

# The Lattice

## GSA/MSA 1992 Annual Meeting

The GSA/MSA 1992 Annual Meeting will be held October 26-29 in Cincinnati, Ohio. The abstract deadline is July 8, 1992. Abstract forms are now available and may be obtained from the Abstracts Coordinator, P.O. Box 9140, Boulder, CO 80301 (Telephone: 303-447-8850).

The preregistration deadline for the meeting is September 25. Information regarding the meeting, registration and housing forms, and hotel information will be published in the August issue of *The Lattice*. Registration and housing forms will be available August 1 from GSA and may be obtained by calling 303-447-2020 or 1-800-472-1988. Co-headquarters for this year's meeting are the Hyatt Regency Cincinnati and the Omni Netherland Plaza. Other participating downtown hotels are the Clarion, Terrace Hilton, Westin, and Holiday Inn Queensgate. In Kentucky, the Quality Inn, Travelodge, and Holiday Inn Riverfront will host GSA attendees. Cain Travel Group will serve as GSA's official travel agency for the meeting. Reservations may be made by calling Cain Travel at 1-800-346-4747, within the U.S., or 303-443-2246 (collect), from outside the U.S. Tourist information may be obtained from: Northern Kentucky Convention & Visitors Bureau, 605 Philadelphia Street, Covington, KY 41011 (606-261-4677 or 1-800-354-9718) and Cincinnati Convention & Visitors Bureau, 300 W. Sixth Street, Cincinnati, OH 45202 (513-621-2142 or 1-800-344-3445).

## MSA Theme Session

MSA is sponsoring a theme session at the 1992 Annual GSA/MSA meeting, **Transmission Electron Microscopy in Mineralogy and Petrology**, that is being organized by Peter R. Buseck. Transmission electron microscopy (TEM) has become integral for much research in mineralogy, petrology, and tectonophysics. A unique blend of structural and analytical capabilities permits multiple types of measurements on the same mineral grain, each on a finer scale than is possible by any other technique. Examples of current research will be presented. Papers presented during this session will compliment the MSA short course, **Minerals and Reactions at the Atomic Scale - High Resolution Transmission Electron Microscopy**, that will be held prior to the GSA meeting (see short course registration form and information elsewhere in this newsletter).

## Call for Papers - 14th Mineralogical Symposium

The fourteenth Mineralogical Symposium, which is sponsored jointly by Friends of Mineralogy, the Tucson Gem and Mineral Society, and the Mineralogical Society of America, will be held in conjunction with the 39th Tucson Gem and Mineral Show, Saturday February 13, 1993. The topic of the symposium will be garnet -- the theme mineral for the show. Papers on the descriptive mineralogy, paragenesis, classic and new localities, etc. are invited. An audience of knowledgeable amateurs as well as professional mineralogists and geologists is expected.

If you wish to present a paper, please write or call (immediately) Dr. Karen Wenrich, Chairperson (USGS, Mail Stop 939, Federal Center, Denver, CO 80225; 303-236-1563) with your topic, a few sentences describing the paper, and your address and telephone number. Presentations will be 15 or 20 minutes in length, followed by a period for questions. Upon acceptance of topics, all authors will be required to submit a 200-300 word abstract by September 30, 1992 (**firm date**). Abstracts that are deemed scientifically sound and substantive by the editor of the *Mineralogical Record* will be published in the January/February issue, which will be available for sale at the 39th Tucson Gem and Mineral Show.

## ECROFI XII - European Current Research on Fluid Inclusions

*Venue:* Warsaw and Cracow, Poland

*Date:* June 1993

The twelfth symposium on European fluid inclusion research will be held in Warsaw with pre-symposium excursions in the vicinity of Cracow, southern Poland.

Both oral and poster presentations are planned. The abstract deadline is January 1, 1993.

To obtain the First Circular contact either:

Prof. Andrzej Kozłowski  
Institute of Geochemistry,  
Mineralogy, and Petrography  
Faculty of Geology  
Warsaw University  
02-089 Warsaw  
Al. Żwirki i Wigury 93  
POLAND

Harvey E. Belkin  
Mail stop 959  
U.S. Geological Survey  
Reston, VA 22092  
USA

## From the *American Mineralogist* Editorial Office and the President

The past two years have been challenging for the Society from a financial point of view, in part as a result of circumstances surrounding *American Mineralogist*. You have no doubt noticed that the most recent volume of the journal, Volume 76, contained over 2050 pages, the largest volume (by over 25%) ever produced by MSA. Further, you probably noticed that the most recent issues of the journal are of a size that is more typical of the journal in the past few years. This smaller size does not reflect a reduction in the number of papers received. On the contrary, as discussed below, the editorial office of *American Mineralogist* continues to receive manuscripts at a record rate. The size does, however, reflect limits imposed by financial realities. Given these new circumstances, we thought it important to discuss the ramifications of issues concerning the recent past and the future of the journal.

In the decade preceding 1988, *American Mineralogist* received, on average, about 190 manuscripts per year. To be sure, there were ups and downs in this number, but within the range of 170-210, the flow of papers to the journal was remarkably steady. In 1989 the journal received 234 papers, and in 1990 we received 267 papers. Of the papers received in 1990, about thirty were contributed to the special issue in honor of Professor J. B. Thompson, Jr. In 1991, 239 papers were received, but for the period October 1991 through March 1992 we have received 152 papers, giving a potential annual rate of about 300 papers. Not only have the number of papers increased significantly, but their length and complexity have increased also. Obviously, it would be an understatement to say that the demand for space in the journal has never been greater.

In order to deal with the rising tide of submissions, the MSA Council adopted a strategy to deal with both the immediate and long-term problems created by the increased rate of submissions. As a first step, the Council agreed to expand the journal to accommodate the Thompson issue without the creation of a large backlog of

papers. In order to pay for the increased number of pages, Council agreed to fund the publication charges from endowment and to repay in future years. However it was recognized that were submissions to continue at the same rate, the Society could not afford to continue to subsidize the funding of the journal from endowment. As most, if not all, members know, page charges collected by the Society cover only a fraction of the cost of producing the journal. A proportion of members' dues, institutional subscriptions, and page charges all go to supporting the journal financially. The largest costs of producing the journal are typesetting and printing, which together account for about 65% of all costs associated with producing the journal.

In consultation with the Editors, Council agreed that in the years after 1991, the rejection rate would increase to balance the submission rate with the space available in the journal, which for 1992 was set at 1344 pages. In addition, it was agreed that the Editors would increase their efforts to reduce the length of papers by various means. As a consequence of these actions, the rejection rate and withdrawal rate for the journal has risen steadily and is currently almost 50%, as compared to an average rate of about 15-20% for the period 1978-1989.

As a result, papers that would have been published in the past must be declined in some cases, but this pruning is necessary to prevent the creation of a backlog of papers that would add unreasonably to the time required to publish an article. Some papers are rejected early in the review process. These papers are generally those not considered to be appropriate for the journal or those that appear to have serious, fundamental problems. Others are rejected after review. The editors have attempted to maintain a balance in the breadth of topics presented in the journal and at the same time have striven to publish the highest quality science as determined cooperatively by the Editors, Associate Editors, and reviewers. This is not an easy chore, and one that consumes a very large proportion of the

Editors' time, as such judgments require careful consideration and often lengthy consultations with Associate Editors, reviewers, and other experts in various disciplines. However, in a journal that publishes papers in every field from mineral physics to descriptive mineralogy and crystallography to petrology, there are bound to be differences in opinion over what is considered important and what is not. In addition, members of each subdiscipline may feel that their subdiscipline is inappropriately under-represented.

Various solutions to these problems are being considered. The Society can decide to publish more, but additional funds would be needed to cover the costs. We are seeking ways to reduce the costs of producing the journal, thereby allowing more to be published for the same cost, but it is not likely that any series of actions will produce the quantum change necessary to allow the publication of most of what is submitted as was the case until recently. Indeed, there are some who might not consider this an appropriate course. On the other hand, as the number of subdisciplines under the general description of mineralogy, crystallography, and petrology increases, it seems likely that there will be ever increasing demands on space in the journal. Therefore we must not only seek ways to publish more for the same cost, but we must also explore ways to present the same amount of information in less space. As members of the Society and authors, you can contribute to the solution to this problem by reducing the length of papers contributed to the journal. This is not a call to reduce papers to a minimum "sound bite," but rather a call to evaluate critically the length of text and the number and size of tables and figures (configured to fit into one column if at all possible), with the understanding that the shortening of manuscripts as much as possible will allow the publication of high-quality manuscripts that otherwise would have been rejected for no reason other than lack of space. This downsizing of

papers is not without precedent. A study of journals in the fields of chemistry and physics shows the trend to much shorter papers during this century. As the amount of information produced by mineralogists increases, the need for brevity increases also, both because of limitations on what can be published and limitations on the amount of time available for reading what is published.

We hope that you will keep *American Mineralogist* at the forefront of mineralogy, crystallography, and petrology by continuing to submit the results of your most significant and exciting research to the journal. The journal has been and continues to be very successful, and these developments can be seen in a positive light as part of the natural process of growth and maturation that will continue the tradition of *American Mineralogist* as a leading journal in mineralogy.

Steven R. Bohlen, Editor  
Donald R. Peacor, Editor  
Michael J. Holdaway, President

## ACA Annual Meeting

The 1992 Annual Meeting of the American Crystallographic Association will be held jointly with the 50th Annual Pittsburgh Diffraction Conference at the University of Pittsburgh, August 9-14, 1992. The topic of the ACA Transactions Symposium is *Electron Crystallography*. The meeting will include sessions on Applied Crystallography, Amorphous Materials, Amorphous Materials/Synchrotron Radiation, Crystallographic Computing, Fiber Diffraction, Neutron Scattering, Neutron Scattering/Synchrotron Radiation, Service Crystallography, and Synchrotron Radiation.

Details - Program Chair:  
Robert H. Blessing  
Medical Foundation of Buffalo  
73 High Street  
Buffalo, NY 14203.  
(Telephone: 716-856-9600;  
FAX: 716-852-4846;  
E-mail: wprhb%mbf@ubvms).

## CMS Annual Meeting

The 29th Annual Meeting of the Clay Minerals Society will be held jointly with the Soil Science Society of America in Minneapolis, Minnesota, November 1-6, 1992. Symposia will include: Environmental and Regulatory Aspects of Clay Minerals, Genesis and Properties of Smectites - Soils and Geological Perspectives, and Synchrotron X-ray Sources in Clays and Soils Research. Abstract deadline: June 29, 1992.

Details: Program Chairman - Darrell Schulze (317-494-8062), General Co-Chairmen - Jerry Bigham (614-292-2001), and Wayne Hudall (504-388-1344).

## Mineralogy and Museums Conference II

The second conference on Mineralogy and Museums will be held September 10-11, 1992 at the Royal Ontario Museum, Toronto, Ontario. The following museum themes related to mineralogy will be covered: research exhibitions, collections management, conservation, management practices and communications. Abstracts should be no longer than 250 words. A field trip to the Mont Saint-Hilaire locality is planned for September 12-13.

Details: Mineralogy and Museums II, Department of Mineralogy, Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario, M5S 2C6 CANADA.

## 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.

**Kuellmer, Frederick J.**  
Fellow, 1959

**Palmer, Andrew L.**  
Member, 1970

**Wyart, Jean**  
Honorary Fellow, 1953



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 from readers are welcome.

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

Membership benefits include: the *American Mineralogist*, published bi-monthly; 30% discount on volumes in the *Reviews in Mineralogy* series; The *Lattice*; Membership Directory; special subscription rates for *Mineralogical Abstracts*, *Physics and Chemistry of Minerals*, *Journal of Petrology*, and *Journal of Metamorphic Geology*; reduced registration fees at MSA short courses; member rates for the MSA/Geological Society of America annual meeting and 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 1992 are \$50 for professional members; \$30 for students. Membership is on a calendar year basis. Individuals who join after January 1, 1992 will be sent all back issues of the journal for volume 77, 1992.

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 1992 volume of the *American Mineralogist* for the annual rate of \$200 in the US, \$205 in Canada and Mexico and \$210 in all other countries. 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.

1992 President: Michael J. Holdaway  
Southern Methodist University  
Past-President: Malcolm Ross  
U.S. Geological Survey  
Vice President: Alexandra Navrotsky  
Princeton University  
Secretary: Stephen J. Guggenheim  
University of Illinois  
Treasurer: James A. Whitney  
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FAX: (202) 775-0018

## What Future, Mineralogy?

Peter J. Heaney  
Department of Geological and Geophysical Sciences  
Princeton University

*Who Nature's Treasures wou'd explore,  
Her Mysteries and Arcana know,  
Must high, as lofty Newton, soar,  
Must stoop, as searching Woodward,  
low.*

-Richard Bentley [1662-1742]

Tucked away within the sooty brick building that houses the Department of Earth Sciences at Cambridge University lies the Sedgwick Geological Museum, a trove of trilobite, brachiopod, and dinosaur remains and itself a kind of undisturbed fossil from the nineteenth century. After the visitor squeezes through three rooms cramped with specimen cases, he or she comes upon a quiet glass enclosure that houses the oldest mineral collection in Great Britain. Assembled by John Woodward (1665-1728), Professor of Physic at Gresham College, the collection contains over 9000 specimens from most parts of the eighteenth century world, all stored within exquisitely crafted walnut cabinets that put today's utilitarian metal cases to shame.

Perhaps what most arrests the attention of the modern mineralogist, however, is the eclectic character of this assemblage. In addition to the expected crystals of calcite, quartz, and fluorite, Woodward included unripened hazelnuts from the moss pits of Cheshire, pitch stones, elephant tusks, furnace slag, crude oil, and pine cones. To a latter-day geologist trained to think of minerals as naturally occurring inorganic solids, the process by which Woodward selected his samples may appear quaintly indiscriminate. But within Woodward's eighteenth century conception of natural history, all these items were classified as petrifications of the earth's crust, as the stiff barriers that now separate minerals from rocks, fossilized plants, and man-made materials had not yet been erected.

In the three centuries since Woodward compiled his collection, mineralogists compensated for this early liberality by transforming their science

into an exclusive classification system. In fact, so assiduous were these disciples of Linnaeus that by the 1880's even large-scale field geology was taking on a decidedly taxonomic cast, and ugly battles were waged over the naming of early Paleozoic rock systems. With the discovery in 1912 that X-ray diffraction could delineate mineral structures on the atomic level, the frenzy to examine every mineral variety and place it in its proper niche grew to even greater proportions. By today's reckoning, more than three thousand natural mineral structures have been named and characterized, and words of alarm have been sounded. At first one heard them as whispers from sullen graduate students in the shadows of far-off corridors, but lately even respectable geologists at public meetings have dared to say it: Mineralogy is dead! Like God, perhaps, it has become a victim of its own success.

For those tormented souls who aspire towards a true understanding of the earth's creations, this attitude must be cause for concern. Do we catalogue the science of mineralogy and place it alongside the agates and ammonites in Woodward's collection, to be gazed at but not touched by future generations? Or are these prophecies akin to the premature valedictories of those nineteenth-century physicists who stood ready to inter their science, mindless of its imminent resurrection by the likes of Einstein and Bohr?

Both questions, I think, must be answered with a qualified affirmative. Certainly, mineralogy must bury a part of its past. The days traveling to remotest Sri Lanka to collect novel mineral types for the purpose of exhaustive optical and X-ray characterization are virtually over. Our science cannot be sustained by the largely esthetic pleasure that comes with the determination of previously unexplored crystal structures, as great as this delight can be. But it would be irresponsible to abandon this rutted road entirely. As has been noted by Jeffrey

Post, chair of the Department of Mineral Sciences at the Smithsonian, unusual mineral species can play as critical a role in the development of technologically vital materials as exotic herbs have played in the synthesis of new medicines. Just as the muscle relaxant curare might not be prescribed today but for its discovery in the root of the South American pareira, mineral structures have provided templates for the innovation of untold numbers of compounds with industrial significance. As an important example, the crystal structures of natural zeolites were determined by mineralogists more than fifty years ago. Because the zeolitic framework contains spacious channels that will admit inorganic and organic molecules on a selective basis, zeolitic materials can be used as molecular sieves, ion exchangers, and catalysts. Today, production of zeolites measures over 12,000 tons each year, and the development of zeolitic compounds with specially tailored properties provides a major source of revenue for Mobil Oil. Had nature not concocted these extraordinary silicates for us, who can say how long it would have taken materials scientists to stumble upon the recipe?

Because mineralogists have become so adept at solving the crystal structures of such complex inorganic species as zeolites, it is to be hoped that this rare skill will not be lost in the scramble to redefine the discipline. When I was a graduate student enrolled in a course in quantum mechanics, my professor delivered a historical survey of twentieth-century physics, during which he asserted (several times) that the field of crystallography had dwindled to nothing more than a "cottage industry." Within the next few months, Bednorz, Müller, and Chu had discovered perovskite-type superconductors, and with some satisfaction I observed the frustration of my professor as he came to realize that his research group was unable to decipher the structures of the new materials they

were synthesizing each day. Indeed, as the oxide superconductors increased in complexity, Paul Chu turned to colleagues at the Carnegie Geophysical Lab for aid with structure determination, and Carnegie scientists in turn enlisted help from mineralogists at the Smithsonian and at Johns Hopkins.

The collaboration of mineralogists with physicists in the pursuit of superior superconductors suggests one route that the mineral sciences must follow in order to ensure their continuing vitality. As mineralogists turn their sights towards amorphous and synthetic solids, and condensed matter physicists focus on materials with high structural and compositional complexity, cooperation will become compulsory. With time, the distinctions separating mineralogy, mineral physics, and solid state physics will be blurred beyond recognition. Likewise, mineralogical methods are beginning to invade the biological sciences. Although this union still is in an incipient state, the potential for interaction is manifest. The formation of bone tissue and tooth enamel, the health effects of inhaled mineral dusts, and the fossilization of dead plant and animal cells are only a few areas that demand the concerted action of earth and life

scientists.

The diversification of mineralogy may appear to be impelled by a desperate desire to describe non-mineral structures now that the list of available minerals has been nearly exhausted. I would argue, however, that the transformation is considerably more profound. The identification of mineral structures never could properly be considered an end in itself; rather, this work served as a means to an end -- that of understanding the physical and biological processes by which minerals grow and change. The successful completion of the study of crystals as static entities has enabled mineralogists today to embark on the more challenging and exciting problems associated with the dynamic properties of minerals. It is this philosophy that unifies the seemingly disconnected fields at the forefront of mineral physics today: high-pressure diamond anvil experiments; precision calorimetry; atomic scale resolution of microstructural defects; surface chemistry; and high-temperature phase transitions, among others. However, there is an unfortunate side to this progression: Just as the applicability of mineralogy to other geosciences increases, its accessibility to other geoscientists decreases. In reality, it is

not a lack of direction but this growing communication gap that poses the most severe problem for future mineral physicists.

It seems ironic to me that in some ways mineralogy has come full circle from its inception at the hands of John Woodward and his colleagues. Though Woodward was ridiculed by his successors for the abandon with which he collected minerals and used them to spin theories regarding the origin of the earth, mineralogy today is less concerned with identifying the distinctions among the earth's 3000 minerals, and it is more directed towards defining the role those minerals play within large-scale earth processes. This transformation could not have occurred without the confluence of physicists, chemists, and earth scientists, and clearly this collaboration must continue. As the English poet Richard Bentley observed in his lyric above, the successful natural scientist must be one part Newton, one part Woodward. Three hundred years later, his insight holds true.

[This article first appeared in the March 1992 issue of Princeton University's *PMI Connector*.]

## Layering in Igneous Complexes

A symposium on Layering in Igneous Complexes will be held September 8-17, 1993 in Johannesburg, South Africa. A field trip to the Bushveld Complex (September 10-17th) is scheduled following the technical session that will held September 8-9th at the University of the Witwatersrand. The symposium marks the 25th anniversary of the publication of the book "Layered Igneous Rocks," by Lawrence Wager and Malcolm Brown. The themes of the symposium include: Origin of modal and phase layering in layered complexes, Mechanisms of primary accumulation of minerals, Variation in phase composition in response to layering, and Field evidence for primary accumulation processes.

The abstract deadline is April 30, 1993. Response date to the First Circular is June 30, 1992.

Details: Prof. R. Grant Cawthorn, Symposium Convener  
Department of Geology  
University of the Witwatersrand  
Private Bag 3  
2050 WITS  
Republic of South Africa  
(Telephone: 011-716-2711 or 011-716-2608;  
FAX: 011-339-1697 or 011-403-1926)

## Lehigh SEM and AEM Short Courses

Lehigh University is sponsoring several short courses that deal with various aspects of scanning electron microscopy and analytical electron microscopy.

Basic Course: *Scanning Electron Microscopy and X-ray Microanalysis* (June 8-12, 1992)

Advanced Courses (June 15-19, 1992):

1. *Microcharacterization of Semiconductor Materials, Devices, and Packing*
2. *Advanced Imaging in SEM*
3. *X-ray Microanalysis of Bulk Specimens and Particles*
4. *STM, AFM, and other Scanned Probe Microscopies*

Other courses: *Analytical Electron Microscopy* (June 15-18, 1992) and *Thin Specimen Preparation* (June 18-19, 1992).

Details: Prof. Joseph I. Goldstein, Dept. Materials Science and Engineering, Bldg. 5, Lehigh University, Bethlehem, PA 18015. (Telephone: 215-758-5133; FAX: 215-758-4244).

Short courses to be held in June 1993: Basic Course: *Scanning Electron Microscopy and X-ray Microanalysis*; *Analytical Electron Microscopy*; *Thin Specimen Preparation*; Advanced Topics: *Scanning Electron Microscopy and X-ray Microanalysis*.

# Registration Form

## MSA Short Course

### Minerals and Reactions at the Atomic Scale: High Resolution TEM October 23-25, 1992

Return this registration form, completed, to the MSA Business Office, 1130 17th Street, N.W., Suite 330, Washington, D.C. 20036. FAX: (202)775-0018. Payment must accompany this form. Registration is limited to 100 individuals on a first-come, first-served basis. Please type or print.

Name \_\_\_\_\_  
(first) (middle initial) (last)

Address \_\_\_\_\_

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

Telephone numbers \_\_\_\_\_ (office) \_\_\_\_\_ (fax)

Please circle the appropriate registration category.

#### PRICES INCLUDE ALL LODGING AND MEALS

	Member	Non-Member
Professional: in double room	\$425	\$475*
Student: in double room	\$250	\$280*

\*includes MSA dues for 1992.

Please check method of payment:

\_\_\_\_ Enclosed is a check or money order in the amount of \$ \_\_\_\_\_.  
\_\_\_\_ Please charge my \_\_\_\_ Visa \_\_\_\_ Mastercard  
\_\_\_\_ Diner's Club \_\_\_\_ American Express card in the amount of \$ \_\_\_\_\_.

(Your credit card will be charged when the registration form is received.)

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

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(signature) (exp. date)

Please list any special requirements regarding meals.

# AMERICAN MINERALOGIST and SPECIAL PUBLICATION SALE

The recent sale (advertised in the February *The Lattice*) of past issues and volumes of *American Mineralogist* has been quite successful. The Business Office has updated the list of past issues and volumes of *American Mineralogist*. They are also offering Volumes 72-1987 and 73-1988 and selected special publications for sale to members, nonmembers, and institutions. This is the perfect time to complete or fill in missing issues from your collection. The following is a listing of available issues and volumes, but quantities are limited so order early.

Place your order by circling the issues you wish to purchase, if you want the complete volume for any year, circle the volume number. Prepayment is required on all orders, and there is no additional shipping or handling charge.

								# SINGLE ISSUES	COMPLETE VOLUMES
Volume 62 1977	J/F							_____	N/A
Volume 63 1978	J/F	M/A	M/J				N/D	_____	N/A
Volume 64 1979		M/A	M/J	J/A	S/O		N/D	_____	N/A
Volume 65 1980		M/A			S/O			_____	N/A
Volume 66 1981	J/F	M/A	M/J	J/A	S/O		N/D	_____	N/A
Volume 67 1982	J/F	M/A	M/J	J/A	S/O			_____	N/A
Volume 68 1983	J/F	M/A	M/J	J/A	S/O		N/D	_____	N/A
Volume 69 1984	J/F	M/A	M/J	J/A	S/O		N/D	_____	N/A
Volume 70 1985	J/F	M/A	M/J	J/A	S/O		N/D	_____	N/A
Volume 71 1986		M/A	M/J	J/A	S/O		N/D	_____	N/A
Volume 72 1987	J/F	M/A	M/J	J/A	S/O		N/D	_____	N/A
Volume 73 1988	J/F	M/A	M/J	J/A	S/O		N/D	_____	N/A
TOTAL # OF ISSUES & VOLUMES								_____	_____
								x \$3.00	x \$15.00
TOTAL \$ OF ISSUES & VOLUMES								\$ _____	\$ _____

## SPECIAL PUBLICATIONS

- Special Paper No. 3 - Fiftieth Anniversary Symposia: Mineralogy and Petrology of the Upper Mantle, Sulfides, and Mineralogy and Geochemistry of Non-Marine Evaporites - \$5.00
- High-Temperature Crystal Chemistry - Special Reprint from *American Mineralogist*, July-August 1973 - \$2.00
- Guidebook for Field Trips for 1965 Joint Meeting of the ACA and MSA, Gatlinburg, TN - \$1.00
- IMA 1986 Meeting Abstracts with Program - \$3.00

TOTAL AMOUNT ENCLOSED \$ \_\_\_\_\_

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## MSA Short Courses

### *Minerals and Reactions at the Atomic Scale - High Resolution Transmission Electron Microscopy*

**Date:** October 23-25, 1992.

**Location:** Hueston Woods State Park Lodge, College Corner, Ohio.

**Convener:** Peter R. Buseck, Department of Geology and Chemistry, Arizona State University.

The goals of the course are to (a) provide a background into the TEM as a mineralogical tool, (b) give an introduction to the principles underlying its operation, and (c) explore mineralogical applications and ways in which electron microscopy can augment our knowledge of mineral structures, chemistry, and origin. Special attention will be devoted to mineralogical applications. The course will provide sufficient information to allow a mineralogist and petrologist to have an informed understanding of the data produced by transmission electron microscopy and to have enough knowledge and experience to undertake initial studies on his/her own.

We expect to have a modern TEM for hands-on demonstrations and exercises. An attempt will be made to examine prepared specimens brought to the short course by participants. We also hope to have PCs available to demonstrate computer simulations of diffraction patterns and images.

#### *Speakers:*

- Peter Buseck: General principles of transmission electron microscopy
- John Steeds: Principles I: Electron diffraction - SAED & CBED
- Peter Self: Principles II: High-resolution image formation, simulation, and analysis
- Donald Peacor: Inelastic interactions - EDS chemical analysis
- Peter Buseck: EELS & electron channeling (ALCHEMI)
- David Veblen: Non-stoichiometry, polysomatism, and reactions in minerals
- Alain Baronnet: Polytypism & stacking disorder
- Fred Allen: Phase definition by HRTEM
- Donald Peacor: Diagenetic reactions & processes: Clays & shales
- Richard Reeder: Carbonates
- Donald Green: Analysis of deformation in geological materials
- Gordon Nord: Imaging transformation-induced microstructures

This two and one-half day course will be held just prior to the 1991 Annual GSA and MSA meeting. The course will be held at the Hueston Woods State Park Lodge, located approximately 60 miles from the Cincinnati airport. Bus transportation will be arranged for participants. The course will begin on Friday morning, October 23 and continue until

noon on Sunday. The registration fee includes the short course program and accompanying volume of the *Reviews in Mineralogy* series, three meals on Friday and Saturday, and lunch on Sunday, as well as daily coffee breaks. Accommodation at Hueston Woods is included in the registration fee.

Enrollment is limited to 100 on a first-come, first-served basis, so register early. See registration form elsewhere in this newsletter.

### *Physical Properties of Minerals*

**Date:** December 4-6, 1992 (before Fall AGU).

**Organizer:** Subrata Ghose, University of Washington.

**Day 1:** microscopic theory that serves as a basis for understanding macroscopic physical properties of minerals and materials. **Days 2 and 3:** theory, experimental techniques of measurement, and results.

**Topics and speakers:** band theory and electronic structure (R.E. Cohen); lattice and molecular dynamics; theory and experiment (S.L. Chaplot, R.J. Hemley); thermal expansion, compressibility, and equations of state (H.K. Mao, Y.W. Fei); symmetry and physical properties (S. Ghose); elasticity (D.J. Weidner); piezoelectricity and ferroelectricity (R.E. Newnham); magnetic properties (J.M.D. Coey); electrical conductivity (A.G. Duba); diffusion (J. Ganguly); deformation and creep (J.P. Poirier); and ceramic applications of silicates (G. Beall).

**Location:** Marconi Conference Center in a state historic park overlooking scenic Tomales Bay, an easy drive from the San Francisco Bay area.

### **Mineralogical Society Winter Meeting**

The 1992 Winter Meeting of the Mineralogical Society of Great Britain will be held December 16 at the University of Manchester. The theme of the meeting is *Mineralogical Applications of Surface Science*. Prof. Gordon Brown (Stanford University) will present the Hallimond Lecture.

The meeting will be preceded by a two-day short course on surface science in mineralogy. Speakers include M. Hochella, G. Brown, J. Tossell, W. Casey, R. Schoonheydt, A. Dyer, N. Richardson, and P. Richardson.

Details: Prof. D.J. Vaughan or Dr. R.A.D. Patrick  
Dept. of Geology, University of Manchester  
Manchester M13 9PL Great Britain  
(Telephone: 061-275-3895; FAX: 061-275-3947)



## WELCOME!

The following new members and students have joined MSA effective January 1, 1992. Welcome! Applications for membership may be obtained from the MSA Business Office, 1130 Seventeenth Street, N.W., Suite 330, Washington, D.C., 20036.

**Ahmed Abdalla, Hamdy Mahmoud,** 92 Zamakhshary St., Bakous, Alexandria, Egypt. (ST-92)MI. Sponsor: MSA.

**Allen, George,** Rt. 1, Box 239, Sparta, TN. 38583. O:(615) 738-2974. (ST-92)MI. Sponsor: MSA.

**Arnason, John G.,** Stanford University, Dept Geology, Stanford, CA. 94305. O:(415) 723-8017. (ST-92)GE. Sponsor: MSA.

**Ballirano, Paolo,** Corso Duca di Genova 147, Ostia L. Roma, Italy 00121. O:(06) 5611944. F:(06) 4454729. (ST-92)MI. Sponsors: Adriana Maras and Annibale Mottana.

**Beaver, Mark Thomas,** 8021 Lake St., River Forest, IL 60305. H:(708) 366-5148. (ST-92)CC. Sponsor: MSA.

**Bender Koch, Chr,** Lab of Applied Physics, Technical Univ of Denmark, Bldg 307, DK-2800 Lyngby, Denmark. O: 42882488. F: 39695230. (M-92)MI. Sponsor: MSA.

**Brantley, Susan L.,** Penn State University, Dept Geosciences, 209 Deike Building, University Park, PA. 16802. (M-92). Sponsor: MSA.

**Cesare, Bernardo,** Corso Garibaldi 37, Dept Minereralogy & Petrology, Padova, Italy 35100. O:(49) 663122. F:(49) 8753813. (M-92)MP. Sponsors: Alberto Dal Negro and Volkmar Trommsdorff.

**Chasse, Jacques L.,** Univ. of Alabama, P.O. Box 6821, University Station, Tuscaloosa, AL. 35486 O:(205) 348-9293. (ST-92)GE. Sponsor: MSA.

**Choo, Chang Oh,** Dept Geol. Sci., Seoul Nat'l University, Seoul, Korea, 151-742. (ST-92)MI. Sponsors: Soo Jin Kim and Soojae Lee.

**Christensen, John N.,** University of California @ Berkeley, Dept Geology & Geoph, Berkeley, CA 94720. O:(415) 643-5063. (ST-92). Sponsor: MSA.

**Coban, Fazli,** Maden Fakultesi Jeologi, Istanbul Teknik Universitesi, Bolumu 80626 Ayazaga, Istanbul, Turkey. O:1766163. (M-92)MI. Sponsor: MSA.

**Collins, Val H.,** Rd #1 Old Trail Road, Box 340-C, Johnstown, NY 12095. O:(518) 568-2011. F:(518) 762-1338. (M-92)MI. Sponsor: MSA.

**Connolly, Jr., Harold C.,** Dept of Geological Sci., Rutgers University, New Brunswick, NJ 08903. O:(908) 932-2044. (ST-92)CC. Sponsors: Roger H. Hewins and Jeremy S. Delaney.

**Cruden, Alexander R.,** University of Toronto, Dept Geology, Erindale Campus, Mississauga, Canada L51 1C6. O:(416) 828-3971. (M-92)IP. Sponsor: MSA.

**Desmarais, Kathryn,** PO Box 1098, Beloit College, 700 College St., Beloit, WI 53511. H:(608) 363-4878. (ST-92). Sponsor: Stephen G. Weaver.

**Dodson, Peter,** 746 E. 5th St., Apt. 24, Tucson, AZ 85719. O:(602) 624-0951. (ST-92)MI. Sponsors: Mark D. Barton and Lawrence M. Anovitz.

**Estifanos, Benyam,** University of Wisconsin, 1215 W. Dayton St., Madison, WI. 53706. O:(608) 262-8960. (ST-92)CC. Sponsors: Jillian F. Banfield and John W. Valley.

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**Grevel, Klaus-Dieter,** Ruhr Universitaet, Boxhum Inst fuer Mineralogie, Postf. 10 21 48, Bochum, Germany 4630. O:(0234) 700-3517. F:(0234) 700-3200. (M-92)MI. Sponsors: N.D. Chatterjee and T. Fockenbergl.

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- Janney, Dawn**, Geology & Geophysics, U.C. Berkeley, Berkeley, CA 94720. O:(510) 642-3993. (ST-92)MP. Sponsor: MSA.
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- Johnson, David A.**, 1416 S. Country Club, Tucson, AZ 85713. O:(602) 325-8641. (ST-92)MI. Sponsor: Lawrence M. Anovitz.
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- Kim, Hei-Jong**, Dept Geol. Sci., Seoul Nat'l Univ., Seoul, Korea, 151-742. O:(02) 877-3073. (ST-92)MI. Sponsors: Soo Jin Kim and Moon-sup Cho.
- Kim, Hyeoncheol**, Seoul Nat'l University, Dept Geological Science, Seoul, Korea 151-742. O:(02)887-1277. (ST-92)MP. Sponsors: Moon-sup Cho and Seung-Ryeol Lee.
- Klein, Ulrich**, Alter Feldweg 15, Altwittenbek, West Germany, 2303. (ST-92)CC. Sponsors: Bruno Simons and Dominique Lattard.
- Latifzadeh, Lida**, 1050 S. Stanley Pl., P255, Tempe, AZ 85281. O:(602) 965-7632. (ST-92)CC. Sponsors: P. McMillan and Alison Pawley.
- Leinenweber, Kurt**, S.U.N.Y., Dept Earth & Space Sciences, Stony Brook, NY 11794-2100. O:(516) 632-8030. F:(516) 632-8140. (M-92)CC. Sponsor: MSA.
- Lowe, Andrew**, Thiele Kaolim Company (R&D), P.O. Box 1056, Sandersville, GA 31082. O:(912) 552-4105. (M-92)CM. Sponsor: MSA.
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- Schott, Ronald**, Dept Geology, Univ. of Wisconsin, 1215 W. Dayton St., Madison, WI 53706-1692. O:(608)262-8960. F:(608)262-0693. (ST-92)IP. Sponsors: Matthew Kohn and J. F. Banfield.
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- Smith, Christine**, Institute of Crustal Studies, Univ of California, Santa Barbara, CA 93106. O: (805)893-8231. (ST-92)MP. Sponsors: Brian Patrick and Frank Spera.
- Snajdr, Peter**, 56 Forestdale Drive, Sudbury, Ontario, Canada, P3A5X2. O:(705) 693-2761. (M-92)MI. Sponsor: MSA.
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## MEETING CALENDAR 1992-1993

Song, Yungo, Yonsei University, Dept Geology, Shinchon-Dong 134, Seoul, Korea 120-749. (ST-92)CM. Sponsor: MSA.

Staveley, Jacqueline, 220 Hillington Court, Edmonton Alta, Canada T5R 5X5. O:(403) 481-8408. (ST-92)EG. Sponsor: MSA.

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Tabata, Hirokazu, Univ. of Tokyo, Geological Institute, Faculty of Science, Tokyo, Japan 113. O:03 3812 2111, ext.4536. (ST-92). Sponsor: MSA.

Taylor, Matthew, 3744 Blue Bird Canyon Rd., Vista, CA 92084. O:(619) 727-0767. (ST-92)IP. Sponsor: MSA.

Tingle, Jeffrey P., Polygen, 200 Fifth Ave., Waltham, MA 02254. O:(617) 890-2888. (M-92)MI. Sponsor: MSA.

Vajdak, Josef, 60 Ocean Avenue, Massapequa, NY 11758. O:(516) 798-3324. F:(516) 797-0633. (M-92)MI. Sponsors: Peter Leavens and William B. Simmons.

Van der Laan, Sieger R., Hawaii Institute of Geophysics, 2525 Correa Rd., Honolulu, HI 96822. O:(808) 956-5095. (M-92)OT. Sponsors: Murli H. Manghnani and Shiv K. Sharma.

Wang, Can-Sheng, University of Soton, Dept Geology, Southampton, England SO9 5NH. O:(0703) 593047. F:(0703) 593052. (ST-92)IP. Sponsor: MSA.

Wang, Zifu, Hawaii Institute of Geophysics, 107A, University of Hawaii, Honolulu, HI 96822. O:(808) 956-9975. F:(808) 956-2538. (ST-92)MI. Sponsors: Shiv K. Sharma and Fred T. Mackenzie.

1992

### August

9-14 1992 Annual Meeting of the American Crystallographic Association, Pittsburgh, PA. (see details elsewhere in this newsletter).

### August-September

29-3 Symposium "Lepidolite 200" on all aspects of granitic pegmatites, Nové Město na Moravě, Czechoslovakia. Details: Dr. M. Novák, Dept. of Geological Sciences, University of Manitoba, Winnipeg, Manitoba, R3T 2N2, Canada.

### September

9-15 "The Transition from Basalt to Metabasalt: Environments, Processes, and Petrogenesis," a symposium to be held at Davis, California. Details: Peter Schiffman, Dept. of Geology, University of California, Davis, CA 95616. Telephone: (916) 752-3669; PSchiffman@UCDavis.edu.

### October

26-29 GSA/MSA Annual Meeting in Cincinnati, OH. (see details elsewhere in this newsletter).

### November

1-6 29th Annual Meeting of the Clay Minerals Society (joint meeting with the Soil Science Society of America) in Minneapolis, MN. (see details elsewhere in this newsletter)

### November-December

30-4 Annual Fall Meeting of the Materials Research Society, Boston, MA. Details: Materials Research Society, Meetings Dept., 9800 McKnight Road, Pittsburgh, PA 15237 USA. Telephone: (412) 367-3003; FAX: (412) 367-4373. (*Abstract deadline: July 1, 1992*)

### December

14-16 Mineralogical Society of Great Britain Winter Meeting on **Mineralogical Applications of Surface Science** and short course, to be held at the University of Manchester. (see details elsewhere in this newsletter)

1993

### April

1-2 "Rare Earth Minerals: Chemistry, Origin, and Ore Deposits" in London, UK. Details: Ms. Frances Wall, Dept. of Mineralogy, The Natural History Museum, Cromwell Road, London SW7 5BD, UK. FAX: 4471 938 9268.

### May-June

31-4 ICAM'93 - "Mineralogy in the Service of Man." Applied Mineralogy Conference in Perth, Western Australia (dates include workshops). Details: Jim Graham, Division of Mineral Products, CSIRO, Private Bag, P.O. Wembley, 6014, Western Australia. Telephone: (61)(9) 387 0371.

Williams, Wendi J.W., Dept Geological Sci., University of Texas, El Paso, TX 79968-0555. O:(915) 747-5501. (ST-92)IP Sponsors: John W. Anthony and Elizabeth Y. Anthony.

Wheelock, Maya M., Johns Hopkins University, Earth & Planetary Sciences, Baltimore, MD 21218. O(410) 516-7034. F(410) 516-7933. (ST-92)IP. Sponsors: David R. Veblen and John M. Ferry.

Wulff, Andrew, Univ of Mass., Dept of Geology, Morrill, Amherst, MA 01003. O:(413) 545-2286. (ST-92)IP. Sponsor: MSA

Zemitis, Collette, 139 Hoagland Hall Lawr, Univ of CA, Davis, CA 95616. O:(916) 753-5335. (ST-92)GE. Sponsor: MSA.

## IMA 16th General Meeting

The 16th General Meeting of the International Mineralogical Association will be held in Pisa, Italy, from Sunday afternoon, September 3, to Friday afternoon, September 8, 1994. General information about the meeting was published in the November 1991 issue of *The Lattice*. The abstract deadline will be in March 1994.

The following is a revised list of field trips and leaders:

1. High pressure metamorphism in the western Alps (B. Messiga, R. Compagnoni)
2. Orogenic peridotites from the western Alps and northern Apennines (G.B. Piccardo, G. Rivalenti)
3. Petrology, geology, and ore deposits of the Paleozoic basement of Sardinia (L. Carmignani, C.A. Ricci)
4. Ore deposits and marble quarries of the Apuan Alps (G. Marinelli, G. Tanelli)
5. Pegmatites of the central Alps and their minerals (A. Mottana, G. Liborio)
6. Recent volcanism in the Neapolitan area (Vesuvius, Ischia, and the Phlaegrean Fields) (L. Civetta, R. Santacroce)
7. Recent active volcanoes of Sicily: Aeolian Islands and Etna (F. Innocenti, L. Villari)
8. Stones: From quarries to monuments (M. Franzini)
9. Mineral resources of southern Tuscany: Historical heritage and ore-forming processes (G. Ferrara, G. Marinelli, G. Tanelli)
10. Zeolites of eastern Sicily (A. Alberti, C. Vaccari)
11. The crystalline basement of the southwestern Alps (A. Boriani, E. Giobbi)

A request form for the Second Circular, which will be available in March 1993, was included in the First Circular. Those who did not request the First Circular may be put on the mailing list for the Second Circular by contacting:

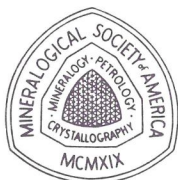
Prof. Stefano Merlino, Organizing Committee IMA '94  
Dipartimento di Scienze della Terra  
Università di Pisa, Via S. Maria, 53  
I -56126 PISA, ITALY

When requesting the Second Circular, please provide the following information: (a) whether it is likely that you will attend the meeting, (b) category for abstract submission (1. General geology, including crystal chemistry, 2. Applied mineralogy, including ore mineralogy, 3. Petrology, 4. Geochemistry, 5. Volcanology), (c) interest in one or more of the field trips that are listed above.

### CD-ROM Materials Science Database

The Institute for Scientific Information (ISI) is developing a materials science database, with abstracts, that is scheduled to be released in June, 1992. It will cover all areas of materials science, including applied physics, ceramics, composites, metals and metallurgy, polymer engineering, semiconductors, and thin films. Details: ISI - 800-336-4474 (U.S. and Canada) or 215-386-0100, ext. 1483 (elsewhere).

**THE DEADLINE FOR THE  
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