

The Lattice



Vol. 5, No. 3, August, 1989

What's New at *American Mineralogist* 1990 Fall Short Course

Effective November 7, 1989, when I retire as Editor of *American Mineralogist* there will be some changes in the way the editor position is defined. Chief among these is that there will be two co-editors, as recently approved by MSA Council. This change has been made necessary by the increase in the number of published pages in the journal. By dividing the responsibilities and the workload two ways, the Editor's job should be more palatable. Authors should be assured that the existing associate editor and review system will remain unchanged.

Don Peacor and Steve Bohlen will be the new co-editors, and Roland Rouse, who works closely with Don, has agreed to take on the special position of Assistant to the Editor. Although both co-editors will handle about the same number of manuscripts, Don Peacor will have the final say in any disputes that may arise. The Editorial Office will be moved to Ann Arbor; therefore, after November 7, manuscripts should be mailed to Ann Arbor (Department of Geological Sciences, University of Michigan, 1006 C.C. Little Building, Ann Arbor, Michigan 48109-1063, U.S.A.) rather than to Boulder.

Is everyone out there aware of the "Letters" contributions to *American Mineralogist*? These short manuscripts that describe significant results on especially timely subjects have been distinguished by a remarkably short publication time. Although we guarantee that publication will occur 4 to 6 months after submission, the first seven "Letters" have experienced a mean publication time of 3.7 months! As of mid June, we received 12 manuscripts for "Letter" consideration. Three were rejected, two were rerouted to regular article status, and seven were accepted.

The exceptionally short publication time is possible only when all the following occur: (1) the first draft of the manuscript must be prepared to meet all guidelines for "Letters" (see *Am. Min.* v. 73, P. 940, for specifics), (2) reviewers must complete their work

within 48 hours, (3) authors must complete any revision (including supplying final figures) in less than one week, and (4) authors must be available for telephone consultation regarding any questions that arise during final preparation. This is truly a cooperative effort. After the final draft is marked for typesetting, the dedicated staff members at Allen Press must bypass their normal production procedures and rush the article into an issue that has already been typeset and paged.

American Mineralogist has always published a wide range of subject matter, and it is hoped that such diversity will continue. However, some of our members feel that many of the more exciting developments in mineral physics have been underrepresented in our journal. In view of the recent successful affiliation of MSA with AGU at the AGU Spring meeting in Baltimore, we at *American Mineralogist* are eager to receive more manuscripts in this area. Should a manuscript in this field be appropriate for consideration as a "Letter", we can offer a publication time that is comparable to (and sometimes better than) *Science* or *Nature*! Contact the editorial office if you want more information.

Jim Munoz

DID YOU KNOW...

...That the 1985 index for *Mineralogical Abstracts* has now appeared, and Prof. Howie assures Members that the 1986 Index is well on the way to completion. Meanwhile please remember that all numbers from 1982-1988 are available on Lockheed Dialog.

...That the American organizer for *Mineralogical Abstracts* is still in need of volunteers for abstracting. See the May *Lattice* for a list of the assignments that need an abstractor. If you would like to volunteer contact: Dr. Karl Riggs, Jr. P.O. Box KR, Mississippi State, MS 39762-5857

The 1990 Fall short course, entitled "Mineral-Water Interface Geochemistry", will take place just prior to the MSA/GSA Annual Meeting in Dallas, Texas. Speakers from the US, Canada, Australia, and Switzerland will discuss fundamental aspects of important geochemical reactions that occur at mineral-water interfaces including sorption, ion exchange, dissolution, precipitation, catalysis, and electron transfer (oxidation-reduction). Applications of these topics to more applied subjects, such as the geochemical cycling of the elements, ore deposit formation, and the mobility of pollutants in groundwater, will be explored. The meeting is being convened by Michael F. Hochella, Jr. (Stanford University) and Art F. White (USGS, Menlo Park).

Specific topics and speakers include:

- 1) Thermodynamic, kinetic, structural, compositional and computer modeling aspects of mineral surfaces and mineral-water interfaces, G.A. Parks (Stanford), A.C. Lasaga (Yale), and M.F. Hochella, Jr. (Stanford);
- 2) Sorption and ion exchange reactions, J.A. Davis (USGS), G. Sposito (UC-Berkeley), G.E. Brown, Jr. (Stanford);
- 3) Dissolution and precipitation, W.H. Casey (Sandia), G.R. Holdren, Jr. (Northrop), G. Nancollas (SUNY-Buffalo);
- 4) Electron transfer and catalytic reactions, G.M. Bancroft (Western Ontario), W. Stumm (Swiss Federal Institute for Water Resources), T.D. Waite (Australian Nuclear Science and Technology Organization), A.F. White (USGS).

The course will be held at the Tanglewood Resort and Conference Center in Pottsboro, Texas, located approximately 60 miles north of Dallas. Bus service will be provided to and from the site. Registration is limited to 120 individuals.

V.M. GOLDSCHMIDT CONFERENCE

An International Conference for the Advancement of Geochemistry

May 2-4, 1990 • Hunt Valley Inn • Baltimore, Maryland

Organized by The Geochemical Society

The V.M. Goldschmidt Conference will be held from Wednesday, May 2 to Friday, May 4, 1990, in Baltimore, Maryland.

The Goldschmidt Conference is

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

The Mineralogical Society of America is composed of individuals interested in mineralogy, crystallography, and petrology. Founded in 1919, the Society promotes, through education and research, the understanding and application of mineralogy by industry, universities, government and the public.

Membership benefits include: *The American Mineralogist*, published bi-monthly; 30% discount on volumes in the *Reviews in Mineralogy* series; *The Lattice*; Membership Directory; special subscription rates for *Mineralogical Abstracts*, *Physics and Chemistry of Minerals*, *Journal of Petrology*, and *Journal of Metamorphic Geology*; reduced registration fees at MSA short courses; member rates for the MSA/Geological Society of America annual meeting and for MSA's spring meeting with the American Geophysical Union; participation in a Society that supports the many facets of mineralogy.

Dues for 1989 are \$40 for professional members; \$20 for students. Membership is on a calendar year basis. Individuals who join after January 1, 1989 will be sent all back issues of the journal for volume 74, 1989.

For additional membership information and an application, and/or to receive a price list of the Society's publications, contact the Business Office.

Institutions may subscribe to *The American Mineralogist* for the annual rate of \$150. The subscription price includes any new volumes of the *Reviews in Mineralogy* series published during the calendar year of the subscription. Payment must be received in full before a subscription will be started.

1989 President: C.W. Burnham,
Harvard University

Past-President: D.B. Stewart,
U.S. Geological Survey

Secretary: Maryellen Cameron,
Miami University of Ohio

Treasurer: James A. Whitney,
University of Georgia

Office Manager/Accountant:
Susan L. Myers

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Washington, D.C. 20006
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scheduled just prior to the spring meeting of the American Geophysical Union in Baltimore, May 6-11, 1990. The conference will be held at the Hunt Valley Inn, in a rural setting 25 kilometers north of downtown Baltimore.

Technical sessions will consist of both oral and poster presentations. All abstracts submitted will be reviewed by the Technical Program Committee.

Abstract forms can be obtained from (and should be submitted to):

Donna Ricketts
409 Keller Conference Center
The Pennsylvania State University
University Park, PA 16802
Phone: (814) 863-1743
Fax: (814)865-3003

The deadline for symposium abstracts is November 27, 1989.

The deadline for contributed abstracts is December 20, 1989.

Some planned symposia and their organizers:

Part I - Basics

1. Ab-Initio Methods and Molecular Dynamics. G.V. Gibbs.
2. Advances in Mass Spectrometric Techniques. D.J. DePaolo.
3. Advances in Spectroscopy of

THE FOREIGN CORNER

The 28th International Geological Congress has come and gone and all that remains are memories and friendships made. There were over 20 sessions whose topics were of interest to mineralogists and petrologists. Of these, eight were sponsored by the International Mineralogical Association and all were well attended. Topics included Fe and Mn Biomineralization from Micro to Macro, Synchrotron Radiation in the Geological Sciences, High Pressure Minerals, Fluid Inclusions, Spectra and Thermodynamics of Minerals, Mineral Physics, Kinetics of Mineral Reactions, and Mineral Microstructures. One workshop - Geology and Mineralogy of Diamond - was co-sponsored by MSA and was a great success. Many members of MSA acted as Chairpersons and Conveners of sessions and they are to be thanked and congratulated for their enthusiasm and the success of the overall mineralogy and petrology program. The next IGC is in Japan in 1992.

IMA Council voted to continue with the current arrangements to hold the

Minerals, Melts, and Glasses. J.R. Kirkpatrick.

4. Aqueous Surface Chemistry and Kinetics. W.H. Casey.

5. Fluids in Melts. E. M. Stolper.

6. Frontiers In Aqueous Geochemistry. R.J. Bodnar.

7. High-Pressure Mineral Physics. R.J. Hemley.

Part II - Synthesis

1. Applications of Geochronometry and Geospeedometry to Crustal Problems. T.M. Harrison.

2. Chemical Reactions in the Crust. G.H. Brimhall.

3. Geochemistry of the Environment. G.E.M. Hall.

4. Isotopic Modeling. F. Albarede.

5. Large-Scale Crustal Flow. L.M. Cathles.

6. Fluids in Subduction Zones: Thermal, Geochemical, and Petrological Constraints and Consequences. J.D. Morris.

7. Geochemical Cycles and Earth History. R.A. Berner.

Those who wish to contribute to a symposium should correspond with the organizers.

15th General Meeting of IMA in Beijing, 28 June-3 July, 1990. The Second Circular is available and contains all information and registration forms for the meeting and the 10 field trips, as well as instructions on preparation of abstracts. Copies of the circular will be mailed to all those who responded to the First Circular but are also available from the Organizing Committee, Chinese Academy of Geological Sciences, Baiwanzhuang Rd 26, Beijing 100037, China (Telex 222721 CAGS CN).

The European Mineralogical Union has published a Directory of Institutions. It contains names, addresses, etc of 424 Institutions in 14 European countries. It lists the type of research being carried on at the Institutions and the names of 3000 active workers. Copies are available from the office of the European Mineralogical Union.

Henry O. A. Meyer
Purdue University
Department of Earth and Atmospheric Sciences
West Lafayette, IN 47907

MSA Members Are Invited To Participate In Society Activities

Each year MSA and the other associated societies of the Geological Society of America (GSA) work together prior to the annual meeting to review and select abstracts and schedule symposia and poster sessions. It is the combined efforts of these individuals that consistently produce a quality meeting. Special thanks are due this year to MSA representative Richard Abbott, Appalachian State University, conferee Robert Tracy, VPI and abstractor Mark Ghiorso, University of Washington.

In addition to handling the review of abstracts and scheduling technical sessions, the MSA representative coordinates with the Business Office to schedule the Society's social activities. This cooperation, in conjunction with GSA staff, keeps Society activities from overlapping technical sessions and attempts to put these activities in conveniently located meeting rooms.

While this scheduling involves many individuals, its purpose is to benefit the members of MSA. To this end, you are encouraged to participate in the MSA sponsored activities and to express your suggestions and needs to the Business Office and GSA.

Third Meeting of the 1989 Council

Sunday, November 5

Adam's Mark Hotel

Room: Dir. Row 28

7:30 a.m. - 5:30 p.m.

The 1989 Council will act on recommendations from the Nominating Committee for Officers, the Nominating Committee for Fellows, the Roebling Medal Committee, the MSA Award Committee, and the Research Grant (Crystallography) Committee at its final meeting. The report of the Tellers Committee will also be certified. Council actions will be announced at the Business Meeting on Tuesday, November 7.

MSA Reception

Tuesday, November 7

Adam's Mark Hotel

Room: Promenade E

5:30 - 7:30 p.m.

All MSA members and scientists interested in mineralogy, petrology, and crystallography are invited to attend and enjoy a drink with colleagues.

MSA Symposium:

Application of Modern Powder Diffraction Techniques to Problems in Mineralogy and Geology.

Monday, November 6

Cervantes Convention Center

Room: 276

1:00 - 5:00 p.m.

In the past few years, powder diffraction techniques have gone from routine qualitative identification to powerful quantitative analysis of natural and synthetic materials. As an extension of the MSA Short Course, symposium conveners Larry W. Finger, David L. Bish, and Jeffrey E. Post have arranged a program that illustrates the application of the new techniques to the problems of real minerals and rocks. The subjects and speakers are listed below.

— *Crystal structure determinations of three synthetic birnessite-like phases using the Rietveld method*

Jeffrey E. Post;

— *Quantitative analysis of multi-phase mixtures by X-ray powder diffraction*

Deane K. Smith;

— *Identification of structural disorder from powder X-ray diffraction data: layer silicates*

Rossmann F. Giese;

— *Determination of dehydration behavior of zeolites using Rietveld refinement and high-temperature X-ray diffraction data*

David L. Bish;

— *Determination of ordering in synthetic rock-forming minerals by Rietveld structure refinement*

Mati Raudsepp and Frank C.

Hawthorne;

— *Neutron powder diffraction studies at pulsed spallation sources*

George A. Lager;

— *Application of synchrotron sources to mineralogical problems*

Larry W. Finger.

First Meeting, 1990 Council

Tuesday, November 7

Adam's Mark Hotel

Room: Dir. Row 28

7:45 - 11:00 p.m.

Members of the 1990 Council will hold a dinner meeting to set goals and priorities for the coming year. This is the first opportunity for new Council members to participate in the ongoing activities of Council.

MSA Booth, #639-641

Monday, November 6

9:00 a.m. - 5:00 p.m.

Tuesday, November 7

9:00 a.m. - 5:00 p.m.

Wednesday, November 8

8:00 a.m. - 4:00 p.m.

Be sure you visit the MSA booth at Cervantes Convention Center. The newest volume in the *Reviews in Mineralogy* series, *Advanced Powder Diffraction Techniques*, will be available, as will the other books in this series. Stop by and talk to other members, meet Society officers, the MSA Business Office staff and the new managing editor of the *American Mineralogist*. Bring a friend who should be a member of the Society and we'll help you sign up him or her!

Presidential Address

Annual Business Meeting

Tuesday, November 7

Adam's Mark Hotel

Room: Promenade B

10:30 a.m. - Noon

MSA President Charles W. Burnham will give his presidential address, "The Ionic Model: Perceptions and Realities in Mineralogy", beginning at 10:30 a.m. The address will be followed by an open business meeting. MSA bylaws require that such a meeting be held annually whereby the membership is provided reports by the officers to familiarize themselves with Society activities. All members are encouraged to attend.

Annual Awards Luncheon

Tuesday, November 7

Adam's Mark Hotel

Room: Promenade D

12:15 p.m. - 2:00 p.m.

Helen D. Megaw, recipient of the 1989 Roebling Medal, and Michael A. Carpenter, recipient of the MSA Award for 1989, will be honored at this annual luncheon. Following these presentations, 1989 President Charles W. Burnham will pass the gavel to the 1990 President and a new Council will take office. The Annual Luncheon provides members with an opportunity to meet colleagues and to recognize outstanding contributors to the science.



TRANSPORTATION

AIR

We suggest you visit your travel agent early to get the best reservation and airfare you can. GSA has designated the Cain Travel Group of Boulder, Colorado, as the official airline reservation agent for the 1989 GSA Annual Meeting. Meeting participants are encouraged to call Cain's toll-free number to take advantage of discounted fares on selected airlines.

Trans World Airlines (TWA) has been named the official carrier; United and Delta Airlines are additional carriers. Reduced rates are 5% off any available discount fare. These fares generally have some restrictions. The discount offered from normal coach fares will be 40% to 45%, with no minimum stay or advance purchase requirements.

To make a reservation:

- Call 1-800-346-4747 (toll-free outside Colorado) or (303) 443-2246 (collect from Canada or Colorado).
- Hours: Monday through Friday 8 a.m. to 5:30 p.m., MDT.
- Call early for best availability and identify yourself as a GSA traveler.
- Be aware of restrictions applying to discount tickets.
- Tickets can be paid for by check (payable to Cain Travel), by major credit card, or invoiced to your company. Final payment must reach Cain Travel no later than ten days prior to departure to allow for mailing time.
- All tickets will be mailed via certified mail upon receipt of payment unless requested otherwise.
- After tickets are issued, you are protected from fare increases; if a fare decreases, call Cain Travel for an adjustment.
- Cain Travel will have an on-site Customer Service Desk at the Cervantes Convention Center in St. Louis.

GROUND

The Lambert St. Louis International Airport is 12 miles from the Cervantes Convention Center and the downtown area (approximately a 20-minute ride). Transportation options are as follows.

Airport Limousine Service

Airport to hotel. Open from 5:30 a.m. to 10:00 p.m., 7 days a week. To purchase a ticket, go to the booth opposite Exit 13 in the baggage claim area. Departures are every 20 minutes. Cost: \$6.

Hotel to airport. The Airport Limousine Service stops at all major downtown hotels every 20 minutes. For additional information or advance reservations call (314) 385-7400. Cost: \$6.

Taxi Cabs

Only certain taxi companies are permitted to have taxi stands at the airport. Therefore, you may experience a waiting line for service. All vehicles are metered. Charges range from \$1.00 to \$2.35 for the first mile and from \$0.50 to \$0.90 for each additional mile. Our advice: share a cab.

Bi-State Transit

Take the #4 Natural Bridge bus from the airport to downtown. Bi-State Transit buses service the St. Louis metropolitan area from 5:30 a.m. to 11:00 p.m. weekdays, and from 5:30 a.m. to 9:00 p.m. weekends. The Bi-State "Levee Line" is a free bus ride between Union Station and the Mississippi Riverfront. Look for the specially painted Levee Line buses. For general information, call Bi-State at 231-2345.

GSA Shuttle

GSA will operate a free shuttle service throughout the meeting. GSA hotel guests will be transported to and from the Cervantes Convention Center during meeting hours. The shuttle will also operate during special events at the Cervantes Convention Center and hotels.

This service will be provided each day (Sunday through Thursday) beginning at 6:30 a.m. and continuing at frequent intervals through the meeting hours. The service will continue into the evening for the special events. Look for shuttle schedules posted in GSA hotel lobbies and in registration packets. Each bus will be identified by a "Shuttle Bus" sign in the front window.

Car Rental

Budget is the official car rental agency for the meeting. Identify yourself as a GSA delegate and get guaranteed, discounted, daily/weekly rates as follows: economy/compact \$31/\$155; intermediate \$33/\$165; full size \$35/\$175; luxury \$49/\$195; mini (15-passenger) van \$70/\$325. Four-door models may be requested in the full-size and luxury class cars at no additional cost. Unlimited mileage. Vehicles may be dropped at the Lambert St. Louis International Airport, downtown (near the Adam's Mark), or in Chesterfield with no drop charges. Advance reservations are recommended. Call Budget at (800) 772-3773.

PREREGISTRATION FORM

1989 GSA Annual Meeting • November 6-9

Preregistration must be RECEIVED by October 6. Payment and form MUST accompany each preregistration request. Unpaid purchase orders are NOT accepted as valid registration. One form per registrant. Cancellation deadline: October 13. No refunds will be given on cancellations received after this date. Shaded areas are badge information.

Please print ** Copy for your records

Name (Last) _____ (First) _____
 Institution/Employer _____ Nickname for badge _____
 Mailing Address _____
 City _____ State _____ ZIP code _____
 Country _____ Business phone _____ Home phone _____
 Guest/Spouse Name (Last) _____ (First) _____
 City _____ State/Country _____

Circle Member Affiliations: (1) GSA (Member # _____) (2) CF (3) GS (4) GIS
 (5) MSA (6) NAGT (7) PS (8) SEG (9) AWG (10) SGE (11) AGID (12) SVP (13) NESTA

(registration required for participation in all events)

Professional Member (member of affiliation checked above)	Price	Qty	Amount
Member One-Day (circle day: S M T W T)	(1) \$110	1	\$
Nonmember	(2) \$ 65	1	\$
Student Member (member of affiliation checked above)	(3) \$150	1	\$
Nonmember	(4) \$ 85	1	\$
Student Nonmember	(5) \$ 45	1	\$
Guest (fill in name above for badge)	(6) \$ 28	1	\$
	(7) \$ 65	1	\$
	(8) \$ 38	1	\$
	(9) \$ 45	1	\$

Column A	Price	Qty	Amount
Day in the Park	(11) \$ 28	1	\$
Cave Tour	(12) \$ 20	1	\$
St. Louis Grandeur	(13) \$ 27	1	\$
A Visit to St. Charles	(14) \$ 15	1	\$
Historic St. Louis Walking Tour	(15) \$ 5	1	\$

Remit in U.S. funds, payable to 1989 GSA Annual Meeting, or charge:

American Express Diners Club/Carte Blanche MasterCard VISA

Card expires: _____ mo. / _____ yr. _____ card number
 Signature _____

(PREREGISTRATION MUST BE RECEIVED BY OCTOBER 6!)

St. Louis Blues Hockey Game
 5K Run (check T-shirt size: S_M_L_XL)
 10K Run (check T-shirt size: S_M_L_XL)
 Blues Cruise

(luncheons unless noted)

Engineering Geology
 History of Geology Division
 Geophysics Division
 Geoscience Information Society
 Hydrogeology Division
 Mineralogical Society
 National Assoc. Geology Teachers
 Paleontological Society
 Sedimentary Geology Breakfast
 Women Geoscientists Breakfast
 Coal Geology Division
 Geochemical Society
 Quaternary Geology & Geomorphology
 Society of Economic Geologists

TICKETED MEAL FUNCTIONS*

1 Archaeological Geology, Central Mississippi
 2 Pennsylvanian and Permian, Kansas & Nebr.
 3 Coal Geology Appalachian Basin/Illinois Basin
 4 Geology & Hydrogeology, Nuclear Waste w/ Air
 4a Geology & Hydrogeology, Nuclear Waste w/o Air
 5 Regional Stratigraphy, Facies & Depositional
 6 Surface Effects 1811-1812 New Madrid Earthquake
 7 Hydrogeology, Shallow Karst Groundwater System
 8 Olympic Dam-Type Deposits St. Francois Mtns.
 9 Earthquakes & St. Louis Univ. Seismic Network
 10 Geologic Story, St. Louis Riverfront
 11 Engineering Geology/Industrial Minerals
 12 Washington Univ. Planetary Image Facility
 13 Defense Mapping Agency's Aerospace Center
 14 Engineering/Environmental Geology, St. Louis
 15 Transition Sedimentation, Arkoma Basin w/ Air
 15a Transition Sedimentation, Arkoma Basin w/o Air
 16 Quaternary Loess/Glacial Record, SW Illinois
 17 Cyclic Strata, Late Pennsylvanian Outlier
 18 Selected Economic Mineral Deposits w/ Air
 18a Selected Economic Mineral Deposits w/o Air
 19 Mississippi Valley-Type Mineralization

FIELD TRIPS*

Check here if already registered for a short course.

1. Contaminant Hydrogeology
 2. Geological Applications, Macintosh HyperCard
 3. Basin Analysis and Sedimentary Geology
 4. Fission-Track Analysis: Theory & Application
 5. Hazardous-Waste Site Characterization
 6. Hydrologic & Geologic Investigations/Reports
 7. Quantitative Interpretation, Joints and Faults
 8. Fabric of Cements in Paleozoic Limestones
 9. Glacioteonic Structures and Landforms
 10. Quaternary Climates: Ocean Sedimentary Record

*Meeting registration not required

Column B	Price	Qty	Amount
Nov. 9	(16) \$ 15	1	\$
Nov. 8	(17) \$ 12	1	\$
Nov. 8	(18) \$ 12	1	\$
Nov. 8	(19) \$ 11	1	\$
Nov. 6	(20) \$ 17	1	\$
Nov. 6	(21) \$ 17	1	\$
Nov. 7	(22) \$ 17	1	\$
Nov. 7	(23) \$ 17	1	\$
Nov. 7	(24) \$ 17	1	\$
Nov. 7	(25) \$ 17	1	\$
Nov. 7	(26) \$ 17	1	\$
Nov. 7	(27) \$ 17	1	\$
Nov. 7	(28) \$ 11	1	\$
Nov. 7	(29) \$ 11	1	\$
Nov. 8	(30) \$ 17	1	\$
Nov. 8	(31) \$ 17	1	\$
Nov. 8	(32) \$ 17	1	\$
Nov. 8	(33) \$ 17	1	\$

Nov. 5	(34) \$ 60	1	\$
Nov. 2-5	(35) \$210	1	\$
Nov. 3-5	(36) \$205	1	\$
Nov. 2-4	(37) \$398	1	\$
Nov. 2-4	(38) \$170	1	\$
Nov. 3-4	(39) \$110	1	\$
Nov. 3-5	(40) \$160	1	\$
Nov. 4-5	(41) \$120	1	\$
Nov. 2-4	(42) \$225	1	\$
Nov. 5	(43) n/c	1	\$
Nov. 6	(44) \$ 5	1	\$
Nov. 7	(45) \$ 35	1	\$
Nov. 8	(46) \$ 10	1	\$
Nov. 9	(47) \$ 10	1	\$
Nov. 10	(48) \$ 50	1	\$
Nov. 9-12	(49) \$320	1	\$
Nov. 9-12	(50) \$225	1	\$
Nov. 10	(51) \$ 50	1	\$
Nov. 10-11	(52) \$ 88	1	\$
Nov. 10-11	(53) \$183	1	\$
Nov. 10-11	(54) \$125	1	\$
Nov. 9-11	(55) \$150	1	\$

Nov. 4-5	(65) \$185	1	\$
Nov. 4-5	(66) \$140	1	\$
Nov. 4-5	(67) \$140	1	\$
Nov. 4-5	(68) \$140	1	\$
Nov. 4-5	(69) \$155	1	\$
Nov. 4-5	(70) \$155	1	\$
Nov. 4-5	(71) \$140	1	\$
Nov. 5	(72) \$155	1	\$
Nov. 5	(73) \$ 80	1	\$
Nov. 5	(74) \$ 95	1	\$

Total Column B
 Total Column A
 Column A + B = Total Remittance
 (full payment must be enclosed)

FOR OFFICE USE ONLY

Deposit Date _____ Comment _____
 Balance Due \$ _____ A/R _____
 Refund \$ _____ A/P _____
 Refund Ck # _____
 Refund Date _____

Mail to: 1989 GSA Annual Meeting, P.O. Box 9140, Boulder, CO 80301



TECHNICAL PROGRAM

Papers will be selected and the program scheduled by the 36-member Joint Technical Program Committee (JTPC) meeting on August 18–19. Abstract notices will be received by September 4.

The session schedule will appear in the September issue of *GSA News & Information*.

Over 2,000 technical papers will be presented during 112 sessions, from Monday through Thursday. In addition, several invited symposia will occur on Sunday. Session formats represent a spectrum of alternatives between invited and volunteered papers. These formats will include open symposia (partly invited, partly volunteered), and theme sessions (volunteered for a specified, pre-announced topic).

SYMPOSIA

Symposia titles are definite; the dates, however, are subject to change by the Joint Technical Program Committee, which meets August 18–19. In general, symposia papers have been invited. Those with a volunteered component (open symposia) are indicated with an asterisk (*).

S1. Geoscience Research and Public Policy.

1989 Annual Meeting Committee Frontiers Symposium. Brian J. Mitchell, St. Louis University. Wednesday, November 8, afternoon.

The 1989 St. Louis Local Committee, chaired by Brian J. Mitchell, St. Louis University, will convene a special symposium that will explore questions of national priorities and funding levels in geoscience research which are likely to be prevalent over the next several years. These factors can be expected to have a major effect on the extent to which frontiers can be expanded in the geosciences during that time.

The nature and level of support of scientific research is subject to change, perhaps because of changing national goals, important scientific breakthroughs, defense considerations, or changes in the outlook and perception of persons who are influential in setting government policies in science. This symposium will provide scientists an opportunity to ask questions of and express concerns to leaders who are in a position to influence research policy.

To address these questions, leaders in governmental science-related agencies, the legislative branch of government, and academia have been invited to address questions of priorities and funding in the geosciences from the perspective of their offices or positions.

Speakers include Frank Press, president of the National Academy of Sciences; Dallas L. Peck, director of the U.S. Geological Survey; James F. Hays, director of Earth Sciences at the National Science Foundation; Peter J. Wyllie, California Institute of Technology, chairman of the National Academy of Sciences Committee on the Solid-Earth Sciences: A Critical Assessment; and Robert A. Phinney, Princeton University, president of IRIS and organizer of the Workshop on Continental Dynamics. Representatives from the legislative branch of government will be participating as well.

S2. Cenozoic Deep-Sea Foraminifera: Distribution and Environments.

Cushman Foundation. Kenneth G. Miller, Rutgers University. Tuesday, November 7, morning.

S3. Molecular Approaches to Paleoclimatic and Paleoenvironmental Reconstruction.

Geochemical Society—Organic Chemistry Division. Simon C. Brassell, Stanford University. Sunday, November 5, afternoon.

S4. Frontiers in Geoscience Information.

Geoscience Information Society. Mary B. Ansari, University of Nevada—Reno. Monday, November 6, morning.

S5. Application of Modern Powder Diffraction Techniques to Problems in Mineralogy and Geology.

Mineralogical Society of America. David L. Bish, Los Alamos National Laboratory. Monday, November 6, afternoon.

S6. Remote Sensing and Geographic Information Systems: Techniques on the Frontier of Change.

National Association of Geology Teachers. Richard C. Stenstrom, Beloit College. Monday, November 6, afternoon.

S7. Radiations and Recoveries from Mass Extinctions.

Paleontological Society. Thor A. Hansen, Western Washington University. Monday, November 6, morning.



Large slab of *Melonechinus* sp. from St. Louis Limestone, Mississippian age. Courtesy of Washington University—Photo by John Simon.

- S8. Potential for Olympic Dam-type Cu-Au-U-REE Deposits in the Proterozoic Granite-Rhyolite Terranes, Midcontinent, U.S.A.** Society of Economic Geologists. Geza Kisvarsanyi, University of Missouri—Rolla. Monday, November 6, morning.
- S9. Mississippi Valley-type Deposits.** Society of Economic Geologists. David L. Leach, USGS, Denver. Sunday, November 5, all day.

- S10. Becker and Van Hise's Challenges: Geology and Geophysics Since 1904.** History of Geology Division. Clifford M. Nelson, USGS, Reston. Tuesday, November 7, afternoon.
- S11. Geologic Exploration of the Solar System: Past, Present, and Future.** Planetary Geology Division. Ronald Greeley, Arizona State University. Tuesday, November 7, morning.
- S12. The Legacy of T. C. Chamberlin.** Quaternary Geology and Geomorphology Division. Allan F. Schneider, University of Wisconsin—Parkside. Tuesday, November 7, morning.
- *S13. Implications for the Geological Sciences from Recent Developments in Geochemical Techniques and Instrumentation.** Geochemical Society. J. Michael Rhodes, University of Massachusetts; Alan Zindler, Lamont-Doherty Geological Observatory. Tuesday, November 7, afternoon.
- *S14. Sigma Gamma Epsilon Research Symposium.** Sigma Gamma Epsilon. Austin A. Sartin, Centenary College; Charles J. Mankin, Sigma Gamma Epsilon. Tuesday, November 7, afternoon.
- *S15. Geological Controls on the Regional Distribution of Archaeological Sites.** Archaeological Geology Division. Robert M. Thorson, University of Connecticut. Wednesday, November 8, morning.
- *S16. Modern and Ancient Environments of Coal Formation.** Coal Geology Division. James C. Cobb, University of Kentucky; C. Blaine Cecil, USGS, Reston. Monday, November 6, morning.
- *S17. Site Characterization for Conditions of Non-Darcian Flow.** Engineering Geology and Hydrogeology Divisions. Jeffrey R. Keaton, Sergeant, Hauskins & Beckwith, Salt Lake City, Utah; John F. Harsh, Roy F. Weston, Inc., West Chester, Pennsylvania. Thursday, November 9, all day.
- *S18. Intraplate Seismicity and Deformation: Geological and Geophysical Constraints.** Geophysics Division. William V. Stauder, St. Louis University; Archibald C. Johnston, Memphis State University. Tuesday, November 7, afternoon.
- *S19. Rates and Duration of Deformational Processes and Orogenic Events.** Structural Geology and Tectonics Division. Gregory A. Davis, University of Southern California—Los Angeles; Randall R. Parrish, Geological Survey of Canada; Robert J. Twiss, University of California. Monday, November 6, morning.

THEME SESSIONS

Papers for theme sessions will be submitted for the titles listed below. These titles will appear in the final schedule if a sufficient number of abstracts are received by the abstracts deadline to constitute a minimum two-hour theme session. This issue of *GSA News & Information* precedes the abstracts deadline so all available theme titles are listed. The final schedule will appear in the September issue.

- T1. Geological Mapping in the Next Several Decades.
- T2. The Effects of Man on the Mississippi River and Its Delta.
- T3. Correlation and Basin Analysis of Nonfossiliferous Sedimentary Rocks.
- T4. Magma Currents, Melt Migration, and Geochemical Transport in Mafic Igneous Complexes.
- T5. The Effects of Greenhouse Warming on North American Deserts: Holocene Analogues.
- T6. Trace Element and Isotopic Studies with the Ion Microprobe.
- T7. Sub-Mediterranean "Giant Salt" as a Deep-Water Brine Precipitate: An Alternative to the Evaporite Hypothesis.
- T8. Quantitative Structural Geology: The Nature, Mechanism, and Implications of Natural Deformation.
- T9. The First Half of Earth History.
- T10. Seismic Tomography and Mantle Dynamics.
- T11. Global Sedimentary Geology.
- T12. A Growing Crisis in (Geo)Science Education.
- T13. The Lunar Science Frontier: Implications for the Earth's Past and Future.
- T14. Tectonometamorphism.
- T15. Continental Dynamics.
- T16. Volcanism and Climate.
- T17. Mantle Plumes and Mass Extinctions.
- T18. Geoscience and the Arts.
- T19. New Concepts in Understanding Fluid-Rock Interactions at High Temperatures: Problems and Solutions.
- T20. Physical Properties of the Lower Continental Crust.
- T21. Frontiers of Fluid-Inclusion Research.
- T22. Application of Artificial Intelligence, Expert System, or Knowledge-based System Methods in Geological Sciences.
- T23. Determining the Relative Timing of Pluton Emplacement and Regional Deformation.
- T24. Geomorphic Processes and Landform Evolution.
- T25. Late Eocene-Oligocene Climatic and Biotic Evolution.
- T26. Hydrothermal Organic Geochemistry.
- T27. Cretaceous Record of the Eastern Margin of the Western Interior Seaway.
- T28. Hydrogeologic Challenges for the Next Decade.
- T29. Thermal and Hydrologic Evolution of Accretionary Prisms: Modern and Ancient Examples.
- T30. Origin of Brines in the Earth's Crust.
- T31. Geologic Causes of Natural Radionuclide Anomalies.
- T32. Rock-Water Interactions in Carbonate Rocks and Sediments.

FIELD TRIPS

St. Louis provides an ideal starting place for field trips to see many aspects of midcontinent geology. The trips summarized are coordinated, where possible, with the technical program to offer an opportunity to visit areas that are subjects of discussion at symposia and in targeted sessions.

Several trips will visit areas far from the Midwest, where the meeting theme "Frontiers in Geoscience" presents compelling opportunities to see significant geologic terranes.

All trips begin and end in St. Louis unless otherwise noted. Participants must provide their own transportation to the starting point and from the termination point for those trips not originating or terminating in St. Louis. Trips are technical in nature and can be physically rigorous. Please check with the trip leader if you have any questions.

Trip costs include transportation for the trip itself and guidebook. They also may include costs of other services as noted by the following symbols: B—Breakfast; L—Lunch; D—Dinner; S—Snack; and ON—Overnight lodging. For some trips, group-rate fares have been arranged to get participants to St. Louis at the termination of a field trip or to another city for the start of a postmeeting trip. If you do not wish to take advantage of this air travel, please register using the fee without airfare for that trip.

Please make your reservation with the Housing Bureau. Note: All rooms are subject to 9.85% tax and a \$1.50 per night fee.

1 HOLIDAY INN CONVENTION CENTRE

Ninth Street & Convention Plaza Boulevard, St. Louis,
MO 63101

(314) 421-4000 (150-room block)

1 block from the Cervantes Convention Center

Single: \$55 Double: \$65

297-room property with a five-story atrium and an indoor pool, jacuzzi, and exercise room. Two restaurants. Located next door to the Cervantes Convention Center and walking distance to most downtown attractions. Free overnight parking for registered hotel guests. Unguaranteed reservations held until 6 p.m.

Check-in: 3 p.m. Check-out: 12 noon

CC: AX, CB, D, DC, MC, V

2 SHERATON ST. LOUIS HOTEL

910 North Seventh Street, St. Louis, MO 63101

(314) 231-5100 (550-room block)

1 block from the Cervantes Convention Center

Single: \$77 Double: \$89

Children under 17 accompanied by parent are free. Two restaurants, cocktail lounge, 24-hour room service, valet laundry. \$7 per day parking and Avis Rent-A-Car office on the property. Complimentary health facility. Unheated outdoor pool. Newspaper and gift shop. Unguaranteed reservations held until 4 p.m.

Check-in: 3 p.m. Check-out: 1 p.m.

CC: AX, CB, D, DC, ER, MC, V

3 DAYS INN AT THE ARCH

333 Washington Avenue, St. Louis, MO 63102

(314) 621-7900 (125-room block)

4 blocks from the Cervantes Convention Center

Single: \$42 Double: \$42

Children under 18 accompanied by parent are free. Two blocks from St. Louis Center shopping mall. Full-service restaurant and lounge. Indoor pool, sauna, and recreation area. Coin-operated guest laundry. Attached covered parking at \$4.50 per day. Unguaranteed reservations held until 4 p.m.

Check-in: 2 p.m. Check-out: 12 noon

CC: AX, D, DC, MC, V

4 HOLIDAY INN DOWNTOWN/RIVERFRONT

200 North Fourth Street, St. Louis, MO 63102

(314) 621-8200 (300-room block)

6 blocks from the Cervantes Convention Center

Single: \$59 Double: \$68

Children under 18 accompanied by parent are free. Full-service 29-story hotel. Two restaurants, lounge, valet service, and laundry. Free indoor self-parking. Access to health club. Located directly across from the Gateway Arch and riverfront. Within walking distance to St. Louis Centre, Laclede's Landing, shopping, and restaurants. Unguaranteed reservations held until 6 p.m.

Check-in: 2 p.m. Check-out: 12 noon

CC: AX, CB, D, DC, MC, V

5 ADAM'S MARK ST. LOUIS—HEADQUARTERS

Fourth and Chestnut, St. Louis, MO 63102

(314) 241-7400 (750-room block)

7 blocks from the Cervantes Convention Center

Single: \$81 Double: \$91

St. Louis's finest and newest, European flavor and comfort. Full-service hotel with four cocktail lounges and three restaurants for casual to elegant dining. Complete fitness center with indoor swimming pool, whirlpool, saunas, racquetball courts, and exercise equipment. Self-parking \$8 per day and valet parking upon request. Concierge, laundry, and valet service, gift shop, pay movie channels. Located next to the Gateway Arch, providing a wonderful view from many rooms. Unguaranteed reservations held until 6 p.m.

Check-in: 3 p.m. Check-out: 12 noon

CC: AX, CB, D, DC, MC, V

6 CLARION HOTEL—ST. LOUIS

200 South Fourth Street, St. Louis, MO 63102

(314) 241-9500 (200-room block)

9 blocks from the Cervantes Convention Center

Single: \$57 Double: \$65

Children under 18 accompanied by parent are free. Full-service hotel with complimentary fitness center, including indoor swimming pool, whirlpool, saunas, and exercise equipment. The revolving Top of the Riverfront Restaurant, on the 29th floor, is one of two restaurants. Laundry and valet service. Attached garage parking at \$8 per day. Unguaranteed reservations held until 6 p.m.

Check-in: 2 p.m. Check-out: 12 noon

CC: AX, CB, D, DC, MC, V

7 MARRIOTT PAVILION DOWNTOWN

One Broadway, St. Louis, MO 63102

(314) 421-1776 (200-room block)

8 blocks from the Cervantes Convention Center

Single: \$75 Double: \$85

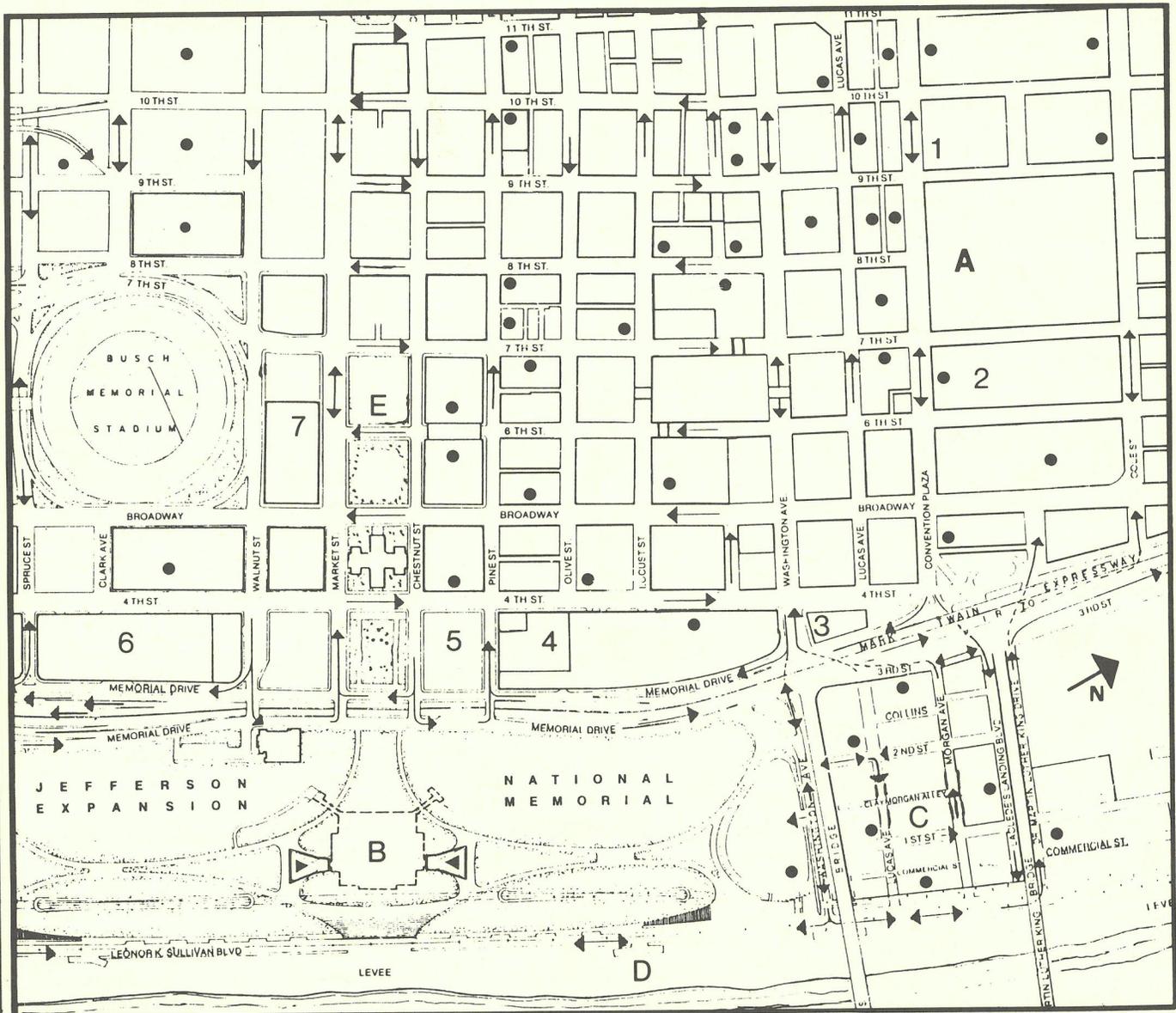
Located downtown, two blocks from the Gateway Arch. Two restaurants offer casual and fancy dining, and one lounge. Full health club offering heated indoor pool, exercise equipment, saunas, and whirlpool. Concierge, laundry, and valet service. Self-parking is \$8 per day. Gift shops. Unguaranteed reservations are held until 6 p.m.

Check-in: 4 p.m. Check-out: 12 noon

CC: AX, CB, D, DC, MC, V

Credit card (CC) codes: AX = American Express / CB = Carte Blanche / D = Discover / DC = Diners Club / ER = Enroute / MC = MasterCard / V = VISA

DOWNTOWN ST. LOUIS



HOTELS

1. HOLIDAY INN CONVENTION CENTRE
2. SHERATON ST. LOUIS HOTEL
3. DAYS INN AT THE ARCH
4. HOLIDAY INN DOWNTOWN/RIVERFRONT
5. ADAM'S MARK ST. LOUIS
6. CLARION HOTEL—ST. LOUIS
7. MARRIOTT PAVILION DOWNTOWN

NON-HOTEL LOCATIONS

- A. CERVANTES CONVENTION CENTER
- B. GATEWAY ARCH MUSEUM
- C. LACLEDE'S LANDING
- D. PRESIDENT RIVERBOAT DOCK
- E. ST. LOUIS VISITORS CENTER

Dots indicate public parking lots. Rates range from \$1 minimum charge per ½ hour to \$8.50 maximum charge for all day. Some lots are open 24 hours per day, allowing overnight parking. Most lots, however, are unattended after 10:00 p.m.



GSA OFFICIAL HOUSING REQUEST FORM

Your Housing Request Form must be received BY OCTOBER 13. Please complete and send to:

St. Louis Convention & Visitors Commission/GSA Housing
10 South Broadway, Suite 300
St. Louis, MO 63102
(314) 421-1023

(Please print or type all information below and keep a copy.)

HOTEL PREFERENCE:

1. _____
2. _____
3. _____
4. _____

Rate requested \$ _____

TYPE OF ACCOMMODATION NEEDED:

- | | | |
|------------------------------------------------------|-----------------------------------------------|------------------------------------------|
| <input type="checkbox"/> Single (1 bed, 1 person) | <input type="checkbox"/> Triple | <input type="checkbox"/> 1 Bedroom Suite |
| <input type="checkbox"/> Double (1 bed, 2 persons) | <input type="checkbox"/> Quad | <input type="checkbox"/> 2 Bedroom Suite |
| <input type="checkbox"/> Dbl/DbI (2 beds, 2 persons) | <input type="checkbox"/> Add rollaway to room | |

NOTE: All rooms are subject to 9.85% tax and a \$1.50 fee per night.

ARRIVAL DAY/DATE _____ TIME _____ a.m./p.m.

DEPARTURE DAY/DATE _____ TIME _____ a.m./p.m.

NAMES OF OCCUPANTS:

1. _____ 3. _____
2. _____ 4. _____

GUARANTEED ROOM RESERVATION AUTHORIZATION:

I understand that my reservation may not be held after the hotel guarantee time. I also understand that the hotel may bill me for one night's housing if I fail to properly cancel a guaranteed reservation. Please check one:

- Credit card information provided below to guarantee my reservation.
- My guarantee will be made directly to the hotel *after* I have received my hotel confirmation.
- I will take my chances. No guarantee deposit will be provided.

Please guarantee my room reservation with the following:

American Express Carte Blanche Diners Club Discover MasterCard VISA

NAME (as listed on credit card) _____

SIGNATURE _____

CARD NUMBER _____ EXP. DATE _____

DO NOT SEND CASH OR CHECKS WITH THIS FORM

MAIL CONFIRMATION TO:

Name _____ Telephone () _____

Address _____ City _____

State _____ ZIP _____ Country _____

REGISTRATION

PREREGISTER TODAY!

PREREGISTRATION MUST BE RECEIVED NO LATER THAN OCTOBER 6.

1. Member Discount! GSA professional members and members of GSA's Associated Societies pay \$40 less for preregistration than nonmembers. GSA student members may register for \$20 less.
2. Save! There is an additional 18% savings in registration fees if you register before the preregistration deadline! Advance registration is suggested for many of the special activities because of participation limits. Use the preregistration form provided in this announcement.
3. Registration is necessary for technical sessions and the exhibit hall. Badges must be worn for activities from 10:00 a.m. Sunday through 5:00 p.m. Thursday.
4. Registration discounts are given to GSA or Associated Society members. Associated Societies that qualify for this discount are indicated on p. 211 and on the registration form. Please indicate your affiliation(s) and member number and register using the member rates.
5. Full payment **MUST** accompany registration. Unpaid purchase orders are **NOT** accepted as valid registration. Charge cards are accepted as indicated on the preregistration form. If using a charge card, please recheck the card number given so that errors will not delay your registration.
6. Register one professional or student per form. Copy the form for your records. On the registration form, one-day registrants **MUST** select the day they plan to attend.
7. Guest registration is required to participate in guest activities, to attend technical sessions, or to visit the exhibit hall. Guest registrations **MUST** be accompanied by either a professional or student registration.
8. **CURRENT** student ID is required to obtain special student rates at both the on-site and preregistration counters. Students not carrying a current student ID when they arrive to pick up registration materials will be required to pay the professional fee.

CANCELLATIONS AND REFUNDS

GSA will refund advance registration fees for cancellations received in writing by **OCTOBER 13.**

NO REFUNDS WILL BE MADE ON CANCELLATION NOTICES RECEIVED AFTER THIS DATE. Refunds will be mailed from GSA after the meeting; there is a \$10 processing fee. Refunds for fees paid by credit card will be credited according to the card number on the preregistration form. **NO** refunds for on-site registration and ticket sales.

REGISTRATION FEES

	Advance (by Oct. 6)	On-Site	One-Day
Professional—Member	\$110	\$130	\$65
Professional—Nonmember	\$150	\$170	\$85
Student—Member	\$ 45	\$ 55	\$28
Student—Nonmember	\$ 65	\$ 75	\$38
Guest	\$ 45	\$ 55	N/A

ON-SITE REGISTRATION SCHEDULE

Cervantes Convention Center, Hall B

Sunday, November 5	10:00 a.m. to	7:00 p.m.
Monday, November 6	7:30 a.m. to	5:00 p.m.
Tuesday, November 7	7:30 a.m. to	5:00 p.m.
Wednesday, November 8	7:30 a.m. to	2:00 p.m.
Thursday, November 9	7:30 a.m. to	12:00 p.m.

AN EXCITING NEW REASON TO JOIN GSA!

GSA recently announced a reduction in membership dues, making this the best time ever to join the Society. Now, dues of \$40 to become a new member equal the \$40 you save by attending the 1989 Annual Meeting as a member. It's like joining GSA for free! Even professional registrants who pay the nonmember registration fee and apply for membership by March 31, 1990, can take advantage of this opportunity. Simply attach a copy of your meeting registration form to your membership application and submit it to GSA headquarters.

Likewise, students who pay the new membership dues of \$20 to become a Student Associate will receive a \$20 discount on their Annual Meeting registration. Again, it's like becoming a new GSA Student Associate for free!

The \$40 registration discount for members mentioned above applies to professional members of GSA or an Associated Society. The Associated Societies that qualify are listed on the registration form. Membership applications are available prior to the meeting from GSA headquarters. During the meeting, they can be picked up at the Membership Booth in the Registration Area of the Cervantes Convention Center, Hall B.

HOUSING

GSA has blocked rooms at seven hotels that are offering special convention rates to GSA meeting attendees. GSA endorses these hotels for quality, cleanliness, and service. All hotels have sprinkler systems except the Days Inn, which relies on smoke detectors.

RESERVATIONS

Fill out the attached Official Housing Request Form and mail it to the address shown on the form. Your Housing Request Form must be RECEIVED BY FRIDAY, OCTOBER 13. Reservations will not be accepted unless they are on the GSA form.

AFTER FRIDAY, OCTOBER 13, you are responsible for making your own reservation directly with the hotel. Note that (1) many hotels will be filled at this time, and (2) hotels will be able to offer the special GSA rate on an as-available basis.

ASSIGNMENT

Hotel rooms will be assigned on a first-come, first-served basis as they are received by the Housing Bureau. Once your request is received, the Bureau will send an acknowledgment to both you and your assigned hotel.

You will then receive a confirmation from the hotel. This is a notice that the hotel received the information from the Bureau and that the reservation has been entered into their system.

DEPOSITS/GUARANTEES

All GSA hotels suggest a first night's room deposit. Deposits can be made by (1) including a credit card number and expiration date on the housing form, or (2) sending payment directly to the hotel once you have received your confirmation from the hotel. The deposit amount should be the cost of one night's stay at your assigned hotel. Note that the Housing Bureau will ONLY accept credit card numbers, not checks or cash. When making payment directly to the hotel, be sure to give them your confirmed reservation number.

Once the hotel receives your deposit, it automatically guarantees your reservation. The guarantee assures you that no matter what time you arrive on your scheduled arrival day, your room will be held until 6:00 a.m. the following day. If you have not guaranteed your reservation, most St. Louis hotels will not hold your room beyond 4:00 p.m. of the scheduled arrival day.

CHANGES AND CANCELLATIONS

BEFORE OCTOBER 13, all changes and cancellations to your room reservation should be sent, in writing, to the Housing Bureau.

AFTER OCTOBER 13, all changes and

cancellations to your room reservation must be telephoned in to your hotel. Your notice of cancellation must be received AT LEAST 48 HOURS in advance of your scheduled arrival to receive a full refund on your first night's room deposit. Please show courtesy as a professional geologist to notify the hotel if your plans change.

Supply your hotel reservation number at the time of any change or cancellation.

NOTE: All rooms are subject to 9.85% tax and a \$1.50 per night fee.

CONVENIENCES

INFORMATION/MESSAGES

Friday, November 3 to Thursday, November 9.

Cervantes Information (314) 342-5900
Messages (314) 342-5901
Adam's Mark (314) 241-7400

CHILD CARE

GSA will offer a cooperative child-care service. UNTIL OCTOBER 11, the GSA Meetings Coordinator will accept names, addresses, and phone numbers of interested participants. You may also include information on your children and where you will be staying. ON OCTOBER 16, the information will be shared with everyone who has responded. Participants are responsible for contacting one another. You may also call your hotel for local child-care services.

NEWS ROOM

Sunday, November 5 to Thursday, November 9, Cervantes Convention Center.

The News Room provides information on many topics for release to the news media. Please come in to let us know of material that is noteworthy for the science or general press. Also, members of the press may receive complimentary registration with appropriate press credentials. In advance of the meeting, contact Sandra Rush, (303) 443-8489, or the Communications Coordinator, GSA headquarters.

MISSOURI TRAVEL

Fall in the Ozarks is beautiful. Interested in a pre- or postmeeting get-away?

Missouri Division of Tourism, P.O. Box 1055,
Jefferson City, MO 65102, 1-314-751-4133

St. Louis Convention & Visitors Commission,
10 S. Broadway, Suite 300, St. Louis, MO 63102,
1-800-247-9791

MEETING CALENDAR 1989—1990

SEPTEMBER

6-7

J.B. Thompson, Jr. Symposium, Harvard University. Topics include thermochemistry and crystal chemistry, phase equilibria and metamorphic petrology and topics on New England geology.

Details: Ms. Jean Titilat, Department of Earth and Planetary Sciences, Harvard University, Cambridge, MA 02138. (617) 495-4802.

NOVEMBER

4-5

MSA 1989 Fall Short Course on Advanced Powder Diffraction Techniques, St. Louis, MO.

Details: See article in this newsletter.

6-9

MSA/GSA Annual Meeting, St. Louis, MO

Details: MSA Business Office, 1625 I Street, NW Suite 414, Washington, DC 20006, (202) 775-4344.

DECEMBER

1-3

MSA 1989 Short Course on Rare Earth Elements, prior to AGU Fall meeting in San Francisco, CA.

See article in this newsletter.

4-8

AGU Fall meeting in San Francisco, CA.

18-20

Mineralogical Society of Great Britain's 1989 Winter Meeting on Stability of Minerals.

Details: G.D. Price, Dept. of Geological Sciences, Univ. College London, Gower Street, London, England WC1E 6BT.

MAY, 1990

16-18

GAC/MAC Annual Meeting in Vancouver, British Columbia, Canada.

Details: GAC/MAC, Secretariat, 801-750 Jervis Street, Vancouver, BC V6E 2A9 (604) 681-5226. Fax (604) 681-2503.

OCTOBER

26-28

MSA 1990 Short Course on Mineral-Water Interface Geochemistry. *See article in this newsletter.*

REGISTRATIONS BEING ACCEPTED FOR FALL SHORT COURSE

There are still spaces available at the MSA sponsored short course on Advanced Powder Diffraction Techniques to be held November 4 and 5, the weekend prior to the annual MSA/GSA meeting in St. Louis, MO. This course is being organized by David Bish of the Los Alamos National Laboratory and Jeffrey Post of the Smithsonian Institution. Specific topics and speakers include:

- **Principles of Powder Diffraction**, R. Reynolds;
- **Instrumentation**, R. Jenkins;
- **Experimental Procedures**, R. Jenkins;
- **Sample Preparation**, R. Reynolds and D. Bish;
- **Quantitative Analysis**, R. Snyder and D. Bish;
- **Diffraction Applied to Clays and Glasses**, R. Reynolds;

- **Powder Diffraction Software**, D. Smith;
- **Profile Refinement**, S. Howard;
- **Rietveld Refinement using X-ray Data**, D. Bish and J. Post;
- **Synchrotron Powder Diffraction**, L. Finger;
- **Neutron Powder Diffraction**, R. VonDreele.

The course will begin with a welcoming reception Friday evening, November 3. Sessions will begin Saturday morning, November 4 and end Sunday, November 5. The registration fee includes the short course program and accompanying volume of the *Reviews in Mineralogy* series, lunch on Saturday and Sunday, daily coffee breaks, and the welcoming reception on Friday. Registration fees are as follows:

MSA Member Professionals	\$125
Non-member Professionals	\$165*
MSA Member Students	\$ 25
Non-member Students	\$ 45*

*includes membership dues for 1990.

The course will be held at the Holiday Inn Convention Centre Hotel, 9th Street & Convention Plaza Boulevard, St. Louis, MO 63101. This is convenient to Cervantes Convention Center, the site of the 1989 GSA Meetings. Course participants should make their room reservations directly with the hotel by calling (314) 421-4000 or by writing to the address above. When you make reservations, please be sure to tell the hotel that you are attending the MSA Short Course to insure that you receive the special room rate. The cost of the room will be \$55 for a single and \$65 for doubles.

Registration fees must accompany the registration form. Please send this form directly to the MSA Business Office. Space is limited to the first 125 registrants on a first-come, first-served basis. Be sure to register as soon as possible, at this time we are two thirds full. Participants are responsible for making their own hotel reservations and the payment of same directly with the hotel. If you have additional questions, please contact the MSA Business Office at (202) 775-4344.

REGISTRATION FORM

Advanced Powder Diffraction Techniques

November 3-5, 1989 • St. Louis, Missouri

Please return this registration form, completed, to the MSA Business Office, 1625 I Street N.W., Suite 414, Washington, D.C. 20006. Payment must accompany this form. Registration is limited to 125 individuals on a first-come, first-served basis.

Please type or print.

Name _____
(first) (middle initial) (last)

Address _____

City/State/Zip _____

Province/Country _____

Telephone Numbers (_____) _____ (_____) _____
(office) (home)

Please indicate appropriate registration category:

	Member	Non-Member
Professional	<input type="checkbox"/> \$125	<input type="checkbox"/> \$165*
Student**	<input type="checkbox"/> \$ 25	<input type="checkbox"/> \$ 45*

*includes 1990 membership dues

**Student fees reduced by corporate contributions

Please send application for student scholarship.

Please check method of payment:

Enclosed is a check or money order in the amount of \$ _____

Please charge my Visa, Mastercard, American Express credit card in the amount of \$ _____ (Your credit card will be charged when the registration form is received. Should a refund be required, a credit will be applied to your charge card.)

(card number) (name on card - please print)

(expiration date) (signature)

Please list any special meal requirements. _____

RARE EARTH ELEMENTS SHORT COURSE

The Mineralogical Society of America is sponsoring a short course on Rare Earth Elements to be held December 2 and 3, the weekend prior to the fall AGU meeting in San Francisco. This course is being organized by Dr. Bruce R. Lipin of the U.S. Geological Survey in Reston and Gordon McKay of NASA in Houston. Specific topics and speakers include:

LECTURER	TITLE
William V. Boynton University of Arizona	Cosmochemistry of the Rare Earth Elements
Douglas G. Brookins University of New Mexico	Aqueous Geochemistry of Rare Earth Elements
Donald M. Burt Arizona State University	Compositional and Phase Relations Among Rare Earth Elements Minerals
Frederick A. Frey Dept. of Earth, Atmospheric & Planetary Sciences	Rare Earth Elements in Upper Mantle Rocks
Richard I. Grauch U.S. Geological Survey	Rare Earth Elements in Metamorphic Rocks
Gilbert N. Hanson SUNY at Stony Brook	Trace Element Modeling of Igneous Evolution
Larry A. Haskin Washington University	Rare Earth Elements in Lunar Rocks and Soils
Lia Krusin-Elbaum IBM, T.J. Watson Research Center	Phenomenology of Magnetic Behavior and High-Temperature Super Conductors
Anthony N. Mariano	1) Economic Geology of Rare Earth Minerals 2) Rare Earth Element Activation in Minerals for Cathodoluminescence and and Photoluminescence (table only)
Gordon A. McKay NASA-JSC	Partitioning of Rare Earth Elements
Scott M. McLennan SUNY at Stony Brook	Rare Earth Elements in Sedimentary Rocks
P. Jonathan Patchett University of Arizona	Radiogenic Isotope Geochemistry of Rare Earth Elements

The course will begin with a welcoming reception Friday evening December 1. Sessions will begin Saturday morning, December 2 and end Sunday, December 3. The registration fee includes the short course program and accompanying volume of the *Reviews in Mineralogy* series, lunch on Saturday and Sunday, daily coffee breaks, and the welcoming reception on Friday. Registration fees are as follows:

MSA Member Professionals	\$245	MSA Member Students	\$ 85
Non-member Professionals	\$285*	Non-member Students	\$105*

*includes membership dues for 1990.

The course will be held at the Cathedral Hill Hotel, Van Ness & Geary, San Francisco, CA 94109-6986. Course participants should make their sleeping room reservations directly with the hotel by calling (415) 776-8200 or by writing to the address above. When you make your reservations, please be sure to tell the hotel that you are attending the MSA Short Course to insure that you receive the special room rate. The cost of the room will be \$85 for a single and \$100 for doubles.

Registration fees must accompany the registration form. Please send this form directly to the MSA Business Office. Space is limited to the first 125 registrants on a first-come, first-served basis. Participants are responsible for making their own hotel reservations and the payment of same directly with the hotel. If you have additional questions, please contact the MSA Business Office at (202) 775-4344.

REGISTRATION FORM

Rare Earth Elements Short Course

December 1-3, 1989 • San Francisco, California

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WELCOME!

The following new members and students have joined MSA effective January 1, 1989. Welcome! Applications for membership may be obtained from the Business Office, 1625 I Street, N.W., Suite 414, Washington, D.C. 20006; (202)775-4344. Membership applications received October 1 through December 31, 1989 will be made effective January 1, 1990 unless otherwise requested.

Bakun-Czubarow, Nonna, UL Gwiazdzista 33 M169, 01 814 Warszawa Poland. O:(33) 01 53. (M-89) MP Sponsor: MSA.

Ballentine, Gordon L., 119 Highland Avenue, Burlingame, CA 94010. O:(415) 543-4880, ext. 32. H:(415)344-7140. (M-89) PE Sponsor: MSA.

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Burkholder, Jody L., 1727 W. Drake Circle, Mesa, AZ 85202. H:(602) 962-6485. (ST-89) GE Sponsors: James Munoz and Raymond W. Grant.

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Dehart, John M., 339 Assembly Road, Fayetteville, AR 72701. O:(501) 575-3170. H:(501) 443-4041. (ST-89) Cosmochemistry Sponsors: James S. Beard and Douglas W. Ming.

Dove, Martin T., Department of Earth Sciences, Cambridge University, Downing Street, Cambridge, England CB2 3EQ. O:(0223)333482. H:(0223) 210977. (M-89) CC Sponsors: James Munoz and Michael Carpenter.

Eggleston, Carrick M., Department of Applied Earth Sciences, Stanford University, Stanford, CA 94305. O:(415) 725-0580. H:(415) 364-3467. (ST-89) GE Sponsors: Michael F. Hochella, Jr. and George A. Parks.

Engelmohr, Holger R.T., Min-Petrol Institut, Goldschmidtstrasse 1, Goettingen, D-3400 West Germany. (ST-89) MI Sponsors: M. Rosenhauer and K. Roselieb.

Farquhar, James, 5734 S. Ellis Avenue, Chicago, IL 60637. O:(312) 702-7508. H:(312) 753-0324. (ST-89) GE Sponsor: MSA.

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Hames, Willis E., Department of Geology, Virginia Tech, Blacksburg, VA 24061. O:(703)231-8817. (ST-89) MP Sponsor: MSA.

Hathon, Eric, 101 Geology Building, University of Missouri, Columbia, MO 65211. O:(314) 882-6785. H:(314) 446-1779. (ST-89) CM Sponsors: Robert L. Bauer and W. D. Johns.

Hawkins, Kate, University of Queensland, Electron Microscope Centre, St. Lucia, Brisbane, QLD, Australia, 4067. O:(07) 377-4302. (ST-89) MI Sponsors: S. K. Dobos and I.D.R. Mackinnon.

Hicks, Terry, P.O. Box 7977, Boulder, CO 80306. O:(303) 278-3400. H:(303) 985-5148. (M-89) MI Sponsor: MSA.

Huang, Eugene, P.O. Box 23-59, Taipei, Taiwan, Republic of China 10764. O:(886)2-3630214. H:(886)2-3010489. (M-89) Sponsor: MSA.

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Jeong, Gi Young, Dept. of Geological Sciences, Seoul National University, Seoul, Korea 151-742. O:(02) 8773073. (ST-89) CC Sponsors: Soo Jin Kim and Jung H. Lee.

Kaszuba, Frank W., Beloit College, Box 1048, 700 College Street, Beloit, WI 53511. O:(608) 365-3391. (ST-89) MI Sponsor: MSA.

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Park, Kye-Hun, Lamont-Doherty Geol Observatory, Palisades, NY 10964. O:(914) 359-2900. H:(201) 461-5236. (ST-89) Sponsor: MSA.

Peterson, Tony D., Geological Survey of Canada, 588 Booth Street, Ottawa, Canada K1A-0E4. O:(613) 992-3573. H:(613) 234-8411. (M-89) IP Sponsor: MSA.

Phillip, George, Geology Department, Faculty of Science, Giza, Cairo, Egypt. (ME-89) Sponsor: MSA.

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Rustad, James R., 1222 Ray Place, St. Paul, MN 55108. O:(612) 646-7602. H:(612) 624-8852. (ST-89) IP Sponsor: MSA.

Sauer, David, Geological and Planetary Sciences, Caltech, Pasadena, CA 91125. (ST-89) EG Sponsors: Sam Swanson and Mary Keskinen.

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Sprague, Kent, McCrone Environmental Services, 1412 Oakbrook Drive, Suite 100, Norcross, GA 30093. (ME-89) Sponsor: MSA.

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Wan, Jeff, 6678 Seine Avenue, Highland, CA 92346. H:(714) 862-1498. (M-89) MI Sponsor: MSA.

Wang, Xiaomin, Department of Geology, Stanford University, Stanford, CA 94305. O:(415) 725-0041. H:(415) 854-9029. (ST-89) Sponsor: MSA.

Williams, Thomas J., Dept. of Geology, University of Maryland, College Park, MD 20742. O:(301)4543548. (ST-89) IP Sponsor: Philip A. Candela and Philip M. Piccoli.

Wiser, Nathan M., Department of Geological Sciences, Northwestern University, Evanston, IL 60208. O:(312) 491-5379. H:(312) 743-1827. (ST-89) PE Sponsors: Bernard J. Wood and L. Taras Bryndzia.

Yogodzinski, Gene M., Dept. of Geology, Cornell University, Ithaca, NY 14853. O:(607)2556249. H:(607)5397028. (ST-89) MP Sponsor: MSA.

MEMBERS IN THE NEWS...

...Three members of the Society, **Charlie Milton, Tom Nolan** and **Marie Siegrist** attended both the 1933 IGC in Washington and the 1989 IGC.

...The Spendiarov Prize from the U.S.S.R. Academy of Sciences, the most prestigious award given at the IGC, was presented to **Dr. Susan Werner Kieffer**.

Dr. Kieffer is a geologist with the U.S. Geological Survey's Branch of Igneous and Geothermal Processes in Flagstaff, Arizona.

Dr. Kieffer, who is the second American and the first woman to win the Spendiarov Prize, was cited for her "contributions to our knowledge of the Earth and the planets" and for her prolific research in fields ranging from volcanology and planetology to thermodynamics and river hydraulics.

Dr. Kieffer joined the USGS in 1979 and was elected to the National Academy of Sciences in 1986. Other awards she has received include the Alfred P. Sloan Foundation Fellowship in 1977-79, the Mineralogical Society of America Award in 1980, and the Department of the Interior Meritorious Service Award in 1987.

The only other American to receive the prize was Dr. Thomas B. Nolan, also a USGS scientist, who received it when the IGC was last held in the United States in 1933. Dr. Nolan served as Director of the USGS from 1956 to 1965. Now 88, he attended this year's presentation of the prize to Dr. Kieffer.

Young Geologists Meet In Budapest In 1991

by *Anna Balog*
Technical University of Budapest

An international meeting of young geologists will be held August 20-26, 1991, in Budapest, Hungary, according to the Youth Committee of the Hungarian Geological Society.

The official language for the meeting will be English. The meeting will be open to students, postgraduate fellows, and geologists who wish to gain insight into present and future trends in selected geological specialties and subspecialties. It will provide a unique forum for young scientists from all over

the world to meet and exchange ideas.

Field trips relating to the discussion topics are planned for the vicinity of Budapest. A number of short courses in selected topics also will be offered.

The meeting will be at the Youth Center at Csilleberc, in the Buda Mountains.

A copy of the first circular for this event may be obtained by writing to Dr. Anna Balog, Technical University of Budapest, Department of Geology, 1521 Budapest, Hungary.

FOR SALE

The entire contents of a high pressure laboratory are being offered for sale by Dr. S. Geller of the Department of Electrical and Computer Engineering, University of Colorado, Boulder, CO 80309. Included are a "Kiloton Hydropress" (after the late G.C. Kennedy) Model 5, with Heise gauge (0-750 bar), complete circuitry for automatic (ramp) and manual heating of specimens, Bristol strip-chart recorder for monitoring temperature, armor plate protective guards about the region of pressure application; a 40-ton press (Nugier); a 1.5 ton arbor press (Dake); 5 water cooled pressure plates for half- and one-inch I.D. carbide cores, and 1 pressure plate supporting a 3/8" I.D. carbide core; 5 end-load plates; several back-up plates; many push blocks; hundreds of pyrophyllite and talc cylinders for preparing furnace parts; 303 stainless steel rods 7/8 and 3/8" diam. 3-ft. long, at least a dozen of each, for furnace parts; miscellaneous tantalum rod and tubing; 6 2-ft. lengths of niobium rod, 3/16" diameter, 1 ft., Nb rod 5/8" diam.; 2 unused carbide inserts, 1/2" and 1" diam.; many piston supports; many 1" tungsten carbide pistons; many 1" and 1/2" diameter furnaces; steel-drawer cabinet for storing small parts. Price, a very reasonable \$12,000, f.o.b. the laboratory at University of Colorado.

IN MEMORIAM

We regret to announce the passing of the following MSA members.

The Society extends its condolences to the family and friends of these scientists.

Eadie, Arthur F., Member, 1967
Kendall, Charles T., Member, 1988
Taylor, Ralph E., Life Member, 1939

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