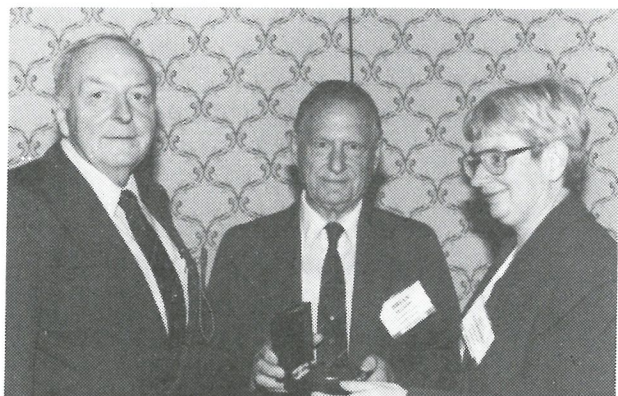


The Lattice

The Annual MSA Awards Luncheon

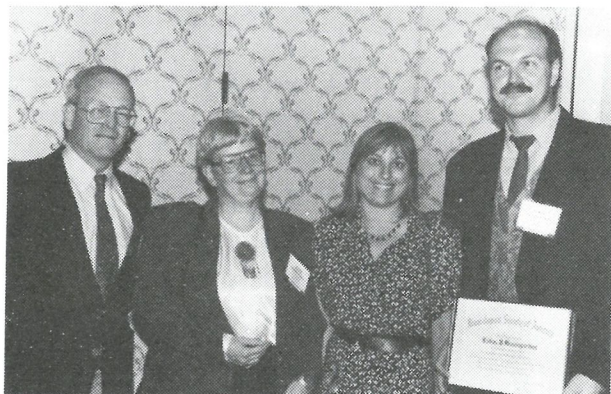
Boston, October 26, 1993



Roebling Medalist Brian Mason with his citationist S.R. Taylor and President Alexandra Navrotsky.



Our Society's new President **Bernard W. Evans** receives the gavel from Past-President Alexandra Navrotsky.



Lukas Baumgartner, recipient of the MSA Award, with his wife Sandra Baumgartner-Eugster, President Alexandra Navrotsky, and citationist Doug Rumble.



Paul Ribbe (second from right), recipient of the MSA Public Service Award, with his wife Elna Ribbe, President Alexandra Navrotsky, and citationist David B. Stewart.

MSA NEWS

The report of the Tellers Committee was certified at the Third MSA Council Meeting of 1993 that was held October 24. Results of the election for officers and councillors for 1994 were reported as follows:

President - Bernard W. Evans

Vice-President - James J. Papike

Secretary - Stephen J. Guggenheim

Councillors - John W. Valley and William Carlson

Rosalind Helz will continue to serve as our Society's treasurer.

John B. Brady, Michael F. Hochella, Anne M. Hofmeister, and Joseph R. Smyth will continue to serve as councillors.

The 1993 MSA Council acted on recommendations from various committees. Rob Berman (Geological Survey of

Canada), Mark S. Ghiorso (University of Washington), John M. Hughes (Miami University), Theodore C. Labotka (University of Tennessee), Marcello Mellini (University of Siena), and John W. Valley (University of Wisconsin) were selected for fellowship. The 1994 Roebling Medalist will be William A. Basset (Cornell University) and Ronald E. Cohen (Geophysical Lab) will receive the 1994 MSA Award. Konrad B. Krauskopf will receive the 1994 Public Service Award. Peter C. Burns, University of Manitoba, will receive the 1994 MSA Crystallography Research Grant. John Brady (Smith College) and George Rossman (Cal Tech) will be the 1993-94 MSA Lecturers. Henry O.A. Meyer will continue to oversee the MSA Lecture Program.

From the President

Sitting here at my keyboard, memories are fresh from the Boston GSA annual meeting: a field trip unspoiled by icy wind and snow, stimulating talks, our Awards luncheon, and a thought-provoking session on teaching mineralogy.

Without doubt the foremost long-term issue confronting our membership continues to be the future of mineralogy and the role of MSA. Past-President Alex Navrotsky phrased the problem eloquently in her message in *The Lattice* a year ago. Our country is becoming increasingly concerned about its economic, physical, and environmental health. Institutions of research and higher education are feeling the pressure to use their resources wisely and to respond more directly to the needs of society. Unless we make our voices heard and articulate with conviction the contributions that the mineralogical sciences can make to vital areas of current concern (new materials, environmental cleanup, science education, health, etc.), the prospect is one of decreasing opportunities for professional mineralogists. We must do this not only at the political level, but also among our own geoscience colleagues. Curriculum revision at our universities is healthy, but we owe it to ourselves and to those we wish to educate to take every opportunity to emphasize the fundamental role of mineralogy in virtually all branches of the environmental sciences.

Several steps were taken by the Society last year in response to these questions. A very successful short course on "Health Effects of Mineral Dusts," organized by George Guthrie and Brooke Mossman and held prior to the Boston meeting, was attended by 63 participants. Our hope, of course, is that the expanding number of professionals working in the field of mineral-induced disease will feel that they have a home in our Society, participate in our activities at meetings, etc., and publish in our journal. To encourage research in environmental mineralogy by younger MSA members, this field will be explicitly recognized by the Society in its solicitation of applications for the Mineralogy/Petrology Research Grant.

The "Health Effects" short course generated a new volume, number 28, in our series *Reviews in Mineralogy*, giving

all of us an opportunity to get better informed on this issue. Also making its first appearance at Boston was the first title in our monograph series "Metamorphic Phase Equilibria and Pressure-Temperature-Time Paths," by Frank S. Spear. This 800-page, hardcover volume is crammed with easy-to-follow graphics that lead student and teacher alike through the evolving mineralogy of progressive metamorphism. Order your copies now, while stocks last!

It is no secret that conventional styles of teaching introductory mineralogy at our colleges and universities have been known to induce large numbers of students to proceed in other directions as soon as their minimum requirements have been fulfilled. The opposite is also possible, and with this in mind the Society held its first ever Theme Session on "Teaching Mineralogy" at Boston, cosponsored by NAGT. Convened by Jo Laird and John Brady, this was a standing-room only session. Interest was high, and it was most encouraging to see the participation of some of the Society's leading researchers. Speakers aired a wide range of innovative strategies designed to stimulate learning through a "hands-on" approach to mineralogy and de-emphasize the formal lecture. Council is actively considering the development of MSA-sponsored texts, laboratory manuals, and other teaching aids. David Mogk was appointed by Council as representative to the Coalition for Earth Science Education, a new organization dedicated to improving communication among earth scientists involved in education programs and information exchange among earth-science societies.

The above initiatives anticipated parts of the Report of the ad-hoc Committee on MSA Directions, appointed last year by Alex Navrotsky and chaired by Jonathan Stebbins, and presented to Council at the Boston Meeting. The Report is printed in full in this edition of *The Lattice*. Please share with us your view on the contents of this important document. You may do this by communicating with any member of the Council, or if you wish by addressing a comment to be published in *The Lattice* under the heading "Suggestion Box," a feature which will start in the next (February) edition and, if successful, continue indefinitely. To facilitate more immediate communication among mem-

bers, plans are being readied to establish an MSA electronic bulletin board - details will be announced in the February edition of *The Lattice*. This bulletin board will be set up by John Brady at Smith College and will contain some or all of the following: (a) a copy of *The Lattice*, (b) titles (maybe abstracts as well) of *American Mineralogist* articles as soon as they have been accepted for publication, (c) general information about the Society, (d) forms for membership, nominations, and publication orders, and (e) general information exchange among members, perhaps involving interest groups.

MSA has accepted an invitation from the International Science Foundation (ISF), an American charitable organization, established by George Soros, to donate copies of the *American Mineralogist* to 25 libraries in the former Soviet Union, starting with back issues from 1992. Most libraries in the former Soviet Union have been unable to maintain their subscriptions. Shipping and distribution will be done by ISF, and MSA will be notified that the journal copies have been received. Copies of the *European Journal of Mineralogy* are also being donated to libraries in the former Soviet Union by the publisher of that journal. Our gesture is intended to make it easier for mineralogists in the former Soviet Union to continue to do the high quality research that the international community has come to expect. MSA members who feel a strong commitment to this program, for example, those with friends and scientific associates in the former Soviet Union, are invited to make donations, in units of \$30, and send them to Susan Myers at MSA headquarters. Our initial commitment obligates funds from the Endowment earnings, and needless to say there are many other worthy calls on these monies, such as the costs of the MSA Lecture Program, the Distinguished Public Service Medal, and undergraduate awards.

Respondents to the questionnaire "Future Directions of MSA" listed receipt of the *American Mineralogist* as their most important reason for membership. Notwithstanding this gratifying level of support, it is vital that our journal move in the right direction in order to maintain and preferably expand its

circulation and the participation of top-quality authors, and involve a broader community of investigators. Among issues ripe for discussion are a move towards electronic publication, expansion in size and scope, a change in name, review articles, and shorter papers. Council has appointed an ad-hoc committee to consider the future of our journal and report its findings by next fall's GSA meeting. The committee consists of Jim Papike (Chair), Ted Bence, Steve Bohlen, Alex Navrotsky, Jonathan Stebbins, John Valley, and our two new editors Rich Reeder and Ted Labotka. If you have strong views, let them hear from you!

Last year MSA initiated a Benefactor Program. Details are given elsewhere in this newsletter. We are delighted to report that our first Benefactor has already signed on. If you are in contact with influential personnel in companies

that serve the geoscience and materials science communities, please encourage them to advocate their companies' participation. In another fund-raising effort (thanks to MSA's Art Council: Barb Dutrow, John Rakovan, Ken Livi), ties and scarves with a mineralogical logo will go on sale at the Tucson mineral show, and will be available at Spring AGU and Fall GSA. Presents for your friends - and much needed revenue for the Society!



Bernard W. Evans

President

Update from the New Editors of *American Mineralogist*

We're happy to report that the transition to the new Editors is complete. The process, which began in late August, involved a gradual and largely uneventful transfer of editorial responsibilities. The Editorial office has moved off the University of Michigan campus, but remains in Ann Arbor. We attribute the smooth transition to the care and attention provided by outgoing Editors Steve Bohlen and Don Peacor and to Vicki Lawrence, who remains as Managing Editor.

Their tireless efforts have also helped cut the publication time, so that manuscripts are now moving through the system faster than ever before. We expect to be improving on this even more in the future. You may have noticed that Letters are becoming increasingly popular in *American Mineralogist*; publication time for these averages just over 4 months! In a future issue of *The Lattice*, we will elaborate on several topics at greater length, among these being efforts to broaden the scope of the journal to encompass areas such as health and environmental aspects of minerals. For now, we will simply assure you that we'll make every effort to ensure that *American Mineralogist* remains the most distinguished journal in its field. However, we

cannot do it alone. It is innovative and contemporary research papers that elevate a scientific journal to excellence. Thus, our journal is a partnership, and we rely on your leading research contributions.

Manuscripts should be sent to the new Editorial Office: *American Mineralogist*, 202 E. Washington St., Rm. 510, Ann Arbor, MI 48104-2017 (tel. 313-665-2425).

Ted Labotka
Rich Reeder

The Editors

IN MEMORIAM

We regret to announce the passing of the following MSA Fellow. The Society extends its condolences to the family and friends of this scientist.

Emmons, R.C.
Life Fellow, 1928



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; 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 1994 are \$60 for professional members; \$30 for students. Membership is on a calendar year basis. Individuals who join after January 1, 1994 will be sent all back issues of the journal for volume 79, 1994.

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 1994 volume of *American Mineralogist* for the annual rate of \$250 in the US, \$255 in Canada and Mexico and \$260 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.

1994 President: Bernard W. Evans
University of Washington

Past-President: Alexandra Navrotsky
Princeton University

Vice President: James J. Papike
University of New Mexico

Secretary: Stephen J. Guggenheim
University of Illinois @ Chicago

Treasurer: Rosalind Helz
U.S. Geological Survey

Editor of *The Lattice*: Marta Flohr
USGS, 959 National Center
Reston, VA 22092

Office Manager/Accountant: Susan L. Myers

Mineralogical Society of America
1130 Seventeenth Street N.W., Suite 330
Washington, D.C. 20036
Telephone: (202) 775-4344
FAX: (202) 775-0018

MEETING CALENDAR 1994

1994

January

5-7 **1993/94 Winter Conference of the Mineralogical Society of Great Britain** (theme: *Rates of Geological Processes*), Glasgow University, Scotland. *Details:* Dr. T. Dempster, Dept. of Geology and Applied Geology, University of Glasgow, Glasgow G12 8QQ, Scotland, UK.

April

4-8 **Spring Meeting of the Materials Research Society**, San Francisco, CA. *Details:* MRS, 9800 McKnight Road, Pittsburg, PA 15237. Telephone: (412) 367-3003; Fax: (412) 367-4373.

13-15 **EMPG-V - "Fifth International Symposium of Experimental Mineralogy, Petrology, and Geochemistry."** *Details:* Dr. R.J. Angel, Dept. Geological Sciences, University College London, Gower St., London, WC1E 6BT, UK. Telephone: +44-71-387-7050; Fax: +44-71-388-7614.

May

15-18 **Geological Association of Canada and Mineralogical Association of Canada Annual Meeting**, Waterloo, Ontario. *Details:* Alan V. Morgan, Dept. of Earth Sciences, University of Waterloo, Ontario N2L 3G1, Canada. Telephone: (519) 885-1211, ext. 3231; Fax: (519) 746-7484.

19-21 **PACROFI V - Pan American Current Research on Fluid Inclusions**, Morelos, Mexico. *Details:* Georgina Izquierdo M., Dept. de Geotermia, Instituto de Investigaciones Eléctricas, Apdo. postal 475, Cuernavaca 62000, Morelos, Mexico. Telephone: (73) 183811, ext. 7321; Fax: (73) 182526. *Abstract deadline: February 14, 1994.*

23-27 **AGU/MSA/GS Spring Meeting**, Baltimore, MD. *Abstract deadline: March 3, 1994.*

July

7-9 **Third Annual Meeting of the History of the Earth Sciences Society**, The Northeastern Science Foundation, Inc., Rensselaer Center of Applied Geology, 15 Third Street, P.O. Box 746, Troy, NY 12180. Excursions: The Taconic and Catskill Mountains as they relate to 19th Century Geological Controversies. Contributions are invited on all aspects of the history of the earth sciences, particularly on the history of stratigraphy, sedimentology, and paleontology. *Details:* Dr. Gerald M. Friedman.

August-September

29-2 **VM Goldschmidt Conference - An International Conference for the Advancement of Geochemistry**, Edinburgh, UK. *Details:* Dr. Peter Symms (VM Goldschmidt Conf. 1994), Dept. of Geology and Geophysics, The University of Edinburgh, The Grant Institute, West Mains Road, Edinburgh EH9 3JW, Scotland UK.

September

4-9 **International Mineralogical Association (16th General Meeting of the IMA)**, Pisa, Italy. *Details:* Prof. Stefano Merlino, Organizing Committee IMA '94, Dipartimento di Scienze della Terra, Università di Pisa, Via S. Maria, 53, I-56126 Pisa, Italy. Fax: +39 (0)50 40976; E-mail: IMA94@VM.CNUCE.CNR.IT.

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

Members in the News

Petr Černý, University of Manitoba, has been awarded the Logan Medal of the Geological Association of Canada (the Association's highest award) for his outstanding contribution to geo-scientific knowledge in Canada.

Maria Luisa Crawford, Bryn Mawr College, Bryn Mawr, Penn., was awarded a \$320,000 grant by the MacArthur Foundation's Fellows Program. The prestigious prize is given to recognize creativity and potential.

Gerald V. Gibbs, Virginia Polytechnic Institute and State University, Blacksburg, Va., has been honored as one of Virginia's outstanding scientists by the governor and the Science Museum of Virginia.

New Mineral Powder Diffraction File

The International Centre for Diffraction Data has published a new edition of the Mineral Powder Diffraction File. The two-volume File, consisting of a Mineral Databook and a Search Manual, contains over 3800 patterns that represent 3200 species (Sets 1 to 42). This update of the 1986 edition carries an additional 300 patterns arranged in alphabetical order in a new 8½ x 11 inch format with six patterns per page. The Search Manual adds two new searches for mineral patterns in the File: the Pearson Symbol Code Index and the Axial Ratio Index.

The new package was compiled by ICDD Editorial Staff with mineralogical editors Peter Bayliss, Richard C. Erd, Mary Mrose, Andrew C. Roberts, and Ann P. Sabina. It is available at a cost of US\$750 from:

International Centre for Diffraction
Data

Newtown Square Corporate Campus
12 Campus Boulevard
Newtown, PA 19073-3273.

*The Mineralogical Society of America
will sponsor a short course entitled,*

Silica

Physical Behavior, Geochemistry, and Materials Applications

*from October 20-23, 1994
in Seattle, WA*

For details contact:

Peter Heaney
Dept. of Geology
Princeton University
Princeton, NJ 08544
Tel: (609) 258-2194

Charlie Prewitt
Carnegie Inst. of Washington
Geophysical Lab
5251 Broad Branch Rd., NW
Washington, D.C. 20015
Tel: (202) 686-2450

Additional details and the registration form may be obtained from the MSA Business Office. A complete description of the short course and the registration form will be published in the February issue of *The Lattice*.

Waterloo '94 - Short Course *The Environmental Geochemistry of Sulfide Mine Wastes*

A short course, *The Environmental Geochemistry of Sulfide Mine Wastes*, sponsored by the Mineralogical Association of Canada will be held May 14 and 15, 1994, immediately preceding the Geological Association of Canada/Mineralogical Association of Canada Annual Meeting. The course will deal with fundamentals of geochemical and hydrogeological mechanisms controlling the generation and release of low-quality drainage waters from mine wastes. Topics will include the physical hydrology and modelling of mill-tailings impoundments, the mineralogy of tailings and related poorly crystalline precipitates, the waste-rock environment, sulfide oxidation mechanisms, the nature and role of micro-organisms, mechanisms of acid neutralization, the geochemistry of cyanide, and the role and future of MEND. Speakers will be J.A. Cherry, W.D. Robertson, E.O. Frind, J.W. Molson, J.L. Jambor, J.M. Bigham, A.I.M. Ritchie, R.V. Nicholson, W.D. Gould, D.K. Nordstrom, C.N. Alpers, D.W. Blowes, C. Ptacek, A. Smith, and D.G. Feasby.

Registration: \$295 (CAD) for professionals, \$150 for students. On-campus lodging is available at approximately \$30/single.

Details:

R.G. Roberts
Dept. of Earth Sciences
University of Waterloo
Waterloo, Ontario N2L 3G1
(519) 885-1211, Ext. 3379
Fax: (519) 746-7484

D.W. Blowes
Waterloo Centre for
Groundwater Research
Waterloo, Ontario N2L 3G1
(519) 888-4878
Fax: (519) 746-5644

Lehigh Microscopy Short Courses - 1994

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 13-17, 1994). A basic course directed toward academic, industrial, and government scientists, engineers, 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 Courses (June 20-24, 1994):

1. *Microcharacterization of Electronic Materials, Devices, and Packages* (June 20-23). This course covers the physical principles and practical aspects of the following: voltage contrast, low-voltage microscopy, charge collection microscopy, cathodoluminescence, scanning tunneling microscopy, confocal optical microscopy, and surface analysis (SIMS, Auger, XPS).

2. *Advanced Scanning Imaging* (June 20-23). This course is directed towards SEM users who wish to obtain the highest possible resolution from their SEM. Topics: high resolution SEM, advanced coating techniques, low-voltage microscopy, environmental SEM, computer-aided imaging, framestore real time digital imaging, quantitative stereo, scanning tunneling, and atomic force microscopy.

3. *Quantitative X-ray Microanalysis of Bulk Specimens and Particles* (June 20-23). SEM or microprobe operators and supervisors who wish to advance their knowledge of x-ray microanalysis will find this course of interest. Topics: x-ray production; ZAF calculations using PC's; WDS/EDS detectors; quantitative analysis of particles and rough specimens, computer-aided imaging, error analysis and statistics, strategy for applying microanalysis techniques, and light element analysis.

4. *AFM, STM, and Other Scanned Probe Microscopies* (June 21-24). This course will cover the physical properties and practical aspects of: scanning tunneling microscopy, atomic force microscopy, scanning tunneling spectroscopy, scanning tunneling potentiometry, 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.

Other course: *Analytical Electron Microscopy* (June 20-23, 1994). This course covers the analytical techniques available on modern TEM/STEM and dedicated STEM instruments.

Details and registration forms:

Professor David B. Williams
Dept. of Materials Science and Engineering
5 E. Packer Ave.
Lehigh University
Bethlehem, PA 18015
Telephone: (215) 758-5133; Fax: (215) 758-4244.

Mineralogical Society of America Ad-hoc Committee on Future Directions Final Report

Final Draft
October 14, 1993

Introduction

Committee membership:

Lukas Baumgartner, University of Wisconsin
Cambria Denison, University of Texas, Austin
Bernard Evans, University of Washington (MSA vice president, 1992-93)
George Guthrie, Los Alamos National Laboratory
Don Lindsley, SUNY, Stony Brook
David Mogk, Montana State University
Alexandra Navrotsky, Princeton University (MSA president, 1992-93)
Jonathan Stebbins, Stanford University (committee chair)

Purpose of committee:

To reiterate a letter of December 3, 1992 from President Alexandra Navrotsky, the charge of this committee was: "(1) To involve the MSA membership broadly in an ongoing discussion of what the future role and opportunities for mineralogy are, and how MSA should react in our rapidly changing times, (2) to solicit specific suggestions of things the society should be doing, should not be doing, and what should remain the same, what should change, (3) to seek specific ways to make the membership, including the younger members, more actively involved in MSA. This initial goal is information-gathering rather than judgment or priority setting." The committee was further asked to present a report in writing before the Fall 1993 GSA meeting with findings, suggestions, and choices, and to stimulate discussion among the membership.

Organization of this report

We begin this report with a brief summary of a widely-distributed membership survey, then continue with more detailed considerations of a number of major issues that have become obvious during committee discussions. We emphasize that much of what we present here is in the form of options for the Society to choose among, rather than specific recommendations for action.

Membership Survey

The membership survey was designed to informally sample the range of concerns of MSA members about the society, and should not be considered a statistically valid opinion poll. The survey was included in *The Lattice*, and was also distributed at several sessions of the Spring 1993 AGU meeting, and to faculty and students with mineralogical and petrological interests at Stanford University. The latter sampling effort biased the student response only, in that about half of the student respondents are from Stanford.

Demographics

About 100 responses were received. Most were brief, but a number of thoughtful long letters arrived as well. 60% of the respondents are in academia, including faculty, research associates, post-docs. About 15% are students, 15% in government labs and Federal and State geological agencies, and 5-10% in private industry. About 15% reside outside of the U.S., mostly from Canada and Europe. A few amateur mineral collectors responded, as well as about 6 non-members.

Major reason for belonging to MSA

By far the most commonly mentioned reason for joining the MSA was to receive the journal (60% of responses); the RIM volumes were mentioned about 20% of the time. About 35% of responses simply stated that MSA was the closest professional society to the respondent's interests. A few respondents (5-10%) mentioned other reasons for joining, such as maintaining professional contacts, general information about research activities, and "habit".

Responses concerning effectiveness of MSA activities:

Again, by far the greatest number of responses (90%) placed the journal high on the list of what MSA does well. The *Reviews in Mineralogy* (RIM) volumes and short courses were a close second at 75%. *The Lattice* received favorable remarks from about 20% of the respondents. Several suggestions were made that a "forum" section be included, to facilitate sharing of news and ideas among members. Special meetings and theme sessions were mentioned positively in about 30% of the responses.

The MSA lecture program was favorable noted in about 12% of the surveys returned, suggesting that those familiar with the program find it very useful. However, the largest number of specific negative comments were also received about the MSA lecture program (about 12%), with a number of remarks such as "why bother?", "never heard of it", "have never been able to schedule one", etc. A few negative comments (5-6) were received about *The Lattice* ("not useful", etc.), and about the society awards ("discriminatory;" "too many dilute the Roebling Medal"; "an old boy system").

Comments concerning American Mineralogist

Given that most of the respondents considered the journal to be the most important activity of the Society, it is not surprising that a high concentration of detailed comments concerned the journal, with a total of about 20% of all respondents making recommendations (percentages in the following discussion are relative to the entire response group of about 100). Relatively few (about 5%) of the respondents recommended increasing emphasis on a specific research area (e.g. more "field-based petrology" or more "mineral physics"). Many more emphasized the need for maintaining a broad, diverse range of subject matter in the journal, or expanding the scope to include more applications, especially to environmental issues. Quite a few suggested modernization of the publication procedure, ranging from submission of manuscripts on disk to full network publication. Relatively few comments (3%) complained about slow publication.

A number of respondents welcomed the low price of the journal; a few of these specifically noted that they would be glad to pay more for it.

Several suggestions were made to split the journal by subject matter, and/or to rename it to highlight its diversity and international significance (e.g. "Journal of the Mineralogical Society of America").

Responses concerning expansion of the Society

A high percentage of responses (35%) were in favor of expanding the MSA membership, with suggestions ranging from recruiting of students to advertising in other journals to having local, topical meetings. About 20% of the responses recommended reaching out to diversify the membership, especially in fields such as environmental, health, and materials sciences. However, a significant number (10%) expressed concerns about diluting the main-stream strengths of the Society.

MSA involvement in community concerns and political issues

About 25% of respondents made positive comments about enlarging MSA activities in the realm of public interest, science policy, etc. Suggestions ranged from Society-sponsored lobbying, to the production of educational material for the general public, to the publication of more articles in the journal that discuss direct connections between mineralogical research and policy issues. Many respondents emphasized health and environmental topics. On the other hand, a significant number (10%) urged the Society to remain strictly scientific in nature, to "stay out of politics", and "not to take sides."

MSA involvement in education

A strong response concerning increased educational activities reflects the high proportion of responses from academic professionals. Fully one-third of the respondents made favorable comments about the need to do more in this area. Suggestions were diverse, ranging from a Society-sponsored development of teaching collections, to textbook and curriculum development, to more sessions at national meetings about education. Again, about 10% of respondents emphasized the importance of not spreading the Society too thin by taking on new activities, and suggested that curriculum development, etc., were not appropriate to the MSA and should be left to other organizations such as NAGT.

Miscellaneous new activities

A variety of ideas were proposed for new MSA activities that may not fall into the categories discussed in more detail below. Several people suggested that the journal or *The Lattice* publish and list job opportunities; the creation of electronic mail lists and user groups could help promote membership as well as making both committee work and research easier. Several suggested on-campus recruiting by volunteer members.

This section of the report is based on discussions among the committee and other MSA members, as well as the survey.

Reaching and maintaining the traditional membership of the Society

Among the MSA members who chose to respond, the Society is generally viewed favorably, and the most visible activities of the Society, the journal and RIM volumes and short courses, seem to be held in high esteem. And yet, the number of members in the MSA has begun to decrease in recent years.

Some of this decline is undoubtedly the result of a change in research and teaching interests within the scientific community, with less activity in "traditional" mineralogy and more activity in other but still related fields. This component of the problem is discussed in the next section. However, the Society may be able to improve some of its activities to better serve its central, traditional membership and perhaps slow or even reverse this decline.

There has been relatively little formal emphasis on recruiting of student members, despite the importance of getting new young people into the Society. Efforts similar to those made by other societies (e.g. GSA) could be helpful. These include using the present network of faculty members of the MSA to promote the Society and its publications. Some of us do this already by using RIM volumes in our classes, but more could be done to inform present members about how students can join and the benefits to them of membership. "Free food" can be surprisingly effective in winning the hearts of students, and a low-cost student breakfast or lunch at GSA or AGU could be effective in gaining student attention. The present MSA student award is based on nominations from faculty and thus does not involve or attract much student attention. A series of small grants made in response to student-generated proposals might be more effective, and would fill a gap left by the emphasis of GSA grants on field-oriented studies.

The major reason that most people join the MSA is for the subscription to *American Mineralogist*. If members perceive that the journal is not serving their needs either in terms of the subject matter covered or as a place to publish their own work, the center point of the whole society will weaken. Maintaining balance and diversity of subject matter to match those of the Society's members is thus crucial. At the same time rejecting papers because their subject matter is not "mineralogical", or because too many papers are appearing in one area or another, may drive authors away. One obvious way to maintain both breadth and depth in the journal is to allow it to expand. There is some evidence that the journal is under-priced.

The RIM volumes have been a great success, and suggest that MSA could serve its present members better, as well as increase its income, by publishing more types of books. Research monographs, conference volumes, edited "special papers", and textbooks are all possibilities. The short courses themselves have generally been successful, but there have been complaints about high prices due in part to the use of relatively expensive resort venues, as well as under-emphasis on pedagogy comprehensible to general and student audiences.

The MSA could do more to facilitate communications among members, with the generation of electronic mail special interest groups, network directories, and informal electronic communication.

The mineralogical community has always been highly international. The MSA is apparently held in high regard in Europe, at least according to the several responses that described the society as the "foremost in the world". More could be done to promote connections with mineralogists in foreign countries, perhaps by increasing representation at international meetings and certainly by establishing better electronic communications. The MSA could, for example, publish an international mineralogical/geochemical/petrological electronic directory, that includes research and teaching interests as well as addresses. Combining with *Canadian Mineralogist* is an interesting possibility.

Responding to change: increasing the diversity of the science represented by the MSA

There are many researchers who use mineralogical information and who study what are fundamentally mineralogical problems, but who are not MSA members. These include many petrologists and geochemists, specialists in clay and other sedimentary minerals, people studying and using minerals as electronic devices, catalysts, ceramics, cements, and many other technological materials, those working on a wide range of environmental problems, and those concerned with the health effects of natural and synthetic minerals. Many formerly "traditional" mineralogists, petrologists, and geochemists are shifting their interests into these fields. If the MSA can attract more members from these areas, it can grow with the changing science. Increased diversity could lead to greater income for the Society, as well as fostering interdisciplinary work and the expansion of the perspectives of the individual members. In doing so, of course, there is a risk of losing the character of a small, personal society that has a clear, well-defined clientele.

The Society could promote an increased diversity of membership by some relatively painless steps of advertising the journal and RIM volumes to a wider audience, sponsoring joint sessions at meetings of materials and environmental scientists, inviting more people from industry and national labs to participate in short courses, etc. However, major changes would probably require changes in the publications themselves, because these are, again, the main reason why people join. An open editorial policy to include a diverse subject matter would be important if the MSA decides to take this direction. The commissioning of review articles in "non-traditional" fields, or in traditional fields that have tended to specialize away from mineralogy, could attract considerable attention. These could include new applications of technological materials, surface chemistry, low temperature minerals as well as problems generated by advances in other fields of earth science. A series of reviews on topics such as "outstanding mineralogical problems in metamorphic petrology", "...in geochronology", "...in hydrogeology", "...in remediation of acid mine drainage", "...in sedimentary geochemistry" (and so on) could both make the journal more popular to read as well as fostering new research directions. If written at a general enough level, such articles could also help direct student interest to our field. It has

also been suggested that manuscripts for *American Mineralogist* be solicited through advertising in journals of related disciplines.

Environmental problems and health risks of minerals are both rapidly growing areas of interest to both our science and to our society as a whole. The MSA has made good efforts at tapping into these fields, and could do more. Growth in these areas is fast enough to lead to new journals; perhaps the MSA could take the lead in expanding its publications in these areas (a journal or section on "Environmental Mineralogy"?). Major efforts in environmental geosciences are being made in the national laboratories. Efforts could be made to recruit some of these researchers (many of whom may not have traditional geological backgrounds) into the MSA, again by increasing breadth of publications, inviting more national lab researchers to participate in conferences and the workings of the society, in invited reviews, etc. For non-members invited to participate in this way, a year's free membership in the MSA could be offered.

American Mineralogist is perceived by many to be the highest quality journal in its field; diversification or expansion of subject matter may carry a risk of reducing that quality, if the editing and review process is stretched too thin. "Dilution" of traditional interests could drive some members away from the Society. It is again difficult to see how a broader community can be served without expanding the journal. There would be financial costs whose source must be identified. Many high-quality papers in mineralogically-related sciences are being written and will be published by some journal; the MSA can choose whether to try to include more of them in its publication or to let any expansion take place in other existing or in new journals.

Community concerns and public policy

There is a significant interest among the membership in having more MSA activity to demonstrate and to promote connections between basic research in mineralogy and societal needs. Some of the areas where these connections are already strong and obvious are mentioned above. Again, the Society could increase its publications on such linkages either in the journal, in short courses, or in other types of books. Special theme sessions on environmental problems, technological materials, and energy applications of mineralogy could be held at national meetings. Proceedings of some of these could be published in volumes priced to at least break even, if not to raise funding for other society activities.

The MSA could become more involved in the formulation of public policy that involves mineralogical research, through efforts ranging from simple policy statements (e.g. reports of special committees on specific research topics or on funding needs) to active lobbying with legislatures and government agencies. A significant portion of the present membership is concerned that the Society remain strictly scientific and non-political. Political advocacy often involves taking sides that can polarize the membership of a society and be destructive to its scientific interests. One obvious way for the Society to become seriously involved in societal issues, and to channel the energies of its more activist members, would be to form a standing committee on environmental mineralogy.

The MSA and education

Education in mineralogy has long been one of the central missions of MSA, and many members perceive that there is a continuing and expanding need to promote educational activities to students, working earth and planetary scientists, and to the community at large.

The most widely acclaimed contribution to education by MSA at present is the RIM series. Continued development of new volumes, and perhaps updating of some of the old ones, would maintain a strong societal commitment in this area. The related MSA short courses also received high marks, but with some caveats. Instructors in the short courses are experts in their field, and in some cases, their presentations have been directed towards other experts (as one member noted, "in a mutual admiration society"). It has been suggested that the short course materials should be given at a level appropriate for graduate students, to decrease the intimidation factor, and to more effectively introduce the material to the interested but unspecialized participant. The cost of the short courses is a matter of concern for many MSA members, and courses would probably be better attended if costs could be reduced.

The overall improvement of the undergraduate curriculum in mineralogy is a concern of many members. Publication of a textbook in mineralogy was suggested by some, but others noted that it would be difficult to achieve consensus on the appropriate content and scope. An alternate suggestion was to prepare a laboratory manual through the collection of the best exercises developed by members; this format would be similar to the AGI/NAGT laboratory manual developed for introductory physical geology courses. Some members suggested a short section of *American Mineralogist* be dedicated to describing new teaching methods. Alternatively, stronger ties to NAGT may be more appropriate. The MSA lecture program received significant numbers of both positive and negative comments. Council should review the administration, overall mission, and effectiveness of this program to determine the appropriate level of support. Those who have been involved with the program think that it has worked very well; those who have been unable to see these results have more doubts. The program is perhaps a good target for fund-raising from industry or foundations, and could help the public visibility of the MSA much more than at present.

Many members are also concerned about improving K-12 education, although there are caveats in this area as well. Development of teaching materials, traveling exhibits (similar to the ones used by DOE, USGS, etc.), mineral sample sets, continuing education institutes and workshops for teachers, and visiting lecturers to local schools have all been proposed as worthwhile activities. However, caution is advised because a poorly-presented activity may be worse than no activity at all. Many members have taken the initiative to engage in these activities on an ad hoc basis according to their own interests and community needs; it is not clear that MSA has the expertise or means to be involved in such work on a broad scale. However, MSA could prepare guidelines and suggestions for members to better interact with students and the non-technical public; liaisons with societies that have active science education outreach programs such as AGU, GSA, AGI, and USGS may prove beneficial to the Society and its members. One innova-

tive suggestion to help disseminate mineralogical information to the public schools calls for selection of certain abstracts or articles published by MSA to be re-written at a level appropriate for K-12 students, and distributed upon request to school systems.

There is also considerable support for MSA to seek a higher profile to the general public. There is a sense of commitment to provide sound information to the public related to public health and environmental issues; the misuse of information related to asbestos and radon in public policy decisions was commented upon by a number of survey respondents. Although caution is advised that MSA-endorsed positions not be prepared for political purposes, there is considerable interest among MSA members in participating as individuals in the public debate about these issues. MSA may facilitate this exchange of information by recommending members for participation as advisors or panelists to policy-making agencies.

The short course and theme session on health effects of mineral dust are widely cited as a good start towards a more "societally relevant" MSA. Suggestions to form a standing committee of MSA on government policy, and to help sponsor a Congressional Fellow could be considered by the MSA Council. Preparation of books, pamphlets, posters, articles, videos, and television shows (e.g. for PBS) for the general public have been suggested as appropriate activities of MSA, although of course such work may be restricted by limited funds.

A directory of educational and research software could also be compiled by MSA. A nascent organization, the Coalition for Earth Science Education (CESE), is dedicated to the exchange of educational material within the earth science community, and to the community-at-large. The organization of CESE will include a central office that will serve as a clearinghouse of information for numerous client organizations, similar to AGI. The MSA could become a member society of CESE in order to better facilitate its own educational mission. Again, a new MSA committee on education would help to focus the efforts of the interested members, as well as demonstrating the commitment of the MSA to such an important area.

Summary

Among the MSA members who responded to the membership survey, the most common reasons for belonging to the Society are to receive the journal, purchase RIM volumes, participate in short courses, and keep up to date on events in the broad field of mineralogy. These central reasons may be even more predominant among those members who did not respond, many or most of whom may be interested primarily in a journal subscription. Thus, at present, the Society is to a large extent defined by, and thrives or declines by, its publications. It can choose to publish a highly-reputed journal of carefully limited scope, with some risk of a declining audience because of shifting professional interests and the growth of new research fields. The Society can seek to increase the scope of its publications and thus incorporate new members as well as to serve old members whose directions have changed. If the latter

course is taken, it should be taken carefully to limit disenfranchisement of present members and to maintain the high scientific quality of the publications.

Beyond its activities in publications, the MSA could do much more to encourage new membership, especially among students and among professionals in allied fields. Advertisement could be helpful, but activities such as special or joint meeting sessions, and student groups and awards, could have a longer-term effect.

A large proportion of MSA members are involved in education, and, at least among those who responded to the survey, a significant number would like to see MSA more involved in education. This could take the perhaps most natural direction of increased educational publications, both technical and introductory. A greater scope of activity, such as curriculum development and public "outreach", would be a newer mission for the Society. Closely related involvement of the Society in the formulation of public policy and community concerns could also make the MSA more visible to the general public and could help fill genuine needs of our larger society for informed scientific judgment. Whether the MSA as an organization should go beyond its present relatively technical bounds is an important question for the near-term future that may have major implications for the long-term future of the Society.

Benefactor Program

MSA has recently instituted a Benefactor Program. We are asking for financial aid from companies that employ or provide services to our members. The purpose of the program is to enlist help from industry to enable the Society to successfully perform the educational, publication and outreach functions that we would like to do. In return, Benefactors gain visibility among our membership. Each Benefactor will be listed on the cover of *American Mineralogist*, receive a ticket to the annual luncheon at the Annual Meeting of GSA, and receive a copy of *The Lattice*. Sponsoring Benefactors will also receive a subscription to the *American Mineralogist*.

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Organizing Committee IMA94
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IMA INDEX

IMA Special Session - *Mineralogical Museums and Science*

The IMA Commission on Museums is sponsoring a special session within the symposium "The Mineral Heritage" entitled **Mineralogical Museums and Science**. This half-day session is organized into two parts. Oral sessions, consisting of both submitted and invited papers will emphasize the role of museums in mineralogical research today. The content of these presentations will focus on projects of a broad scope. The poster sessions will give participants an opportunity to present more general topics relating to museums and science. Posters are an excellent media for displaying new mineral and gem galleries, innovative display techniques and recent audio-visual productions.

The Mineralogical Museums and Science session is new to the format of the IMA meetings and we hope it will be informative and useful to all participants. Abstract forms may be obtained or submitted directly to:

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

A copy of the abstract should be forwarded to the session organizer:

Dr. R.F. Symes
Mineralogy Department
The Natural History Museum
Cromwell Road
London SW7 5BD, UK

WELCOME!

The following new members and students have joined MSA effective January 1, 1993. Welcome! Applications for membership may be obtained from the MSA Business Office, 1130 Seventeenth Street, N.W., Suite 330, Washington, DC 20036.

Ambers, Clifford P., Indiana University, Dept Geological Sciences, 1005 East Tenth Street, Bloomington, IN 47405. O:(812) 855-9543. (ST-93)CM. Sponsors: Haydn H. Murray and Matthew Paige.

Bai, Tianbao, University of Illinois at Chicago, Dept Geological Sciences, Chicago, IL 60680. O:(312) 996-3158. (ST-93)GE. Sponsor: Stephen Guggenheim.

Buhlmann, Arndt L., 8511-89 Street, Edmonton, Alberta T6C 3K4, Canada. (ST-93)IP. Sponsors: Yves Thibault and Thomas Chacko.

Chernoff, Carlotta B., 6201 Sneed Drive, #717, Austin, TX 78744. (ST-93)MP. Sponsors: William D. Carlson and Cambria Denison.

Dalpe, Claude, McGill University, Earth & Planetary Sciences, Montreal, Quebec H3A 2A7, Canada. O:(514) 398-7485. F:(514) 398-4680. (ST-93)GE. Sponsors: Pierre Hudon and Don R. Baker.

Durant, Dolores G., Johns Hopkins University, Earth & Planetary Sciences, Baltimore, MD 21218. O:(410) 516-7034. F:(410) 516-7933. (ST-93)IP. Sponsors: Susan E. Sakimoto and Maya Wheelock.

Helm, Catherine, University of California, Geology Department, Davis, CA 95616. O:(916) 752-3672. (ST-93)GE. Sponsors: Anne M. Hofmeister and Timothy P. Rose.

Holtstam, Dan G., Bokbindarvagen 78, Yagersten S-129 34, Sweden. O: 8 6664076. F: 8 6664031. (ME-93)MI. Sponsors: Ulf B. Andersson and Bengt Lindquist.

Jarick, Joerk, Max Planch Institut fur chemie Ast Cosmo, Saarstrabe 23, Mainz 55122, Germany. O:(06131) 305304. F:(06131) 371290. (ST-93)IP. Sponsor: Klaus Mezger.

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Kelm, Ursula E.D., Centro GEA, Universidad de Concepcion, Concepcion 3, Casilla 4107, Chile. O:(41) 234985 ext. 2856. F:(41) 242535. (ME-93)CM. Sponsor: MSA.

Kitsopoulos, Kostas, Leicester University, Geology Department, Leicester LE1 7RH, England. O:(533) 523638. F:(533) 523918. (ST-93)IP. Sponsor: MSA.

Knittle, Elise, University of California, Dept of Earth Sciences, Santa Cruz, CA 95064. O:(408) 459-4949. F:(408) 459-2127. (ME-93)MI. Sponsor: MSA.

Koukouzas, Nikolaos, University of Leicester, Dept of Geology, University Road, Leicester LE1 7RH, England. O:(0044) 533 523632. F:(0044) 533 523918. (ST-93)EG. Sponsor: MSA.

Miiliotti, Claudio A., Inst Geological Sciences, Mining University, Leoben, Austria. O:(43) 3842 402451. F:(43) 3842 47016. (ME-93)MI. Sponsor: MSA.

Nicolaysen, Kirsten E., PO Box 3006, Dept of Geology, Laramie, WY 82071. (ST-93). Sponsor: MSA.

Owens, Brent E., Washington University, Dept Earth & Planetary Sciences, St. Louis, MO 63130. O:(314) 935-4196. (ME-93)IP. Sponsors: Robert F. Dymek and Jill D. Pasteris.

Poitrasson, Franck, Dpt Sciences de la Terre, Universite B. Pascal, Clermont-FD 63038, France. O:(33) 73346721. F:(33) 73346744. (ST-93)GE. Sponsor: MSA.

Shinjo, Hironao, Dept Geology and Mineralogy, Kyoto University, Kyoto 006 01, Japan. O:(81) 757534150. (81) 757610156. (ST-93)MP. Sponsors: Shohei Banno and Takao Hirajima.

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JOURNAL OF THE MINERALOGICAL ASSOCIATION OF CANADA

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Recent Advances in the Study of Platinum-group elements - eds. J.M. Duke & S.-J. Barnes. Sept. 1990.

Recent Papers:

Imaging the hydroxyl surface of lizardite at atomic resolution with the atomic force microscope.

F.J. Wicks, K. Kjoller & G.S. Henderson. March 1992.

A proton-microprobe study of sulfide ores from the Noril'sk-Talnakh district, Siberia.

C.K. Czamanske et al. June 1992.

The aqueous geochemistry of platinum, palladium and gold: recent experimental constraints and re-evaluation of the theoretical predictions.

S.A. Woods et al. Dec. 1992.

The application of laser-ablation microprobe-inductively coupled plasma-mass spectrometry (LAM-ICP-MS) to *in situ* trace-element determinations in minerals.

S.E. Jackson et al. Dec. 1992.

For further details on subscription, please write to:

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