

The Lattice

MSA OFFERS SHORT COURSE ON TRANSFORMATION PROCESSES IN MINERALS

The Mineralogical Society of America is expanding its short course venue to Cambridge, United Kingdom on September 1-2, 2000. The short course, entitled "Transformation Processes in Minerals", will be held in the Department of Earth Sciences, University of Cambridge, Cambridge, United Kingdom. The co-conveners of the short course are Simon Redfern, Michael Carpenter and Ekhard Salje. The short course, set to precede the Goldschmidt 2000 meeting in Oxford, covers some of the most important and timely information on mineral transformations.

Minerals commonly respond to changes in pressure and temperature through phase transformations, thereby extending the limits of their stability. Understanding such transformations is crucial to appreciating the controls on mineral stability as well as to effectively interpreting the history locked up in their ordering patterns and microstructures. Techniques of experimental observation and methods of theoretical analysis of time-temperature-pressure transformation processes in minerals have now reached a state of maturity, following intensive research in these areas over the last decade or so. This short course reviews the advances in both the experimental observation of transformation processes as well as the

theory and computational study of these processes. The essential focus of the course relates to the mechanisms and kinetics of structural changes in Earth materials. Starting from a solid knowledge of bulk properties of minerals and model substances (including the consequent thermodynamic stabilities) the course will concentrate on the atomic-scale mechanisms and dynamic aspects of processes in mineral end members and binary solid solutions. The implications for the development of microstructure will be addressed, and the controls imposed by elastic properties and structural topology will be discussed. The bearing of these on the response of minerals to changing temperature, pressure and chemical composition will then be outlined, with the application of experimental methods forming a further significant component of the course. The lectures, however, also extend away from the discussion of simple polymorphic transitions to aspects of amorphisation and glass transformations. This short course will provide a lively forum for cross-discipline discussion of these topics.

For additional information and registration forms for this short course, see pages 10-12 of this issue of *The Lattice*.

2000 Nominees for MSA Office

The following is the slate of officer nominees for the Council year 2001:

Vice Presidential nominees:

Rodney C. Ewing (Univ. Michigan)

John W. Valley (Univ. Wisconsin)

Treasurer:

James G. Blencoe (Oak Ridge Nat. Lab.)

Councillors: (in alphabetical order)

John M. Hughes (Miami Univ., Ohio)

Craig E. Manning (UCLA)

Kathryn Nagy (Univ. Colorado)

Zachary D. Sharp (Univ. New Mexico)

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Notes from Washington

- Renewal Notices for 2000 were sent to members and subscribers in November 1999. If you did not receive yours, please contact the Business Office. If you did, and have not yet returned it, please renew as soon as possible to save your Society the expense of a second renewal notice. In mid-January we experimented with sending renewal reminders by e-mail to those who had not yet renewed. Aside from the typical assortment of unanticipated problems in doing something new, we discovered that about a fifth of those members had never given MSA an e-mail address and another fifth had e-mail addresses that were no longer valid. When you renew, please check to make sure your e-mail address on your renewal form is correct. You can also check to see what e-mail address we have for you in the online MSA membership Directory and, if incorrect, you can send us an update online. MSA would like to take better advantage of electronic communications with its members but cannot do so if a third or more of its members cannot be reached that way.

- It has come to MSA's attention that in a few instances MSA members have been turning over their current journal issues to their institution's libraries. As a result the institutional library sees no need to subscribe itself. Please remember that MSA members are entitled to reduced subscription rates to *American Mineralogist*, *Journal of Petrology*, *Mineralogical Abstracts*, and *Physics and Chemistry of Minerals*, etc. with the understanding that the journals are for their personal use only – at least for an appropriate length of time. You will likely hear more about this after the Spring MSA Council meeting, but suffice to say that MSA cannot publish *American Mineralogist* if every subscriber pays only the reduced member rate of \$30.

- There have been some staff changes in the MSA Editorial Office. Paula Welsh left us on 1/10/2000 to work in the graphics department of University of Maryland. She has agreed to help out during peak periods. We wish her well and appreciate her assisting MSA in making the transition to desktop publishing. Lisa M. Koch, who was the part-time editorial assistant, is now the *American Mineralogist* Production Editor.

- Reviews in Mineralogy volume 23, *Mineral-water Interface Geochemistry*, has been reprinted. Originally this volume was to be replaced by a monograph, but the authors have been delayed and it was thought wise to have this widely used volume still available until the new monograph is printed. Errata for Reviews in Mineralogy

volume 38, *Uranium: mineralogy, geochemistry, and the environment*, are available at the MSA website in the *Reviews in Mineralogy* section. Our hope is to place all future errata for MSA publications on the website so that readers can be assured of having ready access to any known errors.

- Speaking of the MSA website, much of it's usefulness is returning. The online MSA membership Directory has returned as well as an online form so that members can update their contact information. By time you read this, online ordering of MSA publications by a secure server will be available and plans are to extend this online commerce to membership application and renewals, as well as short course registrations. Traditional methods of ordering and paying for memberships, publications, and short courses will continue to be available for those who have less than full confidence in electronic commerce.

If you have not done so already, you might consider joining the MSA-Talk List. The MSA-Talk list is a forum created for members of MSA to discuss topics of interest in the general areas of mineralogy, petrology, and crystallography. 269 members have joined thus far. There have been a number of interesting discussions over the years, and a few announcements. Do not miss out, join by visiting the MSA-Talk list section of the MSA website. If you are concerned about receiving too much e-mail, you can unsubscribe at any time.

- Member mailings are sometimes returned to the Business Office with the notation that the recipient is 'temporarily away'. We have learned that this marking is a result of a member requesting that their mail be held or forwarded. Periodical or Bulk mail need not be held or forwarded by the US Postal Service. It is returned to us, or disappears. If you have had your mail held or forwarded by the US Postal Service, you may wish to check if you received all of your mailings. You may also want to rethink how your MSA mail is to be handled when you travel.

- The Business Office often receives comments about nominees for MSA awards and offices after the fact. The opportunity for having a voice in these many decisions is now. Elsewhere in this issue is the list of 2000 Committee Chairs to contact regarding MSA Award and Office Nominations for 2001. More recent and detailed information and instructions are also available on the MSA website. If you have suggestions, pass them on to the appropriate committee chair. Concrete suggestions from members make the committee's work easier. In

some instances it is as simple as passing on a name. Award suggestions require a bit more work, in that written nominations are required. I often hear the comment that MSA ought to consider so-and-so for a certain award. However, the person making the suggestion is too busy to make the recommendation themselves and believes someone else should. Seldom is that someone else identified. To make sure someone you believe is deserving of an award is considered, make the nomination yourself.

J. Alex Speer, MSA Administrator

MSA Reception at Spring AGU meeting set for the Smithsonian

MSA will hold a reception on May 31, 2000 in the recently renovated Hall of Geology, Gems and Minerals at the Smithsonian's National Museum of Natural History. All members are invited to take advantage of this unique opportunity. Additional information will be forthcoming on the MSA website.

Members in the News

Larry Grossman, University of Chicago, was inducted as a Fellow of the Royal Society of Canada in November 1998.

In Memoriam

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

Howard T. Evans, Life Fellow, 1941

William T. Holser, Life Fellow, 1946

Arthur Montgomery, Life Member, 1928

Proceedings of 6th International Kimberlite Conference Available from MSA

The Proceedings of the Sixth International Kimberlite Conference (6ikc) are published as Volume 38 (1997), issues 1 & 2 of Russian Geology and Geophysics. These are available from Allerton Press, Inc., 150 Fifth Avenue, New York, NY 10011 for US\$95.00. The Proceedings of the Fifth International Kimberlite Conference (5ikc) are available from MSA. MSA co-sponsored both the 6ikc held in Novosibirsk, Russia (1995) and the 5ikc held in Brazil (1991).



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

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

Membership benefits include: *American Mineralogist*, published bi-monthly; 25% discount on volumes in the Reviews in Mineralogy series; *The Lattice*; special subscription rates for *Mineralogical Abstracts*, *Physics and Chemistry of Minerals*, *Journal of Petrology*, and *Journal of Metamorphic Geology*; reduced registration fees at MSA short courses; member rates for the MSA/Geological Society of America annual meeting and member rates at MSA's spring meeting with the American Geophysical Union; participation in a Society that supports the many facets of mineralogy.

Dues for 2000 are \$80 for professional members who elect to receive *American Mineralogist* and \$50 for those who elect not to receive the journal, but who do receive all other membership benefits; membership is \$30 for students. Membership is on a calendar year basis. Individuals who join after January 1, 2000 will be sent all back issues of volume 85, 2000.

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 2000 volume of *American Mineralogist* for the annual rate of \$430 in the US and \$440 for non-US addresses. The subscription price includes any new volumes of the *Reviews in Mineralogy* series published during the calendar year of the subscription. Payment must be received in full before a subscription will be started.

2000 President: William C. Carlson, University of Texas - Austin

Past-President: John M. Ferry, The Johns Hopkins University

Vice President: Cornelis Klein, University of New Mexico

Secretary: David Jenkins Binghamton University

Treasurer: R. Brooks Hanson, Science Magazine

Editor of The Lattice: Darrell J. Henry, Louisiana State University

MSA Administrator: J. Alexander Speer

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MEMBERS NOMINATE OUTSTANDING STUDENTS IN MINERALOGY FOR SOCIETY'S UNDERGRADUATE AWARD

MSA members have taken advantage of the Society's American Mineralogist Undergraduate (AMU) Award program to recognize outstanding students who have shown an interest and ability in the discipline of mineralogy. Each student was cited by his or her department for outstanding achievement in mineralogy-related courses. The AMU Awards allow MSA to join with the individual faculty to formally recognize outstanding students. Each student is presented a certificate at an awards ceremony at his or her university or college. In addition, each recipient receives a *Reviews in Mineralogy* or *Monograph* volume chosen by the sponsor, student, or both. Past AMU awardees are listed on the MSA website.

Deadlines for nominating students are January 1 and July 1 of each year. Mark these dates on your calendars and let us know about your exceptional student. If you are interested in presenting the award at a particular

ceremony, please remember that time is required to produce certificates and have letters signed. To nominate a student, send a letter on departmental letterhead to Dr. J. Alexander Speer, MSA Business Office, 1015 Eighteenth St. NW Ste 601, Washington, DC 20036-5274. With the nomination, please include the student's full name that would be suitable for the certificate, a mailing address for the student that will be current at the time the award is made, year in school, the MSA sponsor's name, **the choice of *Reviews in Mineralogy* or *Monograph***, and the date and brief description of the award ceremony at which the certificate will be presented. The letter must be signed or co-signed by the department chair.

The Society welcomes the following exceptional students to the program's honor roll and wishes to thank the sponsors for enabling MSA to recognize these outstanding individuals.

Lynn E. Baxter

Southern Illinois University
Sponsored by Dr. Julie Selway

Allison L. Buckman

Southern Illinois University
Sponsored by Dr. Julie Selway

Keri B. Drenner

The University of Northern Iowa
Sponsored by Dr. Kenneth J. De Nault

Lindsay Iredale

University of Calgary
Sponsored by Dr. David R. M. Pattison

Andres Marin

Humboldt State University
Sponsored by Dr. G. Donald Garlick

Tiffany Naeher

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Brian Ruskin

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Taylor F. Schildgen

Williams College
Sponsored by Dr. Reinhard A. Wobu.

Sean Timpa

Acadia University
Sponsored by Dr. Sandra M. Barr

Kelly B. Adams

Georgia State University
Sponsored by Dr. David A. Vanko

Survey of Graduate School Experiences

The National Association of Graduate-Professional Students (NAGPS) recently received a grant from the Alfred P. Sloan Foundation to conduct a survey of doctoral students on their graduate school experiences. The survey can be completed on the Web <<http://survey.nagps.org/>> by current and recent doctoral students from January - May 2000, and the results made publicly available on the Web on a department specific basis in September.

The survey is unique in at least two important ways: it collects information on a department-specific basis, not only averaged over entire institutions or disciplines (though discipline-level results will also be available). So it will be possible to look at, for instance, responses from individual geology Ph.D. programs, or to rank history departments based on faculty mentoring. The survey is based upon best

practices and covers issues in a number of areas, including information for prospective students, curriculum breadth and flexibility, career guidance and placement services, faculty mentoring, time to degree, department climate, teaching, professionalism, overall satisfaction.

NAGPS represents nearly 900,000 graduate and professional students on 150 member campuses and is dedicated to improving the quality of graduate and professional student life and education by actively promoting the interests and welfare of graduate- and professional-degree-seeking students. For more information contact Ad Fagen, Ad Hoc Committee on Faculty-Student Relations, National Association of Graduate-Professional Students (NAGPS), e-mail: afagen@fas.harvard.edu.

MSA-sponsored Symposium on Advances in Mineral Structure Analysis at AGU

The Mineral Structures Interest Group of MSA is sponsoring a symposium at the Spring AGU in Washington, DC entitled "Advances in Mineral Structure Analysis." We hope to highlight some of the most exciting techniques and observations that have emerged over the past decade, and we encourage papers from a broad range of research areas involving minerals and mineral-related materials. Examples would include powder and single-crystal diffraction (at all temperatures and pressures), surface crystal structures and reactions, spectroscopy, phase transitions, electron microscopy, structure modeling, etc. This session will complement two other MSA-sponsored symposia: "Mineral Physics and Chemistry: A Symposium in Honor of William A. Bassett," organized by Dave Mao & Russ Hemley; and "Mineral Surface Chemistry and the Origin of Life," organized by Joakim Bebie & Timothy Filley.

We also are planning other activities to celebrate mineralogy at the beginning of the millennium. We hope to hold a one-day workshop at the Carnegie Geophysical Laboratory to provide a hands-on introduction to Rietveld analysis of powder diffraction data, from sample preparation to structure analysis. In addition, Jeff Post is working with the Smithsonian administration to arrange an evening reception in the National Museum of Natural History. More information about these activities will be forthcoming as our plans develop.

We hope to see a large contingent of MSA members in Washington this spring. If you have questions, please contact Jeff Post, Peter Heaney, or Charlie Prewitt. Abstracts are due March 2 by regular mail and March 9 by electronic submission.

Dr. Peter J. Heaney

309 Deike Bldg., Dept. of Geosciences
Penn State University, University Park, PA 16802
Tel: (814) 865-6821; Fax: (814) 863-7823

THE DEADLINE FOR THE MAY LATTICE IS APRIL 20

Contributions may be sent to Darrell Henry via surface mail at Department of Geology and Geophysics, Louisiana State University, Baton Rouge, LA 70803 or via E-mail at glhenr@unix1.sncc.lsu.edu.

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This excellent software product is a comprehensive database of all approved mineral species through early 1999, compiled by the scientists at the Fersman Mineralogical Museum in Moscow. Information for each mineral includes chemistry, mineral group, X-ray data and space group, optical data, other physical properties as well as type locality and literature references! ***Most importantly, every field or combination of fields is fully searchable!*** Plus, there are two user fields that can be modified for your own purposes and included in any search!

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Website: www.bestweb.net/~excalmin

50- and 25-Year MSA Members

The following individuals reach 50 or 25 years of continuous membership in the Society during 2000. Their long support of the Society is appreciated and is recognized by this list and by 25- or 50-year pins mailed in early January. If you should be on this list and are not, or have not received your pin, please contact the Business Office.

50-year Members

Dr. F. Donald Bloss
Dr. Stanley H.U. Bowie
Dr. Donald A. Brobst
Dr. John F. Burst
Dr. Kuan Huan Chang
Dr. Paolo Gallitelli

Dr. Marion L. Jackson
Dr. William D. Johns
Dr. Jiri Konta
Mr. Bernard L. Murowchick
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Dr. Toshio Sudo
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Mr. C. Joseph Venuto
Dr. John H. Weitz
Dr. Lubor Zak
Dr. E-an Zen

25-year Members

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Wurmbach
Dr. Assem M. Badawy
Dr. Calvin G. Barnes
Dr. John R. Beckett
Dr. John L. Berkeley
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Dr. Takabumi Sakamoto
Dr. John C. Schumacher
Dr. W. Edwin Sharp
Ms. Mavis Zoe Stout
Dr. Karlheinz J. Taxer
Dr. Shirley Turner
Dr. David R. Veblen
Dr. Ron H. Vernon
Prof. John V. Walther
Dr. David L. Warburton
Mr. Wilfred R. Welsh
Dr. Richard F. Wendlandt
Dr. Kenneth E. Windom
Dr. Robert P. Wintsch

All About Figures

By Rachel A. Russell, American Mineral Managing Editor

A good figure communicates a concept almost instantly, but only if your artwork is good. Good means clear, clean, sharp, and uniform. When it comes to good artwork, details matter. Remember I said not to fuss too much in your text, that we'll take care of your stacks and overbars, we'll worry about formatting, we want you to concentrate on the science? Well, that wasn't true. I want authors to concentrate on their artwork. I want you to really zero in on all these details. You'll end up with a better document that communicates easily; we'll end up

with a higher-quality, better-looking journal. This is a call for perfection!

Please note that for submission and peer review, we only need good copies of figures. But not just the editors and reviewers need to see your artwork, but we must know what the image looks like for planning and proofing. When no electronic file will be available send us the best hardcopy you can, with dark, sharp lines.

Lettering

The most essential and basic element of your artwork is the lettering and symbols (e.g., diamonds, triangle,

boxes, and so on; or dashed lines versus dotted lines and so on). After reduction, the shortest character could be 8 points high. Hairlines may break up or disappear when reduced. Please use line widths great enough to survive reduction. When in doubt use bigger lettering instead of smaller lettering to ensure readability; but not so big you appear to be "shouting."

My next plea is for a plain "helvetica" sans-serif type font, except that symbols such as alphas such be in the symbol font. It is very frustrating when 8 figures are in helvetica and 4 are in times and 1 is in (horrors!) courier. Please try to discuss fonts with all co-authors who are creating art and at the absolute minimum use the same font for all artwork. You want the reader to concentrate on the message, not to get distracted by changing fonts.

But attention to details goes even further: center the labels, capitalize the first letter of the first word, put the units into parentheses (not into brackets), and keep a space between words and between symbols. For example, Temperature (K), would mean Temperature is in Kelvins. Or it could be *T* (K), where the *T* is italicized because it always is for temperature. Again note the space between the letter and the parentheses. This sort of detail is what creates professional, quality artwork.

All variables should be italicized! The text on the figures should conform to *American Mineralogist* style for variables, numbers, and units. For example, *T* for temperature should be italicized; as well as *P* for pressure. The text on the figure must be consistent with the text in the article. Place extensive descriptive text in the caption, not in the figure.

Again: if your original is oversized, it will most likely be reduced to 1 column (about 3 inches or 8 centimeters wide). Make sure your lettering and characters in line such as triangles, diamonds, etc., are large enough to still be readable after the size reduction.

Electronic art requirements:

When we first switched to in-house typesetting and layout, naturally we couldn't cope with electronic art. But once things were a little under control we began discussing this issue with the printer and discovered that we can be a "mixed" journal: we can use author-provided files, files we create on a scanner, and files we send to the printer for processing (perhaps we are just too busy or it is a difficult figure). Because of this freedom, we decided to see if authors can, in fact, provide us with artwork.

We have been pleasantly surprised by the very positive response.

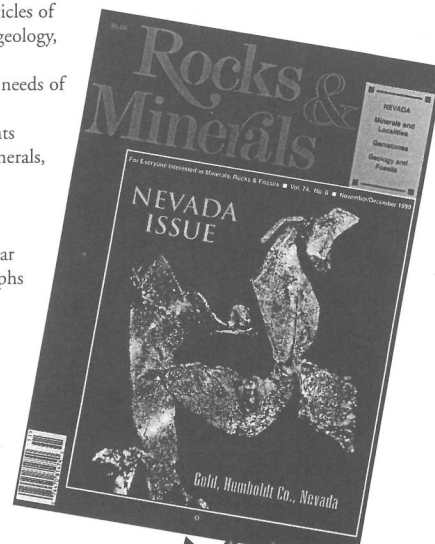
America's oldest popular magazine about minerals.

ROCKS & MINERALS has published articles of interest to all students of mineralogy, geology, and paleontology since 1926.

The magazine is designed to meet the needs of the amateur in the field as well as the professional. Regular departments explore such topics as fossils, microminerals, and current geologic events. Detailed collecting-locality listings appear periodically, and each year one issue provides an in-depth look at a particular state. Color illustrations and photographs appear throughout each issue.

Recent articles include:

- *Colorado Sphalerite*
by Barbara Muntyan
- *The Geology and Minerals of Cerro de Mercado, Durango, Mexico*
by Peter K. M. Megaw and Mark D. Brown
- *The History, Geology, and Mineralogy of the White Pine Mine, Ontonagon County, Michigan*
by Tom Rosemeyer
- *Air Tool Preparation of Fossils*
by Ron Ratkevich
- *The W. M. Keck Museum of the Mackay School of Mines, Reno, Nevada*
by Thomas Lugaski



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1342 RM

We need "eps" or "tiff" format, any program, any platform. Send them via e-mail when requested by the editorial office, or you can send them on floppy disks or zip disks or cd-roms, but we cannot ensure return of media. A poor file is exactly the same as sending us a blurry photograph: The image in the journal will likewise be blurry. The quality of the outcome will be determined by your equipment, what dpi you scan for, and your ability to produce a quality file.

Halftones should be saved at 300 dpi.

Lineart should be saved at 1200 dpi.

Combination art should be saved at 300 dpi; noting that lettering may be a little fuzzy. Be careful to use plain lettering at a size readable after reduction to 1 column.

Art that is "good" on a computer screen is not necessarily good enough to print: art on a computer monitor can look okay as low as 72 dpi! Don't be fooled, check your resolution.

MSA Award and Office and Nominations

Member participation is essential to the formation and continuation of MSA programs. Involvement can take several forms: nominate a candidate for an award, volunteer to serve on a committee next year, or offer your name or that of a colleague as a possible candidate for office. It is through the involvement of individual members that the Society's programs develop to meet the

needs of its members. Please take a minute to read the brief committee descriptions below and consider getting involved. More information about each award and the list of 2000 MSA Committee members are available at the MSA website at www.minsocam.org. Contact the appropriate Committee Chair with your recommendations.

Award/Office	Deadline	Committee Chair
Roebling Medal - The highest award given for eminence as represented by outstanding published original research in mineralogy.	June 1	Robert W. Luth Dept Earth & Atmospheric Sci. University of Alberta Edmonton, Alberta T6G 2E3; CANADA Tel: 403-492-2740; Fax: 403-492-2030 Email: robert.luth@ualberta.ca
Mineralogical Society of America "Mid-Career" Award. Any area broadly defined as mineralogy, such that the research that would be suitable for publication in the American Mineralogist. The nominated individual should not be at a point in their career that they would be a logical nominee for the Roebling medal or eligible for the MSA award.	June 1	David L. Bish Geology and Geochemistry Los Alamos National Laboratory, Mail Stop D469 Los Alamos, NM 87545 ph: (505) 667-1165; fax: (505) 665-3285 e-mail: bish@lanl.gov
Mineralogical Society of America (MSA) Award - Outstanding published contribution prior to 35th birthday or within 7 years of the Ph.D.	June 1	Jeffrey E. Post Mineral Sciences NHB 119 Smithsonian Institution Washington, DC 20560-0119 tel: (202) 357-4009; fax: (202) 357-2476 e-mail: post.jeffrey@nmnh.si.edu
Distinguished Public Service Medal - Awarded for distinguished contributions to public policy and awareness about mineralogical topics.	June 1	open, please check website for more recent information
Fellowship - Society recognition of a member's significant scientific contributions. Nomination undertaken by one member with two members acting as co-sponsors. Form required, contact committee chair or MSA home page.	June 1	open, please check website for more recent information
Officers - Any member or fellow of the Society. One-year terms for President and Vice-President; two-year terms for treasurer and secretary; three-year term for Councillors.	June 1	Craig E. Manning Univ California-Los Angeles Dept Earth & Space Sciences Los Angeles, CA 90095-1567 tel: ((310) 206-3290; fax: (213) 825-2779 e-mail: manning@ess.ucla.edu
Committees - Any member or fellow of the Society. Terms usually from one to six years. In addition to above committees, there are committees on Management, Meetings, Financial Advisory, Publications, Short Course, Tellers, Committee on Committees, Outreach, Arts Council. If you are interested in serving, contact the chair.	April 30	Cornelis Klein Department of Earth & Planet Sciences University of New Mexico Albuquerque, NM 87131-1126 ph: (505) 277-2023; fax: (505) 277-8843 e-mail: cklein@unm.edu

The Mineralogical Society of America

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The Grant for Research in Crystallography is a \$3500 grant for research in crystallography. There are no restrictions on how the grant funds may be spent, as long as they are used in support of research. The only restrictions on eligibility for the grant are that the applicant must have reached his or her 25th birthday but not yet have reached his or her 36th birthday on the date the grant is given, and that the person is not a MSA Councillor.

MSA Grant for Student Research in Mineralogy and Petrology comprise two separate \$3500 grants for student research in mineralogy and petrology. Students, including graduate and undergraduate students, are encouraged to apply. There are no restrictions on how the grant funds may be spent, as long as they are used in support of research.

Selection will be based on the qualifications of the applicant, the quality, innovativeness, and scientific significance of the research, and the likelihood of success of the project. Grants will be made in January 2001. Application forms for the grant may be obtained from the MSA worldwide web home page, <http://www.minsocam.org> or Dr. J. Alex Speer, MSA Business Office, 1015 Eighteenth St NW Ste 601, Washington, DC, 20036-5274, USA (phone: 202-775-4444, fax: 202-775-0018, e-mail: j_a_speer@minsocam.org). Completed applications must be returned to the MSA Business Office by June 1, 2000.



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Mineralogical Society of America Short Course Announcement

Transformation Processes in Minerals

Dates: Friday and Saturday September 1-2, 2000 (preceding the Goldschmidt 2000 Meeting in Oxford. That meeting is organized by the Geochemical Society and European Association for Geochemistry)

Location: Short Course sessions are between 9:00 am - 5:00 pm at the Department of Earth Sciences, University of Cambridge, Cambridge, United Kingdom (<http://www.esc.cam.ac.uk>, postal address below) with accommodations at Queens' College, Cambridge (<http://www.quns.cam.ac.uk/>).

Conveners: *Simon Redfern, Michael Carpenter, Ekhard Salje* Department of Earth Sciences, University of Cambridge, Downing Street, Cambridge, CB2 3EQ, United Kingdom. Phone (+44)1223 333400, fax (+44)1223 333450, e-mail: satr@cam.ac.uk
Friedrich Seifert, Bayerisches Geoinstitut, Universität Bayreuth, D-95440 Bayreuth, Germany

Fees:	on or before 6/30/2000			after 6/30/2000	
Professional Registration:	Member		\$235		\$295
	Non-member		\$325*		\$385*
Student Registration:	Member		\$135		\$195
	Non-member		\$165*		\$225*
Speaker			none		none

* includes MSA membership dues for 2001.

Registering: Registration forms are available from the MSA Business Office, 1015 Eighteenth St NW Ste 601, Washington, D.C. 20036-5274, USA. Tel: 202-775-4344 Fax: 202-775-0018 E-mail: business@minsocam.org; or the MSA Home Page (<http://www.minsocam.org>). A registration form with payment must be returned to the MSA Business Office for each participant.

Practical: Registration fee includes MSA short course sessions, lunches, refreshments at breaks, Friday evening banquet, and the *Reviews in Mineralogy* volume. There is an informal welcoming reception beginning 5:30 pm Thursday evening, August 31, 2000 at Queens' College. Registration fee does not include room, other meals, or transportation costs to or from Cambridge. Participants will be sent room reservation details with their registration confirmation. A block of 100 rooms have been reserved for short course participants at Queens' College, Cambridge.

There are frequent bus and rail links to London's three main international airports (Heathrow, Gatwick and Stansted). Directions to the Department of Earth Sciences at Cambridge University can be found via the web at <http://www.esc.cam.ac.uk> under "about us > finding us".

Student Scholarships: Support from the Mineralogical Society of Great Britain and Ireland, the European Mineralogical Union, the EU TMR on Mineral Transformations and the N.E.R.C. will provide bursaries to support student attendance. Students must provide a one-page summary of why attending the short course will be beneficial to their professional development with their registration form. Deadline for receipt of requests for support is June 30, 2000. Successful applicants will be selected by the organizers of the course.

Short Course Description: Minerals commonly respond to changes in pressure and temperature through phase transformations, thereby extending the limits of their stability. Understanding such transformations is crucial to appreciating the controls on mineral stability as well as to effectively interpreting the history locked up in their ordering patterns and microstructures. Techniques of experimental observation and methods of theoretical analysis of time-temperature-pressure transformation processes in minerals have now reached a state of maturity, following intensive research in these areas over the last decade or so. This short course reviews the advances in both the experimental observation of transformation processes as well as the theory and computational study of these processes. The essential focus of the course relates to the mechanisms and kinetics of structural changes in Earth materials. Starting from a solid knowledge of bulk properties of minerals and model substances (including the consequent thermodynamic stabilities) the course will concentrate on the atomic-scale mechanisms and dynamic aspects of processes in mineral end members and binary solid solutions. The implications for the development of microstructure will be addressed, and the controls imposed by elastic properties and structural topology will be discussed. The bearing of these on the response of minerals to changing temperature, pressure and chemical composition will then be outlined, with the application of experimental methods forming a further significant component of the course. The lectures, however, also extend away from the discussion of simple polymorphic transitions to aspects of amorphisation and glass transformations. This short course will provide a lively forum for cross-discipline discussion of these topics.

Topics and Speakers/Authors

<i>Mineral transformations and microstructure</i>	<i>Ekhard Salje</i>
<i>Elastic anomalies at phase transitions</i>	<i>Michael Carpenter</i>
<i>Rigid unit modes and dynamics</i>	<i>Martin Dove</i>
<i>High-pressure transformation behaviour</i>	<i>Ross Angel</i>
<i>Transformations and solid solutions</i>	<i>Peter Heaney</i>
<i>Order-disorder phase transitions</i>	<i>Simon Redfern</i>
<i>Magnetic transitions in minerals</i>	<i>Richard Harrison</i>
<i>Insights from NMR spectroscopy</i>	<i>Brian Phillips</i>
<i>Insights from Mössbauer spectroscopy</i>	<i>Catherine McCammon</i>
<i>Hard-mode spectroscopy of phase transitions</i>	<i>Ulli Bismayer</i>
<i>Synchrotron studies of mineral transformations</i>	<i>John Parise</i>
<i>Radiation-induced transformations</i>	<i>Rod Ewing</i>
<i>Glass transitions</i>	<i>Don Dingwell</i>

The short course immediately precedes the Goldschmidt 2000 meeting in Oxford (September 3rd–8, 2000) organized by the Geochemical Society and European Association for Geochemistry. Transport to Oxford will be available for those who wish to travel on to the Goldschmidt meeting on Saturday September 2, 2000.

Registration Form

Mineralogical Society of America Short Course *Transformation Processes in Minerals* Cambridge, United Kingdom - September 1-2, 2000

Complete and return this registration form to the MSA Business Office, 1015 Eighteenth St NW Ste 601, Washington, D.C. 20036-5274, USA. Telephone: (202) 775-4344. FAX: (202) 775-0018. Please type or print. Use one form per registrant. Registration is limited to 100 people on a first-come, first-served basis. Payment must accompany this form, which will be fully refunded if cancellation is received in writing prior to July 28, 2000.

Name _____
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Address _____

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

Telephone: (Voice) _____ (Fax) _____

E-mail: _____

Registration fee includes MSA short course session costs, break refreshments, lunches, banquet, and *Reviews in Mineralogy* volume. All MSA short course sessions are at the Department of Earth Sciences, University of Cambridge. There will be an informal welcoming reception at 5:30 pm Thursday evening, August 31, 2000 in Queens' College. Registration fee does not include room, other meals, transportation costs to or from Cambridge. A block of rooms has been reserved for short course participants until 6/30/00 at Queens College, Cambridge. Accommodation booking information will be sent to all registrants. Information on the short course, accommodation, ground transportation, and course updates is on the MSA Home Page (<http://www.minsocam.org>).

Registration. Mark the appropriate registration category [X] and write the appropriate fee on the cost line:

Professional Registration:	on or before 6/30/00	after 6/30/00	cost
[] Member	\$235	\$295	_____
[] Non-member	\$325*	\$385*	_____
[] Speaker	no cost	no cost	_____
Student Registration:	on or before 6/30/00	after 6/30/00	
[] Member	\$135	\$195	_____
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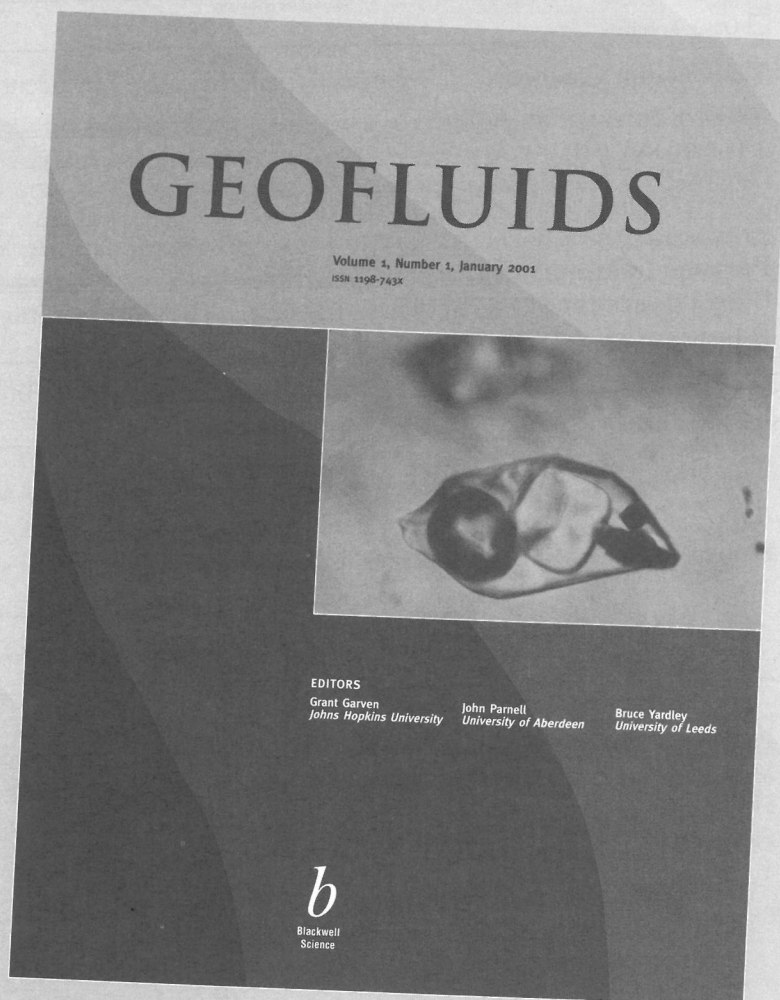
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Memberships are entered and renewed on a calendar basis. You will receive all publications for the year you join. Membership applications received after October 1 will be made effective January 1 of the following year unless otherwise requested. Members will receive the newsletter, *The Lattice*, as part of their dues. As an additional benefit, members may elect to receive the *American Mineralogist*, as well as some related publications, at substantially reduced rates. Please indicate all options that apply in the box to the right. Members are entitled to a 25% discount on other MSA publications given on our Publication List.

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<i>Mineralogical Abstracts</i> , published quarterly by the Mineralogical Society of Great Britain & Ireland	\$48.00
<i>Physics and Chemistry of Minerals</i> , published eight times a year by Springer-Verlag	\$475
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5-9 7th International Symposium on Smart Structures and Materials Newport Beach California. *Details:* SPIE, PO Box 10, Bellingham WA 98227. Tel: 360-676-3290; Fax: 360-647-1445; WWW: www.spie.org/info/ss-nde/

13-17 31st Lunar and Planetary Science Conference Houston, Texas. *Details:* L. Simmons, Conference Administrator, LPI Publications and Program Services Department, 3600 Bay Area Boulevard, Houston, TX 77058-1113. Tel.: 281-486-2158; Fax: 281-486-2160; E-mail: simmons@lpi.jsc.nasa.gov.

26-28 Second RIDGE Workshop on Mantle Flow and Melt Generation beneath Mid-Ocean Ridges. Providence, Rhode Island. *Details:* P. Keller, RIDGE Office, College of Oceanic and Atmospheric Sciences, Oregon State University, Corvallis, OR 97331; Tel.: 541-737-8141; Fax: 541-737-8142; E-mail: ridge@oce.orst.edu WWW: ridge.oce.orst.edu/calendar.html

April

16-19 8th International Symposium on Experimental Mineralogy, Petrology and Geochemistry (EMPG VIII). Bergmano, Italy. *Details:* EMPG VIII Organizing Committee, Dipartimento Scienze della Terra, Universita di Milano, Via Botticelli 23, 20133 Milano, Italy. WWW: www.congresscenter.bg.it

16-19 Fractal 2000 – Complexity and Fractals in the Sciences. Singapore. *Details:* Dr. M. M. Novak, School of Physics, Kingston University, Kingston-upon-Thames, Surrey KT1 2EE, UK ; Tel. +44-181-547-7481; Fax: +44-181-547-7562; E-mail: novak@kingston.ac.uk; WWW: www.kingston.ac.uk/fractal/

17-19 Geoscience 2000. Manchester, United Kingdom. *Details:* The Conference Office, The Geological Society, Burlington House, Piccadilly, London W1V 0JU United Kingdom. Tel.: +0171-434-9944; Fax: +0171-494-0579; E-mail:

geo2000@geolsoc.org.uk; WWW: www.geolsoc.org.uk.

24-28 5th International Symposium on Environmental Geochemistry (ISEG). Cape Town, S. Africa. *Details:* Deborah McTeer, Postgraduate Conference Division, UCT Medical School Observatory, 7925 RSA. Fax: 27-21-4486263. E-mail: deborah@medicine.uct.ac.za. WWW: www.uct.ac.za/depts/pgc

25-29 European Geophysical Society XXV General Assembly. Nice, France. *Details:* EGS Office, Max-Planck-Str. 13, 37191 Katlenburg-Lindau, Germany ; Phone: +49-5556-1440; Fax: +49-5556-4709; E-mail: egs@copernicus.org; Web Site: www.copernicus.org/EGS/EGS.html;

May

7-12 36th Forum on the Geology of Industrial Minerals. Bath, UK. *Details:* Peter Scott, Camborne School of Mines, University of Exeter, Redruth, Cornwall TR15 3SE Tel.: 01209-714866; Fax 01209-716977. WWW: E-mail: pscott@csm.ex.ac.uk.

9-13 5th International Conference on Clean Technologies for the Mining Industry. Santiago, Chile. *Details:* Ema Huenchul Cordova, Secretary of the Conference. E-mail: ctmi@udec.cl; WWW: www.met.udec.cl/eventos.html.

10-12 13th Kongsberg Seminar – Fluids In and Out of Rocks. Oslo, Norway. *Details:* Bjorn Jamtveit. E-mail: bjorn.jamtveit@geologi.uio.no.

12-14 Europe's Major Base Metals, Galway, Ireland. Information: Leo Fusciardi, Irish Association for Economic Geology, c/o Minorco Services Ireland, Ltd. Killoran Moyne, Thurles, Co. Tipperary, Ireland, phone 353-504-45369, fax 353-504-45344, E-mail: lfusciardi@minorco.ie; WWW: www.iaeg.org/

15-18 Geology and Ore Deposits 2000: the Great Basin and Beyond. Reno-Sparks, Nevada. *Details:* Geological Society of Nevada, PO Box 12021,

Reno, NV 89510 USA ; Tel: +1-702-323-3500;
Fax: +1-702-323-3599; E-mail:
gsnsymp@nbmg.unr.edu WWW:
www.seismo.unr.edu/GSN

E-mail: slewis@esf.org; Web Site:
www.esf.org/euresco/00/lc00154a.htm

15-20 Environmental. Mineralogy – 2nd School and Symposium of the European Mineralogical Union. Budapest, Hungary. *Details:* EMU Secretariat and David J. Vaughan (University of Manchester) EMU Secretariat c/o Dept. of Mineralogy, Eotvos L. University, Muzeum krt. 4/a Budapest H-1088 Hungary. Fax: +36 1 266 4992 E-mail: emu@ulixes.geobio.elte.hu and D.Vaughan@fs1.ge.man.ac.uk WWW: <http://ulixes.geobio.elte.hu/mineral/scievents.html>

29-2 GeoCanada 2000. Calgary, Alberta, Canada. *Details:* John Varsek (technical program chair), Tel.: 403-233-1679 E-mail: varsekjl@bp.com, WWW: www.geocanada2000.com.

30-3 AGU Spring Meeting. Washington DC. *Details:* AGU Meeting Department, 2000 Florida Ave., NW Washington, DC 20009. Tel.: 202-462-6900; Fax: 202-328-0566, E-mail: meetings@kosmos.agu.org, WWW: <http://www.agu.org/meetings>.

June

11-18 IMA – Commission on Ore Mineralogy: Short Course – Modern Approaches to ore and environmental mineralogy. Helsinki, Finland. *Details:* C. J. Stanley, Natural History Museum; London SW7 5BD, England, E-mail: C.Stanley@nhm.ac.uk, WWW: www.hut.fi/Units/Geophysics/kojonen/ilmoitus.html.

11-23 Lehigh Microscopy School Short Courses. Bethlehem, Pennsylvania. *Details:* Professor David B. Williams, Department of Materials Science and Engineering, Lehigh University, 5 E. Packer Avenue, Bethlehem, PA 18015; Tel.: 610-758-5133; Fax: 610-759-4244, E-mail: sharon.coe@lehigh.edu, WWW: www.lehigh.edu/~inmatsci/Microscourses.html.

24-29 Physical and Chemical Effects of Mantle Plume – Spreading Ridge Interaction. Troutdale, Oregon. *Details:* R. Keller, RIDGE Office, College of Oceanic and Atmospheric Sciences, Oregon State University, Corvallis, OR 97331 USA; Phone: +1-541-737-8141; Fax: +1-541-737-8142; E-mail: ridge@oce.orst.edu; Web Site: ridge.oce.orst.edu;

26-28 The Clay Minerals Society 37th Annual Meeting. Chicago, Illinois. *Details:* Dr. Alanah Fitch, Loyola University of Chicago, 6525 N. Sheridan Road, Chicago, IL 60626; Tel.: 773-508-3119; Fax: 773-508-3086, E-mail: afitch@luc.edu.

16-20 Asteroids, Meteorites, Impacts, and Their Consequences: AMICO 2000: Nordlingen im Ries, Germany *Details:* AMICO 2000, Rieskrater-Museum Noerdlingen, Eugene-Shoemaker-Platz 1, D-86720 Noerdlingen, GERMANY; Tel.: +49-9081-273-8220; Fax: +49-9081-273-82220; E-mail: rieskratermuseum.noerdlingen@donau-ries.de; Web Site: ecf.hq.eso.org/~ralbrech/amico

21-24 Biogenic Iron Minerals. Tihany, Hungary. *Details:* Mihaly Posfai Dept. of Earth and Environmental Sciences, University of Veszprem, Hungary. Fax: +36 88 423 203 E-mail: posfaim@almos.vein.hu WWW: www.vein.hu/conference/bim.

23-25 Where Crust Meets Mantle: Lithoprobe Perspectives on the Continental Crust-Mantle Boundary. Banff, Alberta, Canada, *Details:* D. Eaton, Department of Earth Sciences, University of Western Ontario, London, Ontario N6A 5B7 CANADA; Phone: +1-519-661-3190; Fax: +1-519-661-3198; E-mail: deaton@julian.uwo.ca; Web Site: www.cg.nrcan.gc.ca/crust-mantle-workshop.

May-June

27-1 Mineral Surface Reactivity: EuroConference on the Interaction of Mineral Surfaces with Organic and Inorganic Species in Aqueous Solution. San Feliu de Guixols, Spain, *Sponsor:* European Science Foundation, *Details:* S. Lewis, European Science Foundation, 1, Quai Lezay-MarnEsia, 67080 Strasbourg Cedex, France; Phone: +33-388-76-71-35; Fax: +33-388-36-69-87;

Mineralogical Association of Canada Short Course GeoCanada 2000, Calgary

Tracing Fluid Histories of Sedimentary Basins

May 28-29 2000

Editor

Speakers

Kurt Kyser

Eric Hiatt, Department of Geological Sciences and Geological Engineering, Queen's University,

Fred Longstaffe, Department of Geological Sciences, University of Western Ontario

Gerry Ross, GSC, Calgary

Ian Hutcheon, Department of Geological Sciences, University of Calgary

Bernard Marty, CNRS, Nancy, France

Kurt Kyser, Department of Geological Sciences and Geological Engineering, Queen's University,

The purpose of the course is to illustrate the methods, techniques and approaches used to trace the fluid flow histories of sedimentary basins and demonstrate how to use this information to evaluate the economic potential (both metal and petroleum) of large basins. The results from these studies are prerequisite for constraining large - and restricted - scale flow models, understanding the evolution of the crust, and refining exploration and exploitation strategies for mineral and petroleum deposits. The specific basins to be discussed include Proterozoic basins in Canada and Australia, Phanerozoic and Mesozoic basins in Western Canada, and Mesozoic and Cenozoic basins in Europe.

Most of the material presented will be at a level of understanding for most upper undergraduate and graduate students although recent results and ideas presented throughout the presentations will appeal to both pure and applied researchers working in sedimentary basins.

Presentations will consist of 1-2 lectures from each speaker (an introductory lecture and one related to current results and ideas) so that the short course will last for 1.5 days, prior to the regular meeting.



**Mineralogical
Association of Canada**
Association minéralogique
du Canada

Outline

- ▶ Tectonics and basins types of basins, tectonic settings, mechanisms of basin evolution and origin of fill, relation between size and tectonics, relation between economic potential and tectonics
- ▶ Actualistic and non-actualistic effects and tectonics-comparison of tectonic styles of Cenozoic, Mesozoic, and Phanerozoic basins
- ▶ Sedimentation and basin fill-sedimentology and stratigraphy—energy and source terrain evaluation, sequence stratigraphy principles

- ▶ Modern-ancient differences and similarities in sedimentation and style of fill
- ▶ Paragenesis of minerals in basins-field relations, petrographic techniques
- ▶ Fluid inclusions in detrital and authigenic minerals-quartz, the early fluids, salinities and temperatures, estimates of pressures
- ▶ Timing of fluid events-principles of radiometric dating, what does an "age" really signify, radiometric dating of clay minerals (mainly illite), other useful minerals including

uraninite, salts, phosphates, sulfides, paleomagnetism as a fluid tracing tool, fission track and other techniques

- ▶ Stable isotopes as tracers of fluids
- ▶ Mineral reactions and equilibria-determining the chemical and physical properties of fluids in basins
- ▶ Tracing relatively recent basin histories-noble gas geochemistry, heat flow in basins, what do fluids present in basins reflect (i.e. climate, heat, petroleum and ore deposits)?

- ▶ Paleo- and Mesoproterozoic basins
- ▶ Neoproterozoic basins
- ▶ Western Canadian basin
- ▶ Paris basin

Cost is \$ 353 CDN
(\$ 150 CDN for students).
For additional information,
see www.geocanada2000.com
or contact
kyser@geol.queensu.ca

July

- 3-7 Ron Vernon Symposium – at the 15th Australian Geological Convention** Sydney, Australia.

Details: WWW:

www.science.uts.edu.au/agc/agchome.html

- 4-8 15th International Conference on Basement Tectonics: Variscan-Appalachian Dynamics: The Building of the Upper Paleozoic Basement** A Coruna, Spain. *Details:* Florentino Diaz Garcia, Departamento de Geologia, Universidad de Oviedo, Arias de Velasco s/n, 33005 Oviedo, Spain. Tel.: 34-98-5103114; Fax: 34-98-5103103; E-mail: bt15@asturias.geol.uniovi.es; WWW: www.geol.uniovi.es/bt15.html

- 16-22 6th International Council for Applied Mineralogy (ICAM 2000).** Gottingen and Hannover, Germany. *Details:* ICAM 2000 Office, P. O. Box 510153, D-30631 Hannover, Germany. WWW: <http://www.bgr.de/ICAM2000>

- 18-22 International Association of Volcanology and Chemistry of the Earth (IAVCEI) General Assembly 2000.** Bandung, Indonesia. *Details:* Secretariat, Volcanological Survey of Indonesia, Jalan Diponegoro 57, Bandung 40122, Indonesia. Tel.: 62-22-772606, Fax: 62-22-702761, E-mail: iavcei@vsi.dpe.go.id WWW: <http://www.vsi.dpe.go.id/iavcei.html>.

- 26-30 Mineralogical Museums in the 21st Century.** St. Petersburg, Russia. *Details:* Galina, F. Anastasenko, Vladimir G. Krivovichev, Faculty of Geology, St. Petersburg University, Universitetskaya Emb., 7/9, St. Petersburg 199034, Russia. Tel.: (812)-328-94-81, Email: dept@mineral.geol.pu.ru.

August

- 3-5 11th International Conference on Heavy Metals in the Environment.** Ann Arbor, Michigan. *Details:* J. Nriagu, Department of Environmental and Industrial Health, School of Public Health, University of Michigan, 109 Observatory Street, Ann Arbor, MI 48109-2029 USA ; Phone: +1-734-936-0706; Fax: +1-734-764-9424; E-mail: Heavy.metals.conference@umich.edu; Web Site: www.sph.umich.edu/eih/heavymetals/;

- 6-10 Conference on the History of Geologic Pioneers.** Troy, New York. *Details:* Gerald Friedman,

Rensselaer Center of Applied Geology, P.O. Box 746, Troy, New York 12181, Fax: 518-273-3249, E-mail: gmfriedman@juno.com.

- 6-17 31st International Geological Congress.** Rio de Janeiro, Brazil. *Details:* Secretariat Bureau, 31st International Geological Congress, Av. Pasteur, 404, Anexo 31 IGC, Urca, Rio de Janeiro, RJ, CEP 22.290-240, Brazil. Tel.: 55-21-295-5847, Fax: 55-21-295-8094, E-mail: 31igc@31igc.org.br.

September

- 3-8 Goldschmidt 2000.** Oxford, UK. *Details:* P. Beattie, Cambridge Publications, Publications House, PO Box 27, Cambridge, UK CB1 4GL. Tel.: 44-1223-333438, Fax: 44-1223-333438, E-mail: gold2000@campublic.co.uk, WWW: <http://www.campublic.co.uk/science/conference/Gold2000/>

- 6-8 3rd Conference on Tectonic Problems of the San Andreas Fault System.** Stanford, California. *Details:* B. Kovach, Department of Geophysics, Mitchell 360, Stanford University, Stanford, California, 943005-2215. Tel. 650-723-4827; Fax: 650-725-7344; E-mail: kov@pangea.stanford.edu. WWW: pangea.stanford.edu/GP/sanandreasconf.html.

November

- 8-10 Conference on the Earth-Moon Relationship.** Padova, Italy. *Details:* GSA Meetings Dept. Boulder, CO 80301-9140. Tel.: (303)-447-2020, Fax: (303)-447-1133. WWW: C. Barbieri, Department of Astronomy, University of Padova, Vicolo Osservatorio 5, Padova 35122 ITALY ; Phone: +39-049-8293434; Fax: +39-049-8293507; E-mail: cbarbier@ux1.unipd.it; barbieri@pd.astro.it

- 13-16 GSA Annual Meeting.** Reno, NV. *Details:* GSA Meetings Dept. Boulder, CO 80301-9140. Tel.: (303)-447-2020, Fax: (303)-447-1133. WWW: <http://www.geosociety.org/meetings/index/htm>

December

- 15-19 AGU Fall Meeting.** San Francisco, CA. *Details:* AGU Meeting Department, 2000 Florida Ave., NW Washington, DC 20009. Tel.: 202-462-6900; Fax: 202-328-0566, E-mail: meetings@kosmos.agu.org, WWW: <http://www.agu.org/meetings>.

Welcome New Members!

The following individuals joined (or rejoined after a long hiatus) MSA during October, 1999 through January 21, 2000. We welcome them to the Society. The areas of interest are: Mineralogy (MI), Crystallography/Crystal Chemistry (CC), Material Properties (PP), Igneous Petrology (IP), Metamorphic Petrology (MP), Sedimentary Petrology (SP), Geochemistry (GE), Phase Equilibria (PE), Economic Geology (EG), Clay Mineralogy (CM), Industrial Mineralogy (IM), Environmental Mineralogy (EM), Gems (GM), Planetary

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Materials (PM), Teaching (TC), Topologic or Descriptive Mineralogy (TP), Biological-Mineral Interactions (BI), and others as indicated.

If you know of someone who would like or should join MSA, give them the membership application that appears in this issue of *The Lattice*, or is available from either MSA's web site (<http://www.minsocam.org>) or the MSA Business Office, 1015 Eighteenth St NW Ste 601, Washington, DC 20036-5274, USA.

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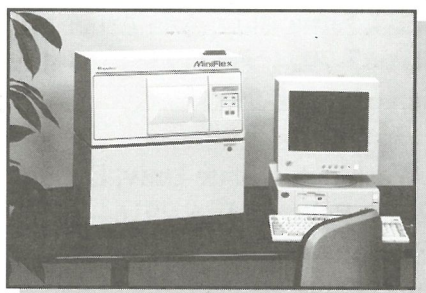
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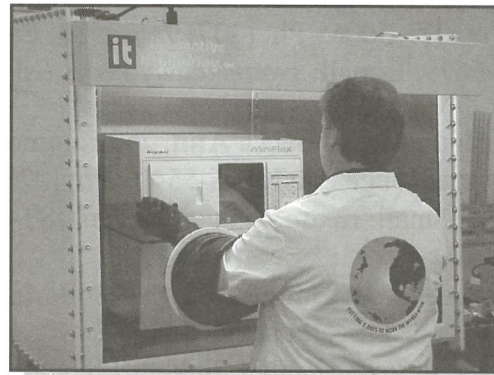
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