma into the midcontinent, where it forms a WNW-trending swath across crystalline basement rocks with ages of 1.3–1.4 Ga. Characteristics and differences of the igneous rocks will be demonstrated, including bimodal chemistry, major gabbroic units (one a layered cumulate complex), and assemblage of granitic sheets of A-type chemistry, a series of rhyolites including both ash-flow tuffs and thick flows, and a set of diabase dikes. The trip will originate in Lawton, Oklahoma.

Cost: \$325

8. *Hydrology of the Edwards Aquifer, San Antonio Region, Texas*—Weldon W. Hammond, Jr., Geology Program, Earth and Physical Sciences, University of Texas, San Antonio, Texas 78285 (512/691-4455); Diane Pavlicek, USGS, San Antonio; George Ozuna and Glenn Longley, Southwest Texas State University, San Marcos. One day, Nov. 9.

The Edwards Limestone contains one of the most highly permeable and productive carbonate aquifers in the United States. San Antonio is the largest city in the United States to be supplied entirely by ground water. This field trip will present evidence relating to regional differences in porosity development and the geologic controls on porosity development and as such will concentrate on the hydrogeologic characteristics of the aquifer. The trip will examine local recharge areas, faults, well fields, and springs. Emphasis will be placed on research relating to the fresh water–saline water interface and its relation to hydrostratigraphic controls and hydrodynamic responses within the aquifer.

Cost: \$55

9. *Paleoenvironments and Fossil Communities of the Late Pennsylvanian of North-Central Texas*—Thomas E. Yancey, Texas A&M University, College Station, Texas 77843; Steve Schutter, Exxon Production Research Company, Houston, Texas. One and one-half days, Nov. 7–Nov. 8.

This trip will examine paleontologic communities and transgressive-regressive sequences, cyclic stratigraphy, of the late Pennsylvanian Eastern Shelf. Upper Strawn Group, Canyon Group, and lower Cisco Group outcrops, approximately late Desmoinesian, Missourian, and early Virgilian age, will be visited. A transgressive fauna in carbonate-dominated systems can be compared to a regressive fauna of predominantly delta-related sediments. Comparisons with classic midcontinent faunas are possible. The trip will originate at the Dallas–Fort Worth Airport.

Cost: \$140

10. *Geology of Gulf Coast Lignites*—Walter Ayers, Texas Bureau of Economic Geology, University of Texas, Austin, Texas 78712 (512/471-1534); John Breyer, Texas Christian University, Department of Geology, Fort Worth, Texas 76129 (817/921-7270); John Johnston, Louisiana Geological Survey University Station, Baton Rouge, Louisiana 70893 (504/342-6757); Robert Finkelman, Exxon Production Research Co., P.O. Box 2189, Houston, Texas 77001 (713/965-7643). Three and one-half days, Nov. 6–Nov. 9.

The major focus of this trip is an evaluation of the evidence used in interpreting the depositional environments of the Gulf Coast lignites. Sections will be examined at five active lignite mines in Louisiana and Texas. Four mines are in the Calvert Bluff Formation of the Wilcox Group; the fifth is in the Jackson Group. In addition, there will be discussions on coal quality trends, mining methods, geochemistry, petrography, and environmental aspects of lignite mining. The trip will originate in Shreveport, Louisiana.

Cost: \$265

11. *Comparison of Cap Rocks, Natural Resources, and Surface Features over Boling and Damon Mound Salt Domes*—Steven Seni, Bureau of Economic Geology, and Richard Kyle, Department of Geological Sciences, University of Texas, Austin, Texas 78713 (512/471-1534 and 471-4351). One day, Nov. 8.

A resurgence of interest in salt domes and their cap rocks has been fueled by expanded use of domes for product storage such as the Strategic Petroleum Reserve and by proposed use of salt domes for nuclear and toxic-chemical waste disposal and for compressed air storage. Recent exploration has discovered multimillion-ton Pb-Zn deposits in Gulf Coast cap rocks, and research indicates a genetic link between these cap-rock deposits and Mississippi Valley Pb-Zn deposits. Two salt domes on the Texas Coastal Plain provide a convenient and appropriate starting point for comparing mechanisms and timing of dome and cap-rock evolution and natural resource distribution. Quarrying operations for cap-rock limestone at Damon Mound and frash mining of sulfur at Boling Dome have created a relatively unique opportunity to allow participants of a one-day field trip to compare and contrast a range of features associated with these domes.

Cost: \$70

12. *Sedimentation in and Deformation of the Southern Oklahoma Aulacogen*—R. N. Donovan and T. Boone Pickens, Jr., School of Geology, Oklahoma State University, Stillwater, Oklahoma 74078 (405/624-6358). Three days, Nov. 7–Nov. 9.

In the vicinity of the Wichita Mountains, the field trip will address the themes: (1) the basal transgression of the upper Cambrian across an irregular land surface carved from volcanic rock; (2) the passage from a siliciclastic to a carbonate-dominated sedimentation pattern; (3) shallow carbonate platform sediments including evidence for vanished evaporites; (4) intense structural deformation involving faulting and folding of the lower Paleozoic rocks under the influence of a left-lateral transpressive stress system; (5) the Permian alluvial fan conglomerates derived from an active fault scarp; and (6) the evidence for recent (c. 10,000 B.P.) movement of the Meers fault. The trip will originate in Lawton, Oklahoma.

Cost: \$325

#### POSTMEETING TRIPS

13. *Precambrian Granite Magmatism and Diapirism, Llano Uplift, Central Texas*—Volker W. Gobel, Department of Geology, Stephen F. Austin State University, Nacogdoches, Texas 75962 (409/569-3701); Robert M. Hutchinson, Golden, Colorado. Two days, Nov. 14–Nov. 15.

The trip will familiarize participants with the granite magmatic phase of the Llano orogenic basement rocks in central Texas and examine petrology, internal zoning, granite tectonics, and intrusion patterns as displayed by selected plutons. Characteristics and differences of the three-phase granitic cycles in the Llano Uplift region will be demonstrated: Town Mountain-type rapakivi granites, Six Mile-type, and Oatman Creek-type granites.

Cost: \$150

14. *Geologic and Geomorphic History of the Edwards Limestone Aquifer and Surface Drainage System, South-Central Texas*—Patrick L. Abbott, Department of Geological Sciences, San Diego State University, San Diego, California 92182 (714/265-5591); Charles M. Woodruff, Jr., P.O. Box 13252, Austin, Texas 78711. One day, Nov. 14.

The field trip will view and discuss the integrated geologic and geomorphic development of the Edwards Aquifer and the evolution of the surface drainage basin. The trip will view the Edwards Limestone outcrop in the Balcones fault zone between San Antonio and New Braunfels. The main message will be the geologic history of the Edwards Aquifer from the Cretaceous to the present and its interdependency with the surface drainage network. Outcrops to be visited will show the Balcones escarpment, Edwards Limestone depositional environments, discharge sites and major springs, collapsed caverns at mega-collapse localities in karstic plains, evidence for stream piracy, and recharge through stream bottoms and fractures.

Cost: \$60

15. *South Texas Modern Depositional Systems*—John L. Russell and Jon A. Baskin, Department of Geosciences, Texas A&I University, Kingsville, Texas 78363 (512/595-3310). Three days, Nov. 14–Nov. 16.

The field trip will examine Holocene depositional systems in Nueces, Kleberg, and Kenedy Counties, Texas. Estuarine, eolian, fluvial, deltaic, lagoonal, and barrier island environments will be investigated. The Nueces Bay–Corpus Christi Bay normal estuarine system will be compared to the Baffin Bay system, which commonly has reverse estuarine circulation. Baffin Bay is unique in the United States because it is commonly hypersaline and contains Holocene carbonate and evaporites. The South Texas Eolian Sand Plain will be examined. Fluvial and bay head delta systems of the Nueces River will be examined as well as lagoonal and barrier island environments on Mustang and North Padre islands.

Cost: \$200

(continued on p. 108)

1986 Field Trips (continued from p. 107)

16. *Stratigraphy of the El Paso Borderland, Texas*—David V. LeMone, Department of Geological Sciences, University of Texas, El Paso, Texas 79968. Two and one-half days, Nov. 13–Nov. 15.

The trip will concentrate on the truly outstanding and magnificently exposed stratigraphic sequence in the El Paso border region. The Franklin Mountain tilted fault block, Cerro de Cristo Rey, and adjacent bolsons contain exposed Precambrian through Cenozoic stratigraphic sequences. Six Precambrian formations totaling 1,674 m in thickness in the Franklin Mountains will be examined. Cretaceous siliciclastics and carbonate rock sequences at Cerro de Cristo Rey will be examined and related to equivalent units of the Edwards Plateau. Late Cenozoic Fort Hancock and Camp Rice lacustrine-fluvial sequences will be examined. The trip will terminate in El Paso.

Cost: \$205

17. *Upper Cretaceous Volcanic Centers of South and Central Texas*—Thomas E. Ewing, Frontera Exploration Services, 900 NE Loop 410, Suite D-303, San Antonio, Texas 78209 (512/822-3133); S. Christopher Caran, Bureau of Economic Geology, Austin, Texas; L. Joy Hudson, Suite E-100, Petroleum Center, San Antonio, Texas. Two days, Nov. 14–Nov. 15.

In Late Cretaceous time, hundreds of volcanoes erupted on the chalky, open shelf of central and south Texas. Original magmatic compositions were mafic and alkalic, nephelinites being most common, with local phonolites and basalts. Eruptions produced tuff mounds of palagonite tuff and associated mudflows. Fringing reefs and shoal-water carbonates were constructed on the volcanoes' flanks and were deposited on a regional scale in the Uvalde area. This trip will visit the classic Austin exposures of palagonite tuff and overlying "beachrock" and shoal complexes. Distal and proximal tuff facies; mudflows; lagoonal, coral-bearing muds; and subaerial basanite flows will be visited. The trip will return to San Antonio for the evening. On the second day, participants will tour the Uvalde area to see fresh exposures of ultramafic and alkaline rocks. The Knippa Quarry exposes a lava-lake complex crosscut by subaerial vent-facies of nephelinite-bearing spinel-peridotite nodules. The trip will finish by examining the asphalt-saturated, shoal-water carbonates of the Anacacho Mountains.

Cost: \$95

18. *Platform Comanchean of Central Texas*—O. T. Hayward, Rena Bonem, and Robert Grayson, Department of Geology, Baylor University, Waco, Texas 76703 (817/755-2361). Two and one-half days, Nov. 13–Nov. 15.

The field trip will show the platform Comanchean section of central Texas in the type area of its many formations. It will emphasize the Trinity Group fluvial to marine transition, from fluvial conglomerates to carbonate bank deposits, the remarkable uniformity of the Fredericksburg and Washita shallow marine, and the Del Rio Clay unique pyritized dwarf fauna.

Cost: \$150

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| *Frank L. Blackett       | John L. Churchill        | *George J. Dillman    | Shannon L. Flynn           | David A. Groves         |
| Stephen A. Blair         | *Paul R. Clark           | *Michael C. Dix       | Stanley T. Foo             | *Jeffrey J. Gryta       |
| *James J. Boardman       | Peter U. Clark           | *Janet A. Docka       | Kevin M. Foster            | Terrance J. Guidetti    |
| *Patricia A. Bobeck      | *Millard F. Coffin       | *Ronald I. Dorn       | Eric J. Fourcade           | Hans J. Gursky          |
| Gregory A. Bobonik       | Douglas R. Colbeck       | Eric Dowty            | *Joel S. Fradel            | Kermit M. Gustafson     |
| Colin J. Booth           | *Brian D. Collins        | Alison B. Doyle       | John J. Francis            | *Gregory M. Guthrie     |
| Steve J. Borbas          | *Donald W. Collins       | Kevin M. Doyle        | John P. Franklin           | Richard C. Hager        |
| *Lars E. Borg            | Mary E. Collins          | *Mark Steven Drummond | Gordon S. Fraser           | *Michael C. Hagood      |
| Joy L. Bostic            | *William H. Collins III  | *Roger L. Duba        | William A. Fraser          | *Raimund J. C. Hahn     |
| Joseph E. Boudreaux      | Wayne E. Colony          | *Richard A. Dubiskas  | Ray M. Frear, Jr.          | *Alma P. Hale           |
| *Shelley June Bougan     | Nicholas B. Comerford    | Philippe H. Dubreuilh | *Leah S. Frei              | *Mark C. Halle          |
| *Susan Q. Boundy         | Janine Commerford        | Daniel J. Dudak       | Andrew A. Frishkorn        | *Steve A. Hallem        |
|                          | *Christopher D. Condit   |                       |                            |                         |

- John E. Hamak  
Richard H. Hammond  
\*William C. Haneberg  
Richard D. Harlan  
Katherine K. Harms  
David E. Harnish  
\*Joan M. Harris  
Victor E. Harris  
Robin D. Harrover  
Ronald L. Hart  
\*Andrew F. Harvey III  
\*Mark P. Hassell  
Harold Hatfield  
Charles W. Hatten  
\*Ralph A. Haugerud  
\*Robert J. Hause  
Gerald L. Hawk, Jr.  
Michael S. Healey  
Robert A. Hefner IV  
\*Paul M. Heisig  
Charles E. Helmer  
\*Douglas S. Helmke  
Donpaul Henderson  
Curtis E. Hendrick  
\*Robert C. Hendricks  
Ruth A. Hendricks  
Malcolm D. Hendry  
Jeffrey R. Henke  
Ronald M. Herzfeld  
Sarah M. Hetznecker  
Thomas A. Hewlett  
\*Charles E. Heywood  
Rosemary L. Hickey  
David A. Higgs  
\*Bert A. Hill  
Gerald C. Hill, Jr.  
\*Dorinda S. Himes  
\*J. M. Hixon, Jr.  
\*Brian S. Hoare  
\*Thomas D. Hoisch  
\*Kurt T. Hollocher  
\*Marty Horn  
Gerald D. Horton  
Alan L. Howard  
Fabian Hoyos-Patino  
\*Fritz A. Hubacher  
Marilyn G. Hughes  
John F. Humphrey  
Richard D. Humphreys  
Frank A. Hunsberger  
\*Neil F. Hurley  
J. Phares Hutton  
Hisayoshi Igo  
Joseph C. Ingari  
Dennis L. Ingles  
\*Grace Irby  
Clark E. Isachsen  
Jeremy B. Jackson  
Gary R. Jacobson  
Randall S. Jacobson  
\*Robert B. Jacobson  
Ralph K. Jeffery  
D. Lauren Jelks  
Terence L. Jenkins  
Patrick J. Jenks  
Roberta L. Jennings  
\*Randall W. Jibson  
David A. John  
\*Greg K. Johnson  
Kathryn O. Johnson  
\*W. Howard Johnson  
Wayne P. Johnson  
\*John Edward Johnston  
\*Les H. Kanat  
Francis J. Kane  
William F. Kane  
Jon Y. Kaneshiro
- Mark S. Katterjohn  
Miriam E. Katz  
James W. Kauer  
\*Laura L. Kedzie  
\*Ted Keffer  
Robert W. Keil  
\*Shari A. Kelley  
Stephen K. Kennedy  
Cynthia J. Kenyon  
\*Patricia M. Kenyon  
\*Gerald J. Kepes  
Maureen A. Kestler  
\*Janet E. King  
\*Kenneth L. King  
\*Paul D. Kirk  
Robert B. Kirk  
\*Simon L. Klemperer  
\*David W. Klepacki  
Michael S. Knapp  
\*Polly Lee Knowlton  
\*Peter L. K. Knuepfer  
David E. Koch  
Hans-Henning F. Koch  
\*Kevin M. Kohles  
Jeffrey D. Korth  
\*Kevin J. Krenik  
\*Steven A. Kuehl  
\*Ralph L. Kugler  
Elizabeth K. Kumbalek  
Joseph E. Laing  
George A. Lancaster  
Jon Landvik  
Charles H. Langmuir  
\*Earl F. La Pensee  
William T. Laprade  
\*Marge Ann Patterson Latham  
\*Thomas S. Latham  
\*Stephen E. Laubach  
Terry A. Lawrence  
Viki A. Lawrence  
Holly K. Legault  
\*Mark R. Legg  
Norman E. Lehman  
\*Thomas M. Lehman  
\*Jeffrey A. Lehmann  
R. Bruce Leinster  
Robert E. Leitz  
\*John C. Lexas  
\*Katherine E. Leonard  
\*Robert J. Lepak  
\*Dave E. Leppert  
Isabelle Le Tellier  
\*Peter M. Le Tourneau  
Robert W. Lettis  
\*Barbara M. Levinson  
\*Laurence R. Lew  
John F. Lewis  
Edward L. Libelo  
Valerie M. Lieberman  
Robert G. Lindblom  
Allan G. Lindh  
\*Elliott W. Lips  
\*Robert J. Liptrap  
\*Guy S. Lister  
David P. Liston  
Bill W. Little  
Jaqueline M. Lloyd  
Kyger C. Lohmann  
\*M. Elizabeth Looney  
Linda K. Lottman  
Richard E. Lownes  
\*Mark C. Lucas  
J. Reed Lyday  
\*Erik Lyngberg  
Charles P. Lyons  
\*Nancy M. Lyons  
\*John A. Macaluso
- Andreas Mackensen  
Richard O. Mahood  
\*Alexander W. Mann  
\*Christopher G. Maples  
Ruth K. Marler  
Gilbert J. Marshall  
Sharon P. Martin  
\*Andrew O. Martyniuk  
J. D. Mason  
John E. Mason  
\*William R. Mason  
Thomas E. Matson  
\*Peter K. Matthews  
\*Garry C. Maurath  
Christopher K. Mawer  
\*David W. May  
\*Steven R. May  
Thomas W. May  
\*James R. Mayer  
\*Charles L. McCabe  
Peter J. McCabe  
Thomas M. McCormick  
Robert J. McDermott, S.J.  
\*Inge R. McDonald  
Tilden E. McDowell  
E. Randolph McFarland  
Michael J. McFarlane  
James W. McKee  
Ethel W. McLemore  
\*Timothy P. McMahon  
\*Mary E. McMillan  
John A. McPhee  
Jim I. Mead  
Charlotte J. Mehrtens  
\*Allan J. Melillo  
Mark A. Mercer  
\*Martha K. Merriam  
John D. Merrill  
William C. Meyers  
Finn B. Michelsen  
Melody D. Mierisch  
Bruce C. Miller  
\*Craig W. Miller  
Jerry R. Miller  
Rand D. Miller  
\*Mark D. Millsop  
\*Andrew S. Mirkin  
Rami Mishu  
Anthony R. Mitrì  
\*Alan C. Mix  
Richard L. Moberly  
Lawrence M. Monson  
\*John R. Montgomery  
George H. Moreau  
Cedwyn Morgan  
\*Paul R. Morin  
\*Lillian T. Morisi  
Donald A. Morrison  
Debra J. Moser  
Joann Mossa  
Gregory S. Mountain  
John F. Mueller, Jr.  
Karl W. Muessig  
Arthur C. Mullenax  
Barbara J. Munn  
\*Donald C. Murphy  
John T. Murphy, Jr.  
Claude D. Murray  
A. Lee Nageotte  
Daniel C. Nebel  
Nancy E. Neff  
\*Robert M. Negrini  
Mary K. Nelis  
Dennis O. Nelson  
John R. Nelson  
Steven W. Nelson  
Willis H. Nelson
- \*Charles T. Nestle  
Maury C. Newton III  
Gerald A. Nicoll  
\*Thelma L. Niles  
Robert C. Nugent  
Barbara A. Obeda  
Ira E. Odom  
Veronica W. O'Donnell  
Sylvie L. Olney  
Paul E. Olsen  
John F. O'Neill  
Douglas A. Opell  
\*Randall C. Orndorff  
\*Kristin E. Orr  
Jeffrey S. Oslund  
\*Jonathan T. Overpeck  
Daniel L. Oyler  
\*Robert T. Pack  
John B. Padgham  
\*Timothy S. Pagano  
Ronald W. Page  
\*Paul S. Palmer-Rosenberg  
Walter E. Pankow  
\*Otto K. Paris  
\*Richard C. Parish  
William C. Parker  
Kenneth E. Parsons  
\*John B. Partridge  
\*Mark S. Patalive  
Mark E. Pate  
Neil B. Patterson  
Kenneth R. Patton  
Michael A. Paul  
David A. Pauli  
C. Charles Payton  
\*Simon M. Peacock  
Shea Penland  
\*Laura E. Coffman Perkins  
George Peter  
David H. Peterson  
\*Silvio Pezzopane  
Charles R. Philbrick, Jr.  
Robert R. Phillips  
\*Sandra Phillips  
Frank J. Picha  
Carlos R. Pierce  
Herbert A. Pierce  
\*James L. Pindell  
George A. Planansky  
Michael R. Plaziak  
\*Jeffrey B. Plescia  
C. Wylie Poag  
Stephen G. Pollock  
\*Leslie Ann Poole  
\*Michael C. Pope  
Timothy A. Pope  
\*Brian N. Popp  
Anthony R. Porter  
\*Michael L. Porter  
\*Libby M. Prueher  
\*Ozzie W. Puhan  
Fred S. Pulka  
Joyce E. Pulliam-Fitzgerald  
Barry S. Pulver  
Paul R. Purington  
Daniel G. Quible  
Mary C. Rabbitt  
\*Kristin Vala Ragnarsdottir  
Vincent R. Ramirez  
Peter E. Ramsey  
Jay A. Raney  
M. Scott Rappeport  
\*Phillip J. Rarey  
\*Michael L. Raub  
Henry W. Rauch  
Michael H. Rauschkolb  
Allan C. Razem
- Christy L. Reed  
\*Donald L. Reed  
\*James B. Reed  
John B. Reid, Jr.  
James W. Reil  
\*Alison Reitz  
Brian J. Renaghan  
Robin W. Renaut  
Paul B. Renken  
Kyle S. Rheubottom  
\*Brady P. Rhodes  
\*Richard L. Richins  
Harry M. Ricketts III  
\*John C. Ridge  
John R. Ritter  
Barry D. Robertson  
\*Stephen W. Robertson  
John D. Rockaway  
James D. Rodine  
Frederick S. Rogers  
\*Steven A. Rohr  
Gregory P. Roush  
\*Albert G. Roussin  
Mark G. Rowan  
Jeanne M. Ruefer  
Thomas A. J. Runyon  
\*Margaret E. Rasmus  
C. Winston Russell  
Edward J. Saade  
Edward H. Sabins  
William W. Sager  
\*Jayne E. Sakal  
\*Mike L. Sakelaris  
\*James P. Salisbury  
\*Michael S. Sampson  
\*David B. Sams  
William Sarni  
Amy R. Satterfield  
\*Roland P. Saueremann  
Craig A. Savage  
\*Wayne N. Sawka  
\*Ted M. Sayre  
Liese L. Schadt  
\*Craig A. Scharton  
Raymond A. Scheinfeld  
\*Stephen P. Schilling  
F. Steve Schilt  
Richard L. Schofield  
\*Amy E. Schoner  
\*Matthias Schunemann  
\*Allen E. Scott  
Paul J. Scrivner  
\*Patricia O. Seaward  
Theresa K. Secord  
\*Jane Selverstone  
James A. Senger  
Dale R. Setterholm  
Maria P. Shayegan  
Charles K. Shearer  
Gary T. Sheehan  
Jack R. Sheehan  
John L. Shepard  
Eugene A. Shinn  
Ronald Z. Shmerling  
\*William R. Short, Jr.  
Purusotam L. Shrestha  
\*Dinah O. Shumway  
Douglas C. Shumway  
Dennis N. Simmelink  
David B. Simon  
Ravi P. Sinha  
\*Jerome P. Siok  
Raymond P. Skinner  
\*Matthew C. Small  
Chester R. Smith  
\*Edward Caldwell Smith

(continued on p. 112)

**New Members** (continued from p. 111)

- \*Gary A. Smith  
 \*Gregory A. Smith  
 Lisa R. Smith  
 \*Michael J. Smith  
 Rennie Smith  
 \*Robert Dean Smith  
 Gilbert W. Snell  
 Stephanie E. Sofranoff  
 John P. Sollo  
 James E. Sorauf  
 John V. Spasari  
 Charles G. Spencer  
 \*Stephen E. Speyer  
 \*John J. Spicola  
 Mark S. Spykerman  
 \*Leeann Srogi  
 John B. Stadnicar  
 Charles W. Stanley  
 Steven A. Stanley  
 Ronald J. Staskowski  
 Kathy B. Steele  
 \*Mark A. Steiner  
 Martin Steinpress  
 Paul M. Sterkenburg  
 James M. Stevens  
 Edward L. Stewart  
 \*Philip W. Stoffer  
 Larry G. Stolarczyk
- Sarah J. Stoll  
 Michael R. Stomer  
 Andrew R. Stone  
 De Forest N. Stone  
 Peter A. Stone  
 \*Barbara A. Strehle  
 \*Eileen M. Sullivan  
 William R. Sullivan  
 \*Mohamed I. Sultan  
 \*Lori L. Summa  
 Karen Swanson  
 \*Dennis A. Sylvia  
 Kozo Takahashi  
 James M. Tanner  
 \*Amy L. Tarleton  
 Pamela A. Tarquin  
 William E. Tart  
 \*Lisa G. Taylor  
 \*Richard M. Ternyey  
 \*David B. Terry  
 \*Brion D. Theriault  
 David S. Thiede  
 Richard O. Thies  
 William D. Thomas  
 Glenn H. Thompson, Jr.  
 \*Peter J. Thompson  
 Phyllis Tippit  
 Donn H. Tolia
- \*Jeffrey C. Toothaker  
 \*Rudolph E. Torrini, Jr.  
 \*Charles H. Trupe III  
 Harley A. Tucker  
 \*John P. Turner  
 Julia E. Turney  
 Grace N. Tyner  
 \*Elizabeth M. Uhl  
 William C. Utterback  
 \*Hannia Azuola Valls  
 John A. Vance  
 \*Eileen van der Flier-Keller  
 \*Ben A. Vanderpluijm  
 \*Kathy S. Vanderwal  
 Virginia R. Van Sickle  
 De Witt C. Van Sicken  
 \*Leonard K. Vaughn  
 \*Kenneth D. Vogel  
 Kenneth C. Voight  
 \*Frederick W. Vollmer  
 Ralph R. B. Von Frese  
 Liudmila Voskov  
 \*J. Douglas Walker  
 \*Sylvia J. Walters  
 Jeff L. Ward  
 \*Peter D. Warwick  
 \*Keith F. Watts  
 John W. Webb  
 \*Robert H. Webb
- William K. Wedge  
 \*Rebecca Weed  
 Charles Weiner  
 Patricia A. Weisse  
 \*Edwin B. Wells  
 Tommy L. Wells  
 Walter D. Wells, Jr.  
 \*Carl F. Wellstead  
 \*David W. Wendland  
 \*Peter Werner  
 Susan A. Wessels  
 Alan C. Weston  
 Warren H. Westphal  
 Gerhard Westra  
 \*Eric M. Wetlaufer  
 Laura L. Weyer  
 Stephen W. Wheatcraft  
 \*Patricia Jane White  
 \*John D. Whiting  
 David C. Wickland  
 \*Mike S. Wielenga  
 Wayne V. Wilkinson  
 Julie B. Willis  
 Amanda K. Wilson  
 Douglas A. Wilson  
 \*Karen A. Wilson  
 Allen R. Winans  
 \*Dale A. Winkler  
 \*Douglas S. Winston
- \*Michael B. Winter  
 Michael R. Wisda  
 \*Mark J. Witowski  
 Carol A. Witt  
 James H. Wittke  
 Catherine M. Woehr  
 Jack A. Wolfe  
 \*Laura F. Wood  
 James A. Woodhead  
 \*Grant R. Woodwell  
 \*Elizabeth Wright  
 \*Judith Wright  
 \*Sarah D. Wright  
 \*Stephen F. Wright  
 William B. Wright  
 Roberta J. Wright-Baldwin  
 \*Douglas E. Wyatt  
 \*Sandra Wyld  
 Leslie B. Yale  
 \*Tad B. Yancheski, Jr.  
 \*Kenneth J. Yeats  
 George Zandt  
 \*Borys Zayachivsky  
 Stephen A. Zbur  
 Jeffrey M. Zeman  
 William J. Zinsmeister  
 James S. Zubrow  
 Sandy M. Zucker  
 Gary S. Zumwalt

**NEW GSA STUDENT ASSOCIATES**

Listed are 692 Student Associates who became affiliated with the Society during the period from September 1, 1985, through January 31, 1986.

- Rodney A. Abke  
 Susan L. Abston  
 Kelly S. Ahlschwede  
 Wolfgang Albrecht  
 Clifford P. Ambers  
 David Anastasio  
 Cindy M. Anderberg  
 Charles J. Anderson, Jr.  
 R. Scott Anderson  
 Linda M. Angeloni  
 Lawrence M. Anovitz  
 P. Shane Arnott  
 Anne M. Arquit  
 Richard G. Ashe  
 Renee L. Aubry  
 John Bacchus  
 L. Joseph Bachman  
 Kevin J. Bacon  
 Andrew F. Bajc  
 Kevin L. Baker  
 Theodore T. Ball  
 Steven D. Balsley  
 Bradley L. Bankhead  
 Istvan Barany, Jr.  
 Nancy L. Barber  
 Roger J. Barnaby  
 Laura L. Barreto  
 James T. Bateson  
 Kimberly M. Baur  
 David R. Bazard  
 James P. Bearzi  
 Bruce C. Beaudoin  
 Cathleen M. Beaudoin  
 Raymond E. Beiersdorfer  
 Joseph N. Bell  
 Paul H. Benoit  
 Craig S. Benson  
 Meg M. Benton  
 David W. Berry  
 Charles J. Betancourt  
 Wayne M. Bevan
- Kenneth A. Bevis  
 Susanna J. Bezold  
 Arnold F. Bierschenk  
 Crague C. Biglow  
 L. Stephen Bishop  
 Robert B. Black  
 Cynthia L. Blankenship  
 Thomas C. Block  
 Marianne E. Blom  
 Ann E. Blythe  
 Dana M. Boehnlein  
 Lena E. Boettcher  
 Stephen C. Bohrer  
 Beverly A. Borger  
 Kenneth R. Bork  
 Firyal N. Bou-Rabee  
 Robin M. Bouse  
 James F. Brake  
 Kenneth L. Branstetter  
 Bill D. Briggs  
 Daniel I. Brisbin  
 Gregg W. Bromka  
 Gregg R. Brooks  
 Jennifer R. Brown  
 Nancy E. Brown  
 Thomas E. Brown  
 Jon E. Brummer  
 Celese M. Brune  
 Daniel J. Bruner  
 Susan S. Bryner  
 David A. Buckwald  
 Charles J. Budney  
 Nancy Buening  
 Paul R. Bulger  
 Thomas P. Bulling  
 Alison Burchell  
 David H. Burkett  
 Vernon C. Burrows  
 Elizabeth A. Burton  
 Cindy L. Buxton  
 Jack M. Calloway
- Jane R. Campbell  
 Robert D. Campbell  
 Moira E. Campion  
 Mario V. Caputo  
 Jeffrey A. Cary  
 David Cehrs  
 Thomas Chacko  
 Eunice Chan  
 Judith S. Chester  
 Philip A. Chin  
 John P. Chitwood  
 Gail L. Chmura  
 Cheng-Kuo Chou  
 Geoff Christ  
 Donald M. Chuck  
 Michael S. Chyi  
 Robert M. Cipolletti  
 April K. Clare  
 David R. Clark  
 Helen D. Clark  
 John Hughes Clarke  
 Martin J. Clasen  
 Diane E. Clemens  
 Daniel E. Clements  
 Brian L. Cluer  
 Mark V. Coffman  
 Ronald B. Cole  
 Eric S. Collins  
 Robin L. Combs  
 Lee A. Conesa  
 Jeffrey B. Connelly  
 Robert D. Cook  
 C. Renee Cooper  
 Kevin P. Corbett  
 Mark A. Corbin  
 Herbert L. Cork  
 Jorge I. Corrales  
 Dawn M. Corrigan  
 Michael A. Cosca  
 Brian L. Cousens  
 Jean Covert
- James M. Crawford  
 John F. Crusius  
 Charles S. Cubbison  
 Randolph J. Cumbest  
 Jan M. Curtis  
 Timothy D. Cutter  
 Steve H. Cybulski  
 Michael F. Dacey  
 Christopher M. Dail  
 John F. Damanti  
 David R. Daugherty  
 Steve S. Davenport  
 Russell K. Davies  
 John W. S. Davis, Jr.  
 Samuel R. Davis  
 Timothy L. Davis  
 Ralph L. Dawes  
 Jennifer H. De Chant  
 James D. De Cinque  
 Steven N. De Credico  
 Deborah A. Dees  
 Timothy A. De Freitas  
 Jeff B. de Graffenried  
 Therese M. Deguire  
 Jonathan Dehn  
 Chris K. De Macedo  
 Robert P. De Roche  
 Leslie A. De Simone  
 Marc E. Dillon  
 Joseph A. Di Pietro  
 Gregory M. Dipple  
 James P. Dixon  
 Roger W. Doak  
 James J. Dodson  
 Michael F. Doe  
 H. Dean Dougherty III  
 Nancy B. Douglas  
 Scott E. Douglass  
 Francis O. Dudas  
 Kathleen A. Duddy  
 Kim Duddy
- Saul B. Duga  
 Kimberly K. Dunn  
 Paul A. Dunn  
 Matthew R. Eaton  
 Todd L. Eaton  
 Tula Economou  
 Gerald B. Edwards, Jr.  
 Francis C. Egbo  
 David J. Ehresmann  
 Richard J. Eichhorn  
 Colleen G. Elliott  
 Paige A. Embry  
 James D. Emerson  
 Richard J. Erdlac, Jr.  
 Bradley G. Erskine  
 Julia L. Ervin  
 David C. Ertner  
 Carol A. Evans  
 Charles C. Evans  
 Charles E. Everding, Jr.  
 Bruce Eversmeyer  
 Billy E. Faggart, Jr.  
 David E. Fastovsky  
 Kim G. Feltham  
 Charles T. Ferber  
 Daniel E. Ferber  
 Jeff A. Ferguson  
 Alan C. Ferner  
 Elizabeth A. Finkel  
 George M. Fischer  
 Mark W. Fischer  
 Peter B. Flemings  
 Syndi J. Flippin  
 Linda Fluk  
 Daniel P. Ford  
 Michael E. Ford  
 Lance M. Forsythe  
 Debra L. Foster  
 Deborah D. Fouty  
 Suzanne C. Fouty  
 David L. Fowler



Todd R. Fowler  
Dean G. Francuch  
Daniel A. Freiberg  
Deborah Freile  
Larry D. Friend  
Robin S. Frisch  
Mark D. Fritzke  
Michelle E. Fults  
Mahmoud H. Gaber  
Julie E. Gales  
Lynn A. Gallagher  
Richard W. Galloway  
Michael H. Garbee  
Scott J. Gardiner  
Deborah H. Gardner  
Keith M. Garman  
Connie B. Garrett  
Jeffrey S. Gee  
Russ Gelberg  
Todd R. Gerber  
Clarissa H. Gereby  
Henry J. Gerke  
John J. Gibbons III  
Steven D. Giddings  
April V. Gil  
Lewis E. Gilbert  
Gregory H. Gill  
Robert K. Given  
Deborah R. Goldblum  
David S. Goldman  
William M. Goodman  
Jonathan A. Gorman  
Paul F. Gottler  
Elizabeth A. Gould  
C. Douglas R. Graham  
Mary Beth Gray  
Benjamin J. Greenstein  
Martha E. Grier  
Ane M. Griffith  
Kurt A. Grimm  
John E. Gronck III  
Michael J. Grubensky  
Steven G. Gurney  
Timothy J. Gustafson  
Malcolm C. Hackney  
R. Todd Hagemeyer  
Angela D. Haines  
Patricia K. Haire  
John Hall  
Pamela S. Hall  
Yvonne Halpern  
Caroline E. Hamann  
Jeffrey D. Hamilton  
Charles M. Handschin  
Ina V. Hanel  
Eileen M. Haney  
Maura Hanning  
Jeffrey J. Hansen  
Luci H. Hansen  
Wesley S. Hardegree  
Marc W. Harder  
Nancy S. Hardin  
Tom W. Hargett  
Robin M. Harrap  
Robert John Harrington  
Wayne R. Harris  
J. Chris Harrison  
Charles P. Hart  
Paul D. Hartl  
Bronnie A. Hartman  
Patricia M. Hartshorne  
Eric G. Hathon  
Linda L. Hayden  
John E. Hearn  
Eric P. Hedblom  
Kevin P. Hefferan  
Carl J. Heintz

Mark K. Helton  
Elizabeth D. Henderson  
James W. Hendley II  
John T. Hennessy  
Peter H. Hennings  
Eric E. Hiatt  
Stephen H. Hickman  
Gregg E. Hileman  
Thomas E. Hilinski  
Richard M. Hill  
Robin E. Hill  
Nancy Hinchman  
Robert A. Hines  
Chester A. Hitchens  
Matthew R. Hoagland  
Thomas E. Hoak  
Susan L. Hoff  
Peter M. Hofmann  
John C. Holcombe  
Mary E. Holden  
Jeannette M. H. Holly  
Daniel W. Honzik  
Donald M. Hooper  
Tracy L. Hope  
John T. Hopeck  
Franklin G. Horowitz  
Louise D. Hose  
Jeffrey W. Houser  
Susan D. Howes  
Michael R. Hudson  
Mary F. Hume  
Robert B. Hutchinson  
Amy Hutsinpillar  
Carolyn J. Hutton  
James T. Hutton  
James E. Iliffe  
Edythe A. Irwin  
Jay L. Jackson  
Mindi F. Jacobs  
Keith J. Jagiello  
Barbara J. Jairazbhoy  
Jean A. Jenkins  
Wesley T. Jennings  
Mark W. Jessell  
Pliny Jewell IV  
Yan W. Jiang  
Diane M. Johansen  
Andrea M. Johnson  
Calvin R. Johnson, Jr.  
Christopher A. Johnson  
Robert E. Johnson  
Stephen M. Johnson  
John B. Johnston  
Stephen T. Johnston  
Susan M. Johnston  
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Nancy P. Smathers  
William H. Smejkal  
Mark G. Smelser  
Clifford A. Smith  
J. Bailey Smith

(continued on p. 114)

### New Student Associates (continued from p. 113)

Monte P. Smith  
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Tamara C. Smith  
Michael F. Snodgrass  
Stephen W. Snyder  
C. Scott Southworth  
David M. Spatz  
Terry L. Spell  
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## Penrose Conference on Cross Sections Scheduled for May 1987

A Geological Society of America Penrose Conference, The Construction of Geological Cross Sections; Techniques, Assumptions, and Methods, will be held May 3-8, 1987. The location is Williams Lake Resort, Rosendale, New York.

This conference is intended as a seminal vehicle for the recognition and formalization of the emerging field of cross-section construction and balancing. By bringing together structural geologists, sedimentologists, and geophysicists who have different backgrounds, perspectives, and needs and by involving participants from academia, industry, and government, the conference will address existing problems, define and evaluate the newest ideas and techniques, and identify areas for future research.

Suggested topics for discussion include, but are not limited to, construction methodologies, restoration and balancing techniques, applications of finite strain analysis to the construction of cross sections, three-dimensional section construction, forward modeling, computerized methods to aid in section construction and balancing, the geometry and mechanisms of faulting in thrust, extensional, and strike-slip terranes, application of balancing and construction techniques in various geologic provinces, crustal-scale models, and techniques for the incorporation of well, geophysical, and surface data.

### Workshop in Egypt Features Field Trip, Discussions

An international workshop without publications, sponsored by Centre National de la Recherche Scientifique (France), will be held in Hurghada, Egypt, October 19-26, 1986. The workshop, Gulf of Suez and Red Sea Rifting: Tectonic and Sedimentary Processes, will emphasize the pre-sea-floor-spreading evolution. Main topics will be thermal-mechanical structure of rift and numerical models, transition from rift to ocean, role of transform faulting and plate kinematics, and early phases and evolution of sedimentation during rifting.

There will be three days of field trip and four days of discussion. The fee will be about US \$500. People interested should send a one-page summary of the topics they are prepared to discuss by June 15, 1986, to either X. Le Pichon, Ecole Normale Supérieure, Dépt. de Géologie, 24 rue Lhomond, 75231 Paris Cedex 05, France; P. F. Burolet, Total-CFP, La Defense, 92069 Paris Cedex 47, France; or M. Steckler, Lamont-Doherty Geological Observatory, Palisades, NY 10964.

Potential attendees should provide the conveners with information on which topic or topics they would like to address and whether they feel their material is best suited for a poster or oral presentation. Deadline for applications is **January 15, 1987**.

It is anticipated that limited support will be available to a few qualified graduate students. The registration fee is expected to be about \$500, including lodging, meals, and local transportation.

Individuals interested in attending the conference should contact either of the conveners:

Pete Geiser, Department of Geology and Geophysics, University of Connecticut, Storrs, CT 06268; (203) 486-4432 or 4433

Steve Boyer, Standard Oil Production Company, Technology Center, 5400 LBJ Freeway, Suite 1200, Dallas, TX 75240; (214) 386-8000

## Conference on 1985 Mexico Earthquakes Slated for September

On September 19-20, 1985, Mexico was hit by the strongest series of earthquakes in its recorded history. The largest of these earthquakes reached an intensity of 9 on the Modified Mercalli Scale. In Mexico City, 417 buildings collapsed (partially or totally) and more than 10,000 people died; most of the damage was in the central sector of the city. A conference "The 1985 Mexico Earthquakes—Factors Involved and Lessons Learned" will bring together experts on seismic effects from the disciplines of structural engineering, geotechnical engineering, lifeline earthquake engineering, and engineering mechanics. The conference, sponsored by the American Society of Civil Engineers, will be in Mexico City, September 19-21, 1986. GSA is a co-sponsor.

Some of the subjects to be covered include historical seismology; damage patterns and characteristics; the immediate engineering and emergency response (local and international); performance of structures; soil and structure interaction; analysis, repair, retrofit, and rehabilitation of structures; dynamic soil response; foundation failures; and the effects on lifelines. There will also be a tour of Mexico City damage sites as well as an optional post-conference field trip to the epicentral area.

For further information, contact Elizabeth Yee, ASCE, 345 East 47th St., New York, NY 10017; (212) 705-7496.

1987 GSA Annual Meeting  
Field Trips

**Southern Cordillera: Insights and Problems**

The geologic wonderland of the Southern Cordillera includes the southern Rocky Mountains, the Colorado Plateau, much of the Basin and Range province, the Cordilleras of Mexico, and the Rio Grande rift. Recent research efforts have gained fresh insights and raised new questions about crustal origins and structure, ore provinces, regional facies, magmatism and volcanism, intracontinental deformation, plateau uplift, extensional nonmarine basins, and landscape evolution within this fascinating region. The Phoenix meeting of the Geological Society of America provides an ideal forum to air these and related topics from all standpoints of our science. Symposia and field trip contributions directed toward this theme are especially encouraged.

For symposia: Clement G. Chase, Department of Geosciences, University of Arizona, Tucson, AZ 85721, (602) 621-2417; or J. Dale Nations, Department of Geology, Northern Arizona University, Flagstaff, AZ 86011, (602) 523-2931. January 1, 1987 is the deadline for proposals.

For field trips: George H. Davis, Administrative Building, University of Arizona, Tucson, AZ 85721, (602) 621-3592. September 1, 1986 is the deadline for proposals.

**Memorials Volume XVI Published**

GSA Memorials Volume XVI, containing the following memorials, is now available. Price: \$12.

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**Cordilleran Section Guidebooks Available**

A limited number of guidebooks are available from the March 25-28, 1986, 82nd annual meeting of the GSA Cordilleran Section at Los Angeles:

Volume 1—*Landslides and Landslide Mitigation in Southern California*, 201 p., \$15.

Volume 2—*Neotectonics and Faulting in Southern California*, 208 p., \$15.

Volume 3—*Hydrogeology of Southern California*, 148 p., \$13.

Volume 4—*Cenozoic Stratigraphy, Structure and Mineralization in the Mojave Desert*, 144 p., \$13.

Volume 5—*Mesozoic and Cenozoic Structural Evolution of Selected Areas, East-Central California*, 94 p., \$10.

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# MEETINGS

1986

**Third International Conference on Geoscience Information**, June 1-5, 1986, Adelaide, Australia. Information: Secretary, Organising Committee 3ICGI, Australian Mineral Foundation, PB97, Glenside, South Australia 5065, Australia.

**American Quaternary Association 9th Biennial Meeting**, Environments at Glacier Margins—Past and Present, June 2-4, 1986, Champaign, Illinois. Information: Wayne M. Wendland, AMQUA Local Arrangements Committee, Illinois State Water Survey, 2204 Griffith Dr., Champaign, IL 61820; (217) 333-0729.

**Geology of the Bahamas, Third Symposium**, June 6-10, 1986, San Salvador, Bahamas. Information: H. Allen Curran, Dept. of Geology, Smith College, Northampton, MA 01063; (413) 584-2700, ext. 3943.

**27th U.S. Symposium on Rock Mechanics**, June 23-25, 1986, University, Alabama. Information: Howard L. Hartman, Dept. of Mineral Engineering, University of Alabama, P.O. Box 1468, University, AL 35486; (205) 348-6578.

**6th International Conference on Geochronology, Cosmochronology and Isotope Geology**, June 30-July 4, 1986, Cambridge, England. Information: Organising Committee, Sixth International Conference, Dept. of Earth Sciences, University of Cambridge, Downing St., Cambridge CB2 3EQ, England.

**Geocongress '86**, July 7-11, 1986, Johannesburg, South Africa. Information: Symposium Secretariat, S. 339, CSIR, P.O. Box 395, Pretoria, Republic of South Africa 0001.

**International Field Conference on Proterozoic Geochemistry**, July 13-19, 1986, central Colorado. Information: K. C. Condie, Dept. of Geoscience, New Mexico Institute of Mining and Technology, Socorro, NM 87801.

**International Mineralogical Association 14th General Meeting**, July 13-18, 1986, Stanford, California. Information: IMA 1986, Dept. of Geology, Stanford University, Stanford, CA 94305; (415) 723-8103; Telex 348404STANSRD STNU.

**Science in the National Parks 1986 Conference**, July 13-18, 1986, Fort Collins, Colorado. Information: Raymond Herrmann or Calvin R. Cummings, 339 Aylesworth Hall, Colorado State University, Fort Collins, CO 80523; (303) 491-7573.

**Deep Seismic Reflection Profiling of the Continental Lithosphere**, July 15-17, 1986, Cambridge, England. Information: Bullard Laboratories, Madingley Rise, Madingley Rd., Cambridge CB3 0EZ, England.

**Mars: The Evolution of Its Climate and Atmosphere**, July 18-19, 1986, Washington, D.C. Information: Pamela Jones, Lunar and Planetary Institute, 3303 NASA Road 1, Houston, TX 77058; (713) 486-2150.

**International Symposium on Natural and Man-made Hazards**, August 3-9, 1986, Rimouski, Quebec, Canada. Information: Mohammed El-Sabh, Dept. d'océanographie, Université du Québec à Rimouski, 310, avenue des Ursulines, Rimouski, Québec G5L 3A1, Canada; (418) 724-1755; Telex 051-31623.

**Symposium on Intermontane Basins: Sedimentology, Tectonics, and Mineral Resources**, August 4-7, 1986, Chiang Mai, Thailand. Information: S. D. Nio, Comparative Sedimentology Div., State University of Utrecht, P.O. Box 80.021, 3508 TA Utrecht, Netherlands.

**Third International Humic Substances Society Meeting**, August 4-8, 1986, Oslo, Norway. Information: Egil Gjessing, Norwegian Institute for Water Research, P.O. Box 333, Blindern, Oslo 3, Norway, or Wesley L. Campbell, IHSS Standards & Reference Committee, 5293 Ward Rd., Arvada, CO 80002; (303) 236-3615.

**Fifth International Symposium on Water-Rock Interaction**, August 8-17, 1986, Reykjavik, Iceland. Information: Halldor Armannsson, Orkustofnun — National Energy Authority, Grensasvegur 9, 108 Reykjavik, Iceland.

**Energy Resources in Asia**, August 11-14, 1986, Hong Kong. Information: Asian Research Service, G.P.O. Box 2232, Hong Kong.

**Fourth International Kimberlite Conference**, August 11-15, 1986, Perth, Western Australia. Information: J. D. Lewis, Geological Survey of Western Australia, Mineral House, 66 Adelaide Terrace, Perth, Western Australia.

**North American Paleontological Convention IV**, August 11-15, 1986, Boulder, Colorado. Information: NAPC IV, Box 315, University of Colorado, Boulder, CO 80309-0315; (303) 492-8069.

**Basins of Eastern Canada and Worldwide Analogues**, August 13-15, 1986, Halifax, Nova Scotia. Information: Secretary, Dept. of Oceanography, Dalhousie University, Halifax, Nova Scotia, Canada B3H 4J1.

**Friends of the Pleistocene, Midwest Cell**, August 15-17, 1986, Lawrence, Kansas. Information: W. C. Johnson, Dept. Geography, University of Kansas, Lawrence, KS 66045; (913) 864-5143.

**Circum-Pacific Energy and Mineral Resources Conference**, August 17-22, 1986, Singapore. Information: Allen G. Hatley, c/o Gaffney, Cline & Assoc., P.O. Box 76309, Dallas, TX 75379.

**International Association on the Genesis of Ore Deposits Seventh Symposium**, August 18-22, 1986, Lulea, Sweden. Information: Inger Wallin, Centek Conference, S-951 87 Lulea, Sweden.

**37th Annual Highway Geology Symposium**, August 20-22, 1986, Helena, Montana. Information: Joseph E. Armstrong, Montana Dept. of Highways, 2701 Prospect Ave., Helena, MT 59620; (406) 444-6280.

**Third U.S. National Conference on Earthquake Engineering**, August 24-28, 1986, Charleston, South Carolina. Information: James E. Beavers, Martin Marietta Energy Systems, Inc., Bldg. 9733-4, M/S 2, P.O. Box Y, Oak Ridge, TN 37831.

**International Symposium on Large Rock Caverns**, August 25-28, 1986, Helsinki, Finland. Information: International Symposium on Large Rock Caverns, Technical Research Center of Finland, Lehtisaarentie 2, SF-00340 Helsinki, Finland; telephone 358-0-4566172; Telex 122972 vttha sf.

**International Symposium on Remote Sensing for Resources Development and Environmental Management**, August 25-29, 1986, Enschede, Netherlands. Information: Secretariat Symposium Commission VII, ISPRS, c/o ITC, P.O. Box 6, 7500 AA Enschede, Netherlands; Telex 44525.

**Iberian Terranes and Their Regional Correlation**, September 1-6, 1986, Oviedo, Spain. Information: E. Martinez-Garcia, Dept. de Geotectónica, Facultad de Geología, Universidad de Oviedo, 33005 Oviedo, Spain.

## MEETINGS

**International Conference on Landscapes of the Southern Hemisphere**, September 2-7, 1986, Adelaide, South Australia. Information: Jon Firman, C/-S.A. Dept. of Mines and Energy, P.O. Box 151, Eastwood, S.A. 5063, Australia.

**Second International Conference on Paleooceanography**, September 7-12, 1986, Woods Hole, Massachusetts. Information: W. A. Berggren, Dept. of Geology & Geophysics, Woods Hole Oceanographic Institution, Woods Hole, MA 02543.

**1986 International Gas Research Conference**, September 8-11, 1986, Toronto, Ontario. Information: 1986 International Gas Research Conference, c/o Gas Research Institute, 8600 West Bryn Mawr Ave., Chicago, IL 60631; (312) 399-8300, Telex 253812 or 503802.

**International Association of Hydrogeologists Congress**, September 8-15, 1986, Karlovy Vary, Czechoslovakia. Information: A. Zaporozec, AIH, 3817 Mineral Point Rd., Madison, WI 53705.

**The 1985 Mexico Earthquakes—Factors Involved and Lessons Learned**, September 19-21, 1986, Mexico City, Mexico. Information: Elizabeth Yee, American Society of Civil Engineers, 345 East 47th St., New York, NY 10017; (212) 705-7496.

**Society for Organic Petrology Third Annual Meeting**, September 22-24, 1986, Lexington, Kentucky. Information: Nancy Hopper, OISTL, University of Kentucky, Lexington, KY 40506; (606) 257-2837.

**Oceans '86 Conference and Exposition**, September 23-25, 1986, Washington, D.C. Information: Oceans '86, Suite 500, 2000 Florida Ave., N.W., Washington, DC 20009; (301) 279-4700.

**National Association of Geology Teachers East-Central Section Annual Meeting**, September 26-28, 1986, Muncie, Indiana. Information: Harlan H. Roepke, Dept. of Geology, Ball State University, Muncie, IN 47306; (317) 285-8266.

**Society of Economic Paleontologists and Mineralogists Third Annual Midyear Meeting**, September 26-28, 1986, Raleigh, North Carolina. Information: Chuck Nittrouer, Dept. of Marine, Earth and Atmospheric Sciences, North Carolina State University, Raleigh, NC 27695.

**17th Annual Binghamton Geomorphology Symposium on Aeolian Geomorphology**, September 27-28, 1986, Guelph, Ontario. Information: William G. Nickling, Dept. of Geography, University of Guelph, Guelph, Ontario, Canada N1G 2W1; (519) 824-4120.

**Geothermal Resources Council Annual Meeting**, September 29-October 1, 1986, Palm Springs, California. Information: Geothermal Resources Council, P.O. Box 1350, Davis, CA 95617; (916) 758-2360.

**American Association of Petroleum Geologists Eastern Section**, October 2-4, 1986, Ann Arbor, Michigan. Information: Paul A. Catacosinos, Dept. of Geology, Delta College, University Center, MI 48710; (517) 686-9252.

**Association of Engineering Geologists 29th Annual Meeting**, October 5-9, 1986, San Francisco, California. Information: Alan D. Tryhorn, 1986 AEG Annual Meeting, GeoResource Consultants, Inc., 851 Harrison St., San Francisco, CA 94107; (415) 777-3177.

**Kansas Geological Society 38th Annual Field Conference**, October 17-18, 1986. Information: D. F. Merriam, Dept. of Geology, Wichita State University, Wichita, KS 67208; (316) 689-3140.

**American Association of Stratigraphic Palynologists Annual Meeting** (with Congrès Internationale du Microflore Paléozoïque), October 29-31, 1986, New York, New York. Information: Dan Habib, Graduate School of City University of New York, 33 West 42nd St., New York, New York 10036; (212) 790-4218.

**Society of Economic Paleontologists and Mineralogists Mid-Continent Section Annual Field Conference**, October 30-November 1, 1986, Ponca City, Oklahoma. Information: William A. Morgan, Conoco, Inc., 1000 S. Pine, Ponca City, OK 74603; (405) 767-2853.

**International Conference on Coastal Engineering**, November 9-14, 1986, Taipei, Taiwan. Information: Billy L. Edge, Cubit Engineering Limited, 207 East Bay St., Suite 311, Charleston, SC 29401.

**Geological Society of America Annual Meeting**, November 10-13, 1986, San Antonio, Texas. Information: Meetings Dept., GSA, P.O. Box 9140, Boulder, CO 80301; (303) 447-2020.

(continued on p. 118)

# APPALACHIAN ULTRADEEP CORE HOLE (ADCOH) PROJECT:

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INTERESTED PERSONS  
SHOULD WRITE:

Prof. Robert D. Hatcher, Jr.  
Department of Geology  
University of South Carolina  
Columbia, S.C. 29208

APPLICATION DEADLINE:

JUNE 20, 1986

**Meetings** (continued from p. 117)

**GSA 1986**

**Program Review Committee**, July 17, Boulder, Colorado  
**Joint Technical Program Committee**, July 18, Boulder  
**Annual Meeting**, November 10-13, 1986, San Antonio, Texas

**Penrose Conferences**

**Miocene Reconstruction of Southern California**, May 30-June 4, 1986, Oxnard, California. Information: Peter W. Weigand, Dept. of Geological Sciences, California State University, Northridge, CA 91330; (818) 885-3541.

**Migmatites and Crustal Melting**, June 8-13, 1986, Amherst, Massachusetts. Information: Robert J. Tracy, Dept. of Geology and Geophysics, Yale University, New Haven, CT 06511; (203) 436-3539.

**Mechanisms of Reservoir Diagenesis and Their Geological Constraints**, June 8-13, 1986, Cannes, France. Information: G. Michel Lafon, EXXON Production Research Company, P.O. Box 2189, Houston, TX 77252-2189; (713) 965-4688.

**Synsedimentary Tectonics**, September 7-12, 1986, Durango, Colorado. Information: William A. Thomas, Dept. of Geology, University of Alabama, University, AL 35486; (205) 348-1880.

**Laramide Beneath the Prairies**, October 13-17, 1986, Rapid City, South Dakota. Information: Alvis L. Lisenbee, Dept. of Geological Engineering, South Dakota School of Mines, Rapid City, SD 57701; (605) 394-2463 or 2461.

**Archaeological Geology: Environmental Siting and Material Usage**, December 7-12, 1986, Saint Simons Island, Georgia. Information: Charles J. Vitaliano, Dept. Geology, Indiana University, 1005 East Tenth Street, Bloomington, IN 47405; (812) 335-1407.

**1987**

**Palaeoenvironment of East Asia—2nd International Conference**, January 9-14, 1987, Hong Kong. Information: E.K.Y. Chen, Centre of Asian Studies, University of Hong Kong, Hong Kong. (Abstracts due July 31, 1986.)

**Hawaii Symposium on How Volcanoes Work**, January 19-23, 1987, Hilo, Hawaii. Information: Robert Decker, U.S. Geological Survey, MS 910, 345 Middlefield Rd., Menlo Park, CA 94025.

**International Symposium on Granites and Associated Mineralizations**, January 21-31, 1987, Salvador, Brazil. Information: Augusto J. Pedreira, ISGAM, SME-CPM, Rua Ceara, 3-Pituba, 40.000, Salvador, Bahia, Brazil.

**Canadian Reef Research Symposium**, January 27-30, 1987, Banff, Alberta, Canada. Information: Canadian Reef Research Symposium, University of Calgary, Conference Office, 2500 University Dr. N.W., Calgary, Alberta T2N 1N4, Canada.

**Sinkholes and the Environmental Impacts of Karst—2nd Multidisciplinary Conference**, February 9-11, 1987, Orlando, Florida. Information: Barry F. Beck, College of Engineering, University of Central Florida, Orlando, FL 32816. (Abstracts due August 15, 1986.)

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

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

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

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

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

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

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

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

**Society of Economic Paleontologists and Mineralogists Fourth Annual Midyear Meeting**, September 11-14, 1987, Austin, Texas. Information: SEPM, P.O. Box 4756, Tulsa, OK 74159; (918) 743-9765.

**18th Annual Geomorphology Symposium on Catastrophic Flooding**, September 25-27, 1987, Oxford, Ohio. Information: Larry Mayer, Dept. of Geology, Miami University, Oxford, OH 45056; (513) 529-3218.

**GSA 1987**

**Penrose Conferences**

**Exposed Cross Sections of the Continental Crust**, May 1987, southeastern Ontario. Information: David M. Fountain, Dept. of Geology and Geophysics, University of Wyoming, Laramie, WY 82071; (307) 766-6299.

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

**Annual Meeting, October 26-29, Phoenix, Arizona**

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**In Memoriam**

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Charles H. Behre, Jr.  
Norwalk, Connecticut  
February 18, 1986

Robert S. Moehlman  
Houston, Texas  
February 8, 1986

Wendell I. Marine  
Aiken, South Carolina  
February 8, 1986

Laurence L. Smith  
Columbia, South Carolina  
November 26, 1985

Albert E. Weissenborn  
Spokane, Washington

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The mission of the Coal Research Section is to conduct interdisciplinary research in collaboration with faculty members in the six departments of the college, (Geosciences, Geography, Mineral Economics, Meteorology, Materials Science and Engineering, and Mineral Engineering) involved with coal research activities. The successful candidate will be expected to stimulate new coal research, assemble interdisciplinary research faculty teams to respond to requests for sponsored research proposals and obtain, administer and service coal research grants sponsored by agencies of the Commonwealth of Pennsylvania, federal government and industry.

Applications and nominations accompanied by resume and supporting materials should be sent to: Dr. Peter T. Luckie, Chairman, Coal Research Section Director Search Committee, 109 Steidle Bldg., University Park, PA 16802.

The Search Committee will begin to review resumes on May 15, 1986, and will continue to receive them until a candidate is selected. An Equal Opportunity/Affirmative Action Employer.

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