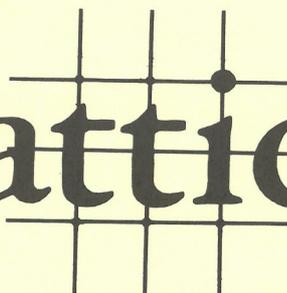


The Lattice



Vol. 1, No. 3, August, 1985

MSA Adds New Membership Category

MSA will add a new membership category in 1986: Associated Life Member.

Individuals who have reached the age of 65, retired from active professional employment, and paid annual dues for 30 years or more will be exempt from paying further dues and shall retain all rights and privileges of membership but will not receive *The American Mineralogist* free of charge. Associated life members will have the option of purchasing the journal for a reduced cost of \$15 per year.

Individuals who meet the above referenced requirements according to MSA records will be sent special renewal notices in early November giving them the option of paying the reduced dues of \$15 and receiving the journal, remaining on the membership roster as an associated life member exempt from dues payment, or maintaining their current member status.

This membership category was established following approval of a change in the bylaws

on the 1984 member ballot. With this addition, the previous life member category has been discontinued. Please note however, that this is not a retroactive action. Members who achieved life member status prior to December 31, 1984 will continue to receive the journal at no cost. However, no additional individuals will be added to this category with two exceptions. Recipients of the Roebling Medal and the MSA Award are automatically classified as life members and will continue to receive the journal while being exempt from paying further dues. Also, individuals who pay a lump sum amount equivalent to 25 times the annual dues will be exempt from paying further dues and will continue to receive the journal at no charge.

If you have questions about this change in membership categories, please contact the MSA Business Office, 2000 Florida Avenue N.W., Washington, D.C. 20009, (202) 462-6913.

Development Committee Analyzes Society's "Health"

At the breakfast for MSA Past Presidents held last November in Reno President Eugster was queried about the health of the Society and about its long-range plans. Accordingly, he appointed a committee having two very active former MSA Presidents, E-an Zen and Gary Ernst, plus four other members, Cathy Skinner, Bob Hazen, Frank Hawthorne, and Fred Mumpton. The committee is chaired by Vice President Paul Barton.

Committee members were asked to consider where the Society stands today and which of many possible changes would constitute achievable improvements. The Committee reported to the Council in May at the 2nd Council meeting.

In its initial deliberations, the Committee found that overall the financial and scientific health of the Society is good, and that all three of its regular publications (*Reviews in*

Mineralogy, *The American Mineralogist*, and the newcomer, *The Lattice*) are excellent. However, members noted that there is substantial room for growth and service to the scientific community, particularly through a broadening of our interest to be more attractive to materials sciences and mineralogy applied to technological problems.

A fuller discussion by the Council of Committee suggestions is needed. The tenure of the committee has been extended at least through October when its report will again be brought before Council. Although many items have been discussed, few have been thoroughly examined, and input from MSA members (and non-members) are welcome. Watch for future highlights from this Committee's reports in upcoming issues of this newsletter.

Spring Short Course Stimulates Conversation With State-of-the-Science Information

"Micro to Macro" is an abbreviated statement that represents the spectrum of information presented at the MSA Spring Short Course, May 23-26, officially titled, *Microscopic to Macroscopic: Atomic Environments to Mineral Thermodynamics*. Co-convenors for the course were Alexandra Navrotsky, Arizona State University, and Susan Kieffer, U.S. Geological Survey, Flagstaff, Arizona.

The short course examined the relations among the microscopic structure of minerals and their macroscopic thermodynamic properties, with the particular goal of addressing the most fundamental question of mineral physics and chemistry: "What minerals exist under given constraints of pressure, temperature, and compositions, and why?"

Volume 14 of the *Reviews in Mineralogy* series was produced in conjunction with the lectures presented at the short course. An innovation in the text is a set of worked examples at the end of most chapters that illustrate in detail some of the general concepts discussed and help make application of principles easier for the student. These

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MSA/GSA Annual Meeting Information and Registration Forms Begin on Page 11.

Fire Sale on Back Issues of *The American Mineralogist*, See page 5.

Send a Colleague a Gift of Information for the Holidays, Order Form on Page 6.

Pick a Committee and Get Involved! Descriptions of Committees on Page 7.

From the President

Council Proposes Change in Business Office Operations

"It is the sense of Council that the long-range interests of MSA would be best served by a stand alone business office and thus it is the intention of MSA to disengage from AGU by late Spring 1986. It is the wish of Council that the transfer be done as amicably as possible, and also Council requests that Barbara Minich and Mona Tennyson serve on the transition team in the process." Item 18 of the 2nd 1985 Council meeting, Baltimore, MD, May 26, 1985.

Dear MSA Members:

This "sense of Council" resolution passed unanimously and was conveyed in person to Fred Spilhaus, AGU Executive Director, by MSA Secretary Henry O. A. Meyer. It was the result of countless hours of council and committee discussions going back several years. Throughout, the key problems arose from the fact that the needs of MSA, a small, more homogeneous Society of the Earth Sciences community, differed increasingly from those of the much larger polyglot AGU. Fred Spilhaus made every effort to help, but more and more MSA members complained about bad or nonexistent service, an intolerable situation for a Society as vulnerable as MSA. To alleviate the problems, the 1984 Council authorized then-President Charles T. Prewitt to hire an executive secretary dedicated to MSA affairs, working within AGU. Barbara Minich came aboard about a year ago and everybody agrees that things have improved dramatically. For me, in particular, it has been a joy working with Barbara and her assistant Mona.

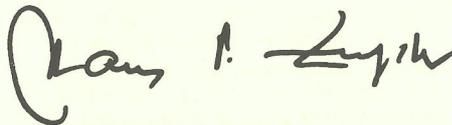
Not only can MSA now afford a separate business office, but many of us feel it has become an essential requirement for a healthy Society. As most of you are aware, a substantial portion of MSA revenue comes from the sale of books. By combining effective marketing with rapid service,

Barbara has dramatically increased sales. Where the operating budget had projected losses, we now have gains. But book sales predictions are notoriously tricky. We can survive only by continuing to produce *Reviews in Mineralogy* volumes of the highest quality and timeliness, print them attractively and cheaply and sell them quickly. This can be done best from a small, efficient and responsive business office. This to me is the most important reason for going it alone.

The detailed assessment leading to the May Council decision was provided in a joint report by the Management and Financial Advisory committees presented by Fred Hays and Cathy Skinner the respective committee chairs. The question of cost was discussed in detail and it was concluded that the costs of a separate operation were likely to be no higher than if we stay within AGU, whereas the benefits should be apparent quickly. It is now the job of the Management Committee in cooperation with Fred Spilhaus and Barbara Minich to draw up detailed plans for the proposed transfer, including office space, equipment and timing. The final decision will be made at the last 1985 Council meeting in Orlando, October 27, after a thorough review of all options and implications. Your comments and thoughts are welcome prior to this meeting.

Many other things have happened since the last issue of *The Lattice*, but to touch upon them now would be like afterthoughts. I will save them for my next and last letter to you. Meanwhile I wish all of you a pleasant and peaceful summer and I hope to see many of you in Orlando in October.

Your President,



Hans P. Eugster

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

1985 President: Hans P. Eugster

Past President: Charles T. Prewitt

Vice-President: Paul B. Barton, Jr.

Secretary: Henry O. A. Meyer

Treasurer: Gordon L. Nord, Jr.

Executive Secretary: Barbara B. Minich

Address letters and comments to: The Editor, Mineralogical Society of America, 2000 Florida Avenue N.W., Washington, D.C. 20009; (202) 462-6913.



Who Do You Know That Should be a Member of MSA?

It's time! It's time to sign up those aspiring mineralogy students and colleagues who keep borrowing your issues of the journal or copies of the *Reviews in Mineralogy* volumes. It's time for them to join the organization that supports their interests.

To spark interest and encourage action, MSA is kicking off a special membership drive this Fall. A poster designed to emphasize the benefits of membership, a packet of membership brochures and future issues of *The Lattice* will be sent to all the department chairmen of geology departments listed in the American Geological Institute's *Directory of Colleges and Universities in North America*. The new membership brochure combines membership information and the price list, and includes a new, easy-to-complete application.

Then we are going to get personal. MSA members in each department are asked to write their name on the bottom of the poster as a contact person—someone who an interested student or colleague can contact for more information or sponsorship. Please watch for this poster and make sure it is put up on the bulletin board. If you would like to have additional membership brochures sent to you directly please contact the Business Office.

Currently, MSA has a 92 percent renewal rate for members from 1984. Additional renewals are received each week. In addition, 159 individuals have joined as of July 15 compared to a total of 189 in 1984. Interest and membership in MSA is continuing to increase as service improves and benefits expand. Spread the word—MSA is one of the "best deals" for mineralogists, petrologists and crystallographers.

In Memoriam

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

Peter Gay
Arthur C. Freeze

News in Brief

Each year MSA sponsors a symposium at the MSA/GSA Annual Meetings. The topic for the Orlando meeting in October this year is "Quantitative Petrology: Theory, Experiment and Field. A Symposium in Honor of David R. Wones." At Reno last year, the topic was "Diffusion in Mineral, Melt and Glass Systems." Suggestions for symposia topics at future GSA meetings are now being sought by Roger Burns, one of the MSA representatives to GSA's Joint Technical Program Committee. Members with suggestions for the 1986 San Antonio meeting should contact Roger Burns, MIT 54-816, Dept. of Earth and Planetary Sciences, Cambridge, MA 02139, (617) 253-1906, or the Business Office by October 1, 1985. If possible, please suggest names of potential participants along with symposia topics.

The Business Office is still waiting for a schedule of mail dates for the 1983 and 1984 *Mineralogical Abstract* indexes. Individuals who have subscribed to this journal for these years are on the mailing list and will receive the index volumes as soon as they are published. Watch for more information in the November issue of *The Lattice*.

All claims for the journals *Physics and Chemistry of Minerals* and *Journal of Petrology* at the Business Office have been satisfied. If you are still missing issues from either of these journals, please contact the Business Office immediately.

Copies of the *World Directory of Mineralogists* are still available from the Business Office. The cost is \$12 (U.S.). Orders must be prepaid. The Directory includes the names and addresses of mineralogists from societies around the world. To order write the Business Office, 2000 Florida Avenue N.W., Washington, D.C. 20009 or call (202) 462-6913 to place an order with a credit card.

The deadline for nominations for the American Mineralogist Undergraduate Award for 1986 is November 1, 1985. Students nominated for this award will receive a complimentary student membership, a certificate and a subscription to *The American Mineralogist* for 1986. Departments that offer at least one course in mineralogy, petrology or crystallography and that have a permanent (or tenure-track) faculty member who is a member or fellow of MSA may nominate one undergraduate student per year. The certificate must be presented during a departmental or university award program. To nominate a student send a letter on department letterhead that gives the student's full name and departmental address, year in school,

interest area, MSA sponsor, and the date and brief description of the award ceremony at which the certificate will be presented. The letter must be signed by the department chair. The letter should be sent to the Business Office, 2000 Florida Avenue N.W., Washington, D.C. 20009.

Volunteers are needed to serve as abstractors for the new mineral names section of *The American Mineralogist* and/or for *Mineralogical Abstracts*, a joint publication of MSA and the Mineralogical Society of Great Britain. Individuals interested in serving as abstractors are asked to contact the MSA Business Office, 2000 Florida Avenue N.W., Washington, D.C. 20009, (202) 462-6913. Please indicate if you have a journal preference or fluency in a language other than English. Names will be forwarded to the appropriate editor.

Renewal notices for 1986 will be mailed in early November. Member dues for 1986 will remain at \$35; students at \$15. Return your renewal notice with a check for your dues by February 1, 1986 and don't miss any issues of *The American Mineralogist*. Last year, 75 percent of the membership renewed by February 1, the largest percentage ever. This fact, along with efficient processing enabled the Society to reduce costs by mailing fewer second renewal notices and back issues requiring special handling. Watch for your renewal notice and please respond promptly!

Volumes of the *Reviews in Mineralogy* series continue to sell in unprecedented quantities. Over 4,500 books have been sold since November 1, 1984. An order form will be included on 1986 renewal notices again this year, but don't wait until then! Beat the rush by ordering now. Books are mailed within 5 working days from receipt of your order.

Volume 14, Microscopic to Macroscopic: Atomic Environments to Mineral Thermodynamics, of the *Reviews in Mineralogy* series is now available. The text addresses the fundamental question of mineral physics and chemistry: "What minerals exist under given constraints of pressure, temperature, and compositions, and why?" The book also contains worked examples at the end of most chapters. These worked examples illustrate in detail some of the general concepts discussed and help make application of the principles easier. The cost of the volume is \$13 (MSA members deduct 20 percent). Orders under \$50 must be prepaid. For your copy write the Business Office, 2000 Florida Avenue N.W., Washington, D.C. 20009. Call (202) 462-6913 to place an order with a credit card.

As the Fall semester begins and texts are ordered for classes, MSA members are reminded that they may use their

membership discount to purchase up to three copies of the same title in the *Reviews in Mineralogy* series. Full price must be paid for copies over this limit. To encourage students to join, each book sent to a campus bookstore will include a membership application and price list information. The application will be stamped as follows "Use this application and deduct \$___ from your membership dues." The deduction will approximate the member discount of 20 percent off the price of the book (\$2.50-\$2.75). Additional membership applications and price lists are available from the Business Office.

IMA Meeting Information Available This Fall

Mark your calendars!! The International Mineralogical Association 14th General Meeting will be held July 13-18 at Stanford University, Stanford, California, July 13-18, 1986. The meeting is sponsored jointly by MSA and the U.S. Geological Survey.

The program will include symposia and plenary lectures organized around the following themes: Geochemistry and Mineralogy of Granites, Pegmatites, and Skarns; Thermodynamics and Kinetics of Minerals; Physics and Chemistry of Mantle Materials; and Environmental Industrial Mineralogy. There will also be an exhibition of equipment, minerals and publications as well as post- and pre-meeting field trips.

Individuals who responded to the First Circular published last summer will receive the Second Circular this Fall. This brochure will include a call for papers as well as registration information, a schedule, preregistration forms, and housing registration forms. In addition, all MSA members will receive the Circular this Fall.

For additional information or to put your name on the early mailing list, contact the Organizing Committee, IMA 1986, P.O. Box 183, Stony Brook, New York 11790.



Spring Short Course

Continued from page 1.

worked examples provided the basis for an informal poster session during the short course Saturday night.

The window into the microscopic world is spectroscopy. Paul McMillan, Arizona State University, began the course with a discussion of the techniques used and information obtained about atomic environments and lattice vibrations from vibrational spectroscopy (infrared and Raman). He introduced concepts such as the quantum harmonic oscillator and terminology such as Brillouin zones and dispersion curves common to many of the contributions. McMillan also cited a number of examples in which vibrational spectroscopy is used to "fingerprint" structural properties of minerals, and his review provided a detailed analysis of forsterite based upon its lattice vibrational spectrum.

Susan Kieffer reviewed the relation between lattice vibrational properties and macroscopic thermodynamic properties, beginning with the Einstein and Debye models. Kieffer showed how observed trends in spectral data are manifested in the calorimetric properties, and how complex spectra for silicates might be simplified to allow calculation of the harmonic contribution to heat capacities, entropies, enthalpies, and free energies.

Subrata Ghose, University of Washington, showed how data available from inelastic neutron scattering (INS) supplement the infrared and Raman data by providing information about the dispersion relations through the Brillouin zone. These data give information about anharmonic effects. Ghose discussed the phase transitions associated with "soft" vibrational modes, using quartz and strontium titanate as examples. His review provided an introduction to both INS and Landau theory, the latter used by several other speakers in the course.

Michael Carpenter, University of Cambridge, illustrated how order-disorder phenomena are reflected in the thermodynamics of complex aluminosilicate solid solutions. His prime example, the plagioclases of various degrees of order, showed the complex detail brought about by the interplay of Al-Si and Na-Ca order, symmetry changes and higher order phase transitions, and kinetic effects.

J. Desmond C. McConnell, Slumberger Cambridge Lab, discussed how symmetry arguments can be used to constrain possible ordering schemes for complex silicates.

Alexandra Navrotsky addressed the energetics and configurational entropies of



The pleasant atmosphere at Washington College, Chestertown, MD, provided participants with good food, drink and comfortable surroundings to continue both social and scientific conversations.



minerals. Navrotsky stressed the interplay between enthalpic (energy) and entropic (vibrational and configurational) terms in determining stability at different pressures and temperatures. Systematics of mineral formation reactions, of high-pressure transitions, and of cation distributions and solid solution formation were discussed. The worked example welds spectroscopic, calorimetric, and phase equilibrium data for the CaGeO_3 polymorphs (wollastonite, garnet, and perovskite) into an enumeration of the factors which stabilize these rather different structures under various pressure and temperature conditions.

Roger Burns, Massachusetts Institute of Technology, discussed the role of electrons in the thermodynamics of transition metal compounds. Electronic transitions between 3d atomic orbitals provide crystal field stabilization energy (CFSE), which can be comparable to enthalpy changes in many chemical reactions. The CFSE depends on the environments around transition metal cations, and gives absorption bands, usually, but not exclusively, in the visible region of spectra. CFSE values obtained from spectra at elevated pressures allow bulk parameters, such as site compressibilities and polyhedral bulk moduli of transition metal-bearing minerals to be estimated. The worked examples in Burns' chapter allow a student to "rediscover" crystal field theory.

Robert Hazen, Geophysical Laboratory, amplified on the theme of polyhedral properties introduced by Burns, discussing the bulk modulus and thermal expansion of polyhedral units within minerals. He kept up a lively discussion with the audience on the possibilities and problems of relating polyhedral properties to bulk properties! The worked problems give a student experience in calculating polyhedral compressibilities, thermal expansions, and bulk density.

Charles W. Burnham, Harvard University, carried on the discussion of structure by reviewing the ionic approach to modeling mineral structure energetics. Pointing out

that the cohesive energy of a crystal is, in fact, the largest contribution to the total energy, Burnham discussed computational techniques which permit the calculation of crystal structure geometries and energetics using optimum interatomic distances (DLS methods) and the minimization of cohesive energy (WMIN and related programs). These methods relate local atomic environments to long-range crystal structure and to relative energetic stability. He showed how the method could be applied to analyze the instability of a hypothetical non-existent structure—antidiopside.

Finally, finishing on a geophysical and truly "macro" note, Raymond Jeanloz, University of California at Berkeley, showed how the high-temperature approximation to a vibrational spectrum through the use of a single Einstein oscillator can allow examination of the P-T slopes of phase transitions. Melting was discussed as an example of a high-temperature phase change. Coordination changes were discussed as examples of high-pressure changes. Jeanloz showed how the "micro" modeling can lead to the hypothesis that the lower mantle, the largest single region in the Earth, may be of different composition and denser than the upper mantle.

Don't Forget!

Time is running out! Call Bud at Business Travel Associates (1-800-443-4502 or (202) 659-8314) to take advantage of the special convention rates on Delta Airlines and with Alamo Rent-A-Car. If Delta doesn't service your city, Bud can also get you the best deal on any airline that services Orlando from your home town. Call now! Seats are going quickly and fares have never been lower.

Hurry! Back Issues Are on Sale for a Limited Time Only!

Does the fact that you are missing that one issue of the journal from 1981 bother you? Do you still have room on your shelf for the 1975 volume? If so, now is the time to order! MSA is having a red-hot, fire sale on all back issues!

Back issues of *The American Mineralogist* are on sale for a limited time only. This sale represents the last opportunity for you to purchase many of the volumes from the 1970s. Order today! Issues will be mailed within three weeks of receipt of your order. Give a colleague a gift that will long be appreciated—a gift of information. Give yourself a gift! But whatever you do, act now before it's too late!

Prices:

Members: \$ 6.50 per issue
 \$35.00 per complete volume
 Purchase any 5 volumes and deduct an additional 10% (membership discount of 20% may not be taken at these prices)

Libraries: \$11.00 per issue
 \$60.00 per volume
 Purchase any 5 volumes and deduct an additional 10%

Restrictions:

1. Prices good through 12/31/85
2. All orders must be prepaid (check, money order or credit card)
3. Sold on availability basis.
4. First come, first served.
5. Checks will be returned if issue/volume not available.
6. Prices do not include Reviews in Mineralogy for Subscribers.
7. 1973-1978 sold as complete volumes only, except as noted.
8. 1984 volumes are not included in sale.
9. MSA members may pay regular dues for 1984 (\$35 and \$15) and receive the complete volume.

Order Form

Use this convenient form to place your order. Mail with payment to: MSA Business Office, 2000 Florida Avenue N.W., Washington, D.C. 20009. Remember, payment must accompany your order. As quantities of some issues are limited, please order today!

Volume	Year	Issue #	Volume	Year	Issue #
___ 58	1973	Complete volume only	___ 65	1980	Issue 3/4 only Issue 9/10 only
___ 59	1974	Complete volume only	___ 66	1981	Complete volume Issue 1/2 only Issue 3/4 only Issue 5/6 only Issue 7/8 only Issue 9/10 only Issue 11/12 only
___ 60	1975	Complete volume Issue 1/2 only Issue 3/4 only Issue 5/6 only Issue 7/8 only Issue 11/12 only	___ 67	1982	Complete volume Issue 3/4 only Issue 5/6 only Issue 7/8 only Issue 9/10 only Issue 11/12 only
___ 61	1976	Complete volume only	___ 68	1983	Complete volume Issue 1/2 only Issue 3/4 only Issue 5/6 only Issue 7/8 only Issue 9/10 only Issue 11/12 only
___ 62	1977	Complete volume Issue 3/4 only Issue 5/6 only Issue 7/8 only Issue 9/10 only Issue 11/12 only			
___ 63	1978	Issue 1/2 only Issue 3/4 only Issue 5/6 only Issue 11/12 only			
___ 64	1979	Issue 3/4 only Issue 5/6 only Issue 7/8 only Issue 9/10 only Issue 11/12 only			

Name _____ I am enclosing a check/money order payable to Mineralogical Society of America in the amount of \$ _____.

Address _____ Please charge my _____ Visa _____ Master Card _____ American Express credit card.

Card Number _____ Expire Date _____

Signature _____

Name on the credit card _____ (please print)

Send Your Colleagues (or Yourself!) a Gift of Information

End-of-the-year holidays are just around the corner and now is the time to begin thinking of gifts for colleagues overseas or across the country. Let MSA send a gift of information in your name. MSA will ship volumes of the *Reviews in Mineralogy* series or issue: of the journal (take advantage of the sale prices) for delivery by the end of December. Order now with the convenient order form below.

It's easy! Select the book(s) or back issues of the journal that you wish to send. Then complete the order form and return it to the Business Office with a check, money order, or appropriate credit card information. Orders to be sent to Western Europe should be received by the Business Office no later than October 15 for an end-of-the-year delivery date. Orders for books to the Far East should be received by October 1 as additional shipping time is required.

The label on the package will show your name and MSA's return address in order to comply with postal regulations. These same regulations forbid the inclusion of a message in the package so you may wish to send your own card notifying your colleague of the item being sent. Make the holidays special by sending the gift everyone appreciates--books!

Please send the items marked below to:

Name _____

Address _____

The publication(s) are from _____ (please print)

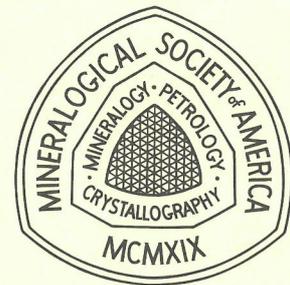
_____ I am enclosing a check/money order payable to Mineralogical Society of America in the amount of \$ _____.

_____ Please charge my _____ Visa _____ Master Card _____ American Express credit card.

Card Number _____ Expire Date _____

Signature _____

Name on the credit card _____ (please print)



MSA members deduct 20 percent off the prices below. Discount does not apply to issues of the journal purchased at special sale prices. All orders must be prepaid. Shipping and handling charges are included.

- _____ **Reviews in Mineralogy Volume 1: Sulfide Mineralogy (\$10.00)**
- _____ **Reviews in Mineralogy Volume 2: Feldspar Mineralogy (\$13.00)**
- _____ **Reviews in Mineralogy Volume 3: Oxide Minerals (\$14.00)**
- _____ **Reviews in Mineralogy Volume 4: Mineralogy and Geology of Natural Zeolites (\$10.00)**
- _____ **Reviews in Mineralogy Volume 5: Orthosilicates (\$14.00)**
- _____ **Reviews in Mineralogy Volume 6: Marine Minerals (\$13.00)**
- _____ **Reviews in Mineralogy Volume 7: Pyroxenes (\$14.00)**
- _____ **Reviews in Mineralogy Volume 8: Kinetics of Geochemical Processes (\$13.00)**
- _____ **Reviews in Mineralogy Volume 9A: Amphiboles and Other Hydrous Pyriboles--Mineralogy (\$13.00)**
- _____ **Reviews in Mineralogy Volume 9B: Amphiboles: Petrology and Experimental Phase Relations (\$13.00)**

- _____ **Reviews in Mineralogy Volume 10: Characterization of Metamorphism Through Mineral Equilibria (\$13.00)**
- _____ **Reviews in Mineralogy Volume 11: Carbonates: Mineralogy and Chemistry (\$13.00)**
- _____ **Reviews in Mineralogy Volume 12: Fluid Inclusions (\$14.00)**
- _____ **Reviews in Mineralogy Volume 13: Micas (13.00)**
- _____ **Reviews in Mineralogy Volume 14: Microscopic to Macroscopic: Atomic Environments to Mineral Thermodynamics (\$13.00)**
- _____ **Reviews in Mineralogy Volume 15: Mathematical Crystallography (available late October) (\$14.00)**

Please list other publications and issues of the journal here or xerox the order form for back issues of the journal and attach here.

Have a Voice in Society Activities

MSA needs volunteers! The Society's committees offer something of interest to everyone and all members are eligible to participate. A brief description is provided below. Select the one(s) that interest you and contact the Business Office to volunteer. Become involved. Help formulate the recommendations made to the Council. The 1986 Council will vote on the committee members who will serve in 1986 at its first meeting on October 29, so call today!

Financial Advisory Committee: A standing committee of the Society, the Financial Advisory Committee is responsible to the Council for the investment of MSA funds. Committee members usually serve three-year terms with a rotating chair.

Management Committee: A standing committee of the Society, this committee is responsible for overseeing the management policies of the Business Office. Committee members usually serve three-year terms with a rotating chair.

Roebbling Medal Committee: This committee is responsible for recommending to Council the name of an individual who in the opinion of the Committee is deserving of the Roebbling Medal, the Society's highest award. Committee members solicit and evaluate nominations. Appointments vary from one to three years. An incoming Councillor serves as chair.

MSA Award Committee: This committee is responsible for soliciting and evaluating nominations, then recommending the name of an individual deserving of the MSA Award. Committee members serve from one- to three-year terms. The chair is an incoming Councillor.

Nominating Committee for Fellows: Members of this committee are responsible for soliciting nominations for fellowship in the Society and then recommending to Council the names of qualified candidates. Committee members serve from one- to three-year terms with a rotating chair.

Research Grant Committee: This committee is responsible for reviewing applications for the annual research grant awarded by MSA (Mineralogy/Petrology in odd-numbered years; Crystallography in even-numbered years) and recommending the name of a candidate to Council. The 1986 Research Grant Committee will select the 1987 Mineralogy/Petrology Research Grant recipient. Committee members serve from one- to three-year terms. A Councillor serves as chair.

Committee on External Grants and Awards: This committee is charged with identifying opportunities for mineralogists to be considered for awards outside MSA, determining how MSA can have input to the nomination procedure for such awards, and recommending nominees. Committee members serve from one- to three-year terms.

Nominating Committee for Officers: This committee is responsible for recommending to the Council a slate of candidates for office to appear on the ballot put before the membership. Members of the 1986 committee will recommend a slate for the 1987 ballot. Individuals elected from this ballot will serve on the 1988 Council. Terms are from one to three years. An out-going Councillor serves as chair.

Tellers Committee: Members of the Tellers Committee verify the results of the election each year. Members serve from one to three years.

Committee on Committees: Members of this committee recommend a slate of volunteers to serve on the various committees of the Society. Members of the 1986 committee will nominate individuals to serve on committees in 1987. Members of the committee serve from one to three years. The Vice President of the Society serves as chair.

Publications Committee: This committee oversees the printing and publication activities of the Society. Members serve from one to three years.

Short Course Committee: Members of this committee are charged with providing to Council recommendations for future short course topics and the names of potential convenors. Terms vary from one to three years.

Society News

Editors and representatives of the five European Societies that publish individual mineralogical journals have proposed that each journal constitute an independent section or component of a notional European Journal of Mineralogy, with appropriate wording on the cover of each issue indicating this. The French Society would produce an index to this joint journal each year, but beginning in 1986 they would charge the individual societies for production costs. The Council of the participating societies has decided to support the production of the index for the present. The proposal came

after the societies agreed that it was impractical for the five journals to form a single journal.

Participants at the January meeting also agreed to try to increase the proportion of papers written in English to at least 50%. They also agreed to try to recruit editors who would work for more than one journal in order to achieve a more uniform scientific standard. Additional steps that may be taken to achieve uniformity of format include printing titles of papers in their references, and using a two-column format. (See May issue of *The Lattice* for related information. Abstracted from the *Mineralogical Society Bulletin*, April 1985.)

The inaugural meeting of the Commission on Applied Mineralogy will be held during the Stanford IMA meeting in July 1986. The main task will be to determine a *modus operandi* for the Commission. Obvious fields of activity include: 1) process mineralogy in the metal mining industry; 2) process mineralogy in connection with industrial minerals; 3) health aspects of fibrous minerals; and 4) applications of new surface analytical techniques. Individuals interested in participating in the organization or operation of this Commission or who have suggestions for additional topics of interest should contact: Professor A. J. Naldrett, Department of Geology, University of Toronto, Toronto, Canada M5S 1A1, (416) 978-3030; or Larry W. Finger, U. S. Representative to IMA, Geophysical Laboratory, 2801 Upton Street N.W., Washington, D.C. 20008, (202) 966-0334.

The Symposium on Sediment-Hosted Stratiform Copper Deposits, co-sponsored by the Mineral Deposits Division of the Geological Association of Canada and the Mineralogical Association of Canada, will bring together experienced researchers and explorationists from around the world to present the latest advances in the understanding of these major deposits. The symposium, part of the joint Geological Association of Canada/Mineralogical Association of Canada annual meeting scheduled for May 17-19, 1986 in Ottawa, will include a pre-meeting field trip, technical and poster sessions. For more information contact Dr. A. J. Naldrett, Department of Geology, University of Toronto, Toronto, Ontario, Canada M5S 1A1, (416) 978-3030.

Slide sets illustrating mica polytypes are available from the Clay Minerals Society. The Society is selling them as a separate item for \$15.00 or with *Reviews in Mineralogy Volume 13, Micas*, for \$25. Volume 13 was published by MSA in 1984, S. W. Bailey, editor. The additional cost reflects the MSA member price for the volume. For more information contact: Frederick A. Mumpton, Editor, Clay Minerals Society, P.O. Box 595, Clarkson, NY 14430, (716) 395-2635.

Welcome New Members

The following members and students have joined MSA effective January 1, 1985. Welcome!

Applications for membership may be obtained from the Business Office, 2000 Florida Avenue N.W., Washington, D.C. 20009.

Alpers, Charles N., 1455 Arch Street, Berkeley, CA 94708. O: (415) 642-9116. H: (415) 848-7560. (ST-85)EG. Sponsors: R. Stoffregen and E. Shock.

Bird, Frederic V. G., 1220 Camp Bird Road, Box 148, Ouray, CO 81427. H: (303) 325-4239. (M-85)MI. Sponsors: E. E. Foord and P. J. Modreski.

Bloomer, Sherman H., Box 6729 College Station, Geology, Duke University, Durham, NC 27708. O: (619) 684-2206. H: (619) 477-1255. (M-85)IP. Sponsor: MSA.

Bove, Phillip J., 922 Acequia Madre, Santa Fe, NM 87501. H: (505) 983-3546. (M-85)MI. Sponsor: MSA.

Burkhard, Dorothee M. J., Mineral-Petrogr. Institute, IM Nevenheimer Feld 236, 6900 Heidelberg, West Germany. (ST-85)MI. Sponsors: G. C. Amstutz and M. Siegrist.

Burr, George S., 5734 S. Ellis Avenue, Chicago, IL 60637. O: (312) 962-7326. (ST-85)IP. Sponsor: E. Ito.

Calas, George, Lab. Mineralogie Tour 16, Univ. Paris 7, Pl. Jussieu, Paris Cedex 05, 75230 France. O: 1-3362525. (M-85)CC. Sponsor: MSA.

Chagnon, Pierre, 2830-Lamarche, St-Hyacinthe, Quebec, J2S 4T8 Canada. H: (514) 773-2139. (ST-85)MI. Sponsor: MSA.

Delaney, Jeremy S., Amer. Museum of Natural History, Central Pkwy at 79th Street, New York, NY 10024. O: (212) 873-1380. (M-85)MP. Sponsors: R. L. Hervig and T. N. Tingle.

Duffy, Thomas, Dept. of Geological Sciences, University of Illinois, Chicago, IL 60680. (ST-85). Sponsor: MSA.

Flagel, Stanley F., 1933 18th Street, Apt. 201, Washington, D.C. 20009. H: (202) 387-8065. (ST-85)IP. Sponsors: R. P. Tollo and J. R. Sutter.

Futrell, Darryl S., 6222 Haviland, Whittier, CA 90601. O: (213) 727-1117. H: (213) 696-1826. (M-85)IP. Sponsor: MSA.

Grandstaff, David, Dept. of Geology, Temple University, Philadelphia, PA 19122. O: (215) 787-8228. H: (215) 886-8960. (M-85)GE. Sponsors: G. E. Brown, Jr. and C. T. Prewitt.

Hiroi, Yoshikuni, Dept. of Earth Sciences, Chiba University, Yayoi-cho, Chiba 260, Japan. O: 047-2511111. H: 047-4789879. (LM-85)MP. Sponsor: MSA.

Hong, Mingde, Dept. of Geological Science, Univ. of Illinois at Chicago, Chicago, IL 60680. (ST-85)OT. Sponsor: MSA.

Honjo, Norio, Dept. of Geology, Rice University, Box 1892, Houston, TX 77251. O: (713) 527-8101. H: (713) 520-6495. (ST-85)IP. Sponsors: J. C. Stormer, Jr. and D. J. Matty.

Hummel, Harry, 8 Albemarle Ct., Apt. B, Boston, MA 02115. (ST-85). Sponsor: MSA.

Jeanloz, Raymond, Dept. of Geology and Geophysics, University of California, Berkeley, CA 94720. O: (415) 642-3993. (M-85). Sponsors: G. E. Brown, Jr. and C. T. Prewitt.

Jurewicz, Amy J. G., 504 Seventh Avenue, Wateryliet, NY 12189. O: (518) 266-8827. H: (518) 272-4054. (S-85)IP. Sponsors: G. L. Nord, Jr. and S. R. Jurewicz.

Kovach, Linda A., 12585 Folly Quarter Road, Ellicott City, MD 21043. O: (301) 427-4693. H: (301) 531-3748. (M-85). Sponsor: R. J. Starmer.

Kress II, Victor C., Dept. of ESS, SUNY, Stony Brook, NY 11794. H: (516) 689-8998. (ST-85)GE. Sponsors: D. H. Lindsley and R. Liebermann.

Kwawer, Gary N., 2119 C Melrose Dr., Champaign, IL 61820. O: (217) 333-3004. H: (217) 359-3476. (ST-85)CC. Sponsors: R. J. Kirkpatrick and W-H. Yang.

Lee, Han Yeang, 3401 N. Columbus, #26-B, Tucson, AZ 85712. O: (602) 621-2126. H: (602) 795-2104. (ST-85)PE. Sponsors: J. Ganguly and S. Chakraborty.

Leshner, Charles E., Geochemistry Lamont-Doherty Geol. Observatory, Palisades, NY 10964. O: (914) 359-2900. H: (914) 359-4768. (M-85)IP. Sponsors: D. Walker and D. M. Christie.

Mellini, Marcello, Dip. Science della Terra, V. S. Maria 53, Via Livornese 299G, Pisa 56100 Italy. (M-85). Sponsors: B. H. Mason and P. J. Dunn.

Milonis, Peter N., 423 Cedar Avenue, Apt. #3, Highland Park, NJ 08904. O: (201) 932-2044. (ST-85)MP. Sponsors: R. H. Hewins and P. M. Radomsky.

Nickel, Klaus G., Max-Planck-Institute, Kosmochemie, Saarstr.23, Mainz D-6500, West Germany. (M-85)PE. Sponsor: MSA.

Onstatt, Tullis, Dept. of Geology and Geophy. Sci., Princeton University, Princeton, NJ 08544. (M-85). Sponsor: MSA.

Prestal, Donna J., Dept. of Geological Sciences, P.O. Box 4348, University of Illinois, Chicago, IL 60680. (ST-85). Sponsor: MSA.

Richey, W. D., Chemistry Department, Chatham College, Pittsburgh, PA 15232. (M-85). Sponsor: MSA.

Robinson, Gilpin R., MS 959, National Center, U.S. Geological Survey, Reston, VA 22092. (M-85). Sponsor: MSA.

Rose, Nicholas M., Dept. of Geology, Stanford University, Stanford, CA 94305. (ST-85)GE. Sponsors: S. Novak and D. K. Bird.

Smith, James J., McCrone Environ. Service, 5500 Oakbrook Pkwy. 200, Norcross, GA 30093. O: (404) 449-8461. H: (404) 963-9309. (ST-85)MI. Sponsors: W. B. Boltin and V. J. Hurst.

Snyder, Gregory, Dept. of Chemistry, Colorado School of Mines, Golden, CO 80401. O: (303) 273-3644. H: (303) 277-1021. (ST-85)IP. Sponsor: MSA.

Swope, R. Jeff, 300 King Avenue, Columbus, OH 43201. H: (614) 421-7431. (ST-85)MI. Sponsors: M. Barton and J. W. Downs.

Tacker, R. Chris, P.O. Box 4773, Silver Spring, MD 20904. O: (301) 454-6314. H: (301) 890-6155. (ST-85)GE. Sponsors: P. A. Candela and A. G. Wylie.

Trudu, Alfonso G., Dept of Earth Sciences, Monash University, Clayton Australia 3168. O: 03-5413786. (ST-85)EG. Sponsor: MSA.

Van Emburgh, Richard J., 4907 West Frances Pl., Austin, TX 78731. O: (512) 450-1320. H: (512) 452-0769. (M-85)GE. Sponsor: MSA.

Weedman, Suzanne, 305 Deike Bldg., Penn. State Univ., University Park, PA 16802. O: (814) 863-1666. H: (814) 237-0521. (ST-85)SP. Sponsors: Y. Touyinhthiphonexay and A. Nitkiewicz.

Welch, Mark David, Dept of Geol., Edinburgh Univ., West Mains Road, Edinburgh, Scotland EH9 3JW. (ST-85)CC. Sponsors: T. McCormick and C. R. Stern.

White, Bradford S., Dept of Earth and Space Sciences, UCLA, Los Angeles, CA 90024. H: (818) 789-3513. (ST-85)PE. Sponsors: A. Boettcher and W. G. Ernst.

*MSA sponsor: Henry O.A. Meyer, elected Secretary of MSA

Please insert this page of new member names into your 1985-1988 *Membership Directory*.

Please make the following changes in your 1985-1988 *Membership Directory*.

Prewitt, Charles T., O: 516-246-4046...**McConnell, Duncan**, (LF-32)...**Donnay, Gabrielle**, O: 514-464-5652...**Donnay, Joseph D. H.**, Mont-St.-Hilaire, Quebec...**Naldrett, Anthony J.**, H: 416-449-4249...**Hiroi, Yoshikuni**, (LM-85)
If your address or telephone number is incorrect in the new directory, please send a note to the Business Office with the correct information.

Plan to Participate in These MSA Activities

This year when you attend the MSA/GSA annual meeting be aware that MSA plays an important role in the activities that reaches beyond the special Society meetings for members. The joint meeting with GSA is just that—a cooperative effort between societies to bring together the best papers and activities for both memberships.

MSA members attending the joint meeting of MSA and GSA are encouraged to actively participate in MSA functions and related symposia. MSA, through the GSA Joint Technical Program Committee (JTPC), plays an active role in the make-up of the sessions. This year JTPC members from MSA will review abstracts submitted to GSA on the following topics: mineralogy/petrology, experimental petrology, metamorphic petrology, igneous petrology, and volcanology. It is the responsibility of the JTPC members to rate each abstract and determine which papers will be scheduled into sessions and poster sessions. Each year MSA representatives to JTPC also encourage GSA to include more time for papers in these subject areas of particular interest to MSA members.

So participate in the MSA activities and related symposia! Below are brief descriptions of the MSA activities that will be held during the MSA/GSA annual meeting.

Be sure to purchase your tickets for the Luncheon when you register for GSA as seating is limited and last year's luncheon was quickly sold out.

Thursday-Sunday, October 24-27
Mathematical Crystallography
MSA Fall Short Course

Holiday Inn on International Drive
Orlando, Florida

Contact: G. V. Gibbs
Department of Geological
Sciences
5057 Derring Hall
VA Polytechnic & State
University
Blacksburg, VA 24061-0796
(703) 961-6330

This course will attempt to demonstrate that a rigorous approach based firmly on mathematical principles is easier to understand and apply than the phenomenological approach used in standard mineralogy texts. The properties of a vector space will be examined and symmetry operation will be defined; their matrix representations derived, followed by a derivation of the 32 crystallographic point groups. Bravais lattices will be examined and a method of deriving matrix representations for translational isometries will be discussed. The theory of deriving the space groups will be presented and related to crystal structure. Extensive prior knowledge of these subjects is not required.

Participants will be able to use color IBM PCs during evening sessions to undertake crystallographic calculations including the construction of matrices for point groups and space group operations and the calculation of transformation of bases and the geometries of the lattices in crystals. Software for the IBM PC is included in the registration fee.

Registration fees for the short course are:

MSA Members: \$200.00

MSA Student Members: \$150.00

Non-Members: \$235.00*

Non-Member Students: \$165.00*

*includes MSA membership for 1986.

Participants may take advantage of GSA meeting room rates at the Holiday Inn and reduced air fares for MSA members available

through Business Travel Associates on Delta Airlines. Enrollment is limited to 35 persons so that all participants will be able to use the computers. Limited space is still available.

Sunday, October 27
3rd Meeting of 1985 Council

During their third and final meeting the 1985 Council will act on recommendations from the Nominating Committee for Fellows, the Research Grant Committee, the Roebling Medal Committee, the MSA Award Committee, and the Nominating Committee for Officers. Additional agenda items will conclude the activities of this Council.

Monday, October 28
Past Presidents' Breakfast

The annual Past Presidents' Breakfast draws together former Society presidents to discuss long-term goals and activities of MSA.

Monday, October 28
2:00 p.m.-6:00 p.m.
MSA Symposium—"Quantitative
Petrology: Theory, Experiment and
Field. A symposium in honor of David R.
Wones."

This symposium will explore some of the broad range of petrologic and mineralogic topics that were dominant in the distinguished career of David R. Wones, 1979 MSA President. Wones died in an automobile accident in October 1984. Hans P. Eugster and David R. Stewart are co-convenors of the symposium.

Speakers and specific topics include: D. A. Hewitt, VPI & SU, "Control of Intensive Parameters in Experimental Petrology and Their Estimation from Natural Assemblages"; R. M. Hazen, Geophysical Laboratory, "Mineral Structure, Stability, and Physical Properties: The Polyhedral Approach"; C. W. Burnham and Nekvasil, H., Pennsylvania State University, "Speciation in Granitic Melts"; A. J. White, and Chappell, B. W., A.N.U., "Chemical Evidence for Different Sources of Granite Magmas"; B. D. Marsh, Johns Hopkins University, "Convective Regime of Crystallizing Magma"; H. P. Taylor, Jr., Caltech, "¹⁸O/¹⁶O D-H Studies of Mesozoic-Cenozoic Granitic Plutons in Western North America"; R. A. Ayuso, U.S.G.S., "Lead-Isotopic and Geochemical Evidence for Distinct Granite Sources and Basement Terranes in New England"; and D. R. Stewart, J. Unger, and J. Luetgert, U.S.G.S., "Characterization of the Crust of Maine by Seismic Reflection and Refraction."

Tuesday, October 29
Business Meeting, 10:30 a.m.
Presidential Address
Annual Awards Luncheon

According to MSA bylaws, an open business meeting must be held annually to encourage members to participate and familiarize themselves with Society activities. As MSA continues to grow and expand its membership benefits, your participation in the Society's annual business meeting becomes particularly important. Come and meet the new 1986 Council and find out what MSA has in store for the future.

Directly following the business meeting, MSA President Hans P. Eugster will give his presidential address, "Minerals in Hot Water."

Then, take a seat next to your colleagues and recount memories during the Annual Luncheon. This is the one time of the year when MSA members gather socially to honor colleagues and renew old

Continued on page 10.

Continued from page 9.

acquaintances. Following the meal (remember, come for the company if not the food!) Dr. Francis J. Turner, University of California at Berkeley, will be awarded the Roebling Medal, MSA's highest honor. John M. Ferry, Johns Hopkins University, will receive the MSA Award. Following these presentations 1985 President Hans P. Eugster will pass the gavel to Paul B. Barton, MSA's 1986 President and a new Council will take office.

**Tuesday, October 29
1st Meeting, 1986 Council**

The 1986 Council will meet for the first time to form committees and set goals and priorities for the coming year. This is the first opportunity for new Council members to meet and learn about the activities of the Council.

**Monday-Thursday, October 28-30
Geoscience Exhibit**

Visit the MSA booth at the Geoscience Exhibit. Meet the staff that you speak to or correspond with at the Business Office. Volumes of the *Reviews in Mineralogy* series will be on sale, including the new *Mathematical Crystallography* volume that will be published in time for the short course of the same name October 24-27. The staff in the booth look forward to talking with you and working with you to solve any difficulties. Bring a colleague with you who should be a MSA member. Membership applications will be available at the booth, as will members willing to act as sponsors for membership applications.

***MSA Offers Members Discount Fares on
Air Travel and Car Rentals in Orlando***

For the first time ever, MSA is offering MSA meeting participants the opportunity to take advantage of special convention rates on

Car Size	Example of Car Size	Day	Week
Economy	Chevy Chevette	\$17	\$ 55
Compact	Cavalier	\$18	\$ 79
Intermediate	Cutlass Ciera	\$19	\$ 99
Intermediate wagon	Celebrity	\$24	\$149
Standard	Buick Regal	\$24	\$149
Luxury	Buick Riviera	\$29	\$179

Delta Airlines. Save up to 40 percent on roundtrip flights anywhere Delta flies in the continental United States. If Delta does not service your hometown, Business Travel Associates can also arrange for the lowest available fare on other airlines.

Tickets must be purchased seven (7) days prior to your departure. However, to ensure the lowest fares on the flights you want, plan to purchase your tickets at least 45 days prior to your departure date. When you make your reservation be sure to mention that you are an MSA member attending the annual meeting. The convention rate on Delta, the

Call Bud at Business Travel Associates: 1-800-443-4502 or 202-659-8314 to make your reservations today!

Society's official airline, is good only on roundtrip flights originating in the continental United States. You must begin your trip between October 21 and 31 and return by November 15.

As an added bonus, Bud can also reserve an Alamo rental car for you at special discount rates. Make your car reservations at the same time you make your airplane reservations and save even more!



MSA Calendar

1985

October
25-27

Mathematical Crystallography
MSA Fall Short Course
Orlando, Florida

November
1

Deadline for nominating 1986 American Mineralogist Undergraduate Awards

6

Mail date for 1986 Renewal Notices (tentative)

1986

February
1

Deadline for receipt of 1986 dues payments to receive first issue on time

March

1

Deadline for submitting abstracts for 14th General Meeting of the International Mineralogical Association, July 13-18, 1986, Stanford University, Stanford, California

April
15

Pregistration deadline for 14th General Meeting of the International Mineralogical Association

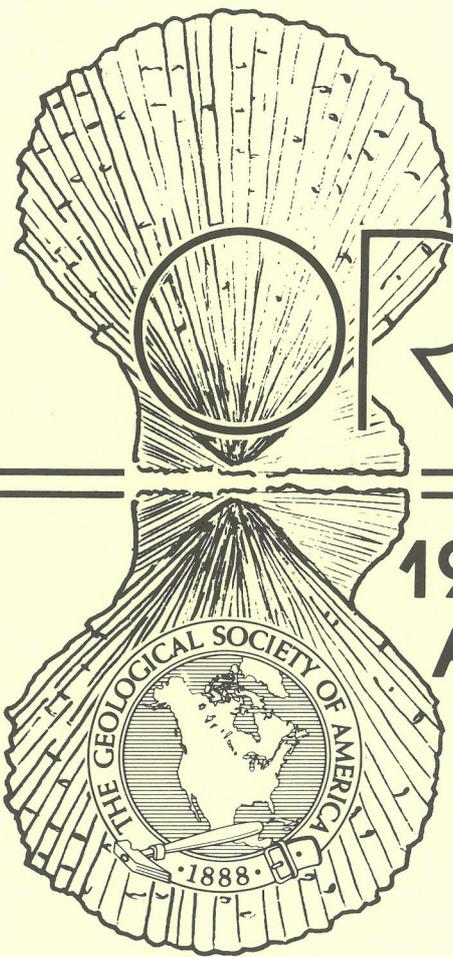
July
1

Deadline for submitting:
Nominations for Roebling Medal
Nominations for MSA Award
Nominations for Fellowship
Nomination Office (1987 ballot)

13-18

14th General Meeting of the International Mineralogical Association
Stanford University, Stanford, California, USA

NEWS & INFORMATION



ORLANDO

1985 ANNUAL MEETING AND EXPOSITION

OCTOBER 28-31, 1985
ORANGE COUNTY CONVENTION/CIVIC CENTER
ORLANDO, FLORIDA



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