

# The Lattice

Vol. 2, No. 2., May 1986

## Excellent Program Shaping Up for IMA 86 Meeting; Plan to Attend

The 14th General Meeting of the International Mineralogical Association (IMA) will be held July 13-18 at Stanford University, Stanford, California. All earth scientists are invited to attend. IMA meetings, held every four years, bring together scientists from around the world for a truly international discussion of the latest findings in mineralogical, petrological, and crystallographic research.

### Scientific Program

As of the April 15 abstract deadline more than 500 abstracts had been received from over 30 countries. These abstracts, both contributed and invited, will comprise the 20-plus oral and poster symposia. In addition, five plenary lectures focusing on the general meeting themes are planned. Plenary lecturers include:

- "Progress in Experimental Petrology of Granitic Rocks" Peter J. Wyllie, California Institute of Technology
- "Collection and Analysis of Cosmic Dust" Donald Brownlee, University of Washington
- "Application of Order Parameter Theory to the Thermodynamic Properties of Phase Transitions" Ekhard Salje, University of Cambridge
- "The Elasticity of Mantle Minerals" Ian Jackson, Australian National University
- "The Dangers of 'Asbestos' in Our Environment: Separating Fact from Fiction" Malcolm Ross, U.S. Geological Survey.

Two special workshops are planned in addition to the symposia. The Powder Diffraction Workshop will be held Saturday, July 12, prior to the meeting. It is open to meeting registrants at no additional charge. The workshop will illustrate some of the specialized uses of x-ray powder diffraction and the Powder Diffraction File in studies of minerals. Some familiarity with

identification methods such as the Hanawalt and/or Fink techniques will be assumed.

The Microcomputer Workshop will be held during the meeting. It will provide a forum for people who have written microcomputer programs related to mineralogy, crystallography, and petrology. Participants will be able to exchange ideas and software (copyright laws permitting). The meeting program will contain additional details on the time and location of the workshop.

Meeting registrants will be able to take advantage of the beautiful California weather while participating in poster sessions each afternoon. All contributed abstracts will be presented in afternoon poster sessions, providing an opportunity for informal discussion. The posters will cover all topics of mineralogical, crystallographic, petrological, or geochemical interest.

There will be an exhibition of equipment, books and mineral specimens during the meeting. A program will also be available for accompanying persons. More information on this program can be obtained by writing or calling the IMA Business Office at the address below.

### Registration

Pre-registration, with reduced registration fees, ended May 1, 1986. It is still possible, however, to register and attend the meeting. Complete the form below and mail it with your registration fees or bring it to the meeting. Meeting registration will be held at the Stern Hall Complex on Sunday, July 13, and at the Tresidder Student Union Monday through Friday morning, July 14-18. Individuals who register prior to June 15 will receive the 3rd Circular with detailed instructions on the shuttle bus between San Francisco International Airport (Sunday, July 13, and Friday and Saturday, July 18 and 19) and the campus, as well as other information

including telephone numbers and housing information.

The official meeting publication will be the *Abstracts with Program Volume*, which will be provided in registration packets picked up at the time participants register. Included in these packets will be a detailed program, campus maps and other pertinent information.

Registration fees are as follows:

Participant	\$190
Accompanying Person	100
Student	65

### Housing

Reservations for on-campus housing were due by May 1. A limited number of rooms may still be available, however no guarantees can be made. Rooms will be assigned on a first-come, first-served basis to individuals who have not already reserved on-campus housing at the time of check-in on Sunday, July 13. Individuals will be expected to pay for the room at the time of check-in (single occupancy—\$225.50; double occupancy—\$196.75) with a personal check, money order or cash. Credit cards will not be accepted. This cost includes a \$10 key deposit that will be refunded at check-out time when the key is returned.

Those who do not have advance on-campus housing reservations are encouraged to make other housing arrangements. A block of rooms at the Holiday Inn on El Camino Real [(415) 328-2800] have been reserved. The rates for meeting participants are: \$82 single per night plus 10% city tax; and \$92 double per night plus 10% city tax. Participants are responsible for making their own reservations and for the payment of same. Rates are tentative and subject to change. When making your reservations remember to state that you are attending the IMA 86 meeting so that you receive these special room rates.

*Continued on page 6.*



## From the President

### Changes Made Smoothly in All Areas

Dear Members,

To the utter amazement and delight of all, the multi-faceted transition of the management of MSA business affairs from the American Geophysical Union to our own independent office and the changing of the guard in the editor's office and the shift to a new printer for *The American Mineralogist* have come about smoothly (from the outside at least) and efficiently.

The new Business Office under Barbara Minich's steady guidance is functioning quite well as those of you who have had business to conduct can attest, and things should get even better as procedures and facilities become more familiar.

Outgoing editor and managing editor, Michael Holdaway and Linda Dungan, along with the new editor and managing editor, James L. Munoz and Mary C. Eberle, and the new printer, Allen Press Inc., have effectively worked together to meet printing schedules for the first two issues of *The American Mineralogist*. The quality of photographic reproduction, long a problem for certain types of papers, has improved substantially. The second number of *The American Mineralogist* is an especially noteworthy item; it is an unusually large volume and is dedicated to the memory of Dick Jahns.

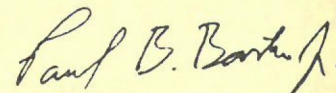
On February 7 Barbara Minich and I represented MSA at a "summit conference" of delegates of 28 earth science societies. It was held at the National Academy of Sciences in Washington and was sponsored by the Board of Earth Sciences of the National Research Council. The meeting was held to acquaint the societies with the Board of Earth Sciences and to open channels for grassroots input into the activities of the Board. Several recent

advances and innovations in the earth sciences were outlined briefly. A report of the committee is in preparation and a summary will appear in *Geotimes*.

The annual renewing of the MSA committee memberships has been completed for 1986. Because it takes so long for new committee members to be selected, contacted, and put on stream, a significant part of each year is lost. To remedy this situation the Council is experimenting with moving ahead the making of committee appointments to the May Council meeting. This year we shall

operate under a dual system wherein we can be receptive to nominations and offers to volunteer from the membership during the summer—adding to preliminary committee appointments as warranted. We hope that by next year we can have input from the membership during the winter. Be assured that we do appreciate and usually are able to make use of that input—so keep it coming.

Thanks.



Paul B. Barton, Jr.  
President

### It's That Time Again!

It seems a long time away, but the 1986 MSA/Geological Society of America (GSA) Annual Meeting in San Antonio, November 10-13, will be here before you know it! Now is the time to mark your calendar with the actual meeting dates as well as the abstract deadline of June 13. Abstracts should be sent directly to GSA.

The pre-meeting announcement from GSA is on pages 3, 4 and 5 of this newsletter. Please read this notice. The complete MSA/GSA pre-registration packet will be mailed with the August issue of *The Lattice*. A wrap-up of special MSA activities will also appear in that issue of the newsletter.

Special airfares will again be available to MSA participants through Business Travel Associates. Discounts, perhaps as much as five percent (5%) off all fares, including ultrasavers, are being negotiated for meeting participants. You are advised to make your reservations early by calling Bud or Paula at 1-800-443-4502 or (202) 659-

8314. All restrictions apply including advance purchase requirements and cancellation penalties. Be sure to mention that you are attending the MSA meeting in San Antonio.

MSA will host its Annual Awards Luncheon on Tuesday, November 11, at which the Society's two awards will be presented: the 1986 Roebling Medal to Edwin Roedder and the 1986 MSA to Antonio Lasaga. The 1986 MSA symposium is tentatively scheduled for Monday afternoon, November 10. The title of the symposium is "Crystal-Liquid Reactions in Granites and Migmatites." In addition, MSA will host a short course immediately prior to the MSA/GSA meeting in San Antonio titled "Stable Isotopes in High Temperature Geological Processes." The short course will be held Friday through Sunday, November 7-9. (See elsewhere in this issue for more information.) All earth scientists are welcome to participate.

Once again MSA representatives will be reviewing abstracts for several of the meeting symposia related to the fields of mineralogy, petrology and crystallography by participating on the Joint Technical Program Committee (JTPC). Three MSA members sit on the JTPC: Richard N. Abbott, Appalachian State University, MSA representative; Roger G. Burns, MIT, conferee; and Jo Laird, University of New Hampshire, reader. These individuals and others that they select are responsible for rating abstracts to determine which papers will be scheduled into oral and poster sessions at the meeting. This cooperative effort between GSA, MSA, and other participating societies helps put together high-quality sessions to the benefit of all meeting participants.

1986 President: Paul B. Barton, Jr., U.S. Geological Survey  
Past-President: Hans P. Eugster, Johns Hopkins University  
Vice-President: Paul H. Ribbe, Virginia Polytechnic and State University  
Secretary: Henry O. A. Meyer, Purdue University  
Treasurer: Gordon L. Nord, Jr., U.S. Geological Survey  
Executive Secretary: Barbara B. Minich

Published at the MSA Business Office, 1625 I Street N.W., Suite 414, Washington, D.C. 20006; (202) 775-4344.

**The Lattice** is published quarterly (February, May, August, November) by the Mineralogical Society of America. The newsletter is distributed to MSA members as a member service. Article and letters from readers are welcome.



# 99th ANNUAL MEETING AND EXPOSITION

## PRELIMINARY ANNOUNCEMENT AND CALL FOR PAPERS

Technical sessions consist of both volunteered and invited papers. Invited papers were preorganized into symposia. Papers submitted on a volunteered basis will be reviewed and then selected by the Joint Technical Program Committee in July. Chairmen are John C. Maxwell, University of Texas at Austin, and Eric R. Swanson, University of Texas at San Antonio.

## VOLUNTEERED PAPERS

Abstracts for the technical sessions (both oral and poster presentations) must be submitted on 1986 abstract forms, available from GSA headquarters, Miriam Hansen, and from the geology departments of most colleges and universities. The abstract form will be used as camera-ready copy for publication of *Abstracts with Programs*. Senior authors will be charged a \$15 fee if retyping is necessary, and there will be no opportunity for authors to review or revise typed abstracts after they are submitted. Note: No more than one abstract from any person as sole or senior author will be accepted for publication, and due to scheduling difficulties, no author may present more than one volunteered paper. These restrictions do not apply to symposia.

## DEADLINE FOR RECEIPT OF VOLUNTEERED ABSTRACTS AT GSA: FRIDAY, JUNE 13, 1986

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

## INVITED SYMPOSIA

Conveners for the listed symposia have already chosen their speakers, who submit invited abstracts directly to the convener. If you are interested in more information on a given symposium, please contact the convener directly. Call GSA for contact information. The schedule of symposia and other programming will appear in the Final Announcement in August.

- 1. Surveying and Prospecting for Archaeological Sites.** Archaeological Geology Division; John Gifford, Miami University.
- 2. New Techniques for Coal Characterization.** Coal Geology Division; Jesse Yeakel, Exxon Production Research Company.
- 3. Engineering Geology and Public Policy.** Engineering Geology Division and GSA Committee on Geology and Public Policy; Christopher Matthewson, Texas A&M, and John S. Scott, Geological Survey of Canada.
- 4. Tectonics and Geophysics of the Western Himalayas.** Geophysics Division and Structural Geology and Tectonics Division; Lawrence Malinconico, Southern Illinois University, and Robert Lillie, Oregon State University.
- 5. Nineteenth-Century Exploration in the Rio Grande Embayment.** History of Geology Division; Thomas Dutro, Jr., U.S. National Museum.
- 6. Hydrology of Sedimentary Basins.** Hydrogeology Division; Charles Kreitler, Texas Bureau of Economic Geology.
- 7. Mars, Ten Years After Viking.** Planetary Geology Division; Arden Albee, California Institute of Technology.
- 8. Quaternary Evolution of the Mississippi Valley.** Quaternary Geology and Geomorphology Division; James Knox, University of Wisconsin.
- 9. Tide- versus Storm-Dominated Shelves: Their Modern and Ancient Oceanographic Settings and Deposits.** Sedimentary Geology Division; Rudy Slingerland, Pennsylvania State University.
- 10. Microbial Contributions and Transformations in the Sedimentary Record.** Geochemical Society; Robert Gagosian, Woods Hole Oceanographic Institution.
- 11. The User and Geoscience Information.** Geoscience Information Society; Robert Bier, Lakewood, Colorado.
- 12. Crystal-Liquid Reactions in Granites and Migmatites.** Mineralogical Society of America; Richard Abbott, Appalachian State University.
- 13. Recent Advances in Hydrology: Implications for Instruction.** National Association of Geology Teachers; Bernard Pipkin, University of Southern California.
- 14. Ontogeny and Heterochrony in the Fossil Record.** Paleontological Society; Michael McKinney, University of Tennessee.
- 15. Precious Metal Mineralization in Carbonate and Skarn Environments.** Society of Economic Geologists; Joaquin Ruiz, University of Arizona.
- 16. Timing and Depositional History of Eustatic Sequences: Constraints on Seismic Stratigraphy.** Cushman Foundation; Charles Ross, Chevron USA.
- 17. Scientific Advances in Geology and Hydrology from Studies of Contaminant Plumes.** Keros Cartwright, Illinois State Geological Survey.
- 18. High Pore-Fluid Pressures in Active Tectonic Areas.** John Bredehoeft, USGS, Menlo Park.
- 19. Terranes in the Circum-Atlantic Paleozoic Orogens.** David Dallmeyer, University of Georgia.
- 20. New Perspectives on the Old Rocks in Northeastern Mexico.** Thomas H. Anderson, University of Pittsburgh.
- 21. Global Events and Sequence Stratigraphy.** Ashton Embry, Geological Survey of Canada.
- 22. Late Cenozoic Evolution of Stream Systems in the Western United States.** Peter C. Patton, Wesleyan University.
- 23. Paleozoic Southern Margin of the United States.** M. Charles Gilbert, Texas A&M.
- 24. DNAG Final Reports: Continent-Ocean Transects—Atlantic, Arctic, Gulf.** DNAG; Robert C. Speed, Northwestern University.
- 25. Evolution of the Rio Grande Rift and Geochemistry of Related Magmatism.** Geochemical Society; E. Craig Simmons, Colorado School of Mines.
- 26. Mineralization in Restricted Basins.** Society of Economic Geologists; Gregory E. McKelvey, Cominco American, Inc.
- 27. Recent Concepts and Quantitative Methods Applied to Carbonate Aquifers.** Robert W. Maclay, USGS, San Antonio.
- 28. The Precambrian Framework of the Caribbean and Gulf of Mexico.** Allan K. Gibbs, Cornell University.



## 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.

Estimated costs are tentative and are for planning purposes. They cover lodging and transportation but for some trips do not include all meals. Registration will begin August 1, 1986. Forms will be available in the Final Announcement.

### Premeeting Trips

**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; and Walter Dalquest, Midwestern State University, Wichita Falls. Two days. Estimated cost: \$200. Limit: 45 participants.

**Archaeological Geology of Classic Paleo-Indian Sites on the Southern High Plains, Texas and New Mexico.** Vance T. Holliday, Texas A&M University, College Station; Eileen Johnson, The Museum, Texas Tech University, Lubbock; Vance Haynes, University of Arizona, Tucson; and Glen Evans, Austin. Two days. Estimated cost: \$200. Limit: 45 participants.

**Igneous Geology of Trans-Pecos Texas.** Jonathon G. Price and Christopher D. Henry, Bureau of Economic Geology,

University of Texas, Austin; Don F. Parker, Baylor University, Waco; and Daniel S. Barker, University of Texas, Austin. Three days. Estimated cost: \$300. Limit: 45 participants.

**Ouachita Mountain Geology—Structure, Stratigraphy, Depositional and Thermal History, Arkansas.** Charles G. Stone, Arkansas Geological Commission, Little Rock, and Boyd R. Haley, Little Rock. Two and one-half days. Estimated cost: \$200. Limit: 45 participants.

**Engineering Geology of San Antonio, Texas.** Jeffrey R. Walker and Edward G. Miller, Raba-Kistner Consultants, San Antonio. One day. Estimated cost: \$50. Limit: 25 participants.

**Stratigraphy and Structure of the Maverick Basin and Devil's River Trend, Lower Cretaceous, Southwest Texas.** C. I. Smith, University of Texas, Arlington; Peter R. Rose, Telegraph Exploration, Telegraph, Texas; R. E. Webster, Dallas; and C. H. Humphreys, Ensearch Exploration, Dallas. Three days. Estimated cost: \$240. Limit: 90 participants.

**Petrology of the Cambrian Wichita Mountains Igneous Suite.** M. C. Powell, Texas A&M University, College Station; B. N. Powell, Phillips Petroleum, Bartlesville; and D. London, University of Oklahoma, Norman. Three days. Estimated cost: \$250. Limit: 40 participants.

**Hydrology of the Edwards Aquifer, San Antonio Region, Texas.** Weldon W. Hammond, Jr., University of Texas, San Antonio; and Robert L. Bluntzer, Texas Water Commission, Austin. One day. Estimated cost: \$100. Limit: 45 participants.

**Paleoenvironments and Fossil Communities of the Late Pennsylvanian of North-Central Texas.** Thomas E. Yancey, Texas A&M University, College Station; and Steve Schutter, Exxon Production Research Company. One day. Estimated cost: \$190. Limit: 45 participants.

**Geology of Gulf Coast Lignites.** Bob Finkelman, Exxon Production Research Company, Houston; Walter Ayers, Bureau of Economic Geology, University of Texas, Austin; John Breyer, Texas Christian University, Ft. Worth; and John Johnston, Louisiana Geological Survey, Baton Rouge. Three days. Estimated cost: \$250. Limit: 45 participants.

### Postmeeting Trips

**Economic Geology of the Ouachita Mountains and Vicinity, Southwestern Arkansas.** Ben Clardy, Mike Howard, and Bill Prior, Arkansas Geological Commis-

sion, Little Rock; and Don Owens, UMETCO Minerals Corporation, Hot Springs, Arkansas. Two days. Estimated cost: \$200. Limit: 45 participants.

**Precambrian Granite Magmatism and Diapirism, Llano Uplift, Central Texas.** Volker W. Gobel, Stephen F. Austin State University, Nacogdoches, Texas; and Robert M. Hutchinson, Golden, Colorado. Two days. Estimated cost: \$180. Limit: 45 participants.

**Comparison of Cap Rocks, Natural Resources, and Surface Features Over Boling and Damon Mound Salt Domes.** Steven Seni, Bureau of Economic Geology, University of Texas, Austin, and Richard Kyle, Department of Geological Sciences, University of Texas, Austin. One day. Estimated cost: \$80. Limit: 45 participants.

**Geologic and Geomorphic History of the Edwards Limestone Aquifer and Surface Drainage System, South-Central Texas.** Patrick L. Abbott, San Diego State University, San Diego, and Charles M. Woodruff, Jr., Austin. One day. Estimated cost: \$50. Limit: 45 participants.

**South Texas Modern Depositional Systems.** John L. Russell and Jon A. Baskin, Texas A&I University, Kingsville. Three days. Estimated cost: \$240. Limit: 30 participants.

**Stratigraphy of the El Paso Borderland, Texas.** David V. LeMone, University of Texas, El Paso. Two days. Estimated cost: \$150. Limit: 45 participants.

**Upper Cretaceous Volcanic Centers of South and Central Texas.** Thomas E. Ewing, Frontera Exploration Services, San Antonio; S. Christopher Caran, Bureau of Economic Geology, University of Texas, Austin; and L. Joy Hudson, San Antonio. Two days. Estimated cost: \$150. Limit: 45 participants.

## SHORT COURSES

**Exploration Geochemistry: Design and Interpretation of Soil Surveys.** Sponsored by the Society of Economic Geologists and the Association of Exploration Geochemists. Thursday, November 6 through Sunday, November 9, 8:00 a.m. to 5:00 p.m. For information: Lois Elms, Western Experience, 2369 Carriage Circle, Oceanside, CA 92056; (619) 722-0027.

**Fossil Land Plants.** Sponsored by the Paleontological Society. Sunday, November 9, 8:00 a.m. to 5:00 p.m. For information: Robert A. Gastaldo, Dept. of Geology, Auburn University, Auburn, AL 36830; (205) 826-4282.



**Stable Isotopes in High-Temperature Geological Processes.** Sponsored by the Mineralogical Society of America. Tentatively scheduled for Thursday evening, November 6 to Sunday noon, November 9. For information: Barbara Minich, MSA Business Office, 1625 I Street N.W., Suite 414, Washington, DC 20006; (202) 775-4344.

The following short courses will be sponsored by GSA. For further information, contact Edna Collis, GSA headquarters.

**Basic Principles of Rock Mechanics.** Friday, November 14 and Saturday, November 15, 8:00 a.m. to 4:00 p.m. Instructed by John H. Sprang, N. L. Carter, M. Friedman, J. Handin, A. Kronenberg, and J. M. Logan, Texas A&M University.

**Computer Graphics and Geologic Applications.** Saturday, November 8 and Sunday, November 9, 8:00 a.m. to 5:00 p.m. Instructed by Richard G. Craig and Barry L. Roberts, Kent State University; Michael P. Singer, URS Dalton, Environmental Consultants; and Harlan P. Foote, Battelle Memorial Institute.

**Contaminant Hydrogeology.** Saturday, November 8 and Sunday, November 9, 8:00 a.m. to 4:30 p.m. Instructed by Frank W. Schwartz, University of Alberta; and Leslie Smith, University of British Columbia.

**Glacial-Marine Sedimentation.** Saturday, November 8 and Sunday, November 9, 8:00 a.m. to 5:00 p.m. Instructed by Bruce F. Molnia, Polar Research Board, National Academy of Sciences; and John B. Anderson, Rice University.

**Seawater Chronostratigraphy Using Strontium Isotopes.** Sunday, November 9, 1:00 p.m. to 5:00 p.m. Instructed by Richard W. Hurst and Terry E. Davis, California State University.

## WORKSHOPS

**The Earth as a Planet.** Sponsored by the Lunar and Planetary Institute and the GSA Planetary Geology Division. Sunday, November 9, 8:00 a.m. to 5:00 p.m. For information: Pam Jones, Lunar and Planetary Inst., 3303 NASA Road 1, Houston, TX 77058, (713) 486-2150.

**GeoRef Trainers' Workshop.** Sponsored by the Geoscience Information Society and the American Geological Institute. Thursday, November 13, 8:00 a.m. to 12:00 noon. For information: Julie Jackson, AGI, 4220 King Street, Alexandria, VA 22302, (800) 336-4764.

**Introduction to GeoRef: Learn to Search the Geological Literature by Computer.** Sponsored by the Geoscience Information Society and the American Geological Institute. Wednesday, November 12, 8:00 a.m. to 12:00 noon. For information: Julie Jackson, AGI, 4220 King Street, Alexandria, VA 22302, (800) 336-4764.

## ACCOMMODATIONS

GSA has selected twelve official hotels, which will offer special convention rates. A block of 525 rooms is reserved at the Hyatt Regency, which, as headquarters, will host most of our social and business events. Hotel rates range from \$35 to \$83 for a single and from \$42 to \$104 for a double.

The San Antonio Convention Center will be the location of all technical sessions and exhibits. Most hotels are within a short, easy walking distance of the Center, although the farthest hotel is two miles away. Hotel forms will be available in the Final Announcement in August. All housing will be processed in San Antonio by the official Housing Bureau.

## SPECIAL EVENTS

**Welcoming Party.** The opening-night reception is at the San Antonio Convention Center, 6-9 p.m. Exhibits will be open until 9:00 p.m., and you may register for the meeting until 7:30 p.m.

**All-GSA Reception.** A special reception honoring GSA's Penrose and Day Medalists will follow the GSA Presidential Address and Award Presentations on Monday, November 10, 6-7 p.m. Everyone is invited.

**Alumni Night.** Immediately following the all-GSA reception, alumni receptions will begin at the San Antonio Convention Center and surrounding hotels. If you would like to schedule an alumni reception, please contact Jean Kinney, GSA headquarters, before June 1.

**Vittles & Fiddles.** Enjoy both Texas and Mexico during this very special evening of barbecue and tacos, country-western and mariachis, cowboys and Spanish dancers. On Wednesday evening, November 12, an exclusive GSA Western Hoe-Down and Mexican Fiesta will open at La Villita, the Mexican village in the heart of downtown. Cloggers, square-dancers, and the Mexican Big Band sound will provide the background for dancing, singing, and all the Mex-Tex food and beverage you can hold. Everyone will be there.

## Did you know...

... The 1983 Index for *Mineralogical Abstracts* has been mailed to all individuals who had a subscription that year. The 1984 Index is expected to be mailed to subscribers in late May or early June. Please allow six to eight weeks for delivery.

... MSA congratulates Mr. Jerald Maughan, a recipient of the 1986 American Mineralogist Undergraduate (AMU) Award. Mr. Maughan is an undergraduate student at Arizona State University. Recipients of the AMU Award are nominated by faculty in recognition of their outstanding academic work. Additional 1986 Award recipients were listed in the February issue of *The Lattice*.

... Nomination deadlines are fast approaching for the many MSA awards and activities. Please note the appropriate deadlines below and make sure that you submit your nominations by the due date to the MSA Business Office.

**July 1:** Deadline for submitting—  
Nominations for Roebling Medal  
Nominations for MSA Award  
Nominations for Fellowship in MSA\*  
Nominations for Office (1987 ballot)

**August 1:** Deadline for submitting—  
Applications for Mineralogy/Petrology Research Grant\*  
1986 Member Ballot

**November 1:** Deadline for submitting—  
Nominations for 1987 American Mineralogist Undergraduate Award

Individuals who wish to nominate a colleague or volunteer to serve on a committee should contact the MSA Business Office. In a change designed to make committees more productive, most of the 1987 committee appointments will be made at the May Council meeting. However, during this transition year we shall make supplementary committee appointments later based on membership input.

All nominations may be sent to the MSA Business Office, 1625 I Street N.W., Suite 414, Washington, D.C. 20006. Nominations may be submitted in the form of a letter except in the case of those items marked with a "\*", which require that a special form be completed. These forms are available from the Business Office.

... The March/April issue of *The American Mineralogist* is the special *Richard H. Jabns Memorial Issue*. Mailed to all members and subscribing institutions in mid-April, the issue contains 30 papers on the mineralogy and petrology of granitic and pegmatitic rocks. Additional copies of this issue are available from the Business Office at a cost of \$20.



## IMA

Continued from page 1.

Other hotels/motels near the Stanford campus are listed below. Rates are subject to change without notice; individuals must make their own reservations.

**Palo Alto Oaks Motel:** (415) 493-6644; \$40-48;

1.5 miles to campus

**Dinah's Motor Hotel:** (415) 493-2844; \$70-

\$100; 3 miles to campus

**El Camino Real Motor Lodge:** (415) 948-8982;

\$45-\$48; 2.5 miles to campus

**Stanford Park Hotel:** (415) 322-1234; \$110-

\$115; hotel shuttle to campus

**Stanford Terrace Inn:** (415) 857-0333; \$75-

\$85; 10 minute walk to campus

**Mermaid Inn Motel:** (415) 323-9481; \$40-

\$46; 1 mile to campus

**Menlo Motor Lodge:** (415) 326-7530; \$44-

\$52; 1.5 miles to campus

**Four Seasons Motor Inn:** (415) 941-0360;

\$40-\$45; 2.5 miles to campus

**Palo Alto Inn:** (415) 949-0833; \$32-\$40; 3

miles to campus

## Travel

United Airlines is the official airlines of the IMA meeting. As such it is offering participants a five (5) percent discount off the price of any ticket including ultrasavers. The offer is good only on roundtrip flights that originate by July 9 and return by July 22. All restrictions apply, including advance purchase requirements and cancellation penalties.

To make your reservations, have a credit card or purchase order number ready. Call Bud or Paula at Business Travel Associates: 1-800-443-4502 or (202) 659-8314.

Personal checks will be accepted, however

payment must be received 30 days prior to the departure date to take advantage of the lowest fares. To ensure the lowest fares on the flights you want, call today.

Avis Rental Cars is offering participants discounted daily and weekly rates on all sizes of rental cars. To make a reservation, call 1-800-331-1600. **You must provide the Avis agent with the following code when making your reservation—AW020441—to qualify for the special IMA 86 rates.**

## Additional Information

For more information, contact the IMA 86 Business Office: IMA 86, Department of Geology, Stanford University, Stanford, CA 94305 U.S.A.; (415) 723-8103. Or, you may contact the MSA Business Office: 1625 I Street N.W., Suite 414, Washington, D.C. 20006; (202) 775-4344.

Return this form by to:

IMA 1986  
Dept. of Geology  
Stanford University  
Stanford, California 94305  
U.S.A.

## A. Participant Information

Title \_\_\_\_\_ Family Name \_\_\_\_\_ First Name \_\_\_\_\_

Department \_\_\_\_\_

Institution \_\_\_\_\_

Street Address \_\_\_\_\_

(Postal Code), City \_\_\_\_\_

(State, Zip Code), Country \_\_\_\_\_

Business Telephone \_\_\_\_\_ Home \_\_\_\_\_

Telex \_\_\_\_\_ Male \_\_\_\_\_ Female \_\_\_\_\_

## B. Accompanying Person Information (spouse, guest, children, etc.)

Please indicate title, name, and give the ages of children.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

☐ I plan to attend the Powder Diffraction Workshop Saturday 12 July.

## D. Payment

Please check the method of payment below. All payments are in U.S. dollars. Checks should be made out to IMA 1986. Personal checks will be accepted. Please make sure that your name and address are on your payment so that the payment can be matched to your registration. Registration will not be confirmed until the total sum has been received.

☐ Enclosed is a bank check or money order in the amount of \$ \_\_\_\_\_. Please allow 30 days for money orders to be processed.

☐ Please charge my ☐ Visa ☐ MasterCard ☐ American Express credit card in the amount of \$ \_\_\_\_\_. Please note that credit cards will be charged at the time the preregistration form is received. Should a refund be necessary, your credit card will be credited.

Card Number \_\_\_\_\_ Expiration Date \_\_\_\_\_

Name on Card \_\_\_\_\_ Signature \_\_\_\_\_

## Preregistration Form

### C. Fees

#### Registration\*:

Professional \_\_\_\_\_ × \$190 = \$ \_\_\_\_\_

Accompanying Person \_\_\_\_\_ × \$100 = \$ \_\_\_\_\_

Student\*\* \_\_\_\_\_ × \$ 65 = \$ \_\_\_\_\_

One-Day Registration \_\_\_\_\_ × \$ 50 = \$ \_\_\_\_\_

Please indicate day \_\_\_\_\_

Subtotal Registration Fees = \$ \_\_\_\_\_

### Optional Events:

Reception and Dinner at California Academy of Sciences, Golden Gate Park, San Francisco, Tuesday evening 15 July (discounted cost with registration fee)

\_\_\_\_\_ × \$ 20 = \$ \_\_\_\_\_

Sonoma Wine Tour†

Monday 14 July (includes lunch)

\_\_\_\_\_ × \$ 29 = \$ \_\_\_\_\_

Victorian Homes of San Francisco†

Tuesday 15 July (includes lunch)

\_\_\_\_\_ × \$ 29 = \$ \_\_\_\_\_

New Monterey Bay Aquarium and Vicinity†

Wednesday 16 July

\_\_\_\_\_ × \$ 37 = \$ \_\_\_\_\_

Muir Woods and Sausalito†

Thursday 17 July

\_\_\_\_\_ × \$ 21 = \$ \_\_\_\_\_

Laserium Show††

Wednesday evening 16 July

\_\_\_\_\_ × \$ 15 = \$ \_\_\_\_\_

Gaslighter Theatre††

Wednesday evening 16 July

\_\_\_\_\_ × \$ 25 = \$ \_\_\_\_\_

Total Enclosed \_\_\_\_\_ \$ \_\_\_\_\_

Refunds: Full refunds, less 10% for handling will be made if a written request is received at the IMA business office before 1 June 1986. Thereafter, partial refunds will be made only for costs that can be recovered by the Organizing Committee.

\*The registration fee is not required for children under 18 years of age unless they participate in the social program.

\*\*At the time of the meeting I will be a student in good standing at

\_\_\_\_\_  
Signature \_\_\_\_\_ University \_\_\_\_\_

†Excursions for accompanying persons attending the meeting and paying the registration fee.

††Optional entertainment options for Wednesday evening, a free evening on the program.



# Welcome!

The following members and students have joined MSA effective January 1, 1986. Welcome! Applications for membership may be obtained from the Business Office, 1625 I Street N.W., Suite 414, Washington, D.C. 20006. Memberships received from October 1 through December 31, 1986 will be made effective January 1, 1987 unless otherwise requested.

**Bernosky, David H.**, 579 Milford, Columbus, OH 43202. *H: (614) 263-7643.* (ST-86)MP Sponsors: P. H. Ribbe and J. W. Downs.

**Briggs, Bill**, 1010 N. Dodge, Iowa City, IA 52240. *H: (319) 338-1449.* (ST-86)IP Sponsors: C. T. Foster, Jr. and G. R. McCormick.

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**Comings, Benjamin D.**, 19 Forest Avenue, Port Jeff. Station, NY 11776. *H: (516) 331-2196.* (ST-86)GE Sponsors: C. T. Prewitt and R. J. Reeder.

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**D'Arco, Philippe**, Laboratoire de Geologie, Ens 46 Rue D'ulm, 75005 Paris, France. *O: 143291225.* (M-86)MI Sponsors: P. H. Ribbe and G. V. Gibbs.

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**Dimiceli, Joseph M.**, 131 Davis Avenue, Leesburg, VA 22075. *H: (703) 777-5693.* (ST-86)MI Sponsor: MSA.

**Elshazly, Aley Eldin K.**, c/o Geology Department, Stanford University, Palo Alto, CA 94305. *O: (415) 497-1010. H: (415) 325-7159.* Sponsors: J. G. Liou and G. E. Brown, Jr.

**Eveland, Robert**, 112 East Ninth Street, Berwick, PA 18603. *H: (717) 752-2233.* (M-86)MI Sponsor: MSA.

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**Gassman, Paul L.**, 423 B Lee Street, Blacksburg, VA 24060. (ST-86) Sponsors: G. V. Gibbs and L. W. Zelazny.

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**Gunter, Mickey E.**, 1700 Old Mill Road, Blacksburg, VA 24060. *H: (703) 953-1250.* (ST-86)OT Sponsors: F. D. Bloss and P. H. Ribbe.

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**Miner, Read Spencer**, Box 5124, Sul Ross State University, Alpine, TX 79832. (ST-86)IP Sponsors: W. A. Ranson and E. D. Mullen.

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**Naqvi, Ibne Mohamed**, Mineralogy Lab, U.S. Geological Survey, APO NY, NY 09697. (M-86)MI Sponsors: C. R. Thornber and R. J. Kamilli.

**Nichols, Richard**, 13891 Durango Drive, Del Mar, CA 92014. (ST-86) Sponsor: MSA.

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**Riley Jr., G. N.**, Bard Hall, Cornell University, Ithaca, NY 14853. *O: (607) 255-3539. H: (607) 273-6315.* (ST-86)OT Sponsor: W. A. Bassett.

**Shivnarayan, Yagnik K.**, Parsuram Gems and Minerals, A/61 Dattani Apartment No. 4, Parekh Nagar, S. V. Road, Kandivalli (West), Bombay 400 067 India. (M-86)MI Sponsor: MSA.

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**Stevens, Eric L.**, GPO Box 899, Brisbane, Queensland 4001, Australia. *O: 07228. H: 072046794.* (M-86)MI Sponsor: MSA.

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**Wade, Philip D.**, 5337 E. Falls View Drive, San Diego, CA 92115. *H: (619) 287-7307.* (ST-86)MI Sponsor: MSA.

*Continued on page 8.*



## More Information Is Now Available on 86 Short Course

Stable Isotopes in High Temperature Geological Processes is the title of the 1986 Short Course. The course will be held Friday through Sunday, November 7-9, just prior to the annual MSA/GSA meeting in San Antonio. The meeting will begin with a reception Thursday evening, November 6.

Volume 16 of the *Reviews in Mineralogy* series will be the text used at the meeting. As is the case with most *Review* volumes, the text will be prepared by the meeting speakers:

- Introduction: H. P. Taylor, California Institute of Technology; J. R. O'Neil, U.S. Geological Survey; J. W. Valley, University of Wisconsin-Madison;
- Theoretical and Experimental Aspects of Isotopic Fractionation: J. R. O'Neil;
- Kinetics of Isotopic Exchange Reactions at Elevated Temperatures and Pressures: D. R. Cole, Oak Ridge National Laboratory; H. Ohmoto, Pennsylvania State University;
- Isotopic Variation in Natural Waters: S. M. F. Sheppard, Nancy, France;
- Isotope Exchange in Open and Closed Fluid/Rock Systems: R. T. Gregory, Monash University;
- Isotopic Effects in the Early History of the Solar System: R. N. Clayton, University of Chicago;
- Isotope Variation in the Mantle: T. K. Kyser, University of Saskatoon;
- Isotopic Relationships Involving Magmatic Fluids: B. E. Taylor, Geological Survey of Canada;
- O + H Isotope Studies of Igneous Rocks:
  - Processes of Isotopic Fractionation: H. P. Taylor and S. M. F. Sheppard;
  - Orogenic Magmatism with Special Reference to the Pacific Margin: H. P. Taylor;
  - Anorogenic Magmatism with Special Reference to the African and Eurasian Cratons: S. M. F. Sheppard;

- Isotopic Relationships in Meteoric-Hydrothermal Systems: R. E. Criss, U.S. Geological Survey;
- Isotope Systematics of Submarine Hydrothermal Systems: K. Muehlenbachs, University of Alberta;
- Isotope Behavior During Metamorphism: J. W. Valley;
- Stable Isotopes and Ore Genesis: H. Ohmoto.

Registration fees for this meeting have been set as follows:

MSA Members:	\$175
MSA Student Members:	\$75
Non-Members:	\$210*
Non-Member Students:	\$90*

\*includes MSA membership for 1987.

The registration fee includes the opening reception, Volume 16 of the *Reviews in Mineralogy* series, lunch on Friday and Saturday, November 7 and 8, and daily coffee breaks. Some student scholarships may be available. Interested students should send one paragraph (up to 250 words) describing how attendance at the short course will benefit their research interests to the MSA Business Office.

The meeting will be held at the El Tropicano Hotel, located on the river in San Antonio. Participants are responsible for making their own housing reservations. The room rates for meeting participants are: single occupancy—\$49; double occupancy—\$59. A block of rooms has been reserved. Make your reservations as early as possible by calling the hotel directly at (512) 223-9461. Be sure to state that you will be attending the MSA Short Course. An easy-to-use public transportation system connects the El Tropicano Hotel to the other hotels being used by MSA/GSA meeting participants as well as the San Antonio Convention Center.

Mark your calendar now and plan to attend this informational short course. A registration form will be included in the August issue of *The Lattice* for your convenience. If you have questions prior to that time, please contact the MSA Business Office: 1625 I Street N.W., Suite 414, Washington, D.C. 20006; (202) 775-4344.

### In Memoriam

We regret to announce the passing of the following MSA members and fellows. MSA extends its condolences to the families of these scientists.

**Sharon W. Bachinski**  
Member, 1967

**Henry B. Barr**  
Member, 1959

**Martin J. Buerger**  
Life Fellow, 1926  
1947 President  
Roebbling Medalist, 1958

**Leo M. Hall**  
Member, 1965

**Leonard B. Sand**  
Fellow, 1953

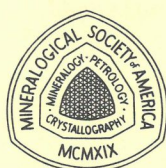
**Kenneth D. Watson**  
Life Fellow, 1941

### New Members

*Continued from page 7.*

**Wilke, Hans-Juergen**, Haendelstr.5, D-6116 Eppertshausen, West Germany. *H:* 06071-31384. (M-86)MI Sponsors: J. S. White and C. A. Francis.

**Zinngrebe, Enno**, Groner Landstrabe 52, D-3400 Gottingen, West Germany. (ST-86) Sponsor: MSA.



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