Newsletter of the Mineralogical Society of America

Vol. 10, No. 4, November, 1994

The Lattice

The Annual MSA Awards Luncheon, Seattle, October 25, 1994

Roebling Medalist William A. Basset with his citationist David Mao

Konrad B. Krauskopf, recipient of the MSA Public Service Award, with his citationist Gordon E. Brown, Jr. and President Evans.

Ronald E. Cohen, recipient of the MSA award, with citationist Alexandra Navrotsky and President Evans.

James J. Papike, MSA's new President, and Past-President **Bernard W. Evans.**

MSA NEWS

The report of the Tellers Committe was certified at the Third MSA Council Meeting of 1993 that was held October 23 in Seattle. MSA officers and councillors for 1995 are:

President:	James J. Papike
Vice President:	Gordon E. Brown, Jr.
Treasurer:	Rosalind T. Helz
Secretary:	Stephen J. Guggenheim
Councillors:	John B. Brady (1993-1995)
	William D. Carlson (1994-1996)
	Timothy L. Grove (1995-1997)
	Anne M. Hofmeister (1993-1995)
	Jonathan F. Stebbins (1995-1997)
	John W. Valley (1994-1996)

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From the President

The 1994 GSA meeting in Seattle was a professionally robust and socially festive occasion. It was an extremely important benchmark for MSA as we continued to celebrate our 75th anniversary. MSA's very successful 75th Anniversary Symposium, organized by Henry Meyer, was held on Wednesday, October 26 with W.G. Ernst presiding. Invited talks were given by H. Catherine W. Skinner, J.G. Liou, M.F. Hochella, T.M. Harrison (with K. D. McKeegan), B.R. Hacker, and J.B. Brady. Bernard Evans' presidential address "Thermodynamics and Petrology of Cummingtonite" was delivered on Tuesday morning, October 25 to a very large audience. Just before Bernard's talk, the GSA president, William Dickinson, presented MSA with a beautiful plaque honoring MSA's 75th anniversary. An especially elegant reception was held at the Space Needle on Tuesday evening, October 25. It was co-sponsored by MSA and GS. Thanks to all, especially Linda Ewald, our temporary office manager, for arranging this truly outstanding event.

Your council met during the GSA meeting on Sunday and Tuesday evening to consider the many issues facing our Society and our scientific fields of interest. We continue to look for ways to revitalize our Society. In this spirit, our search for a new Ph.D. scientific administrator took place at the Seattle meeting with a short list of six candidates being interviewed. We are now in the final stages of generating an offer.

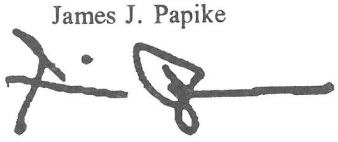
At the past presidents' breakfast on Monday morning, October 24, a highly unusual event took place: a vote was taken on a very important issue! The issue concerns the most appropriate title for the Society's journal that will reflect the exciting frontiers of our research and the international nature of our Society. The vote was ten for and one against changing our journal's name from *American Mineralogist* to *Earth and Planetary Materials*. Please help the Society by expressing your views about this possible new title for the journal. However, before we can change the name of our journal, if we wish to do so, we must make some minor changes in our constitution. Article V of the MSA Constitution now reads: "The Society shall publish a journal, known as The American Mineralogist, devoted to the advancement of mineralogy, crystallography, petrology, and allied sciences." An amendment can be made to the constitution when approved by two-thirds of the membership voting on it.

Council continues to put great faith in "Interest Groups" in helping chart our Society's future. Existing interest groups, before the Seattle meeting, were Industrial Mineralogy chaired by Fred Allen (members John Higgens, Jeff Warner), Environmental Mineralogy chaired by George Guthrie (members Malcolm Ross, Robert Nolan), and Planetary Materials chaired by Jim Papike (members Roger Hewins and Brad Jolliff). Two new interest groups were initiated at the Seattle Meeting. They are Mineral Surfaces and Interfaces chaired by Michael Hochella, and Teaching Mineralogy chaired by John Brady. Please contact the interest group chairs if you would like to become a member.

MSA will become an active participant at future AGU meetings starting in December 1996. The interaction with the fall meeting will be similar to the one we now enjoy for the spring AGU meeting; however, we will not be an official co-sponsor of the fall meeting. In addition, MSA will have a strong interaction with the 1995 V.M. Goldschmidt Conference, to be held at the Pennsylvania State University May 24-26. MSA is sponsoring two symposia at this conference: *Thermodynamics of Minerals*, chaired by Alex Navrotsky and *Minerals and the Environment* chaired by Mac Ross.

In summary, our Society is trying hard to revitalize itself by doing more good things in research, education, and outreach programs. In order for us to be successful we must have your help. Please contact any member of council with your input. I very much look forward to working with you.

James J. Papike



President

MSA NEWS *(continued from page 1)*

New Fellows elected at the Council Meeting, October 23, 1994 are:

Thomas Armbruster, University of Bern
William D. Carlson, University of Texas
C. Page Chamberlain, Dartmouth College
Christian Chopin, ENS Geologie, Paris
J.M.D. Coey, Trinity College, Dublin
Herbert Kroll, University of Munster
Stefano Merlino, University of Pisa
Roger H. Mitchell, Lakehead University, Canada
Andrew Putnis, Cambridge University
Richard J. Reeder, SUNY at Stony Brook
John C. Schumacher, University of Freiburg
Jane Selverstone, University of Colorado
Charles Shearer, University of New Mexico
Luciano Ungaretti University of Pavia

The 1994 Council also acted on recommendations from other MSA Committees. The 1995 Roebling Medalist will be William S. Fyfe (University of Western Ontario). Zachary Sharp (Universite de Lausanne) will receive the 1995 MSA Award. No Public Service Medal will be awarded in 1995. Jed Mosenfelder (Stanford University) will be the recipient of the Mineralogy/Petrology Research Grant. The 1994-95 MSA Lecturers are Jillian F. Banfield (University of Wisconsin) and Peter J. Heaney (Princeton University). Henry O.A. Meyer at Purdue University has agreed to run the lecture program for one more year.

From the Editors of *American Mineralogist*

For the last five years, *American Mineralogist* has benefitted from the care and attention that Managing Editor Vicki Lawrence provided. Vicki has now decided to move her career in other directions and, regrettably, will leave us at the end of 1994. We owe her a great debt of thanks for her many contributions, and we wish her well.

The number of articles submitted as Letters continues to increase. We believe that this is a successful mode of rapid publication of the results of timely research in the mineral sciences. We expect that the number of published articles will also increase as the growth of the new interest areas results in submissions of articles in environmental, health, industrial, and planetary mineralogy, and in surfaces and interfaces.

With the new year, we will begin to phase in the processing of manuscripts on computer. We will first ask authors of Letters to provide us with their final text and tables as disk files. We will develop the procedures necessary to edit the manuscripts, to ask the authors about any changes, and to send the resulting file to Allen Press. Once the procedure is refined, we will proceed with regular articles sometime in the middle of 1995. We are excited about being able to provide this mode of submission to authors and anticipate that processing time will be reduced.

We have also begun to establish an anonymous ftp site, a gopher site, and a world-wide web site for the journal. With these, we will be able to make information about the journal available on the network and will have wider communication with associate editors and authors. The sites will be linked to the MSA site established by John Brady at Smith College. The *American Mineralogist* site is nearly set up, and the next *Lattice* will provide the URLs for it.

If you have any suggestions regarding the journal, please send them to the editorial office (am.min@um.cc.umich.edu), to Ted Labotka (labotka@utkvx.utk.edu), or to Rich Reeder (rjreeder@ccmail.sunysb.edu).

Ted Labotka
Rich Reeder

Suggestion Box

To the Editor:

Perhaps in the process of broadening the discipline of mineralogy into one called mineralogical sciences, it's time to modernize the definition of a mineral. Can kerogen be considered a rock? Should crude oil be regarded as a mineral? Except for its organic origin, a crystalline protein has all the characteristics of a mineral. Isn't about time to tear down the archaic wall of fiction separating so-called organic and inorganic substances into animal, vegetable, and mineral. This wall might have been appropriate when fire was regarded as an element, but it hardly seems reasonable in the present state of knowledge!

Harold C. Helgeson
University of California, Berkeley

Reminder - Members are encouraged to express their views and opinions regarding MSA matters. Letters for the *Suggestion Box* should be sent to: Marta Flohr, U.S. Geological Survey, National Center MS 959, Reston, VA 22092 (e-mail: mflohr@lithos.er.usgs.gov; fax: 703-648-6789;). Also, please send one copy of the letter to the MSA President: Dr. James J. Papike, University of New Mexico, Department of Earth and Planetary Sciences, Albuquerque, NM 87131-1126. Fax: 505-277-3577.

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: American Mineralogist, published bi-monthly; 25% 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 1995 are $60 for professional members who elect to receive American Mineralogist and $30 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, 1995 will be sent all back issues of the journal for volume 80, 1995.

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 1995 volume of American Mineralogist for the annual rate of $260 in the US, $270 in Canada and Mexico and $280 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.

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MSA Short Courses

STRUCTURE, DYNAMICS, AND PROPERTIES OF SILICATE MELTS

Dates: December 9-10, 1995 (just before AGU meeting)
Location: San Francisco area, California
Conveners:

D.B. Dingwell, Bayerisches Geoinstitut, Universitat Bayreuth, 95440 Bayreuth, Germany; don.dingwell@uni-bayreuth.d400.de
P.F. McMillan, Dept. of Chemistry, Arizona State University, Tempe, AZ 85287, USA; mcmillan@asuchm.la.asu.edu
J.F. Stebbins, Dept. of Geological and Environmental Sciences, Stanford University, Stanford, CA 94305, USA; stebbins@pangea.stanford.edu

Silicate melts are the essential phase of all magmatic processes. As such, melts play a key role in the chemical and physical differentiation of the Earth and terrestrial planets, as well as in more local phenomena of volcanism, plutonism, and heat and mass transfer in the crust and mantle. Equally important to this field has been the impetus provided by the use of silicate liquids and glasses in various industries. The past ten years have witnessed a tremendous growth of the literature on the structure, properties, and dynamics of silicate melts, stimulated by a number of breakthroughs in fundamental understanding.

This short course will attempt to brings these new results and approaches to students and other researchers in the earth and the materials sciences. Emphasis will be placed on new findings from high T studies of liquids, on the dynamical processes that distinguish liquids from glasses, and the links between thermodynamic and transport properties.

Preliminary list of topics:

C.A. Angell (Arizona State University): Phenomenology of strong and fragile liquids and the glass transition
G.E. Brown (Stanford University), G. Calas (University of Paris): X-ray spectroscopic studies of silicate melts
S. Chakraborty (Universitat Koeln): Diffusion in silicate liquids
J. Dickinson (Corning, Inc.): Oxide glasses and melts: technological perspectives
D.B. Dingwell (Bayerisches Geoinstitut): Rheology and relaxation in melts
P. Hess (Brown University): Thermodynamic mixing properties and the structure of silicate melts.
P.F. McMillan and G.H. Wolf (Arizona State University): Vibrational studies of silicate liquids
C. T. Moynihan (R.P.I.): Structural, electrical relaxation, and the glass transition
A. Navrotsky (Princeton University): Energetics of silicate melts
P. H. Poole (Dalhousie University), G.H. Wolf, and P.F. McMillan (Arizona State University): Computer simulations of melts
P. Richet, Y. Bottinga (University of Paris): Configurational entropy and viscosity of silicate melts
J.F. Stebbins (Stanford University): Dynamics and structure of silicate melts: nuclear magnetic resonance studies
S. Webb and D.B. Dingwell (Bayerisches Geoinstitut): Anelasticity
G.H. Wolf and P.F. McMillan (Arizona State University): Pressure effects on melt structure and dynamics

WEATHERING KINETICS OF SILICATE MINERALS

Dates: November 4-5, 1995 (preceding GSA meeting)
Location: French Quarter, New Orleans
Conveners: Art White, U.S. Geological Survey, Water Resources Division, MS 420, 345 Middlefield Road, Menlo Park, CA 94025; Susan Brantley, Pennsylvania State University, College of Earth and Mineral Sciences, 209 Deike Bldg., University Park, PA 16802

Topics and Speakers/Authors

1. FUNDAMENTAL APPROACHES IN DESCRIBING SILICATE DISSOLUTION-*Antonio Lasaga, Yale University*
2. MINERAL DISSOLUTION AS A LIGAND-EXCHANGE REACTION-*William Casey, University of California, Davis and Christian Ludwig, University of Bern*
3. ROLE OF SURFACE CHEMISTRY IN DISSOLUTION KINETICS OF SILICATE MINERALS-*Mike Hochella, Jr., Virginia Polytechnical Institute*
4. DISSOLUTION KINETICS OF QUARTZ-*Patricia Dove, Georgia Institute of Technology*
5. REACTION KINETICS OF SHEET SILICATES-*Kathy Nagy, Sandia National. Laboratory*
6. DISSOLUTION KINETICS OF FELDSPARS-*Alex Blum, U. S. Geological Survey and Lisa Stillings, University of Wyoming*
7. DISSOLUTION KINETICS OF PYROXENES AND AMPHIBOLES-*Susan Brantley, Pennsylvania State University*
8. INTEGRATION OF LABORATORY AND FIELD KINETIC DATA FOR SILICATES-*Herald Sverdrup, Lund University*
9. SILICATE WEATHERING RATES IN SOILS-*Art White, U. S. Geological Survey*
10. SILICATE WEATHERING RATES IN WATERSHEDS-*James Drever, University of Wyoming*
11. RIVER AND CONTINENTAL SCALE WEATHERING RATES-*Robert Stallard, U. S. Geological Survey*
12. CHEMICAL WEATHERING AND GLOBAL CHANGE-*Robert Berner, Yale University*

The MSA Short Course will be held in conjunction with a planned GSA Symposium on chemical weathering which will provide addition opportunities for course participates to present and discuss research topics.

MSA-FM-TGMS Symposium: Topaz

The topic for the 16th Annual Mineralogical Symposium, sponsored by the Mineralogical Society of America, the Friends of Mineralogy, and the Tucson Gem & Mineral Society, is the mineral topaz. The symposium will be held in conjunction with the Tucson Gem & Mineral Society's Annual show and is scheduled for Saturday, February 11, 1995 at the Tucson Convention Center, downtown Tucson, Arizona. Abstracts of the talks will be published in the January/February issue of the *Mineralogical Record*.

Topics include: *The occurrence of topaz in northern New England pegmatites* (C.A. Francis, L.C. Pitman), *The occurrence of topaz in the southeastern United States* (R.B. Cook), *Colorado topaz* (P.J. Modreski and T.C. Michalski), *Notes on the occurrence of topaz in Idaho* (L.R. Ream), *Topaz from the Sawtooth Batholith, Idaho* (M.A. Menzies), *Blue topaz occurrences in the pegmatites of the Peninsular Batholith, San Diego County, California* (J. Fisher), *Pink topaz from the Thomas Range, Juab County, Utah* (E.E. Foord, W. Chirnside, F.E. Lichte, P.H. Briggs), *Topaz rhyolites in Arizona and the southwest* (D.M. Burt), *Topaz and beryl-bearing gem pegmatites of the Alabashka - Mursinka - Adui district, Ural Mountains, Russia* (P. Lyckberg), *Geology and occurrence of well-crystallized topaz* (M.A. Menzies), *Where's the proton? Symmetry and structure variations in topaz* (P.H. Ribbe, S.E. Eriksson), *Topaz: Environments of crystallization, crystal chemistry, and infrared spectra* (E.E. Foord, L.L. Jackson, J.E. Taggart, J.G. Crock, T.V.V. King), and *Items of North American mineralogical and gemological note during 1994* (M. Grey).

Members in the News

E-an Zen, University of Maryland, received the American Geological Institute's Award for Outstanding Contribution to the Public Understanding of the Geosciences at AGI's award ceremony, held at the Seattle GSA meeting.

Timothy L. Grove, Massachusetts Institute of Technology, received the 1993 N.L. Bowen Award of the Volcanology, Geochemistry, and Petrology section of AGU at the Spring 1994 meeting in Baltimore. The award is given for a single outstanding contribution to volcanology, geochemistry, or petrology made during the preceding 5 years.

Kalervo Rankama, Professor emeritus of mineral chemistry at the University of Helsinki, Finland, has been selected by Marquis as an internationally known preeminent geologist whose biography will be published by Marquis in *Who's Who in the World 1995-1996*.

VICTORIA '95 - SHORT COURSE ON MAGMATIC-HYDROTHERMAL ORE DEPOSITS

Dates: Two and a half days: May 14-16, 1995 (Sunday afternoon, Monday and Tuesday), preceding the GAC-MAC meeting, Victoria, B.C.

Magmas, Fluids, and Ore Deposits, a Short Course organized by John F.H. Thompson (MDRU, Univ. of B.C.) and sponsored by the Mineralogical Association of Canada will provide a comprehensive review of the processes that relate magmas directly to hydrothermal ore deposits. Evidence for magmatic fluids and gases in the genesis of orebodies and the processes of ore formation will be discussed, as will applications to practical exploration models. The course will be relevant to researchers from academia and government, and to exploration professionals. Discussion among the speakers and attendees will be an important component of the course. Participants will be J.K. Russell, A. Boudreau, H. Shinohara, J. Lowenstern, P.A. Candella, R.J. Bodnar, J. Cline, D. Vanko, D. London, C. Heinrich, W.F. Giggenbach, J.R. Graney, S.E. Kesler, J.W. Hedinquist, A. Campbell, J. Dilles, L. Farmer, C. Field, J.R. Lang, J.F.H. Thompson, J.P. Richards, L.D. Meinert, A. Arribas Jr., S. Simmons, C. de Ronde, and R.H. Sillitoe. Registration fees for professionals $325 CAD, students $125.

For further information:

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THE DEADLINE FOR THE FEBRUARY ISSUE OF *THE LATTICE* IS JANUARY 25TH

Reminder - Contributions may be sent by e-mail: mflohr@lithos.er.usgs.gov

Greetings from the Society of Mineral Museum Professionals

[The following article was contributed by George E. Harlow, liaison between the MSA and the Society of Mineral Museum Professionals (SMMP), and the President of SMMP.]

Some of you may be familiar with an organization named the Mineral Museums Advisory Council or MMAC. In existence for over 20 years it has functioned as a forum for curators and staff responsible for mineral collections at museums, universities and other institutions as well as a social organization for we few souls who deal with mineral collections and their associated phenomena: mineral exhibits, curious mineral collectors, eager mineral and gem dealers and endless inquirers on the phone and through the mail with slag-heap meteorites, rocks from a hike, gems from grandma's jewelry box or multi-million-dollar museum-quality opportunities. All kidding aside, the work is rewarding but the challenges are growing. Museums are under increasing pressure to justify their function and mission. The same forces that have reduced research and educational funding have squeezed natural history and natural science museums very hard. In today's "global market-economy" many museums have handled budget cuts by reducing or decimating collections and scientific staff, and some institutions' survival may be in question. Moreover, some institutions have decided that, rather than maintaining archival collections and providing educational exhibits and programs, providing entertainment is the museum mission and principle way to secure financial support.

Responding to a sense of urgency in the membership and a need to enhance the professionalism and efficacy of the organization, we have formulated some goals, created a mission statement, and changed the name to the Society of Mineral Museum Professionals (SMMP or S double-M P). The mission of the society is to "foster recognition of mineral science collections as essential scientific, educational and cultural resources; to promote support for growth, maintenance and use of collections and exhibits; to advance museum practice through cooperation in the development, review and dissemination of information." Moreover, we museum professionals must communicate more effectively with scientific colleagues, supporters, those who utilize our collections, and those who teach students who probably got their first interest in minerals and geology at a museum. Foremost among our users and colleagues are members of MSA and related societies. We moved to create a liaison with MSA, and I was appointed by MSA Council last October.

This first communication in *The Lattice* states what the SMMP is, what it does, how its interests relate to MSA, and what some of its concerns are that the mineralogical community should know and what joint activities might be possible. Some of the current activities and projects of SMMP are as follows:

- An annual meeting is held during the Tucson Gem and Mineral Show in mid-February. There is a business meeting and a program on an important issue or topic related to mineral or geoscience collections and museum work.
- Regional meetings are held where members can get together for a program or discussion. These are typically also held during prominent mineral shows. During last October's Boston GSA, Carl Francis of the Harvard Mineralogical Museum (Carl is presently vice president of SMMP) sponsored a breakfast, coffee-klatch, and opportunity to view the Harvard collection. We had some good discussions among those who visited about minerals, mineral collections, mineralogy and museums. SMMP hopes to enable such events at museums when possible at future venues of GSA and perhaps other scientific meetings, turning it into a tradition.
- SMMP publishes a newsletter 2-4 times annually.
- We maintain a Museum Hot-Line for stolen specimens. Contact Bill Metropolis at 617-495-1177 if you have a major specimen swiped from your personal or institutional collection, or if you are offered a specimen that you have a question about its pedigree (like it has a museum catalog number but the story doesn't sound right). As soon as possible we will make the Hot-line accessible through the Internet.
- We sponsor theme mineral exhibitions at mineral shows or professional meetings to promote mineral sciences and foster the Society and its goals.
- SMMP maintains a list of collections, collection management policies, and other resources at member's institutions. This list is available to members and professionals to aid with geoscience collection planning.
- We are working on establishing standards and goals for mineral collection data bases that will aid in their implementation and utility to members and society. We also are working on establishing a mineral collections networking group on the Internet to provide contacts and resource lists for curators and scientists in need of minerals and mineral information.

The most fundamental aspect of SMMP is that it represents those who manage mineral collections. It is a little known fact that most collections will provide samples to researchers, usually at no cost. The major museums are better known for this, but many regional museums have better representations of regional minerals and are therefore good candidates for a mineral species or variety known from a specific locality. On the other end of the spectrum it is scientifically imperative for described minerals to be deposited in collections that are professionally maintained. We strongly urge you who describe important new mineralogical findings, whether as a mineralogical or petrological description, to deposit a sample in an accredited museum or institutional collection. Some of you do this routinely, most just put researched specimens in your own research collections; these unfortunately await the day when you retire and they are thrown in the dumpster to make room for new people and activities. Consequently, for those with collections of described material that are valuable but not protected within an institutional framework, contact a local, regional or major museum about preserving these specimens. We also think this policy should be endorsed by MSA, perhaps through editorial policy in the *American Mineralogist*. Another concern of ours is the often degraded relationship that exists between the professional mineralogical community and the amateurs who are often

collectors. Mineral collecting is a large hobby consisting of everything from highly skilled scientists and avid diggers to single-minded acquirers of esthetic objects. Whereas amateurs can be a pain with their persistence and lack of perspective, they are often the source of new material and are a valuable adjunct to the geosciences. Moreover, they are closer to younger students who we need to nurture and reach as the next generation of scientists and educated citizens. Since the museum community sees generally more of these folks, some sort of arrangement for giving collectors a role and position in MSA might be created through the SMMP-MSA connection.

Finally, the museums are at the front lines with respect to educating the public and especially younger students about minerals, rocks, geology, Earth and the solar system. There is great potential for MSA and museums to cooperate and achieve a better educational base on mineralogy in museums. Special programs could be developed to put a face on mineralogy and geology to the public. Possibilities include having a MSA speaker program aimed at Museums, like the one aimed at colleges but at a more basic level, or a traveling exhibit on young scientists doing the research on minerals, so students can identify with the subject through humans. Adding a human component to our programs via MSA membership could communicate the enthusiasm of scientists pursuing their discoveries and using the scientific method. This would be valuable to society and our science.

SMMP presently is predominantly a North American organization, but it looks forward to a broader membership and seeks cooperation with other organizations around the world. Further information is available through the president:

George E. Harlow
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(e-mail: gharlow@amnh.org)

or the secretary:

Jean F. DeMouthe
Department of Invertebrate Zoology and Geology
California Academy of Sciences
Golden Gate Park, San Francisco, CA 94118-4599 USA
(e-mail: jdemouthe@calacademy.org).

X-ray Diffraction Cards Available

The Department of Geology at the University of North Carolina-Chapel Hill has an early 1980's set of microfische X-ray Powder Diffraction cards and a paper set of Powder Diffraction Cards. These have been recently upgraded with a CD ROM and are available to a third world or overseas university x-ray/mineralogy department for shipping expenses. We would like to send them to an existing group with the expertise to make use of them. If a reasonable case is made for their appropriate use (short letter), funds may be made available to cover shipping costs. The approximate weight of the crate and its containers is 75 pounds. *Details:* Robert Reeber - phone: (919) 549-4318; fax: (919) 549-4310; e-mail: rrrcryst@email.unc.edu.

Lehigh Microscopy Short Courses - 1995

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 12-16).* A basic course directed toward academic, industrial, and government scientists, engineers, geologists, biologists, technicians, and technical managers whose activities and interests relate to SEM and x-ray microanalysis. The course has two options: Materials and Biology/Polymers. Seven SEM's, one automated electron microprobe, and various EDS/WDS instruments will be available for the labs and hands-on use. A textbook (1992 edition) and a lab workbook written by the course instructors will be provided.

Advanced Scanning Electron Microscopy with Digital Image Processing *(June 19-22).* This course provides an advanced treatment of the physical principles and practical aspects of: high resolution SEM, low voltage SEM, environmental SEM, digital image processing, Monte Carlo simulation, electron optics, electron detectors, quantitative stereo microscopy, stereology, and personal computer processing.

Other Advanced Courses: Quantitative X-ray Microanalysis of Bulk Specimens and Particles *(June 19-22).* SEM/microprobe operators and supervisors who wish to advance their knowledge of x-ray microanalysis will find this course of interest. Topics include: x-ray production, ZAF and $\phi(\rho z)$ calculations using their PCs; WDS/EDS detectors; quantitative analysis of thin particles and rough specimens, computer-aided imaging, error analysis and statistics, light element analysis, and strategies for applying microanalysis techniques. **Analytical Electron Microscopy** *(June 19-22).* This course covers the range of analytical techniques available on TEM/STEM and dedicated STEM instruments. Lectures and labs cover STEM optics, beam specimen interactions, Z-contrast, x-ray microanalysis, electron energy loss spectrometry, quantitative analysis, compositional imaging, digital imaging, convergent beam electron diffraction, symmetry determination, microcomputer calculations, and thin specimen preparation. **AFM and Other Scanned Probe Microscopies** *(June 20-23).* This course will cover the physical properties and practical aspects of: scanning tunneling microscopy, atomic force microscopy, scanning tunneling spectroscopy, feedback control, tip fabrication, scan calibrations, in-situ imaging, UHV imaging, imaging in air, image processing, near-field optical probes, surface science applications, metrology, engineering applications, lateral force microscopy, electrochemical STM/AFM, and other emerging scanned probe techniques.

Details and registration forms:

Professor David B. Williams
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Telephone: (610) 758-5133; Fax: (610) 758-4244;
e-mail: interSEM@lehigh.edu

MEETING CALENDAR 1995-1996

1995

January

4-6 **Winter Meeting of the Mineralogical Society of Great Britain**, University of Sheffield. *Magmatic Proceses - Do Answers Lie in the Rocks? Details:* Miss P. Mellor, Dept. of Earth Sciences, University of Sheffield, Dainton Bldg. Brookhill, Sheffield S3 7HF, UK. Telephone: (0742) 824940; Fax: (0742) 824207.

April

17-21 **Spring Meeting of the Materials Research Society**, San Francisco, CA. *Details*: Materials Research Society, 9800 McKnight Road, Pittsburg, PA 15237-6006. Telephone: (412) 367-3012; Fax: (412) 367-4373

May

17-19 **Geological Association of Canada-Mineralogical Association of Canada Joint Annual Meeting**, Victoria, British Columbia, Canada. *Details*: Chris Barnes, General Chair, SEOS, University of Victoria, P.O. Box 1700, Victoria, B.C. V8W 2Y2, Canada. Fax: (604) 721-6200.

21-26 **Basement Tectonics 12th International Conference**, Norman, Oklahoma, USA *Details:* M.C. Gilbert, Conference Chair, School of Geology and Geophysics, University of Oklahoma, 810 Sarkeys Energy Center, Norman, OK 73019-0628. Telephone: (405) 325-3253; Fax: (405) 325-3140. *Abstract deadline: March 1, 1995.*

24-27 **1995 V. M. Goldschmidt Conference**, University Park, Pennsylvania. *Details:* Technical Program Chair - Mike McKibben: Telephone: (909) 787-3444, Fax: (909) 787-4324, e-mail: MCKIBBEN@UCRAC1.UCR.EDU; General Chairs - Hu Barnes and Peter Deines, Telephone: (814) 865-7573; Fax: (814) 863-2001, e-mail: BARNES@GEOSC.PSU.EDU.

May-June

29-2 Joint **AGU/MSA Spring Meeting**, Baltimore, Maryland. *Abstract deadline: March 9, 1995; Preregistration deadline: April 28, 1995*

June

4-8 **The Clay Minerals Society 32nd Annual Meeting** in Baltimore, MD. *Details*: General Chair - Dr. Delvin S. Fanning, Dept. of Agronomy, U. of Maryland, College Park, MD 20742; Telephone: (301) 405-1344; Fax: (301) 314-9041. Technical Program Chair - Dr. Virginia Colten-Bradley, U.S. Nuclear Regulatory Commission, MS7D13, 11545 Rockville Pike, Rockville, MD 20852; Telephone: (301) 415-6616; Fax: (301) 415-5399.

7-9 **Mineral Exploration '95**, The Third Annual International Geological Forum addressing all aspects of mineral exploration, Cornwall, UK. *Details*: Dr. Phil Newall and Dr. Alan Butcher, *Mineral Exploration '95*, CSM Associates Ltd., Pool, Redruth, Cornwall TR15 3SE, UK; Telephone: +44-0-209-717724; Fax: +44-0-209-710893. *Abstract deadline: late December 1994.*

August

7-12 **Sixth International Kimberlite Conference**, Novosibirsk, Russia. *Details*: Dr. N.P. Pokhilenko, Secretary, Sixth International Kimberlite Conference, United Institute of Geology, Geophysics, and Mineralogy, Russian Academy of Sciences, Siberian Branch, 630090 Novosibirsk-90 Russia. Telex: 133123 KORA SU; Fax: 007-3832 352692; e-mail: chief@diamond.nsk.su

19-25 **Euroclay '95 - Clays and Clay Materials Science Conference**, Leuven, Belgium. *Details*: Prof. P. Gorbet, Centrum voor Oppervlaktechemie en Katalyse, K.U. Leuven, K. Mercierlaan 92, B-3001 Heverlee, Belgium.

August-September

28-1 **Tectonics and Metallogeny of Early/Mid Precambrian Orogenic Belts**, Montreal, Canada. *Details*: J.A. Percival, Geological Society of Canada, 601 Booth St., Ottawa, Ontario, Canada, K1A 0E8. Telephone: (613) 995-4723, Fax: (613) 995-9273; e-mail: jpercival@601C.gsc.emr.ca.

28-2 **Third Hutton Symposium: The Origin of Granites**, College Park, Maryland. *Details:* Michael Brown, Dept. of Geology, University of Maryland, College Park, MD 20742. Telephone: (301) 405-4082, Fax: (301) 314-9661.

November

6-9 **Annual GSA/MSA Meeting**, New Orleans, Louisiana.

1996

April

10-13 **EMPG-VI - "Sixth International Symposium of Experimental Mineralogy, Petrology, and Geochemistry."** *Details:* Organizing Committee, EMPG-VI, Bayerisches Geoinstitut, Universität Bayreuth, D-95440 Bayreuth, Germany. Telephone: +49-921-553700, Fax: +49-921-553769. First circulars will be distributed in March 1995, second circulars including registration forms in September 1995. Deadline for registration and submission of abstracts is December 1, 1995.

May

27-29 **Geological Association of Canada-Mineralogical Association of Canada, Joint Annual Meeting**, Winnipeg, Manitoba. *Details*: G.S. Clark, Dept. of Geological Sciences, University of Manitoba, Winnipeg, Manitoba R3T 2N2, Canada; Telephone: (204) 474-8857; Fax: (204) 261-7581.

WELCOME!

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

Bancroft, G. Michael, Chemistry Department, University of Western Ontario, London, Ontario, CANADA N6A 5B7. O:(519)661-3122. F:(519)661-3022. (ME-94)GE MI. Sponsor: Michael E. Fleet.

Barker, William, Department of Geology, University of Wisconsin, Weeks Hall, 1215 W. Dayton St., Madison, WI 53715, USA. O:(608)262-3738. (ME-94)GE CM. Sponsors: Jill Banfield and S.W. Bailey.

Becker, Udo, Department of Geological Sciences, Virginia Polytechnic Institute, Derring 4044, Blacksburg, VA 24061, USA. O:(703)231-8575. F:(703)231-3386. (ST-94)GE CC. Sponsors: Paul Ribbe and Michael Hochella.

Bickmore, Barry R., Department of Geological Science, Virginia Polytechnic Institute, Blacksburg, VA 24060, USA. O:(703)231-3358. F:(703)231-3386. (ST-94)MI GE. Sponsors: G.V. Gibbs and Jodi L. Junta.

Drinkwater, James L., US Geological Survey, 345 Middlefield Road, Menlo Park, CA 94025, USA. O:(415)329-5725. F:(415)329-5134. (ME-94)IP MI. Sponsors: Robert A. Loney and Gerald K. Czamanske.

Glassenberg, Charles, Department of Earth & Planetary Science, Johns Hopkins University, 3400 N. Charles Street, Baltimore, MD 21218, USA. (ST-94)MP. Sponsors: John M. Ferry and David R. Veblen.

Godovikov, Alexandre A., Fersman Mineralogical Museum, Russian Academy of Science, Leninski Prospect 18, Bldg. 2, Moscow 117071, RUSSIA. O:(095)952-0067. F:(095)952-4850. Email:gordikovchet@minmuz.msk.su (ME-94)MI GE. Sponsor: MSA.

Haupt, Gretchen, Department of Geology and Geophysics, University of Wisconsin, 1215 W. Dayton Street, Madison, WI 53706, USA. O:(608)262-8960. F:(608)262-0693. (ST-94)MI CM. Sponsors: Jill Banfield and S.W. Bailey.

Hayes, Shannon, Department of Geology, Beloit College, 700 College St., Box 1366, Beloit, WI 53511, USA. H:(413)788-6615. (ST-94)IP. Sponsor: Stephen Weaver.

Heinrich, Wilhelm, Geoforschungszentrum, Potsdam Postfach 600751, D-14407 Potsdam, GERMANY. O:(0331)288-1410. F:(0331)288-1402. Sponsors: Dominique Lattard and Gerhard Franz.

Knop, Erich, Institute of Mineralogy, University of Innsbruck, Innrain 52, A1-16020 Innsbruck, AUSTRIA. O:43(0)512 507/5055. F:43(o)512 507/2926. (ST-94)MP PE. Sponsor: Peter W. Mirwald.

Lee, Kwoklin, Department of Geology & Geophysics, Woods Hole Oceanographic Institution, Clark 1, Woods Hole, MA 02543, USA. O:(508)457-2000, x3371. F:(508)457-2175. (ST-94)GE IP. Sponsors: Deborah R. Hassler and Glenn A. Gaetani.

McConnell, Vicki S., Geophysical Institute, University of Alaska, P.O. Box 757320, Fairbanks, AK 99775-7320, USA. O:(907)474-7496. F:(907)474-7290. (ST-94)IP GE. Sponsors: Chris Nye and Mary Keskinen.

Merkel, Gregory A., SP-DV-1-9, Corning Incorporated, Corning, NY 14831, USA. O:(607)974-3245. F:(607)974-2172. (ME-94)MI PE. Sponsors: Hans J. Holland and Bruce G. Aitken.

Narita, Yoshihito, 2339-55, Sakado-shi Ishii, Saitama 350-02, JAPAN. O:(0426)46-4109. F:(0426)46-4120. (ME-94)MP GE. Sponsor: Hirokaza Tabata.

Neal, Clive R., Department of Civil Engineering/Geological Science, University of Notre Dame, Notre Dame, IN 46556, USA. O:(219)631-8328. F:(219)631-9236. (ME-94)IP GE. Sponsors: Lawrence A. Taylor and Theodore C. Labotka.

Neumann, Udo Henry, Institut fuer Mineralogie, Wilhelmstr. 56, Tuebingen 72074, GERMANY. O:49-707-292600. F:49-707-293060. (ME-94)MP EG. Sponsors: Matthias Gottschalk and Andreas Luettge.

Okamura, Katsuyoshi, Institute of Mineralogy, Petrology and Economic Geology, Faculty of Science, Tohoku University, Aobaku, Sendai 980, JAPAN. (ST-94)MI. Sponsor: Yasuhiro Kudoh.

Otamendi, Juan, Universidad de Rio IV, Estafeta Postal 9, Rio Cuarto 5800, ARGENTINA. O:54(58)632030. (ST-94)IP MP. Sponsors: Alberto E. Patino Douce and Paul A. Schroeder.

Pan, Yuanming, Department of Geology, University of Saskatchewan, Saskatoon, CANADA S7N 0W0. O:(306)966-5699. F:(306)966-8593. (ME-94)MP MI. Sponsor: MSA.

Peck, William H., Department of Geology and Geophysics, University of Wisconsin, 1215 W. Dayton St., Madison, WI 53706, USA. O:(608)262-8960. F:(608)262-0693. (ST-94)MP. Sponsors: Jill Banfield and S.W. Bailey.

(continued on next page)

Welcome! (continued)

Penn, Rona L., University of Wisconsin, 2005 University Ave. #2, Madison, WI 53705, USA. O:(608)262 0915. F:(608)262-0693. (ST-94)CC Materials. Sponsors: Jill Banfield and S.W. Bailey.

Polsky, Cynthia, 1340 Commonwealth Ave., Apt. 18, Allston, MA 02134, USA. O:(617)734-7401. (ST-94)MI GE. Sponsor: MSA.

Pradeep Kumar, A.P., Anakkathil TC 9/315, Jawahar Nagar, Trivandrum 695 041, INDIA. O:(0091471)418403. (ST-94)MI MP. Sponsor: MSA.

Sitzman, Scott D., Department of Geology, University of Wisconsin, 1215 W. Dayton Street, Madison, WI 53706, USA. (ST-94)CC. Sponsors: Jill Banfield and S.W. Bailey.

Soltmann, Christian, Fargauweg 14, D-124148 Kiel, GERMANY. (ST-94)CC PE. Sponsor: MSA.

Welham, Nicholas J., EME RSPHYSSE, Australian National University, ACT 0200 Acton, AUSTRALIA. O:(06)2490520. F:(06)2490511. (ME-94)Mineral Processing MI. Sponsor: MSA.

Yang, Huai-Jen, 601 Wadsworth Street, #17C, Cambridge, MA 02142, USA. O:(617)253-2869. (ST-94)IP PE. Sponsors: Timothy L. Grove and Glenn A. Gaetani.

Young, Jeff, Department of Geological Science, University of Manitoba, Winnipeg, Manitoba, CANADA R3T 2N2. O:(204)474-7342. (ME-94)MI IP. Sponsor: MSA.

Ziegenbein, Dieter, Institut fuer Mineralogie, Welfergarten 1, 30167 Hannover, GERMANY. O:(511)762-2223. F:(511)762-3045/3456. (ME-94)MI GE. Sponsors: Benita Putlitz and I. Ming Chou.

MSA Directory Update

Please make the following changes to your 1994-1997 Directory of Members.

Telephone and E-mail changes:

Member	Telephone	E-mail
Argast, Scott		argast@smtplink.ipfw.indiana.edu
Elless, Mark	O:(615)576-8192	ex2@stc10.ctd.ornl.gov
Neves, Luis Figueiredo		femgmmg@ciuc2.uc.pt
Smith, Joseph V.		smith@geo1.uchicago.edu
Wondratschek, Hans		bj01@dkauni2.bitnet

Corrections:

Benimoff, Alan I., College of Staten Island, Dept Applied Science, Staten Island, NY 10314. O:(718)982-2835. F:(718)982-2830. Email:anbsi@cunyvm.cuny.edu (M-78) PE IP.

Lawrence, Vicki is not a (ST-94) but a (M-94).

Visser, Diederik, Goudse Steen 15, 3961 XS Wijk Bij Duurstede, THE NETHERLANDS. O:03435-79499 (M-90)MP MI.

Address changes:

Hofmeister, Anne, Dept Earth & Planetary Sci, Washington University, Campus Box 1169, St. Louis, MO 63130-4899. O:(314)935-5610. (M-81)MI IP.

Additions:

Howie, Robert A., Ashcroft, Glebe Close, Church Street, Bonsall, Matlock, Derbyshire, ENGLAND DE4 2AE. O:078434455. (LF-54)MI MP.

Kuehn, Robert, Richard Wagnerstrasse 31, D-6916 Wilhelmsfeld, GERMANY. (LF-60)OT GE.

Papunen, Heikki T., Univ. of Turku, Dept. Geology & Mineralogy, S F 20500 Turku, FINLAND. O:358 21-6335480. F:358 21-331167. (F-74)EG MI.

Rodriguez-Gallego, Manuel, Fac. Ciencias, Dept. Mineralogia Y Petrologia, Av. Fuentenueva S/N, 18002 Granada, SPAIN. O:58 243339. F:58 274258. (M-75)CM CC.

Vuagnat, Marc B., Univ. of Geneva, Dept of Mineralogie, 13 R Des Maraichers, CH-1211 Geneva 4, SWITZERLAND. O:2221-9355. (LF-53)IP.

We apologize to those whose membership renewals were received too late to be included in the directory. There were too many of you to include in this list. The additions listed are people who did pay on time but were omitted in error.

IN MEMORIAM

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

Takashi Fujii
Life Member, 1954

Linus Pauling
Life Fellow, 1954

New from The Clay Minerals Society

Layer Charge Characteristics of 2:1 Silicate Clay Minerals

Volume 6 in the cms workshop lectures series
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Scanning Probe Microscopy of Clays

Volume 7 in the cms workshop lectures series
Edited by K. L. Nagy and A. E. Blum

Preface by K.R. Nagy and A.E. Blum, *High Resolution Scanning Probe Microscopy: Tip-Surface Interaction, Artifacts, and Applications in Mineralogy and Geochemistry*, by C. Eggleston, *Atomic and Molecular Scale Imaging of Layered and Other Mineral Structures*, by F. Wicks, G. Henderson, and G. Vrodoljak, *Mineral-Water Interactions: Fluid Cell Applications of Scanning Force Microscopy*, by P. Dove and J. Chermak, *Determination of Illite/Smectite Particle Morphology Using Scanning Force Microscopy*, by A. Blum, *Application of Morphological Data Obtained Using Scanning Force Microscopy Quantification of Fibrous Illite Growth Rates*, by K. Nagy. 1994. 256 pp. Price $18.00 plus $2.00 postage. ISBN 1-881208-08-7.

Also from The Clay Minerals Society

Quantitative Mineral Analysis of Clays ISBN 1-881208-01-X
CMS Workshop Lectures, Volume 1, D. R. Pevear & F. A. Mumpton, editors. 1989. 171 pp. **$14.00.**

Electron-Optical Methods in Clay Science ISBN 1-881208-02-8
CMS Workshop Lectures, Volume 2, I. D. R. Mackinnon & F. A. Mumpton, editors. 1990. 159 pp. **$18.00**

Thermal Analysis in Clay Science ISBN 1-881208-03-6
CMS Workshop Lectures, Volume 3, J. W. Stucki, D. L. Bish, & F. A. Mumpton, editors. 1990. 192 pp. **$10.00**

Package price: Volumes 1, 2, and 3, CMS Workshop Lectures, $21.00.

Clay-Water Interface and its Rheological Implications ISBN 1-881208-04-4
CMS Workshop Lectures, Volume 4, N. Güven & R. M. Pollastro, editors. 1993. 244 pp. **$15.00**

Computer Applications to X-Ray Diffraction Analysis of Clay Minerals ISBN 1-881208-06-0
CMS Workshop Lectures, Volume 5, R. C. Reynolds, Jr., & J. R. Walker, editors. 1993. 171 pp. **$15.00**

Kaolin Genesis and Utilization ISBN 1-881208-05-2 CMS Special Publication #1,
H. H. Murray, W. M. Bundy, C. C. Harvey, editors. Cloth. 1993. 341 pp. **$20.00**

Proceedings of the International Clay Conference, Denver, 1985 ISBN 1-881208-00-1
L. G. Schultz, H. van Olphen, & F. A. Mumpton, editors. Cloth. 1987. 456 pages. **$15.00 (previously $64.00)**

Clays and Clay Minerals The bi-monthly journal of The Clay Minerals Society, Editor-in-Chief Ray E. Ferrell, Jr.
$145.00 yearly ($160.00 overseas) 1995 prices

For each book, include $2.00 handling and postage. For the journal, no extra fee is necessary. Please make checks (in U.S. dollars drawn on a U.S. bank) to The Clay Minerals Society. Visa or Mastercard may also be used. Please include card number, expiration date, name as it appears on the card, and telephone number. Please send orders to: The Clay Minerals Society, P. O. Box 4416, Boulder, CO 80306. Telephone: 303-444-6405; Fax: 303-444-2260.

ICDD X-ray Clinics

The ICDD X-ray Clinics will be held in June 1995 at the International Centre for Diffraction Data Headquarters in Newtown Square, Pennsylvania.

The ICDD Clinic on X-ray Powder Diffraction will be held in two week-long sessions as follows:
Fundamentals of X-ray Powder Diffraction - June 5-9, 1995
Advanced Methods in X-ray Powder Diffraction - June 12-16, 1995

The ICDD Clinic on X-ray Fluorescence Spectrometry will also be held in two week-long sessions as follows:
Fundamentals of X-ray Fluorescence - June 19-23, 1995
Advanced Methods in X-ray Fluorescence - June 26-30, 1995

For further information, please contact:

Theresa Maguire
International Centre for Diffraction Data
12 Campus Boulevard
Newtown Square, PA 19073-3273

Telephone: (610) 325-9814
Fax: (610) 325-9823
E-mail: Maguire@ICDD.COM

Fluid Inclusions in Minerals: Methods and Applications

The recently published 377 page volume entitled *Fluid Inclusions in Minerals: Methods and Applications*, B. De Vivo and M.L. Frezzotti, editors, is now available. This volume served as the short course notes for the recent IMA Fluid Inclusion Short Course held in Siena, Italy. Copies may be ordered from:

Fluids Research Laboratory
Dept. of Geological Sciences
Virginia Tech
Blacksburg, VA 24061 U.S.A.

Fax: (703) 231-3386
E-mail: bubbles@vt.edu

Price is $25.00. Make checks payable in U.S. dollars to: Treasurer of Virginia Tech.

Outside North America: Books will be shipped by surface mail that may take several months. To have the book shipped by airmail (6-10 days delivery), add $US20. For shipment by courier (2-3 days delivery), add $US30.

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