

The Lattice



Vol. 3, No. 3, August 1987

Council meets to set 1988 dues and initiate new member benefit

Dues increases were the focus of much debate at the second meeting of the 1987 Council, held May 17 at the Business Office. Acknowledging that the Society's operating expenses have exceeded the income from the present dues structure, the Council increased dues for 1988. After much discussion, it was decided that the dues increases were to be kept to a minimum with any deficit funded through the General Operating Fund.

Student dues continue to equal the "per copy" cost of *The American Mineralogist*, including postage. Member/fellow dues pay for the "per copy" cost of the journal, the newsletter, and activities associated with the annual meeting.

Student dues will increase to \$20 and member/fellow dues to \$40 in 1988. Associated life members who wish to receive the journal will pay dues of \$20 in 1988; spouse member dues will increase to \$15. Life members and associated life members who do not wish to receive the journal do not pay dues.

The associated life member category was established in 1985 for individuals who have reached the age of 65, are retired from active professional employment, and have paid annual dues for 30 years or more. Associated life members have the option of paying dues equivalent to the student dues rate and receiving the journal, or paying no dues and receiving all other member benefits. The life member category is now reserved for individuals who receive the Roebling medal or the MSA Award, or who pay a lump-sum amount equivalent to 25 times the annual dues rate.

The institutional subscription rate for *The American Mineralogist* will increase to \$140 in 1988, a \$10 increase over 1987. Institutions who subscribe to the journal also receive any new volumes of the *Reviews in Mineralogy* series published during the year of the subscription. At \$140, the journal continues to provide excellent value.

In other action, the Council reviewed the journal's page charge policy. Due to a lack of funding, many individuals have commented on their inability to pay page charges. Non-U.S. members, in particular, have had a difficult time finding money for page charges.

In view of this, the Council made several changes to the current policy.

Individuals will have two options. 1. Authors may pay full page charges of \$50 per page and receive 100 reprints. Individuals who pay full page charges may also purchase additional sets of 100 reprints and covers for the reprints. 2. Authors may purchase a quantity of reprints. The minimum order is 20 reprints, with increments increasing by 10 to a maximum of 100 reprints. This option was added to allow individuals to purchase the number of reprints they need, and also to help non-U.S. individuals who have funds for reprints, but not page charges.

The final change provides for 10 reprints of the article to be mailed to first authors who are MSA members and who do not have monies to pay page charges or to purchase the minimum quantity of reprints. The free reprints will only be mailed to first authors who are MSA members and only if none of

the authors of the paper have no funding available to them.

The report of the Committee on Committees, prepared by Vice-President David B. Stewart, was approved. This year, many new individuals have been asked to serve on the Society's committees. Secretary Henry O. A. Meyer is in the process of contacting each individual. This is the second year that committees for the next Council (1988) have been formed the preceding summer. It is hoped that by notifying individuals early, the committees will be in place when the new Council assumes its duties. A call for volunteers for 1989 will be published in the November and February issues of this newsletter. Interested individuals are encouraged to send their name to the Business Office or the Vice-President of the Society.

Members respond to questionnaire; Analysis underway

Approximately one-third of the questionnaires mailed to MSA members had been returned to the Business Office by July 15. This is a very large and helpful response, and a hearty "Thank you!" to everyone who took the time to reply. Nearly 400 members also wrote out suggestions and comments, which will provide the Council, the editors, the Business Office, and various committees with many useful suggestions and much insight. It is not too late to respond if you have not done so already.

Analysis of the more than 730 responses to the questionnaire is underway for consideration by the Futures Committee. This committee is charged with recommending priorities and new activities for the Society to the Council.

Responses to the question regarding federal funding of research are being analyzed by President Paul Ribbe and will be

reported in his presidential address, Tuesday, October 27, prior to MSA's Annual Meeting.

Preliminary analysis indicates that the professional affiliations and age distribution of the respondents fairly represents the membership of the Society as a whole, according to Business Office records. Professional academics made up 53% of the respondents, professionals working for government organizations 14%, professionals in industry 13%, students 11%, retirees 6%, and unemployed 1%. By age, 14% were 30 or younger, 36% were 31-40, 20% were 41-50, 15% were 51-60, 9% were 61-70, and 5% were over 70. *The American Mineralogist* was viewed as the primary membership benefit by a wide margin. Additional results of the questionnaire will be printed in *The Lattice* when analysis is complete.

An introduction

Earth sciences seek greater representation, funding through BES and NSF

Articles in previous issues of this newsletter have summarized various activities of the Board of Earth Sciences (BES) ("From the President," May, 1988) and the National Science Foundation (NSF) ("NSF program provides funds for instrumentation," February, 1987). Because of the growing concern over the representation of the earth sciences in the political arena and the disappearance of funding at the individual level, MSA will attempt to keep its members informed of the results of BES reports and NSF funding in its Division of Earth Sciences.

Below is a description of the BES's purpose, current committees, and recent accomplishments. A summary of the NSF 1988 budget request is also published below.

MSA President Paul H. Ribbe will explore in greater detail the state of NSF funding and the health of the earth sciences as a whole during his presidential address at the MSA/GSA Annual Meeting, Tuesday, October 27 at 10:30 a.m. Entitled, "Mammon and Prestige in Mineralogy and Petrology," the address will focus on areas of specific concern to MSA members. A summary of President Ribbe's address will be published in the November issue of this newsletter.

Board of Earth Sciences

The fundamental mission of the Board on Earth Sciences of the Commission on Physical Sciences, Mathematics, and Resources is: 1) to provide oversight of the solid-earth science activities within the National Research Council; 2) to provide a review of research and public activities in the solid-earth sciences; 3) to assess the health of the disciplines, and 4) to identify research opportunities.

This group is to take a leading role in helping to establish scientific policy bearing on larger earth science programs in and on behalf of the United States. A major charge of the Board and its committees is to assess and recommend basic research and its applications to meet national and societal needs.

The committees of the Board are: Committee on Seismology (COS), Committee on Geological Mapping (CGM), Committee Advisory to the U.S. Geological Survey (CAUSGS), Committee on Global and International Geology (CGIG), Committee on Geodesy (COG), Continental Scientific Drilling Committee (CSDC), Steering Committee for a Workshop on Physics and Chemistry of Earth Materials (PACEM), U. S. Geodynamics Committee

2/*The Lattice*

(USGC), and six national committees (USNC) that adhere to affiliated bodies of the International Council of Scientific Unions (ICSU).

The USNCs arrange for appropriate U.S. participation in international congresses and conferences by conducting travel grant programs to enable our best scientists to attend. The committees also interact with the international organizations and the

From the President

Playing Hardball

Dear MSA members:

On May 17th the Council of MSA met in cramped session in the Business Office on I Street in Washington, D.C. Those present dealt amiably with routine business matters and rather more impetuously with a new budget format. The Society as a whole emerged unscathed. In fact, the members got a break! Dues will increase in 1988, but only by half the amount originally announced—from \$35 to \$40, rather than \$35 to \$45.

The American Mineralogist will soon be the "best" mineralogical journal on the market, according to my projections of data from the *Science Citation Index*. The little "filler" that appeared on page 4 of the May issue of *The Lattice*, which said that in 1984 we were ranked second only to *Contributions to Mineralogy and Petrology*, caused a certain editor thereof to gloat. But his joy will be short lived. He hadn't heard that the Council is playing hardball, having instituted a policy of limited free reprints to first authors who are MSA members, provided there is no funding to pay page charges or to purchase quantities of reprints. He also hadn't learned about the flashy new cover that will adorn our journal come January 1988. Details will be announced on October 27th in Phoenix.

The study for my presidential address of funding and publishing in mineralogy, petrology, crystallography, and geochemistry is turning up some interesting and troubling facts . . . and numerous anecdotes. I'm eager to hear from still more of you with comments as well as questions on these subjects.

Looking forward to seeing you at GSA in Phoenix—if my abstract gets accepted!

Sincerely,

Paul H. Ribbe

Paul H. Ribbe
President

organizing committees to help select and conduct symposia and exhibits, as well as commissions and working groups.

The BES is planning a comprehensive study of the earth sciences to evaluate the outlook for the next decade. During the coming year, it plans to complete studies on seismic hazard analysis, paleontological collecting, global and international geology, physics and chemistry of earth materials, and four reports on continental drilling. BES committees will be active participants in the various international meetings in the coming years, including the 28th International Geological Congress (IGC) in Washington, D.C., July 9-19, 1989.

National Science Foundation

The President's FY 1988 Budget Request calls for an increase of nearly 17 percent in the NSF budget as a first step toward the goal of doubling that budget by 1992. This emphasis on basic research in the nation's universities and colleges is a key element in the Administration's plan to maintain and enhance the nation's economic competitiveness and technological leadership.

Included in this request is \$63,350,000 for the Division of Earth Sciences—an increase of \$13,490,000 (27.1%) over the Division's budget for FY 1987. This sum includes increases in support for individual research projects as well as continued growth of the Continental Lithosphere Program, new laboratory and field instrumentation, and new efforts relating to the Foundation's Global Geosciences initiative.

The Global Geosciences initiative involves the entire Directorate for Geosciences (Atmospheric, Earth, and Ocean Sciences plus Polar Programs) as well as the Division of Biotic Systems and Resources. This multidisciplinary initiative is focused on the study of the earth as a global system and is designed to complement and enhance national and international research efforts on this theme. Earth Sciences programs expect to spend a total of about \$5.5 million on this initiative in FY 1988.

Requested increases for Earth Sciences Project Support would partially relieve intense pressures resulting from FY 1986 Gramm-Rudman cuts and FY 1987 appropriations actions. Funding for Instrumentation and Facilities, also impacted in 1986 and 1987, would increase by nearly 20 percent.

Did you know . . .

. . . The report on the Workshop on the Physics and Chemistry of Earth Materials, referred to in the *President's Letter* in the May issue of this newsletter is available from Tom Usselman at the National Academy of Sciences at (202) 334-3349.

The Lattice is published quarterly (February, May, August, November) by the Mineralogical Society of America. The 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 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 and the joint MSA/Geological Society of America annual meeting; participation in a Society that supports the many facets of mineralogy.

Dues for 1987 are \$35 for professional members; \$15 for students. Membership is on a calendar year basis. Individuals who join after January 1, 1987 will be sent all back issues of the journal for volume 72, 1987.

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 \$130. The subscription price includes any new volume 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.

1987 President: P. H. Ribbe, Virginia Polytechnic Institute and State Univ

Past-President: P. B. Barton, Jr., U.S. Geological Survey

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

Secretary: H. O. A. Meyer, Purdue Univ

Treasurer: G. L. Nord, Jr., U.S. Geological Survey

Executive Secretary: Barbara B. Minich

Mineralogical Society of America
1625 I Street N.W., Suite 414
Washington, D.C. 20006
(202) 775-4344

. . . November 1 is the deadline for receipt of nominations for the 1988 American Mineralogist Undergraduate Award. Students nominated for this award receive a complimentary student membership in MSA, a certificate, and a subscription to *The American Mineralogist* for 1988.

To be eligible to nominate a student, a department must offer at least one course in mineralogy, petrology, or crystallography and have a permanent (or tenure-track) faculty member who is a member or fellow of MSA. The certificate must be presented during a departmental or university award program. Each department may nominate one student per year.

To nominate an outstanding undergraduate student, send a letter on department letterhead to the MSA Business Office. In the letter, provide the student's full name (for the certificate) and departmental address, year in school, interest area, the name of the MSA sponsor, and the date and a brief description of the award ceremony at which the certificate will be awarded. Nomination letters must be received by November 1.

. . . Volume 17 of the *Reviews in Mineralogy* series, *Thermodynamic Modelling of Geological Materials: Minerals, Fluids, Melts*, will be available at the MSA booth during the MSA/GSA Annual Meeting October 25-29 in Phoenix, Arizona.

. . . Renewal notices will be mailed to all members in late October. 1988 dues for student members will be \$20; for members and fellows, \$40. Once again, members will be able to order books from the *Reviews in Mineralogy* series at a 30 percent discount on the renewal notice. This year members will also be asked to complete and correct information for the new Membership Directory to be published in May, 1988. If you do not receive your renewal notice by November 15, please contact the Business Office.

. . . MSA has entered into an agreement with the Geological Society of Washington (GSW) to keep the GSW membership records. Under the agreement, the MSA Business Office will receive renewal notices and update the GSW membership records. In addition, the Business Office will mail GSW's bi-weekly meeting announcements beginning in October.

Society News

The new edition of the *GeoRef Serials List* and *KWOC* (Key Words Out of Context) *Index*, produced by the American Geological Institute (AGI), is now available. The new edition includes more than 10,000 earth-science serials that have been cited in the GeoRef database since 1967. The *Serials List* is arranged alphabetically by title and provides the complete title, abbreviated title, CODEN or ISSN (or both), and country of publication for each entry. The *KWOC Index* enables a user to identify a serial quickly by a significant word in the title. The publication is available in hard copy and microfiche from the Customer Service Department, AGI, 4220 King Street, Alexandria, VA 22302; (703) 379-2480 or (800) 336-4764. The paper copy (\$95) consists of 2,089 unbound, prepunched, 8-1/2" x 11" pages. A set of microfiche (\$35) includes 43 fiche (24x reduction.)

The Materials Research Society (MRS) has published the proceedings of the *MRS Symposium on Fly Ash and Coal Conversion By-Products: Characterization, Utilization and Disposal III*, held December 1-3, 1986 as part of the Fall MRS Meeting in Boston, MA. Six additional papers in this volume were presented in a joint session with an MRS Symposium on Microstructure Development During Hydration of Cement. These papers focus on the physical processes of cement and concrete materials incorporating coal ash.

The volume contains 32 peer-reviewed research papers and three summaries covering environmental considerations, characterization, and utilization of fly ash and coal conversion by-products. A section is also devoted to reactions, microstructure and modelling. Edited by Gregory J. McCarthy, Fredrik P. Glasser, Della M. Roy, and Sidney Diamond, the hardbound publication is 399 pages and includes a glossary of terms, and subject and author indexes. The price is \$37 for MRS members, \$42 in the U.S., and \$47 outside the U.S. Order from the Publications Department, MRS, 9800 McKnight Road, Suite 327, Pittsburgh, PA 15237; (412) 367-3012.

Members in the news

Congratulations to . . . **William Parrish**, IBM Corporation, Research Division, San Jose, California, has been selected to receive the J. D. Hanawalt Award for excellence in the field of Powder Diffraction. The award is sponsored by the International Centre for Diffraction Data and will be presented at the XIV General Assembly and International Congress of Crystallography this month. Dr. Parrish is a Life Fellow of MSA. . . **Kalervo Rankama**, Professor Emeritus of Mineral Chemistry at the University of Helsinki, has been elected an Honorary Member of the Geological Society of Finland. Dr. Rankama is a Life Fellow of MSA.

1987 Fall Short Course

Registration space filling fast for Thermodynamic Modelling short course

Individuals interested in attending the Fall Short Course: Thermodynamic Modelling of Geological Materials: Minerals, Fluids, Melts, are encouraged to register immediately. Registration is limited to 100 individuals on a first-come, first-serve basis and space is filling fast.

The meeting will begin with a welcoming reception Thursday evening, October 22 and continue through Sunday afternoon, October 25. Transportation will be provided from the Phoenix airport at approximately 3:30 p.m. and 7:30 p.m. on Thursday. Buses will leave at approximately 3:00 p.m. Sunday afternoon

and return participants to the main GSA hotels in Phoenix. In addition, registration fees include *Volume 17* of the *Reviews in Mineralogy* series, lodging Thursday, Friday, and Saturday nights; breakfast and lunch Friday, Saturday, and Sunday; the welcoming reception and light buffet dinner Thursday

It is hoped that the course will provide a useful supplement to existing thermodynamics courses. It is assumed that participants are familiar with elementary geological thermodynamics.

The Wickenburg Inn, located approximately 70 miles northwest of Phoenix

Spring 1988 Short Course

Spectroscopic methods topic for Spring

Spectroscopic Methods in Mineralogy and Geology is the topic of the 1988 Spring Short Course. Scheduled to begin with a welcoming party Thursday evening, May 12, and end the afternoon of Sunday, May 15, the course will run between the V. M. Goldschmidt Conference and the Spring Meeting of the American Geophysical Union. The tentative meeting site is the Embassy Suites Hotel located in the Hunt Valley area outside of Baltimore, Maryland. The hotel is across the street from the Marriott Hotel, which is the site of the Goldschmidt Conference, and convenient to the AGU meeting in downtown Baltimore.

Convened by Frank C. Hawthorne, The University of Manitoba, the short course will provide an introduction to the various elements of spectroscopy. Specific topics include: introductory quantum mechanics, symmetry and group theory, selection rules, the electromagnetic spectrum and ranges of the techniques, and timescales; spectrum fitting techniques, vibrational spectroscopy, vibrational spectroscopy in the OH-stretching region, Mossbauer spectroscopy, electronic absorption spectroscopy, NMR spectroscopy, ESR spectroscopy, XANES, EXAFS, etc. spectroscopy, Auger, XPS, and "future" spectroscopies.

Registration fees and a registration form will be included in the November issue of this newsletter. Mark your calendars now and plan to attend!

evening, and dinner on Friday and Saturday evening.

As with other short courses, the informal atmosphere will promote the exchange of ideas and information on the thermodynamic analysis of geological materials and processes, an indispensable tool for petrologists and geochemists.

H. P. Eugster, Johns Hopkins University, and I. S. E. Carmichael, University of California-Berkeley, will convene the three-day course. Specific topics and speakers include: Minerals—R. C. Newton, University of Chicago, B. J. Wood, Northwestern University, and A. Navrotsky, Princeton University; Electrolytes—K. S. Pitzer, University of California-Berkeley, and J. W. Weare, University of California—San Diego; High P-T Aqueous Solutions—D. Sverjensky, Johns Hopkins University; Igneous Gases and Fluids—J. R. Holloway, Arizona State University; Ore Fluids—G. H. Brimhall, University of California-Berkeley, and D. A. Crerar, Princeton University; Metamorphic Fluids—J. Ferry, Johns Hopkins University, L. Baumgartner, Johns Hopkins University, Eugster, and S. N. Olsen, Johns Hopkins University; Silicate Melts—M. S. Ghiorso, University of Washington, R. G. Berman, University of British Columbia, T. H. Brown, University of British Columbia, and Carmichael.

on Interstate 89, has been reserved for the sole use of meeting participants. To keep costs as low as possible, participants are offered a choice of registration fees depending on the lodging accommodations. Most sleeping rooms have patios and are situated in small cabins with the exception of a few rooms in the lodge. At this time, there are no single accommodations available and registration is limited to meeting participants because of the limited number of sleeping rooms. All registrants will be provided lodging. Should additional accommodations become available once all individuals desiring to attend the meeting are housed, participants will be given the opportunity to reserve a single room at a higher registration fee.

	Member	Non-Member
Student		
in quad room (4 individuals)	\$230	\$250*
in triple room (3 individuals)	\$250	\$270*
Professional		
in triple room (3 individuals)	\$365	\$410*
in double room (2 individuals)	\$405	\$450*

*Includes MSA membership for 1988.

As registrations will be accepted in the order they are received, individuals interested in the short course are encouraged to complete the registration form on the following page and return it as early as possible to the MSA Business Office, 1625 I Street N.W., Suite 414, Washington, D.C. 20006. Payment must accompany the registration form.

REGISTRATION FORM

Thermodynamic Modelling of Geological Materials:
Minerals, Fluids, Melts

October 22-25, 1987

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 100 individuals on a first-come, first-served basis.

Please type or print.

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

Address _____

(city) (state) (zip/postal code) (province) (country)

Telephone numbers () ()
(office) (home)

Please check appropriate registration category.

	Member	Non-Member
Professional:		
in triple room (3 individuals)	___ \$365	___ \$410*
in double room (2 individuals)	___ \$405	___ \$450*
Student:		
in quad room (4 individuals)	___ \$230	___ \$250*
in triple room (3 individuals)	___ \$250	___ \$270*

*includes MSA dues for 1988. Total amount due: \$ _____

Please check method of payment:

___ Enclosed is a check or money order in the amount of \$ _____.
___ Please charge me ___ 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)

(exp. date) (signature)

Please check items as appropriate:

___ I wish to share accommodations with (your name must appear on the registration
form of each individual listed below):

1. _____
(please print full name and affiliation or city/state)
2. _____
(please print full name and affiliation or city/state)
3. _____
(please print full name and affiliation or city/state)

___ Please assign me to a room. I am a ___ smoker ___ non-smoker.

Please list any special requirements regarding lodging or meals. _____

Please indicate your preference for the shuttle bus on Thursday, October 22.
___ 3:30 p.m. ___ 7:30 p.m. ___ I do not plan to use the shuttle bus.

Additional Details

Friends of Mineralogy

The Ninth Friends of Mineralogy—Tucson Gem and Mineral Society Symposium will be held February 14, 1988 in conjunction with the Tucson Gem and Mineral Show. The topic of the symposium will be beryl, the featured mineral of the show. Papers concerning all aspects of descriptive mineralogy and paragenesis of beryl are invited.

Presentations will be 15 or 20 minutes in length followed by a period for questions. An audience of knowledgeable amateurs as well as professional geologists and mineralogists is expected.

All authors will be required to submit a 200 word abstract by 1 September 1987; the abstract should have a heading with the title, and the author's name and address. Upon acceptance of the paper the author will be required to submit an extended abstract of from 1000 to 2000 words in length plus figures. Extended abstracts will consist of camera-ready text and illustrations.

Papers by students are encouraged and will be considered for the "Best Student Paper" award from Friends of Mineralogy. The award is intended to cover all or part of the expenses incurred by the student while traveling to the symposium.

Please submit abstracts to: FM—TGMS Symposium, Attn: Henry Truebe, Chairperson, c/o St. Joe American Corp., 2002 North Forbes Blvd., Tucson, AZ 85745.

Chapman Conference on Perovskites

Perovskites—A Structure of Great Interest to Geophysics and Materials Science is the topic of the 1987 Chapman Conference, convened by Alexandra Navrotsky, Princeton University. This meeting will bring together in an informal setting the materials community (which may be unaware of the tons of silicate perovskite purported to exist a few hundred kilometers beneath their feet) and the geophysics community (which may be unaware of the elegant theoretical and experimental studies done on ceramic perovskites).

Discussion will include the fundamental physics and chemistry of the perovskite structure type. The goal is a review of current knowledge, both theoretical and experimental, in order to permit mineral physicists to use all available approaches to delineate and constrain the likely properties of MgSiO₃-rich perovskite at high pressure and temperature.

All types of perovskite-related materials (titanates, zirconates, rare earth perovskites, silicates, and germanates) and halide perovskites will be included. Topics include energetics, structure, bonding, phase transitions, phase equilibria, electrical, optical and magnetic properties, elasticity, defects, dislocations, and reactivity.

The meeting, sponsored by the American Geophysical Union, will be held in Bisbee, Arizona, a small mining community offering a variety of historical and modern accommodations and a flavor of the Old West.

For registration information contact: MMMP: Perovskite Chapman, AGU, 2000 Florida Avenue N.W., Washington, D.C. 20009; (800) 424-2488 (in the D.C. area: 462-6903).

V. M. Goldschmidt Conference

The V. M. Goldschmidt Conference, sponsored by the Geochemical Society, will be held from Wednesday, May 11, to Friday, May 13, 1988. The three-day meeting will focus on the chemical aspects of the earth and planetary sciences. The meeting is co-sponsored by the European Association of Geochemistry, the International Association of Geochemistry and Cosmochemistry, MSA, and the Association of Exploration Geochemists. The Society of Environmental Geochemistry and Health is a participating society.

Technical sessions will consist of both oral and poster presentations. Planned symposia are: Eleventh Symposium of Geochemical Cycles; Paleoceanography; The Archean Environment; Ore-forming Processes; Geochemistry with Cosmogenic Isotopes; Environmental Geochemistry; Organic Geochemistry in Hydrocarbon Exploration; Origin and Diagenesis of Humic Substances, Coal, and Kerogen; Modern Concepts in Crystal Chemistry; Mantle Petrology and Mineralogy; and Geochemistry of Platinum Group Metals.

The deadline for submitting symposium abstracts is November 20, 1987. The deadline for contributed abstracts to the general symposia is December 18, 1987. The first circular was mailed to all MSA members in June. Abstract forms will be mailed to those responding to the First Circular. Additional abstract forms and more information on field trips and the meeting in general can be obtained by writing: Goldschmidt Conference Coordinator, 410 Keller Building, The Pennsylvania State University, University Park, PA 16802. Or, you may contact the General Chairman Dr. H. L. Barnes at: 235 Deike Building, The Pennsylvania State University, University Park, PA 16802; (814) 865-7573.

Spectroscopic Studies of Minerals: Principles, Applications and Advances

The first Winter Conference of the Mineralogical Society of Great Britain will be held December 16-18 at Aston University in Birmingham. Contributors will include: R. G. Burns, MIT; D. Adams, The University, Leicester; G. Calas, University of Paris; J. Dubessy, Nancy; B. A. Goodman, Macaulay Institute; F. C. Hawthorne, University of Manitoba; C. M. B. Henderson, The University, Manchester; R. J. Kirkpatrick, University of Illinois; and D. Urch, Queen Mary College.

Invited review papers will be given all day Wednesday, December 16, including the Hallimond Lecture by R. G. Burns. The Thursday morning session is "Spectroscopy of Non-crystalline Matter in Geochemistry: Mainly Glasses," convened by J. R. Ashworth on behalf of the Geochemistry Group. The afternoon session is "Spectroscopy in Applied Mineralogy," convened by D. J. Vaughan on behalf of the Applied Mineralogy Group. A poster session will be held Thursday evening. The Friday morning session, "Applications of Spectroscopic Methods in Clay Minerals Research," will be convened by D. C. Bain on behalf of the Clay Minerals Group.

Housing will be in student rooms on the Aston campus. For registration and housing costs, contact Dr. D. J. Vaughan or Dr. J. R. Ashworth at the Department of Geological Sciences, Aston University, Birmingham, B4 7ET, England. The registration deadline is October 31, 1987.

Meeting Calendar

1988

February

14 9th Friends of Mineralogy—Tucson Gem and Mineral Society Symposium. *Details: FM-TGMS Symposium, Attn: Henry Truebe, Chairperson, c/o St. Joe American Corp., 2002 North Forbes Blvd., Tucson, AZ 85745.*

April

5-8 Materials Research Society Spring Meeting. *Details: MRS, 9800 McKnight Road, Suite 327, Pittsburgh, PA 15237; (412) 367-3003.*

7-9 Second International Symposium on Experimental Mineralogy, Petrology, and Geochemistry. *Details: The Bochum Symposium, Institut für Mineralogie, Ruhr Universität, Postfach 10 21 48, D-4630 Bochum 1, West Germany.*

May

11-13 The V. M. Goldschmidt Conference organized by the Geochemical Society; co-sponsored by MSA, Baltimore, Maryland. *See additional details in Calendar section.*

13-15 MSA 1988 Spring Short Course, Spectroscopic Methods in Mineralogy and Geology. *See additional details elsewhere in this newsletter.*

15-20 American Geophysical Union Spring Meeting, Baltimore, Maryland. *Details: AGU, 2000 Florida Avenue N.W., Washington, D.C. 20009; (202) 462-6903.*

22-25 GAC/MAC/CSPG Joint Meeting. *Details: MAC, Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario, Canada M5S 2C6.*

June

19-24 11th International Symposium on the Reactivity of Solids, Princeton, New Jersey. *Details: Dr. M. Stanley Whittingham, P.O. Box 669, Ridgefield, CT 06877.*

October

29-30 Hydrous Phyllosilicates exclusive of Micaceous Minerals. MSA Short Course, Denver, Colorado. *Details: MSA Business Office.*

31-Nov. 3 1988 MSA/GSA Annual Meeting, Denver, Colorado. *Details: MSA Business Office.*

November

28-Dec. 3 Materials Research Society Fall Meeting. *Details: MRS, 9800 McKnight Road, Suite 327, Pittsburgh, PA 15237; (412) 367-3003.*

1989

May

MAC Short Course: Diagenesis; Montreal, Quebec, Canada. *Details: MAC, Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario, Canada M5S 2C6.*

July

9-19 28th International Geological Congress, Washington, D.C. *Details: Dr. Bruce B. Hanshaw, Secretary General, P. O. Box 1001, Herndon, VA 22070-1001; (703) 648-6053.*

September

1 Abstract deadline for the 9th Friends of Mineralogy-Tucson Gem and Mineral Society Symposium. *Details: FM-TGMS Symposium, Attn: Henry Truebe, Chairperson, c/o St. Joe American Corp., 2002 North Forbes Blvd., Tucson, AZ 85745.*

6-11 Electron Microscopy and Analysis Group 87: 6-7 Advanced course on Acquisition and Processing of Scanned Images; 7-11 Main Conference; 9-11 Workshop on Analytical E.M. with High Spatial Resolution. *Details: Meetings Office, Institute of Physics, 47 Belgrave Square, London SW1X 8QX, England.*

7-9 Science of Ceramics 14: International conference organized by Institute of Ceramics. Topics include chemistry and phase relations; physical properties; reactivity. *Details: Mrs. Buchanan, Shelton House, Shelton, Stoke-on-Trent ST4 2DR, England.*

7-10 6th Meeting of the European Clay Groups (Sevilla, Spain). *Details: Prof. Emilio Galan, EUROCLAY '87, Dpto. de Geología, Facultad de Química, Apartado 553, Universidad de Sevilla, 41071 Sevilla, Spain.*

14-18 5th Meeting of Int. Working Group on Submicroscopy of Undisturbed Soil Materials. *Details: Dr. W. J. McHardy, Macaulay Inst. for Soil Research, Craigiebuckler, Aberdeen AB9 2QJ, Scotland.*

October

1 Abstract deadline for contributed papers to the symposia at the 1988 Spring Meeting of the Materials Research Society. *Details: MRS, 9800 McKnight Road, Suite 327, Pittsburgh, PA 15237.*

5-7 International Symposium on Crystallization and Precipitation. *Details: ISCAP '87, P. O. Box 607, Saskatoon, Saskatchewan, Canada S7K 3L6.*

22-25 Thermodynamic Modelling of Geological Materials: Minerals, Fluids, Melts. MSA Short Course, Phoenix, Arizona. *See details elsewhere in this newsletter.*

26-29 1987 MSA/GSA Annual Meeting, Phoenix, Arizona. *See additional details, housing form, and registration form elsewhere in this newsletter.*

30-Nov. 3 Chapman Conference on Perovskites: A Structure of Great Interest to Geophysics and Materials Science (Bisbee, Arizona). *See details in Calendar section.*

November

30-Dec. 5 Materials Research Society Fall Meeting. *Details: MRS, 9800 McKnight Road, Suite 327, Pittsburgh, PA 15237; (412) 367-3003.*

December

7-11 American Geophysical Union Fall Meeting, San Francisco, California. *Details: AGU, 2000 Florida Avenue N.W., Washington, D.C. 20009; (202) 462-6903.*

16-18 First Winter Conference: Spectroscopic Studies of Minerals: Principles, Applications and Advances. Mineralogical Society of Great Britain. *Details: Dr. D. J. Vaughan, Dept of Geological Sciences, Aston University, Aston Triangle, Birmingham B4 7ET, England.*

Welcome!

The following new members and students have joined MSA effective January 1, 1987. 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, 1987 will be made effective January 1, 1988 unless otherwise requested.

Alstott, David, P. O. Box 1246, Lafayette, IN 47902. O: (317) 448-4319. H: (317) 474-2365. (M-87)MI Sponsor: MSA.

Barth, W. H., Geology Department, University of Tasmania, GPO Box 2520, Hobart 7001, Australia. O: 002202490. H: 002238365. (M-87)MI Sponsors: W. R. Taylor and T. J. Falloon.

Belschner, Susan A., 4403 Grandview Avenue, Baltimore, MD 21211. O: (301) 467-7774. H: (301) 889-2972. (M-87)MI Sponsor: MSA.

Bettison, Lori, Department of Geology, University of California, Davis, CA 95616. O: (916) 752-0350. H: (916) 753-5423. (ST-87)GE Sponsors: P. Schiffman and T. N. Tingle.

Boberski, Cornelia, Kirchbachstrasse 12, 433 Muelheim 11, West Germany. (M-87)MI Sponsor: MSA.

Borders, Ed, 8948 Cedargate Place, Dayton, OH 45424. H: (513) 667-8930. (ST-87)MI Sponsor: MSA.

Brabander, Daniel, Department of Geological Sciences, State University of New York, Binghamton, NY 13901. O: (607) 777-2264. H: (607) 729-5406. (ST-87)GE Sponsors: D. M. Jenkins and R. W. Lykins.

Brenan, James, Department of Geology, West Hall RPI, Troy, NY 12180. O: (518) 266-6475. H: (518) 274-7400. (ST-87)IP Sponsors: F. Spear and D. R. Baker.

Broekmans, Matm, Hoornestraat 30, NL-6824 AL Arnhem, The Netherlands. H: 085454879. (ST-87)MI Sponsors: R. O. Felius and J. B. H. Jansen.

Charusiri, Punya, Department of Geology, Queen's University, Kingston, Ontario, Canada K7L 3N6. (ST-87)EG Sponsors: R. C. Peterson and C. D. Rodee.

Doppler, Michael, IM Breitenbaum 5, 7518 Bretten, West Germany. H: 072527473. (ST-87)MI Sponsors: A. El Goresy and D. Burkhard.

Engi, Martin, Mineralogie, Univ Bern, Baltzerstrasse 1, CH-3012 Bern, Switzerland. O: 031658497. H: 031244804. (M-87)MP Sponsors: R. Oberhansli and I. Mercolli.

Fyzikawa, Kazuo, Av. Vryguai 531 sion, Belo Horizonte 30310, Brazil. O: 0312217599. H: 0314418841. (M-87)EG Sponsor: MSA.

8/The Lattice

Gaynor, Andrew D., 170-25, California Institute of Technology, Pasadena, CA 01125. O: (818) 356-6145. H: (818) 796-5237. (ST-87)GE Sponsors: G. R. Rossman and G. H. Miller.

Georgens, Robert, 4 Serven Road, Suffern, NY 10901. O: (914) 623-8088. H: (914) 354-3301. (M-87)SP Sponsor: MSA.

Gilligan, J. M., Geology Department, The University, Southampton SO9 5NH, England. O: 0703559122 x2121. H: 0703738347. (ST-87)EG Sponsor: H. O. A. Meyer.

Gudmundsson, Gisli, Department of Geology, Arizona State University, Tempe, AZ 85287. O: (602) 965-6598. (ST-87)GE Sponsors: T. Stanton and J. R. Holloway.

Hacker, Bradley, Department of Earth and Space Sciences, University of California, Los Angeles, CA 90024. O: (213) 825-3272. H: (213) 322-1296. (ST-87)MP Sponsors: M. Brearley and B. White.

Hill, L. Bruce, Department of Natural Sciences, Chapman College, Orange, CA 92666. O: (714) 997-6626. (M-87)MP Sponsor: MSA.

James, Richard S., Department of Geology, Laurentian University, Sudbury, Ontario, Canada P3E 2C6. O: (705) 675-1151 x2270. H: (705) 522-7749. (M-87)MI Sponsor: J. J. Fawcett.

Jiang, Wei-Teh, Department of Geological Sciences, University of Michigan, Ann Arbor, MI 48109. O: (313) 763-5134. (ST-87)MI Sponsors: D. R. Peacor and L. Donaghe.

Jones, William B., Department of Geosciences, University of Houston, Houston, TX 77004. O: (713) 749-1763. H: (713) 784-3005. (ST-87)IP Sponsors: M. F. Carman, Jr. and D. Elthon.

Kokines, Anna, Department of Geological Sciences, University of Illinois, Chicago, IL 60680. O: (312) 996-3158. H: (312) 383-3145. (ST-87)MI Sponsors: S. Guggenheim and A. F. Koster van Groos.

Kroll, Herbert, Institut fuer Mineralogie, Corrensstr.24, D-4400 Muenster, West Germany. O: 0251833455. (M-87)MI Sponsors: H. Pentinghaus and H. Wondratschek.

Lutinski, Sandra M., 25 Woodbine Circle, Bridgeport, CT 06606. H: (203) 371-6191. (M-87)MI Sponsor: MSA.

Lutinski, Lawrence J., 25 Woodbine Circle, Bridgeport, CT 06606. H: (203) 371-6191. (SP-87)MI Sponsor: MSA.

Mader, Urs, Department of Geological Sciences, University of British Columbia, 6339 Stores Road, Vancouver, British Columbia, Canada V6T 2B4. O: (604) 228-2449. (ST-87)PE Sponsors: P. J. Michael and E. P. Meagher.

Maras, Adriana, Via C. Iacobini 185, I-00139 Roma, Italy. H: 068191093. (M-87)MI Sponsors: A. Mottana and G. Graziani.

McMullin, David W. A., Department of Geological Sciences, University of British Columbia, Vancouver, British Columbia, Canada V6T 2B4. O: (604) 228-2449. H: (604) 738-2500. (ST-87)MP Sponsors: H. J. Greenwood and R. G. Berman.

Morgan, George B., 946 Deonne Circle, Norman, OK 73071. O: (405) 325-3253. H: (405) 360-5401. (ST-87)GE Sponsors: D. London and M. Cameron.

Rainey, Laura, Department of Geology, University of North Carolina, Chapel Hill, NC 27514. O: (919) 966-4516. H: (919) 968-0825. (ST-87)MP Sponsors: J. R. Butler and A. F. Glazner.

Rawat, Rajender Singh, 16-Curzon Road, Dalanwala, 248001 Dehradun, India. O: 27387. H: 23458. (M-87)MI Sponsors: K. E. Windom and S. M. Richardson.

Rogers, Graeme, SURRC, East Kilbride G75 0QU, Scotland. O: 0355220222. (M-87)GE Sponsor: MSA.

Sedat, Bernd, Wasserstrasse 274, 4630 Bochum 1, West Germany. (M-87)SP Sponsor: MSA.

Seitz, H.-Michael, Geology Department, University of Tasmania, GPO Box 252 C, Hobart, Tasmania 7001, Australia. (ST-87)MI Sponsors: T. Falloon and W. R. Taylor.

Shrestha, Purusotam L., New Mexico Tech., P. O. Box 3278, Campus Station, Socorro, NM 87801. O: (505) 835-1604. H: (505) 835-1604. (ST-87)MI Sponsor: MSA.

Smith, Jeffrey, 21 West Street, Apt. 5, Bristol, CT 06010. H: (203) 582-8531. (M-87)MI Sponsor: MSA.

Stephens, W. E., Department of Geology, University of St. Andrews, St. Andrews KY16 9ST, Scotland. H: 033476161. (M-87)IP Sponsors: W. S. MacKenzie and J. Zussman.

Waldron, Kim, Department of Geology, The University, Manchester M13 9PL, England. O: 0114461273 x 7121. (M-87)MP Sponsors: R. J. Tracy and G. V. Gibbs.

In memoriam

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

Anderson, A. Benton
Life Member, 1948

Burri, Conrad R.
Life Fellow, 1949

August, 1987

MSA Activities at GSA

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, then schedule symposia and poster sessions. It is the combined efforts of these individuals that consistently produce a quality meeting. Special thanks this year to MSA representative Roger G. Burns, MIT, and conferees Jo Laird, University of New Hampshire, and James J. Papike, South Dakota School of Mines and Technology.

In addition to selecting 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 works 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 1987 Council

Sunday, October 25

Hyatt Regency Hotel

Russell B

7:30 a.m.-5:00 p.m.

The 1987 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 this its final meeting. The report of the Tellers Committee will also be certified. Council decisions will be announced at the Business Meeting on Tuesday, October 27.

Past Presidents' Breakfast

Monday, October 26

Hyatt Regency

Remington A

7:30-9:00 a.m.

The Past Presidents of the Society will hold their annual breakfast to discuss the long-term goals and activities of the Society.

MSA Booth, #316-318

Monday, October 26 9:00 a.m.-6:30 p.m.

Tuesday, October 27 9:00 a.m.-5:00 p.m.

Wednesday, October 28 8:00 a.m.-4:00 p.m.

Phoenix Civic Plaza

Exhibit Halls D & E

Be sure you visit the MSA booth at the Geoscience Exhibit. The newest volume in the *Reviews in Mineralogy* series, *Thermodynamic Modelling of Geological Materials: Minerals, Fluids, Melts*, will be available, as will the other books in this series. For the first time, the booth will be expanded so there will be room for members to talk to colleagues, as well as Society officers and staff. 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, October 27

Civic Plaza

Room: Yuma 21-22

10:30-11:45 a.m.

MSA President Paul H. Ribbe will give his presidential address, "Mammon and Prestige in Mineralogy and Petrology," 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.

MSA Symposium: Synchrotron Radiation

Research in the Geological Sciences

Monday, October 26

Civic Plaza

Room: Phoenix 18-20

1:00-5:00 p.m.

In recent years, the fields of x-ray diffraction and spectroscopy have been revolutionized by the construction of several high-intensity synchrotron x-ray sources in the United States, West Germany, Great Britain, Japan, France, Italy, and the Soviet Union. The MSA Symposium includes papers that discuss how earth scientists are becoming involved in applying synchrotron radiation techniques to geological problems. Attendees will learn what synchrotron radiation is, how it is used, and how they can participate in this exciting new scientific endeavor. Subjects and speakers are listed below.

New developments in synchrotron radiation—W. A. Bassett;

Synchrotron x-ray absorption spectroscopy: methods, applications, and limitations—G. E. Brown, Jr., G. A. Waychunas, W. E. Jackson, C. W. Ponader, and G. A. Parks;

Local order and polyhedral interrelations in glasses and gels through EXAFS—G. Calas, J.-M. Combes, F. Farges, A. Manceau, and J. Petiau

Analysis of fluid inclusions by x-ray fluorescence using synchrotron radiation—J. D. Frantz, H. K. Mao, Y. G. Zhang, Y. Wu, A. C. Thompson, Jr., J. H. Underwood, and R. D. Giauque;

The metamict state in complex oxides revealed by x-ray absorption spectroscopy—R. B. Gregor, F. W. Lytle, B. C. Chakoumakos, G. R. Lumpkin, T. Murakami, and R. C. Ewing;

Structural studies in the megabar pressure range with synchrotron radiation—A. P. Jephcoat, H.-k. Mao, R. J. Hemley, L. W. Finger, C.-S. Zha, and D. E. Cox;

High-pressure high temperature research in mineral physics using synchrotron radiation—M. H. Manghnani and L.-C. Ming;

Powder diffraction studies of minerals using synchrotron radiation—C. T. Prewitt and L. W. Finger;

Synchrotron x-ray fluorescence microprobe I: Theory, experimental techniques, and analytical procedure—M. L. Rivers, S. R. Sutton, J. V. Smith, and K. W. Jones;

Synchrotron x-ray fluorescence microprobe II: Exploratory geochemical and cosmochemical studies—J. V. Smith, M. L. Rivers, S. R. Sutton, and K. W. Jones;

Recent activities of mineralogy group in Photon Factory, KEK, Japan—S. Sueno and M. Kimata; and

Olivine-spinel transformation in fayalite: kinetics and mechanism of the transformation, and equations of state of each phase—T. Yagi.

MSA Activities

Continued from page 9.

Annual Awards Luncheon

Tuesday, October 27

Hyatt Regency

Regency Ballroom B

12:15-2:00 p.m.

G. V. Gibbs, recipient of the 1987 Roebling Medal, and Donald J. DePaolo, recipient of the MSA Award for 1987, will be honored at this annual luncheon. Following these presentations, 1987 President Paul H. Ribbe will pass the gavel to the 1988 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.

MSA Reception

Tuesday, October 27

Hyatt Regency

Regency Ballroom B

5:30-7:30 p.m.

After the positive response to this new activity last year, an additional hour has been added and the room has not been scheduled for any other activities (!). All MSA members and scientists interested in mineralogy, petrology, and crystallography are invited to attend and enjoy a drink with colleagues.

First Meeting, 1988 Council

Tuesday, October 27

Hyatt Regency

Remington B

7:45-11:00 p.m.

Members of the 1988 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 learn about the ongoing activities of the Council.

GSA Registration

The following pages contain housing and registration information for the GSA/MSA Annual Meeting. Because of space limitations, the full circular has not been printed this year. Instead, the registration form and housing reservation form have been included with relevant information. For a complete circular, including information on field trips, GSA short courses, and other short courses, please contact the Geological Society of America, 3300 Penrose Place, Boulder, CO 80301; (303) 447-2020.

WELCOME

Geologists and their guests are warmly welcomed to the geologic wonderland of the Southern Cordillera. In this area are the Rocky Mountains, the Colorado Plateau, much of the Basin and Range province, the Cordilleras of Mexico, and the Rio Grande rift.

Geologists will be treated to an extensive array of field trips. They will be challenged by data from recent research that shows fresh insights and raises new questions. This promises to be one of the Society's largest and most interesting meetings.

Phoenix is a gateway to reach impressive natural wonders and unusual cultures that excel in their beauty, scale, and emotional impact. Arizona's boundaries encompass the Grand Canyon, Lake Powell, San Francisco Peaks, Sedona, Oak Creek Canyon, Monument Valley, and Canyon de Chelly. If at all possible, plan to extend your visit through a weekend during this exquisite time of year.

PREREGISTRATION FORM

GSA Annual Meeting • October 26-29, 1987

Preregistration must be RECEIVED by September 25. Payment and form MUST accompany all preregistration requests. Unpaid purchase orders NOT accepted as valid registration. One form per registrant. Cancellation deadline: October 2. No refunds on cancellations received after this date.

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 (2) CF (3) GS (4) GIS (5) MSA (6) NAGT (7) PS (8) SEG

		PRICE	QTY	AMOUNT
PREREGISTRATION FEES registration required for participation in all events	Professional Member (member of affiliation checked above)	(1) \$ 90	1	\$ _____
	Member One-Day (circle day S M T W T)	(2) \$ 52	1	\$ _____
	Professional Nonmember	(3) \$130	1	\$ _____
	Nonmember One-Day (circle day S M T W T)	(4) \$ 72	1	\$ _____
	Student Member (member of affiliation checked above)	(5) \$ 45	1	\$ _____
	Member One-Day (circle day S M T W T)	(6) \$ 26	1	\$ _____
	Student Nonmember	(7) \$ 65	1	\$ _____
	Nonmember One-Day (circle day S M T W T)	(8) \$ 36	1	\$ _____
	Guest (fill in name above for badge)	(9) \$ 30		\$ _____

ABSTRACTS WITH PROGRAMS (reserved for on-site pickup)

GUEST ACTIVITIES	Trail Ride Superstition Mountain	Oct. 26	(10) \$ 45	_____	\$ _____
	Sedona & Oak Creek Canyon	Oct. 27	(11) \$ 45	_____	\$ _____
	Desert Gardens & Scottsdale	Oct. 28	(12) \$ 30	_____	\$ _____
	Heard Museum	Oct. 29	(13) \$ 4	_____	\$ _____
SPECIAL EVENTS	Invitational Tennis	Oct. 25	(14) \$ 10	_____	\$ _____
	10K Run (check T-Shirt Size __S __M __L __XL)	Oct. 28	(15) \$ 10	_____	\$ _____
	5K Run (check T-Shirt Size __S __M __L __XL)	Oct. 28	(16) \$ 10	_____	\$ _____
	Cookout at GSA Corral	Oct. 28	(17) \$ 16	_____	\$ _____

TICKETED MEAL FUNCTIONS luncheons unless noted	Geoscience Information Society	Oct. 26	(18) \$ 15	_____	\$ _____
	Engineering Geology 40th Anniversary	Oct. 27	(19) \$ 15	_____	\$ _____
	Geophysics Division	Oct. 27	(20) \$ 15	_____	\$ _____
	Hydrogeology Division	Oct. 27	(21) \$ 15	_____	\$ _____
	Mineralogical Society	Oct. 27	(22) \$ 15	_____	\$ _____
	National Association of Geology Teachers	Oct. 27	(23) \$ 15	_____	\$ _____
	Paleontological Society	Oct. 27	(24) \$ 15	_____	\$ _____
	Sedimentary Geology Breakfast	Oct. 27	(25) \$ 10	_____	\$ _____
	Women Geoscientists Breakfast	Oct. 27	(26) \$ 10	_____	\$ _____
	Coal Geology Division	Oct. 28	(27) \$ 15	_____	\$ _____
	Geochemical Society	Oct. 28	(28) \$ 15	_____	\$ _____
History of Geology	Oct. 28	(29) \$ 15	_____	\$ _____	
Quaternary Geology and Geomorphology	Oct. 28	(30) \$ 15	_____	\$ _____	
Society of Economic Geologists	Oct. 28	(31) \$ 15	_____	\$ _____	

SUBTOTAL \$ _____

GO TO NEXT PAGE 

SUBTOTAL CARRIED FORWARD \$ _____



FIELD TRIPS

meeting registration not required

			PRICE	QTY	AMOUNT
1. Mesozoic Thrust Faults	Oct. 23-25	(32)	\$198	1	\$ _____
2. Terraces, Lower Salt River Valley	Oct. 25	(33)	\$ 54	1	\$ _____
3. Lower Cretaceous Patch Reefs	Oct. 23-25	(34)	\$166	1	\$ _____
4. Archaeological Geology, Southeastern Arizona	Oct. 23-25	(35)	\$184	1	\$ _____
5. Paleoecology, Taphonomy, Gulf California	Oct. 22-25	(36)	\$214	1	\$ _____
6. Late Paleozoic Depositional Systems	Oct. 22-25	(37)	\$123	1	\$ _____
7. Geomorphology, Structure, Colorado Plateau	Oct. 22-25	(38)	\$132	1	\$ _____
8. Tectonic Magmatic Contrasts, Central Arizona	Oct. 23-25	(39)	\$163	1	\$ _____
9. Colorado River Float Trip	Oct. 17-24	(40)	\$920	1	\$ _____
10. Late Cenozoic Volcanism, Southern Colorado Plateau	Oct. 23-25	(41)	\$162	1	\$ _____
11. Geology of Grand Canyon, backpack	Oct. 22-25	(42)	\$212	1	\$ _____
12a. Miocene Extension, Sedimentation, Southern Nevada	Oct. 22-25	(43)	\$235	1	\$ _____
12b. Miocene Extension with air to Phoenix	Oct. 22-25	(44)	\$275	1	\$ _____
13. Late Pleistocene Alluvium Megafauna	Oct. 22-25	(45)	\$256	1	\$ _____
14a. Large-Scale Silicic Volcanism	Oct. 22-25	(46)	\$323	1	\$ _____
14b. Large-Scale Silicic with air to Phoenix	Oct. 22-25	(47)	\$366	1	\$ _____
15. Cretaceous Black Mesa, Kaiparowits Basin	Oct. 22-25	(48)	\$226	1	\$ _____
16. Crustal Transect: Colorado Plateau	Oct. 21-25	(49)	\$323	1	\$ _____
17. Coal Deposits, Facies Changes	Oct. 21-25	(50)	\$275	1	\$ _____
18. Selected Hydrogeologic Problems	Oct. 25	(51)	\$ 41	1	\$ _____
19. Mesozoic Tectonics, Southeastern California	Oct. 22-25	(52)	\$319	1	\$ _____
20a. Geology Lower Grand Canyon by Boat	Oct. 30-Nov. 1	(53)	\$362	1	\$ _____
20b. Geology Lower Grand with air to Las Vegas	Oct. 30-Nov. 1	(54)	\$402	1	\$ _____
21. Geologic Reconnaissance, Western Grand Canyon	Oct. 29-Nov. 1	(55)	\$458	1	\$ _____
22. Metamorphic Core Complexes, Old Woman Mountains	Oct. 29-Nov. 2	(56)	\$348	1	\$ _____
23. Alkaline Rocks, Volcanic Structures	Oct. 29-Nov. 1	(57)	\$256	1	\$ _____
24. Land Subsidence, Earth Fissure Formation	Oct. 30	(58)	\$ 48	1	\$ _____
25. Late Cenozoic Mammal Faunas, Southeastern Arizona	Oct. 30-31	(59)	\$116	1	\$ _____
26. Geology Porphyry Copper Ores, Globe	Oct. 30	(60)	\$ 41	1	\$ _____
27. Ductile Brittle Evolution, South Mountains	Oct. 30	(61)	\$ 38	1	\$ _____
28. Structural Geology, South Mountains	Oct. 30-Nov. 1	(62)	\$208	1	\$ _____
29. Tectonic Setting, Sedimentological Features	Oct. 29-Nov. 1	(63)	\$257	1	\$ _____
30a. Geology, Structure, Alteration, Jerome	Oct. 30	(64)	\$ 45	1	\$ _____
30b. Geology, Structure, Alteration, Jerome	Oct. 31	(65)	\$ 45	1	\$ _____
31. Upper Holocene Alluvium, Southern Colorado Plateau	Oct. 29-Nov. 1	(66)	\$263	1	\$ _____
32. Mesquite Mine	Oct. 29-31	(67)	\$254	1	\$ _____
33. Cross-Bedding, Other Eolian Structures	Oct. 29-Nov. 1	(68)	\$212	1	\$ _____
34. Superstition Volcanic Field	Oct. 30	(69)	\$ 46	1	\$ _____

SHORT COURSES

meeting registration not required

1. Planetary Geology and Remote Sensing:						
Short Courses and Field Trips	Day One	Oct. 23	(70)	\$ 85	1	\$ _____
	Day Two	Oct. 24	(71)	\$ 45	1	\$ _____
	Day Three	Oct. 25	(72)	\$ 70	1	\$ _____
2. Contaminant Hydrogeology						
3. Quantitative Sedimentary Basin Modeling						
4. Site Characterization, Nuclear Waste						
5. Basin Analysis and Sedimentary Geology						
6. Spreadsheets on Microcomputers						
7. Writing History of Geology: Workshop						
8. Paleoseismology and Active Tectonics						

TOTAL REMITTANCE (full payment must be enclosed) \$ _____

Mail to: '87 GSA Annual Meeting, P.O. Box 9140, Boulder, CO 80301

Remit in U.S. funds, payable to '87 GSA Annual Meeting or charge: American Express Diners Club/ Carte Blanche MasterCard VISA

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

FOR OFFICE USE ONLY	Deposit Date _____	Comment _____
	Balance Due \$ _____	_____
	Refund \$ _____	_____
	Refund Ck # _____	_____
	Refund Date _____	_____

REGISTRATION

PREREGISTRATION DEADLINE: MUST BE RECEIVED NO LATER THAN SEPTEMBER 25

1. There is a 17% 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.
2. Registration is required for all attendees. Badges will be required for ALL activities 10:00 a.m. Sunday through 5:00 p.m. Thursday. There will be a fee charged for all lost badges.
3. Registration discounts are given to GSA or Associated Society members. Associated Societies that qualify for this discount are indicated on the registration form. Please indicate your affiliation(s) and member number, and register using the member rates.
4. Full payment MUST accompany registration. Unpaid purchase orders are not accepted as valid registration. Charge cards are accepted as indicated on preregistration form. If using a charge card, please recheck the card number given—errors will delay your registration.
5. Register one professional or student per form. Copy the form for your records. One-day registrants MUST indicate the day they plan to attend on the registration form.
6. Guest registration is required for guests attending guest activities, special events, and luncheons. The registration fee does not include admission to the technical sessions. Guest registrants MUST be accompanied by either a professional or student registrant.
7. CURRENT student ID is required to obtain student rates at both the on-site and preregistration counters.

REGISTRATION FEES

	Advance*	On-Site	One-Day
Professional—Member	\$ 90	\$105	\$52
Professional—Nonmember	\$130	\$145	\$72
Student—Member	\$ 45	\$ 52	\$26
Student—Nonmember	\$ 65	\$ 72	\$36
Guest	\$ 30	\$ 45	- -

*Registration fees received before September 25.

ON-SITE REGISTRATION SCHEDULE

Civic Plaza, Lobby 2

Sunday, Oct. 25	10:00 a.m.–7:00 p.m.
Monday, Oct. 26	7:30 a.m.–5:00 p.m.
Tuesday, Oct. 27	7:30 a.m.–5:00 p.m.
Wednesday, Oct. 28	7:30 a.m.–2:00 p.m.
Thursday, Oct. 29	7:30 a.m.–2:00 p.m.

CANCELLATIONS AND REFUNDS

GSA will refund advance registration fees for cancellations received in writing by OCTOBER 2. NO REFUNDS WILL BE MADE ON CANCELLATION NOTICES RECEIVED AFTER THIS DATE. Refunds will be mailed from GSA after the meeting; a \$10 processing fee will be charged. Refunds for fees paid by credit card will be credited according to the card number on the preregistration form. NO refunds for on-site registration and ticket sales.

NEW MEMBERSHIP DISCOUNTS

A \$40 member discount on registration applies to any professional member of GSA or an Associated Society. The Associated Societies that qualify are listed on the registration form. Professional registrants who paid the nonmember registration fee and apply for GSA membership by March 31, 1988, will be entitled to a \$40 discount from the 1988 membership fee. Students will receive a \$15 discount from the 1988 Student Associate membership fee. Only ONE discount will apply per person. In order to receive the reduction, a copy of the meeting registration form MUST be attached to the membership application. Membership applications are available from GSA headquarters. During the meeting, you can pick up applications at the GSA Bookstore (Exhibit Hall, Booth #612), Employment Service, or Membership Desk, Registration Area, Civic Plaza.

TECHNICAL PROGRAM SCHEDULE — 1987

= SYMPOSIA IDENTIFICATION ITALICS = THEME SESSIONS UPPER/LOWER CASE = VOLUNTEERED SESSIONS ALL CAPS = POSTER SESSIONS

SUNDAY OCT. 25	MONDAY OCT. 26	TUESDAY OCT. 27	WEDNESDAY OCT. 28	THURSDAY OCT. 29
8:15 a.m.—12:00 noon	8:00 a.m.—12:00 noon	8:00 a.m.—12:00 noon	8:00 a.m.—12:00 noon	8:00 a.m.—12:00 noon
#11 Geochem—Part I #16 SEG—Part I #26 Orig of Methane—Part I	# 2 Coal # 6 Hydrog # 9 Struct #12 GIS Econ I General/Precam I Geochem I Ig Pet I Micropaleo Paleo/Petroleum Quat I/Glacial Tect-Geophysics I MIN CRYST. PETROLOGY, SED PET, SEDIMENT	# 7 Planet/Quat—Part I #15 Paleo #19 Cordilleran-Caribbean Connection Arch Econ III Hist/Geol Ed/GIS Hydrog II Min Cryst Sed Pet II Strat II Tect II Tect-Geophysics II COAL, ENG, MARINE, PETROLEUM, OCEAN, STRUCT	#14 NAGT #20 Western Interior Seaway #21 Tect Colo R Region #23 "Anorogenic" silicic magmatism <i>Climate Change S. Lat/ODP</i> Environ Geochem III Geomorph I <i>Late Cret Tect N Cordillera</i> Met Pet II Struct III Tect IV GEOCHEM, PALEO, PALEOBOT, MICROPALAEO	#22 Prof. Assembly SW N Amer #24 Cordilleran Fold/Thrust Belt #27 Rio Grande Rift Econ V Ex Pet II Geochem V Marine II Paleo Paleobot III Sediment III Struct IV Tect VI Volcan I ECON, GEOMORPH, GLACIAL, QUAT
LUNCHEONS: 1:00–5:00 p.m.	1:00–5:00 p.m.	1:30–5:30 p.m.	1:30–5:30 p.m.	1:00–5:00 p.m.
#11 Geochem—Part II #16 SEG—Part II #26 Orig of Methane—Part II	# 3 Eng # 5 History #10 Cushman #13 MSA Coal Econ II Hydrog I/Sed Pet I/Strat I Paleo Paleobot I Quat I Struct I Tect I HYDROG, PLANET, REMOTE, STRAT	# 1 Arch # 7 Planet/Quat—Part II #18 Geol of Mexico Eng/Econ IV Geochem II Hydrog III Ig Pet II Met Pet I Ocean/Marine I/Sediment I Sediment II Struct II Tect III GENERAL, PRECAM, TECT, TECT-GEOPHYS	# 4 Geophys # 8 Sediment #17 SEG #25 China Ex Min/Ex Pet I Geochem IV/Ig Pet III Geomorph II/Quat III Paleo Paleobot II Planet/Remote Precam II Strat III Tect V ARCH, ENV, GEOL ED, GIS, HIST, IG & MET PET, VOLCAN	Econ VI Geochem VI Ig Pet IV <i>Late Ceno Rio Grande</i> Met Pet III Paleo Paleobot IV Sediment IV Sediment V/Sed Pet III Struct V Tect VII Volcan II/ Tect-Geophysics III/Struct VI

PHOENIX

CONTENTS OF TECHNICAL PROGRAM

SYMPOSIA

1. Geology of Human Origins and Cultural Evolution Oct. 27
2. Predicting Coal Quality by Means of Basin Analysis, Geophysical Data, and Geochemical Techniques Oct. 26
3. Neotectonics in Earthquake Evaluation Oct. 26
4. California-Arizona Crustal Transect Detachment Terrane to Colorado Plateau Oct. 28
5. History of Studies of Arid Lands: Ancient and Modern Oct. 26
6. Geochemical Reactions and Related Physical Processes Associated With Organic Compounds in Ground Water Oct. 26
7. Global Change: A Geological Perspective on Earth-System Science—Parts I & II Oct. 27
8. Tectonic versus Eustatic Effects on Cretaceous Sedimentation of the Western Interior of North America Oct. 28
9. Structure and Tectonics of Accretionary Prisms Oct. 26
10. Paleogeography and Paleontology of the Gulf of California Oct. 26
11. Cenozoic Potassium-Rich Igneous Rocks of the Colorado Plateau and Surrounding Regions—Parts I & II Oct. 25
12. Collections for the Future: Archivists, Curators, Historians, Bibliographers Speak Oct. 26
13. Synchrotron Radiation Research in Geological Sciences Oct. 26
14. Time, Life, and the Rock Record: New Implications for Instruction Oct. 28
15. Rates of Evolution in Fossil Lineages Oct. 27
16. Proterozoic Ores of the Southern Cordillera—Parts I & II Oct. 25
17. Phanerozoic Ore-Bearing Granite Systems: Petrogenesis and Mineralization Processes Oct. 28
18. Geology and Tectonics of Mexico Oct. 27
19. The Cordilleran-Caribbean Connection: Mesozoic Geology from the Mojave Desert to the Gulf of Mexico Oct. 27
20. Sedimentary Facies, Biostratigraphy, and Paleogeology of the Southwestern Margin of the Cretaceous Western Interior Seaway Oct. 28
21. Tertiary Extensional Tectonics of the Lower Colorado River Region Oct. 28
22. Early Proterozoic Continental Assembly of Southwestern North America Oct. 29
23. "Anorogenic" Silicic Magmatism Oct. 28
24. Inception and Timing of Deformation in the Late Mesozoic and Early Cenozoic Cordilleran Fold-Thrust Belt Oct. 29
25. Geology in China Oct. 28
26. Origins of Methane in the Earth—Parts I & II Oct. 25
27. Structure and Evolution of the Rio Grande Rift Oct. 29

ORAL SESSIONS

Archaeological Geology	Oct. 27
Coal Geology	Oct. 26
Economic Geology I	Oct. 26
Economic Geology II	Oct. 26
Economic Geology III	Oct. 27
Economic Geology IV	Oct. 27
Economic Geology V	Oct. 29
Economic Geology VI	Oct. 29
Engineering Geology	Oct. 27
Environmental Geology	Oct. 28
Experimental Mineralogy	Oct. 28
Experimental Petrology I	Oct. 28
Experimental Petrology II	Oct. 29
General Geology	Oct. 26
Geochemistry I	Oct. 27
Geochemistry II	Oct. 27
Geochemistry III	Oct. 28
Geochemistry IV	Oct. 28
Geochemistry V	Oct. 29
Geochemistry VI	Oct. 29
Geology Education	Oct. 27
Geomorphology I	Oct. 27
Geomorphology II	Oct. 28
Geoscience Information	Oct. 27
Glacial Geology	Oct. 26
History of Geology	Oct. 27
Hydrogeology I	Oct. 26
Hydrogeology II	Oct. 27
Hydrogeology III	Oct. 27
Igneous Petrology I	Oct. 27
Igneous Petrology II	Oct. 26
Igneous Petrology III	Oct. 27
Igneous Petrology IV	Oct. 28
Marine Geology I	Oct. 29
Marine Geology II	Oct. 27
Metamorphic Petrology I	Oct. 29
Metamorphic Petrology II	Oct. 27
Metamorphic Petrology III	Oct. 28
Micropaleontology	Oct. 29
Mineralogy Crystallography	Oct. 26
Oceanography	Oct. 27
Paleontology	Oct. 26
Paleontology Paleobotany I	Oct. 27
Paleontology Paleobotany II	Oct. 26
Paleontology Paleobotany III	Oct. 26
Paleontology Paleobotany IV	Oct. 29
Petroleum Geology	Oct. 29
Planetary Geology	Oct. 26
Precambrian Geology I	Oct. 26
Precambrian Geology II	Oct. 26
Quaternary Geology I	Oct. 28
Quaternary Geology II	Oct. 26
Quaternary Geology III	Oct. 28
Remote Sensing	Oct. 28
Sedimentary Petrology I	Oct. 26
Sedimentary Petrology II	Oct. 26
Sedimentary Petrology III	Oct. 27
Sedimentary Petrology I	Oct. 29
Sedimentology I	Oct. 27
Sedimentology II	Oct. 27
Sedimentology III	Oct. 29

POSTER SESSIONS

Sedimentology IV	Oct. 29
Sedimentology V	Oct. 29
Stratigraphy I	Oct. 26
Stratigraphy II	Oct. 27
Stratigraphy III	Oct. 28
Structure I	Oct. 26
Structure II	Oct. 27
Structure III	Oct. 27
Structure IV	Oct. 28
Structure V	Oct. 29
Structure VI	Oct. 29
Tectonics I	Oct. 26
Tectonics II	Oct. 27
Tectonics III	Oct. 27
Tectonics IV	Oct. 27
Tectonics V	Oct. 28
Tectonics VI	Oct. 28
Tectonics VII	Oct. 29
Tectonics-Geophysics I	Oct. 26
Tectonics-Geophysics II	Oct. 27
Tectonics-Geophysics III	Oct. 27
Volcanology I	Oct. 29
Volcanology II	Oct. 29

THEME SESSIONS

- I Climate Change: New Perspectives from High Southern Latitude Ocean Drilling: Preliminary Results from ODP Legs 113 and 114 Oct. 28
- II Late Cretaceous Tectonic Framework of the Northern Cordillera: Alaska and Canada Oct. 28
- III Late Cenozoic Climate Change, Uplift and Geomorphic Response in the Rio Grande Rift Oct. 29

POSTER SESSIONS

DNAG, GLIMPCE — Special Poster Displays Daily	
Poster Session I	Oct. 26
Experimental Petrology, Mineralogy Crystallography, Sedimentary Petrology, Sedimentology	
Poster Session II	Oct. 26
Hydrogeology, Planetary Geology, Remote Sensing, Stratigraphy	
Poster Session III	Oct. 27
Coal Geology, Engineering Geology, Marine Geology, Petroleum Geology, Oceanography, Structure	
Poster Session IV	Oct. 27
General Geology, Precambrian Geology, Tectonics-Geophysics, Tectonics	
Poster Session V	Oct. 28
Geochemistry, Paleontology Paleobotany, Micropaleontology	
Poster Session VI	Oct. 28
Archaeology, Environmental Geology, Geology Education, Geoscience Information, History of Geology, Igneous and Metamorphic Petrology, Volcanology	
Poster Session VII	Oct. 29
Economic Geology, Geomorphology, Glacial Geology, Quaternary Geology	

TECHNICAL PROGRAM/SYMPOSIA

The technical program consists of volunteered papers that are presented in oral or poster sessions and invited papers presented in symposia. Symposia are as follows:

1. **Geology of Human Origins and Cultural Evolution.** Archaeological Geology Division; Fekri Hassan, Washington State University.
2. **Predicting Coal Quality by Means of Basin Analysis, Geophysical Data, and Geochemical Techniques.** Coal Geology Division; Frederick Kuellmer, New Mexico Institute of Mining and Technology.
3. **Neotectonics in Earthquake Evaluation.** Engineering Geology Division; Ellis Krinitsky, Waterways Experiment Station.
4. **California-Arizona Crustal Transect: Detachment Terranes to Colorado Plateau.** Geophysics Division; Keith Howard, USGS, Menlo Park.
5. **History of Studies of Arid Lands: Ancient and Modern.** History of Geology Division; William Jordan, Millersville University.
6. **Geochemical Reactions and Related Physical Processes Associated With Organic Compounds in Ground Water.** Hydrogeology Division; Mary Jo Baedecker, USGS, Reston.
7. **Global Change: A Geological Perspective on Earth-System Science.** Planetary Geology Division and Quaternary Geology and Geomorphology Division; Victor Baker, University of Arizona; James Head, Brown University.
8. **Tectonic versus Eustatic Effects on Cretaceous Sedimentation of the Western Interior of North America.** Sedimentary Geology Division; Niall Mateer, Laramie, Wyoming.
9. **Structure and Tectonics of Accretionary Prisms.** Structural Geology and Tectonics Division; Darrel Cowan, University of Washington.
10. **Paleoceanography and Paleontology of the Gulf of California.** Cushman Foundation; James Ingle, Stanford University.
11. **Cenozoic Potassium-Rich Igneous Rocks of the Colorado Plateau and Surrounding Regions.** Geochemical Society; G. Nell Tyner, Florida Institute of Technology.
12. **Collections for the Future: Archivists, Curators, Historians, Bibliographers Speak.** Geoscience Information Society; Jean Eaglesfield, Massachusetts Institute of Technology.
13. **Synchrotron Radiation Research in Geological Sciences.** Mineralogical Society of America; Gordon Brown, Jr., Stanford University.
14. **Time, Life, and the Rock Record: New Implications for Teaching.** National Association of Geology Teachers; Robert Norris, University of California, Santa Barbara.
15. **Rates of Evolution in Fossil Lineages.** Paleontological Society; Bjorn Malmgren, University of Uppsala.
16. **Proterozoic Ores of the Southern Cordillera.** Society of Economic Geologists; Spencer Tittley, University of Arizona.
17. **Phanerozoic Ore-Bearing Granite Systems: Petrogenesis and Mineralization Processes.** Society of Economic Geologists; Holly Stein, USGS, Denver.
18. **Geology and Tectonics of Mexico.** Joaquin Ruiz, University of Arizona.
19. **The Cordilleran-Caribbean Connection: Mesozoic Geology from the Mojave Desert to the Gulf of Mexico.** William Dickinson, University of Arizona.
20. **Sedimentary Facies, Biostratigraphy, and Paleocology of the Southwestern Margin of the Cretaceous Western Interior Seaway.** Dale Nations, Northern Arizona University.
21. **Tertiary Extensional Tectonics of the Lower Colorado River Region.** Gary Axen, Northern Arizona University.
22. **Early Proterozoic Continental Assembly of Southwestern North America.** Karl Karlstrom, Northern Arizona University.
23. **"Anorogenic" Silicic Magmatism.** Eric Christiansen, Brigham Young University.
24. **Inception and Timing of Deformation in the Late Mesozoic and Early Cenozoic Cordilleran Fold-Thrust Belt.** Tim Lawton, New Mexico State University.
25. **Geology in China.** B. Clark Burchfiel, Massachusetts Institute of Technology.
26. **Origins of Methane in the Earth.** Martin Schoell, Chevron Oil Field Research Company, La Habra, California.
27. **Structure and Evolution of the Rio Grande Rift.** Kenneth Olsen, Los Alamos National Laboratory.

HOUSING

GSA has blocked rooms at ten hotels that are offering special convention rates to GSA meeting attendees. GSA endorses these hotels for quality, cleanliness, and service.

TO MAKE YOUR HOTEL RESERVATION

BY FRIDAY, OCTOBER 2, fill out the attached Official Housing Request Form and mail it immediately to the address shown on the form. No reservations will be accepted if not submitted on this form.

AFTER FRIDAY, OCTOBER 2, 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 are not required to offer the special GSA rate as shown.

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 acknowledgement to both you and to the hotel in which you have been assigned.

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 input into their system. If you did not include a credit card number on the housing form, you must now send a first night's room deposit directly to the hotel.

ROOM DEPOSITS/GUARANTEES

All GSA hotels require a first night's room deposit. Deposits can be made by (1) including a credit card number with your housing form, or (2) sending payment directly to the hotel once you have received your confirmation. **NOTE: The housing bureau will ONLY accept credit card numbers. If 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. of the following day.

If you have not guaranteed your reservation, the hotel is not required to hold your room beyond 6:00 p.m. of the scheduled arrival day.

CHANGES AND CANCELLATIONS

BEFORE OCTOBER 2, all changes and cancellations to your room reservation must be sent, in writing, to the Housing Bureau.

AFTER OCTOBER 2, all changes and cancellations to your room reservation must be telephoned in to your hotel.

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

Your notice of cancellation must be received AT LEAST 48 HOURS in advance of your scheduled arrival in order to receive full refund of your first night's room deposit.

NOTE: All rooms are subject to a 7.6% room tax.

Please make your reservation with the Housing Bureau.

1

QUALITY INN AIRPORT

1820 South 7th Street, Phoenix, AZ 85034
(602) 254-9787 (150 rooms)
1.5 miles from Civic Plaza; 10 minutes by car

Single: \$28 Double: \$30 & \$34
Children under 16 accompanied by parent—Free

Restaurant; cocktail lounge; outdoor heated swimming pool;
free outside parking; 10 minutes to airport

Check-in: 3:00 p.m. Check-out: 12:00 noon CC: AX, CB, DC, MC, V

2

HYATT REGENCY PHOENIX—HEADQUARTERS

122 North Second Street, Phoenix, AZ 85004
(602) 252-1234 (600 rooms)
1 block from Civic Plaza

Single: \$80 Double: \$90
Children under 18 accompanied by parent—Free

Full service hotel; 1st floor shopping mall;
revolving restaurant and lounge; terrace cafe;
cocktail lounge w/piano music; swimming pool & jacuzzi;
concierge; laundry and valet service; inside self-parking
(currently \$1.00–\$4.50/day); valet parking (currently \$6.25/day)

Check-in: 3:00 p.m. Check-out: 12:00 noon CC: AX, CB, DC, D, MC, V

3

THE ADAMS HILTON

Central and Adams, Phoenix, AZ 85001
(602) 257-1525 (475 rooms)
2 blocks from Civic Plaza

Single: \$63 Double: \$77
Children any age accompanied by parent—Free

Restaurant; coffee shop; cocktail lounge w/entertainment;
free use of 5th floor recreation deck w/heated swimming pool,
whirlpool, carpeted jogging track, ping pong; gift shops; florist;
inside self-parking (currently \$5/day)

Check-in: 1:00 p.m. Check-out: 1:00 p.m. CC: AX, CB, D, DC, MC, V

4

HOTEL SAN CARLOS

202 North Central Avenue, Phoenix, AZ 85004
(602) 253-4121 (90 rooms)
3 blocks from Civic Plaza

Single: \$37 Double: \$37
Children under 12 accompanied by parent—Free

Deli restaurant open M–F; heated outdoor swimming pool;
free continental breakfast in lounge; steam-heated rooms;
hotel-regulated air conditioning; showers; bathtubs in most rooms;
fee parking available

Check-in: 1:00 p.m. Check-out: 12:00 noon CC: AX, MC, V

5

PARK INN HERITAGE HOTEL

401 North First Street, Phoenix, AZ 85004
(602) 258-3411 (100 rooms)
3 blocks from Civic Plaza

Single: \$50 Double: \$50
Children under 18 accompanied by parent—Free

Richard's Restaurant; lounge w/free hors d'oeuvres and cocktails
during happy hour; outdoor heated swimming pool;
gift shop; one-day valet and laundry service; free outside parking

Check-in: 2:00 p.m. Check-out: 12:00 noon CC: AX, DC, MC, V

6

HOLIDAY INN FINANCIAL CENTER

3600 North Second Avenue, Phoenix, AZ 85013
(602) 248-0222 (275 rooms)
3.5 miles from Civic Plaza; 15 minutes by car

Single: \$52 Double: \$61
Children under 12 accompanied by parent—Free

Restaurant; cocktail lounge w/entertainment; 2 swimming pools;
free newspaper; across from shopping mall; free inside parking

Check-in: 3:00 p.m. Check-out: 12:00 noon CC: AX, CB, D, MC, V

7

LA MANCHA RESORT HOTEL & ATHLETIC CLUB

100 West Clarendon Avenue, Phoenix, AZ 85013
(602) 279-9811 (100 rooms)
3.5 miles from Civic Plaza; 15 minutes by car

Single: \$59 Double: \$59
Children under 18 accompanied by parent—Free

Restaurant; cocktail lounge; free use of full athletic club:
12 racquetball courts, basketball court, outdoor swimming pool,
jacuzzis, men's and women's steam and saunas, Nautilus equipment,
free weights, aerobic classes

Check-in: 3:00 p.m. Check-out: 12:00 noon CC: AX, CB, DC, MC, V

8

LES JARDINS HOTEL

3738 North Fourth Avenue, Phoenix, AZ 85013
(602) 234-2464 (50 rooms)
3.5 miles from Civic Plaza; 15 minutes by car

Single: \$60 & \$70 Double: \$60 & \$70
Children under 13 accompanied by parent—Free

Stylishly contemporary/distinctly European; excellent restaurant;
heated swimming pool and spa; access to athletic facilities;
free morning newspaper

Check-in: 3:00 p.m. Check-out: 12:00 noon CC: AX, CB, D, MC, V

9

PARK CENTRAL MOTOR HOTEL

3033 North 7th Avenue, Phoenix, AZ 85013
(602) 277-2621 (60 rooms)
3.5 miles from Civic Plaza; 15 minutes by car

Single: \$37 (studio) Double: \$41 (studio)
\$43 (suite) \$47 (suite)

Restaurant; outdoor heated swimming pool; free HBO;
spacious studios/apartment-size suites, both with kitchens;
free coffee in room; coin-operated laundromat; free outside parking

Check-in: 2:00 p.m. Check-out: 12:00 noon CC: AX, CB, D, DC, MC, V

10

BEST WESTERN ST. FRANCIS HOTEL

4321 North Central Avenue, Phoenix, AZ 85012
(602) 277-6671 (150 rooms)
4 miles from Civic Plaza; 15 minutes by car

Single: \$40 Double: \$44
Children under 12 accompanied by parent—Free

Restaurant located next door; heated outdoor swimming pool;
free coffee in lobby; free movie channel;
free refrigerator in room upon request; free outside parking

Check-in: 12:00 noon Check-out: 12:00 noon CC: AX, D, DC, V

Credit card codes: AX = American Express / CB = Carte Blanche / D = Discovery / DC = Diners Club / MC = MasterCard / V = VISA

NOTE: Free amenities are specifically stated as such.

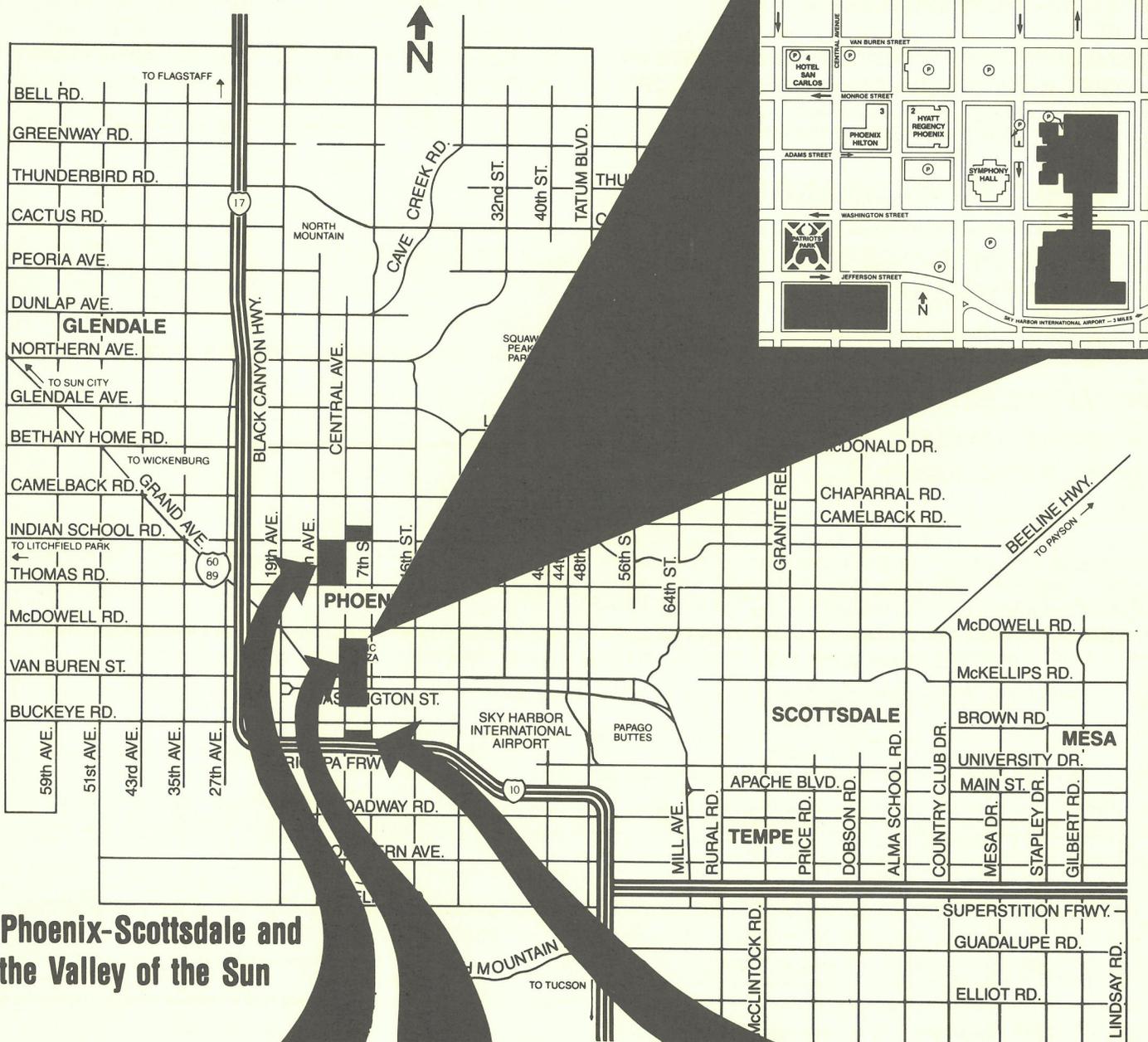
GSA HOTEL MAP

USE OF THIS MAP

Streets are shown 8-10 blocks apart. Travel time to the Civic Plaza is estimated. Allow more time at rush hours.

* Serviced by GSA Shuttle

Parking fees vary. Some locations are self-parking; others are by valet service. The valet service is more expensive, but allows in & out parking, which metered lots and parking buildings do not.



Phoenix-Scottsdale and the Valley of the Sun

- * **NORTH CENTRAL AREA—**
3.5-4 miles/15 minutes by car
- 10 St. Francis
- 9 Park Central
- 8 Les Jardins
- 7 La Mancha
- 6 Holiday Inn Financial

- * **DOWNTOWN AREA—**
1-4 block walking access
- 5 Park Inn Heritage
- 4 San Carlos
- 3 Hilton
- 2 Hyatt

- * **SKY HARBOR AREA—**
1.5 miles/10 minutes by car
- 1 Quality Inn

OFFICIAL HOUSING REQUEST FORM

Please complete BY OCTOBER 2 and send to:

Phoenix Convention Bureau
GSA Housing Department
505 North Second Street, Suite 300
Phoenix, AZ 85004

(Please print or type all information below)

HOTEL/MOTEL PREFERENCE:

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

TYPE OF ACCOMMODATIONS NEEDED:

- | | |
|--|---|
| <input type="checkbox"/> Single (1 bed, 1 person) | <input type="checkbox"/> 1 Bedroom Suite |
| <input type="checkbox"/> Double (1 bed, 2 persons) | <input type="checkbox"/> 2 Bedroom Suite |
| <input type="checkbox"/> Dbl/DbI (2 beds, 2 persons) | |
| <input type="checkbox"/> Triple (2 beds, 3 persons) | <input type="checkbox"/> Add rollaway to room |
| <input type="checkbox"/> Quad (2 beds, 4 persons) | |

NOTE: All rooms are subject to 7.6% tax.

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 will not be held after 6:00 p.m. unless I guarantee my reservation. I also understand that the hotel may bill me for one night's housing if I fail to cancel at least 48 hours prior to arrival.

- 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 DO NOT SEND ANY MONIES WITH THIS FORM

Please guarantee my room reservation with the following:

American Express Carte Blanche Diners Club Discovery MasterCard VISA

SIGNATURE _____

CARD NUMBER _____ EXP. DATE _____

MAIL CONFIRMATION TO: (Please type or print)

Name _____ Telephone () _____

Address _____ City _____

State _____ ZIP _____ Country _____

TRANSPORTATION

AIRLINE

GSA has designated The Cain Travel Group of Boulder, Colorado, as the official airline reservation agent for the Phoenix meeting. United and Delta/Western Airlines are the official co-airlines. Cain Travel has served the GSA Annual Meeting for the past six years. The agency service is free, and it can save you both time and money.

Reduced rates will be up to 40% off coach, depending on the dates of travel. United and Delta/Western have also offered an additional 5% off any available fare, but restrictions will apply. The reduced rates will be available only to GSA travelers and their companions.

All participants booking through Cain Travel will automatically become eligible for inclusion in a drawing for two round-trip tickets to anywhere in the continental United States prior to August 31, 1988, subject to certain restrictions. In addition, clients will be eligible for a second drawing for \$500 in travel credits through Cain Travel.

Reservation Procedures

1. Book early. Understand restrictions, if applicable.
2. Call Cain Travel for reservations: (800) 346-4747 (toll free outside Colorado) or (303) 443-2246, Monday-Friday, 7:30 a.m.-5:30 p.m. Mountain Time. Identify yourself as a GSA traveler.
3. Payment options: Check payable to Cain Travel group, major credit card, or invoice to company. The final payment must reach Cain Travel no later than seven days prior to departure to allow for mailing time.
4. Tickets will be mailed via certified mail upon receipt of payment.

5. Airfares are subject to increase or decrease at any time. After the ticket is issued, you are protected against a fare increase. If airfare should decrease, contact Cain Travel for an adjustment.
6. There will be an on-site customer service desk at the Civic Plaza staffed by Cain Travel employees to assist with itinerary changes or problems.

GROUND

The Phoenix Sky Harbor International Airport is 7 miles from the Civic Plaza and downtown area—an approximately 15-minute ride. The Financial Center is 12 miles from the airport—an approximately 25-minute ride. Means of transportation are as follows:

Super Shuttle

Airport to hotel. Operates 24 hours a day, 7 days a week. Departs every 15 minutes from outside the baggage area. The blue vans are designated with red, diamond-shaped signs. Identify yourself as a GSA delegate and get a discount. Guaranteed cost: \$5.

Hotel to Airport. Call 24 hours in advance for reservations, 244-9000. Hotel pick-ups are NOT automatic. Guaranteed cost: \$5.

Taxi Cabs

Airport service. Three cab companies service the airport. They offer either a flat rate of \$5 to \$10 (based on destination), or metered charges ranging from \$1.80 to \$2.10 for the first mile and \$0.80 to \$1.10 for each additional mile. Charges vary depending on cab company.

Downtown service. Several cab companies service the downtown and all other areas by meter. See above charges.

GSA Shuttle

GSA will operate a free shuttle service throughout the meeting. GSA hotel guests will be transported to and from the Civic Plaza during event hours.

NOTE: Hyatt Regency, Adams Hilton, San Carlos, and Park Inn Heritage are within walking distance of the Civic Plaza; therefore, no shuttle will be available from these hotels.

On Sunday, service will run from 9:30 a.m. to 9:30 p.m. Monday through Thursday, service will begin at 6:30 a.m. Depending on the time of day, buses will run in 15- or 30-minute intervals. Length of service will also vary, depending on daily meeting activities.

Look for shuttle schedules posted in all GSA hotel lobbies and in registration packets.

Each bus will be identified by a "GSA Shuttle Bus" sign in the front window.

Phoenix Transit

The city transit system services downtown and major sightseeing locations. Phoenix Transit runs from 5:00 a.m. to 8:00 p.m. Monday through Saturday (not on Sunday). Stops every 10 to 20 minutes. Route maps will be provided in registration packets. Cost: \$0.75 per ride (\$0.35 for senior citizens).

Please note: Unless prices are stated as "guaranteed," they are subject to change. Information is current as of press time.

Car Rental

Alamo 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—\$21/\$89; compact—\$23/\$109; mid-size—\$25/\$129; full-size (two-door)—\$27/\$149; luxury—\$31/\$189. Add \$2 per day for 4-door models. Unlimited mileage. Vehicles MUST be returned to the same rental location. Call Alamo for advance reservations, (800) 732-3232; in Phoenix, call 244-0753. Give the GSA Group I.D. No. 21123 and the GSA Rate Plan Code No. G9.



1625 I Street N.W., Suite 414
Washington, D.C. 20006

Non-Profit Org.
U.S. Postage
PAID
Permit No. 515
Washington, D.C.