

The Lattice

The Newsletter of the
Mineralogical Society
of America

Subscription and membership
information
is on page three.

1015 18th St., N.W., Ste 601,
Washington, D.C. 20036-5212
U.S.A.
ISSN 1526-3746

Table of Contents

President's Letter	p. 2
Notes from Washington	p. 4
Treasurer's report	p. 5
Contributors & Benefactors	p. 7
Call for "Green" papers	p. 10
Electronic artwork	p. 10
Am Min stats at a glance	p. 11
Deformation short course	p. 12
Phosphates short course	p. 15
New Members	p. 19
Lattice deadline	p. 19
Lattice ad info	p. 19
MSiG	p. 20
Meetings calendar	p. 21
In Memoriam	p. 22
Synchrotron short course	p. 23
Am Min preview	p. 25

Members nominate outstanding students in mineralogy for society's undergraduate award

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

Deadlines for nominating students are January 1 and July 1 of each year. Mark these dates on your calendars and let us know about your exceptional student. If you are interested in presenting the award at a particular ceremony, please remember that time is required to produce certificates and have letters signed. To nominate a student, send a letter on departmental letterhead to Dr. J. Alexander Speer, MSA Business Office, 1015 Eighteenth St. NW Ste 601, Washington, DC 20036-5212. With the nomination, please include the student's full name that would be suitable for the certificate, a mailing address for the student that will be current at the time the award is made, year in school, the MSA sponsor's name, **the choice of *Reviews in Mineralogy* or *Monograph***, and the date and brief description of the award ceremony at which the certificate will be presented. The letter must be signed or co-signed by the department chair.

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

Tyler Vaughn Bax
Furman University
Sponsored by Dr. William A. Ransom

Sina Gumann
Johann Wolfgang Goethe-Universität
Sponsored by Dr. Alan B. Woodland

Brian E. Harper
Vanderbilt University
Sponsored by Dr. Calvin F. Miller

Patrick Morton
Towson University
Sponsored by Dr. David A. Vanko

Laurel Elizabeth Mutti
Smith Collge
Sponsored by Dr. John B. Brady

Brendan W. Puls
University of Maryland
Sponsored by Dr. Michael Brown

Anat Shahar
Cornell University
Sponsored by Dr. Suzanne Mahlburg Kay

Amy Tizzard
Acadia University
Sponsored by Dr. Sandra M Barr

See our Benefactors and Contributors, p. 7!

Letter from the President



Mineralogists and Mortality

by Rod Ewing

My first three columns in the *Lattice* focused on the future of mineral science. In this last column, written during the quiet moments of summer, I want to reflect on the past.

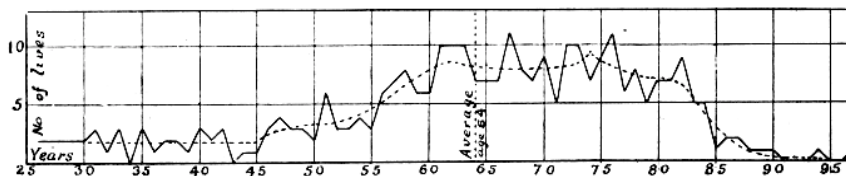
A year ago, during a visit to the University of California – Davis, a colleague, Sergey Ushakov, presented me with a small gift. Sergey knew that I had an interest in old books, and he had found among the “with-drawn” documents of the UC-Davis Library a thin pamphlet published in the *Mineralogical Magazine* in December of 1924, entitled,

“Biographical notices of mineralogists recently deceased (second series)” by L.J. Spencer. Of course, I feigned great interest and gratitude and slipped the 23-page publication into my bag—and forgot about it. Several days later, on the flight back to Michigan, I had exhausted all available reading materials and without any anticipated interest, I opened the slim volume, noting that

in 78 years it had never been checked-out. It was fascinating.

Spencer begins with an analysis of the mortality of mineralogists. The 1924 compilation contains 55 names for which 49 have dates of birth and death. These data combined with 254 previously recorded in the magazine provided a total of 303 deceased mineralogists for which ages were

known. Spencer spends two and a half pages pondering these data. The average age was 64, and the data were plotted on the curve shown above. Only three mineralogists reached the age of 90 or older: **T.G. Bonney** (90), **A.A. Damour** (94) and **F.E. Neumann** (97). Spencer’s discussion has the precision so characteristic of the writing of previous generations of mineralogists. He care-



Mortality curve of Mineralogists (303 lives).

The Geochemist's Workbench®

H2O Ag+++ As(OH)4- Au+ B(OH)3 Ba+++ Br- Ca++ HCO3- Cs+ Cl- Co++ Cr+++ Cu+ Eu+++ F-

We put BUGS in our software!™

GWB is your personal toolkit for:

- Reaction simulation
- Kinetics
- Surface chemistry
- Isotope fractionation
- “Pitzer equations”
- Speciation
- Bioavailability
- Redox disequilibrium
- Redox-pH diagrams
- Calculating species distribution, speciation diagrams
- Eh-pH, pe-pH and activity-activity diagrams — in seconds!
- Catalysis, enzymes and more

Plus

All results presented graphically
Powerful, fast & intuitive
Easy-to-use interface designed by
geochemists for geochemists

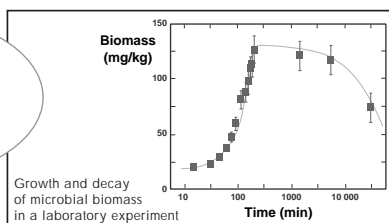
Photo: B. Fouke
The Geochemist's Workbench® and
We put BUGS in our software™ are trademarks
or registered trademarks of the University of Illinois.



RockWare®
Earth Science Software

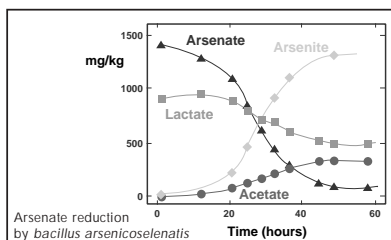
New!
Version 3.2

Windows 98/ME and
NT/2000/XP

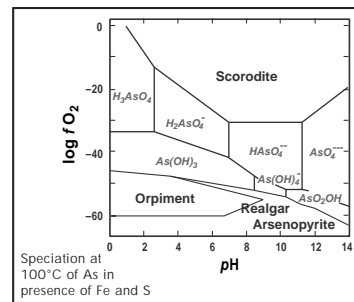


Growth and decay
of microbial biomass
in a laboratory experiment

Version 3.2
incorporates microbial metabolism



Arsenate reduction
by *bacillus arsenicoselenatis*



Speciation at
100°C of As in
presence of Fe and S

New in 3.2

MICROBIAL METABOLISM AND GROWTH
Model the geochemical and mineralogic
effects of complex microbial communities

CUSTOM RATE LAWS

Specify kinetic rate laws of any form —
No programming needed!

Price

\$2900.00 (\$1600.00 academic)

Industry • Government • Consulting
Academic • Classroom

GWB Workshop in downtown Denver, CO

Oct. 30 and 31, 2002

concurrent with the annual GSA conference, visit www.rockware.com for more information.

Over 200 Software Solutions at <http://www.rockware.com>

2221 East Street, Suite 101, Golden, CO 80401 • 800.775.6745, 303.278.3534, fax: 303.278.4099

fully explains that the mortality plot is based on the whole number that results from the difference between the years of death and birth, noting "the chances of the month of birth and whether a person dies before or after his birthday in any particular years are about even." Although this may not be precisely true, it is a good approximation. Spencer also notes that F.E. Neumann actually reached the age of 96 years and 8 months, but that this was not the record! A Professor G.D. Liveing (yes, this is the real name) of Cambridge (for many years the Vice-President of the Mineralogical Society) had already exceeded this age.

Spencer's use of the English language adds much to his discussion of the data, describing the mortality curve as, "... a very jagged one, bristling with sharp, dangerous points." He notes that the mode is 74 years, as compared with a mode of 72 years from an analysis of 1000 English male lives all born in the same year. At that time mineralogists had a two-year edge on the general population, which was not considered to include women.

What of the average ages today? I asked two students to get the answer. Compared to the average age of 64 during the first quarter of the 20th century, the average age for all Americans is now 76.9 years (74.1 for men and 79.5 for women). Compilations of data for geoscientists and mineralogists are more difficult to find, as our professional societies no longer pay such careful attention to these important details. However, using the memorials published in the *American Mineralogist* as a source of data from 1970 to the present, there are 174 ages. Surprisingly, the average age, 73.7, is less than that of the average for all Americans. More surprising is that of the 174 memorials, only six are for women, and their average age, 69.3, was less than that of men, 73.9. I will not speculate on the statistical significance or implications of these figures. Finally, two individuals reached the age of 100: **Benjamin M. Schaub** (1893–1993) and **Alfred Oswald Woodford** (1890–1990). Reading their memorials (*American Mineralogist*: vol. 79, p. 1017 and vol. 76, p. 2027, respectively), it would appear that the key to a long life is a full life. Both were devoted teachers (Smith College and Pomona College, respectively), whose research interests spread large across the geosciences. I do not know whether any presently living mineralogists have already surpassed the 100-year mark.

What of the 55 names included in Spencer's list? Each entry receives a short but interesting paragraph describing their lives. The first, **William John Beale** (Sir William Phipson) (1839–1922) "... had a striking personality, and was well known in legal, political, and scientific circles." He served as a Member of Parliament and President of the Mineralogical Society. Sir Phipson must have been an interesting character. **Thomas George Bonney** (1833–1923) "coming from a clerical family of Huguenot origin", also a past president of the Mineralogical Society, was much involved with the Sedgwick Museum, serving as a "junior" demonstrator after his retirement from University College,

Continued on page 24



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

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

Membership benefits include: *American Mineralogist*, published bi-monthly; 25% discount on volumes in the *Reviews in Mineralogy and Geochemistry* series; *The Lattice*; special subscription rates for *Mineralogical Abstracts*, *Physics and Chemistry of Minerals*, *Journal of Petrology*, *Rocks and Minerals*, and *Mineralogical Record*; 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 2002: professional members \$50; student members \$5. *American Mineralogist* subscription: members add \$35 (paper and electronic); \$10 electronic. Membership is on a calendar year basis. Individuals who join after January 1, 2002 will be sent all back issues of volume 87 for 2002.

Additional membership information and an application, and/or a price list of the Society's publications are elsewhere in this newsletter, or contact the Business Office.

Institutions may subscribe to the 2002 volume of *American Mineralogist* for the annual rate of \$530 in the US and \$550 for non-US addresses. The subscription price includes any new volumes of the *Reviews in Mineralogy and Geochemistry* series and issues of the *Lattice* published during the calendar year of the subscription. Payment must be received in full before a subscription will be started.

2002 President: Rodney C. Ewing, Univ. Michigan

Past-President: Cornelis Klein, Univ. of New Mexico

Vice President: Doug Rumble, Carnegie Institution

Secretary: David Jenkins, Binghamton Univ.

Treasurer: James G. Blencoe, Oak Ridge Nat. Lab.

Editor of The Lattice: Andrea Koziol, University of Dayton

MSA Executive Director: J. Alexander Speer

Production Manager: Rachel A. Russell

Mineralogical Society of America
1015 Eighteenth Street N.W., Suite 601
Washington, D.C. 20036-5212, U.S.A.

Tel: (202) 775-4344; Fax: (202) 775-0018

E-mail: business@minsocam.org



Notes from Washington

by J. Alexander Speer

• MSA 2003 membership renewals will start with an electronic reminder and online membership renewal at the beginning of September. If you have never shared your current e-mail address with MSA and would like to participate in the online renewal, please send us your address. Hard copy renewal notices will be sent by the end of October for those who have not renewed by then. You can save your Society money by renewing early whether you chose to use the electronic version in September or the traditional paper version in October. As encouragement there will again be a \$5 discount on the professional membership dues for renewals received before December 31, 2002.

• There is a new MSA-GS publication—Reviews in Mineralogy and Geochemistry volume 46: *Micas: Crystal Chemistry and Metamorphic Petrology*. The editors are Annibale Mottana, Francesco Paolo Sassi, James B. Thompson, Jr., and Stephen Guggenheim. It is jointly published with the Italian National Academy, Accademia Nazionale dei Lincei (ANL). The Table of Contents is online at <<http://www.minsocam.org/MSA/Rim/Rim46.html>>. You can order a copy online or by using the MSA Publication Order Form in this issue.

• The MSA Awards Luncheon, MSA Presidential Address, Annual Business Meeting, and joint MSA-Geochemical Society Reception at the Annual Meeting with Geological Society of America (GSA) in Denver, CO will all be on Tuesday, October 29, 2002. The Luncheon and Reception are ticketed functions. Tickets are sold by GSA and can be bought either when you register for the meeting or up to 24 hours before the event in the meeting registration area. Luncheon cost is \$25. Reception cost is \$10 for professionals and \$5 for students. MSA will have a booth in the Exhibit Hall. Further information, as well as meeting and housing registration forms are at <<http://www.geosociety.org/>>.

• We received copies of several reviews of MSA publications. Tom Sisson reviews Davis Young's *N.L. Bowen and Crystallization-Differentiation: The Evolution of a Theory in Earth Science History*, v. 19, pp. 225–226. Among his conclusions is that the book would help those teaching or learning igneous petrology by putting Bowen's discoveries in the context of the prevailing wisdom of his time, and providing details of the controversies Bowen faced and overcame. Reviews in Mineralogy and Geochemistry volume 40 *Sulfate Minerals—Crystallography, Geochemistry, and Environmental Significance* and volume 42 *Molecular Modeling Theory: Applications in the Geosciences* were reviewed by Jörg Matschullat in *Environmental Geology* v. 40 pp.

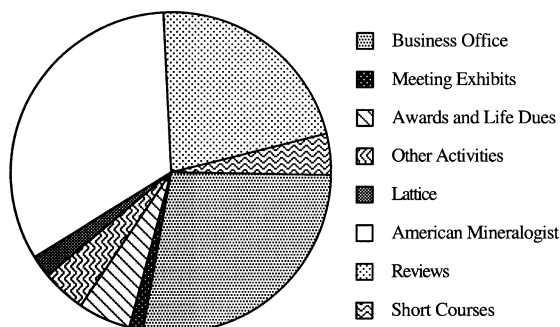
1488–1489 and v. 41, p. 490 respectively. These reviews provide a good synopsis of the books' contents.

• The MSA Treasurer's Report elsewhere in this issue gives the highlights of the overall MSA 2001 finances. If you are interested in more detail about the income and expenses of the society, these are summarized in the table below. This year the expenses are shown graphically in the pie chart. Once again, what is immediately obvious is the importance of publishing in the economic activity of the society. Much of the difference between income and expenses is the printing costs of the additional RiMG volumes in 2001. Many of these were printed in December, which did not allow time for sales to cover more of the printing costs.

Table of Income and Expenses 2000 and 2001

	2000	2001
INCOME		
Dues (current & previous years)	83,710	82,145
American Mineralogist	511,877	509,848
Reviews in Mineralogy and Geochemistry	91,319	124,174
MSA Monographs and Other Publications	37,640	33,537
Short Courses	43,300	42,425
Other Activities	23,403	40,157
Prior Year Income	50	4,826
Geological Society of Washington	3,571	3,265
subtotal	794,870	840,377
ENDOWMENT TRANSFERS		
Fund & Council Defined Programs	66,276	57,933
Operations (profit/loss of previous year)	0	29,221
TOTAL INCOME	\$861,147	\$898,310
EXPENSES		
Business Office	273,225	293,598
Council/Committee Expenses	4,967	6,639
Meeting Exhibits	9,134	13,011
Awards, Life Dues & Fund Programs	66,276	57,933
Other Activities	20,768	33,718
Lattice Newsletter	21,130	23,249
Amer Min, Editorial Office	176,093	211,418
Amer Min, Printing & Dist.	148,812	138,263
Reviews, Editorial Office	14,244	20,114
Reviews, Printing & Dist.	111,416	214,178
Short Courses	45,683	42,328
Prior Year Expenses	80	3,219
Geological Society of Washington	2,089	2,266
TOTAL EXPENSES	\$893,919	\$1,059,934

2001 MSA Expenses



Treasurer's report for the August, 2002 issue of *The Lattice* newsletter

Jim Blencoe, MSA Treasurer

The economic health of the MSA remains robust; however, as always, vigilance is required to ensure that the Society's finances remain on a sound footing. Herewith, a brief summary of notable MSA budgetary events and developments during 2001.

- Good news! The Society has more members (2137 in 2001 vs. 1935 in 2000); consequently, income from membership dues, and from member subscriptions to the *American Mineralogist*, is up. On the other hand, institutional subscriptions to the *American Mineralogist* are down, the exact number being difficult to quantify because foreign institutional subscriptions are often renewed late in the calendar year, or during the following year.

- More good news! Sales of RiMG volumes are up significantly (~\$124.2K in 2001 vs. ~\$91.3K in 2000), due partly to the large number of new titles that have been printed recently. This increase more than offsets the decline in sales of monographs (~\$32.5K in 2000 vs. ~\$21.6K in 2001), which is due largely to the lack of new titles in recent years.

- Costs for Business Office supplies and services are much less than budgeted, partly because no new computer equipment was purchased in 2001.

- For the first time, accrued leave and depreciation expenses for the Business and Editorial Offices were treated as "actual" expenses. These costs, which were not explicitly addressed in the 2001 Council-approved budget, will be included in future MSA budgets, as it is now possible to estimate them fairly accurately.

- "Bad debt" expenses (\$10.4K) are much higher this

year. Most of this loss (~\$7.5K) is due to promised but undelivered external financial support for a recent MSA short course.

- Costs of publishing and mailing *The Lattice* newsletter are up, due to an increased average length of the newsletter, and to an increased number of subscribers—both domestic and foreign. Specifically: (1) the four issues of the newsletter printed in 2001 (Volume 17) contain 104 printed pages, whereas volumes printed in previous years contain between 60 and 80 pages; and (2) it now costs \$6.20 to mail four issues of the newsletter to foreign subscribers, compared to \$0.84 for domestic subscribers.

- Total postal expenses incurred by the Editorial Office were much less than anticipated, but putting the current and back issues of the *American Mineralogist* on the MSA website counterbalanced those cost savings by nearly an equal amount.

- The Society's books were again audited by the firm of Rubino & McGeehin and found to be in order. On the basis of the preliminary audit report, the Society's total assets at the end of 2001 were \$2,339,273 vs. \$2,803,575 in 2000 (a 16.6% decrease since the end of 2000). This drop in total assets is due principally to *unrealized* capital losses on MSA investments during 2001.

- Auditing costs have increased, and are expected to increase further in the near future. This is due to greater thoroughness of recent audits, and to additional auditing expenses that have arisen from increased legal oversight of audits and auditing firms.

Schedule of assets, liabilities, and net assets by Fund

Item	General Operating	Roebbling	Miner. & Petrology	Kraus Endowment Crystal.	Outreach	2001	2000	1999	1998	1997	1996
ASSETS											
Cash	190,175					190,175	363,228	355,843	168,287	189,799	7,777
Accounts receivable	64,763					64,763	36,711	25,018	45,003	28,458	33,631
Prepaid expenses	16,676					16,676	14,841	16,838	23,619	23,663	12,526
Interfund borrowings	634,608	(653,404)	18,952	1,201	676	(2,033)					
Investments	19,043	1,359,959	268,267	165,478	202,100	29,257	2,044,104	2,366,988	2,275,758	1,979,393	1,863,257
Furniture and equip.	15,131					15,131	12,883	22,743	36,255	59,489	58,254
Deposit	8,424					8,424	8,924	7,924	8,424	7,923	8,425
Assets held for others										19,245	25,658
TOTAL ASSETS	948,820	706,555	287,219	166,679	202,776	27,224	2,339,273	2,803,575	2,704,124	2,260,981	2,191,834
LIABILITIES & NET ASSETS											
Accounts payable	84,250					84,250	67,691	55,793	68,606	39,806	48,281
Deferred dues	51,814					51,814	45,456	27,654	1,674	1,270	30,600
Deferred subscriptions	261,785					261,785	356,755	308,780	236,581	218,980	25,565
Rent abatement	12,101					12,101	15,477	15,839	14,046	12,254	10,462
Assets held for others										19,245	25,658
TOTAL LIABILITIES	409,950					409,950	485,379	408,066	320,907	291,555	140,566
NET ASSETS											
Unrestricted	1,245,425	706,555				1,245,425	1,568,106	1,697,896	1,388,624	1,377,876	1,239,030
Temporarily restricted	290,489		195,469	75,944	36,477	290,489	393,858	266,082	243,638	232,978	132,489
Permanently restricted	393,409		91,750	101,435	166,299	27,224	393,409	356,232	332,080	307,813	289,425
TOTAL NET ASSETS	1,929,323	706,555	287,219	177,379	202,776	27,224	1,929,323	2,318,196	2,296,058	1,940,075	1,900,279
TOTAL LIABILITIES AND NET ASSETS	2,339,273	706,555	287,219	177,379	202,776	27,224	2,339,273	2,803,575	2,704,124	2,260,982	2,191,834

- The 2002 budget remains as approved by Council during the Third 2001 Council Meeting. As was the case last year, the main budgetary uncertainties are: the number of RiMG volumes that *actually* will be printed and reprinted, and the income that will be generated by sales of RiMG volumes. In recent years the MSA budget has been developed assuming that 2-3 new RiMG volumes would be produced during the following year. It now seems that, for the foreseeable future, the budget should assume production of 4-5 new RiMG volumes per year.

- Recently, the U.S. Department of Energy (DOE) officially reaffirmed its financial support for the following MSA/GS short courses, to be held during the 2/1/2002-1/31/2004 performance period: "Applications of Synchrotron Radiation in Low-Temperature Geochemistry and Environmental Science"; "Phosphates: Geochemical and Materials Importance"; and "Biomineralization." The MSA is deeply indebted to the DOE for their generous sponsorship of these MSA/GS activities.

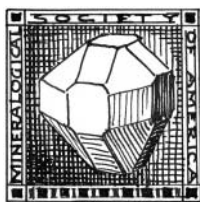
- Projected 2003 "first-copy" (production) expenses for the *American Mineralogist* are \$614 for domestic subscribers and \$639 for foreign subscribers. These prices cover the costs of producing nine issues of the *American Mineralogist*, four new RiMG volumes, and four issues of *The Lattice* newsletter. Dollar amounts required to break even under all assumptions are: member subscription rate, \$39.35; domestic institutional subscription rate, \$614.93; and foreign institutional subscription rate, \$639.44. Weighing the implications of these figures, the following decisions were made. (1) MSA members currently pay \$35 for a subscription to the *American Mineralogist*, which includes access to the online journal. The rate was raised from \$30 to \$35 last year. Despite the fact that the break-even dollar amount for 2003 is ~\$39, it seems a bit early to raise the rate again. Therefore, the current \$35 rate will be maintained for another year. (2) Institutional subscription rates to the *American Mineralogist* will be increased from \$530 to \$580 for domestic subscribers, and from \$550 to \$600 for foreign subscribers. These new prices are, respectively, 9% and 8% higher than they were last year. These increases, while significant, still do not cover *projected* production costs. On the other hand, the exact number of RiMG volumes that will be printed in 2003 may be less than the projected number (4), which would reduce production costs for that year. It is also uncertain whether the environmental mineralogy special issue of the *American Mineralogist* will be a separate ninth issue, or one of the regular eight issues, in 2003. (3) The \$10 charge for professional and student member access to the online journal will be maintained. This price is slightly above the estimated break-even cost (\$7.30). (4) Institutional subscribers will be offered electronic access to the *American Mineralogist* as part of their paper subscriptions. This will avoid the need to charge separately for that access, and to separately process and record paper and electronic subscriptions. Institutions could choose not to receive paper copies, but the cost of the subscription would remain the same.

- Income from 2001 dues was \$82,145. To date, MSA Council has not specifically identified expenses to be covered by dues. This year Executive Director J. A. Speer used the money to cover most of the costs of: Council/committee activities, production and distribution of *The Lattice* newsletter, IMA and AGI dues and contributions, receptions, membership and subscription renewals, election ballots, insurance, Council travel expenses, and a portion of administrative overhead. These expenses summed to ~\$95K in 2001. Except to raise money for some other activity (e.g., further development of the Society's website), or to cover a larger fraction of the salaries and benefits set for Business Office staff, there appears to be no pressing need to raise dues. Therefore, it was decided that annual dues for MSA membership will remain at \$50 (\$5 for students).

- It is important to recognize that annual MSA budgets are guided by the following policies and considerations. (1) Whereas institutional subscribers pay the costs of producing the *American Mineralogist*, as well as the costs of the books that are included in the subscription to the journal, member subscribers pay the costs of printing and mailing the journal issues and books they receive. (2) In preparing annual MSA budgets, the MSA Council and MSA treasurers have traditionally adopted conservative estimates of income, and liberal estimates of expenses. (3) Future income and expense figures are approved by the MSA Council 13-14 months prior to the end of the upcoming year. Many values are known within narrow limits at the time they are set. However, others are little more than educated guesses (hence the policy of adopting conservative estimates of income and liberal estimates of expenses). Chief among the "guesstimates" are: (a) costs stemming from the production and reprinting of RiMG volumes (each new RiMG volume costs ~\$30K to produce, costs for reprinting a volume generally range from \$K to \$8K); (b) the timing of payments made to cover the costs of printing and reprinting RiMG volumes (large payments made late in the calendar year artificially inflate annual expenses because counterbalancing income from sales of the books shifts to future budgets); and (c) income from sales of RiMG volumes, and institutional subscriptions to the *American Mineralogist*. These uncertainties cause budgets to fluctuate significantly from one year to the next.

- MSA's investment's held in its Roebling, Endowment, Kraus, Mineralogy/Petrology and Outreach Funds declined 13.6% in total value during 2001. While this is not a happy development, it is also no cause for alarm. The Society's carefully constructed financial framework is designed to withstand economic downturns resilience arising intrinsically from prudent diversification in MSA's portfolio of investments, and from the Society's longstanding policy that annual operating expenses and income should be closely balanced. In a given year, MSA's operating expenses are typically ~\$30K higher than regular income from dues, journal subscriptions, book sales, fund investments, miscellaneous services provided to other societies, etc. This shortfall

Continued on page 9



Contributors and Benefactors

Many members contribute to MSA each year by including a contribution with their dues. Depending on the wishes of the member, the money is deposited with the principal of the MSA Endowment, MSA Mineralogy/Petrology, MSA Outreach, or Edward H. Kraus Crystallographic Research Funds. The income of these four Funds are to support MSA's research grants in crystallography, mineralogy, and petrology; publishing of the *American Mineralogist*; the *American Mineralogist* Undergraduate Awards; the Mineralogical Society of America Award; the Distinguished Public Service Award, the Roebling Medal; the website, and the lectureship program. These Funds are

described in more detail in the Financial Advisory Committee Report that appears in this issue. Continued member generosity has permitted the two Funds that support student research grants to each give three \$5000 student research grants yearly.

Between 8/1/2001 and 7/31/2002, 497 MSA members and organizations contributed \$21,476.50 to MSA Funds: Endowment (\$10,347.50), Kraus (\$2019.50), Mineralogy/Petrology Fund (\$5,546.50), and Outreach (\$3,563). If you have not done so previously, you might want to consider contributing at the next opportunity. Here we want to extend our gratitude to the following individuals and organizations:

Edward H. Kraus Crystallographic Research Fund

Werner H. Baur
Peter R. Buseck
Andrew Gregor Christy
Joan R. Clark
Wilson A. Crichton
Michael Czank
Kenneth J. DeNault
Raymond A. Donelick
Seymour Geller
Juergen Glinnemann
Michael Gregorkiewicz
Edward S. Grew
Ian E. Grey
Stephen J. Guggenheim
Theo Hahn
George E. Harlow
Peter J. Heaney
John M. Hughes
Jennifer Mae Jackson
Mary L. Johnson
James R. Kramer
Rebecca A. Lange
Louise Levien
Gregory R. Lumpkin
Stefano Merlino
Paul A. Northrup
Yoshikazu Ohashi
Masaaki Ohmasa
Kazuhito Ozawa
Horst J. Penttinghaus
Edward H. Poindexter
Charles T. Prewitt
Robert R. Reeber

Richard J. Reeder
Nancy L. Ross
David B. Stewart
Shu-Chun Su
Vittorio Tazzoli
James B. Thompson
Michael A. Velbel
Richard Wirth
Cornelis F. Woensdregt
Hans Wondratschek
Takamitsu Yamanaka
Shu-cheng Yu
David J. Zobkiw

MSA Mineralogy/Petrology Fund

David Allison
Barbara J. Anderson
Charles E.S. Arps
John C. Ayers
Roy A. Bailey
Daniel S. Barker
Calvin G. Barnes
Mark D. Barton
Richard A. Beach
Harvey E. Belkin
Christopher A. Berg
John L. Berkley
M. E. Bickford
Lawrence V. Blade
Wendy A. Bohrsen
John R. Bowman
Francis R. Boyd
Maarten A.T.M. Broekmans
Michael Brown

Bruce H. Bryant
Peter R. Buseck
Michael R. Carroll
Sumit Chakraborty
Andrew Gregor Christy
Joan R. Clark
Maria Luisa Crawford
William A. Crawford
Jacqueline Eaby Dixon
David Dolejs
Raymond A. Donelick
Steven R. Dunn
Robert F. Dymek
Denton S. Ebel
W. G. Ernst
John M. Ferry
Stephen W. Field
Robert Finch
Franklin F. Foit
Thomas A. Gegan
M. Charles Gilbert
Edwin Gnos
Elihu Goldish
Terence M. Gordon
Matthew Lee Goring
Harry W. Green
Edward S. Grew
Alain R.D. Hanson
George E. Harlow
David P. Hawkins
B. Carter Hearn
Wilhelm Heinrich
Rosalind T. Helz
Darrell J. Henry
John R. Holloway
Astrid Holzheid

John M. Hughes
James F. Hurlbut
Michiya Inomata
Jennifer Mae Jackson
Mary L. Johnson
Monika Koch-Muller
Fawna J. Korhonen
Andrea Koziol
Jo Laird
Rebecca A. Lange
Stefan Lauterbach
J. G. Liou
Mauro Lo Cascio
John Longhi
Gregory R. Lumpkin
Stephen J. Mackwell
Wallace H. MacLean
Suzanne E. Mahlburg Kay
Juraj Majzlan
Christopher G. Mattinson
Stephanie M. Mattson
Kenji Mibe
Takashi Miyano
Stearns A. Morse
Peter I. Nabelek
Toshiro Nagase
Setsuya Nakada
H. Richard Naslund
Tadao Nishiyama
Paul A. Northrup
Yasuko Okuyama-Kusunose
Kazuhito Ozawa
Horst J. Penttinghaus
Dexter Perkins
Tore Prestvik
Keith Daniel Putirka

Joseph M. Pyle
Joy Emily Reid
Peter L. Roeder
Kurt Roggensack
Douglas Rumble
Tracy Rushmer
Hiroaki Sato
Werner F. Schreyer
John C. Schumacher
Renate Schumacher
Michel P. Semet
Thomas G. Sharp
Hironao Shinjoe
John Sinkankas
Joseph V. Smith
LeeAnn Srogi
David B. Stewart
Heinz G. Stosch
Shu-Chun Su
Samuel E. Swanson
Lawrence A. Taylor
Priestley Toulmin
Robert J. Tracy
Samuel B. Treves
Chin-Ho Tsai
Josef Vajdak
Ewart A. Vincent
Halan M. Wang
Glenn A. Waychunas
Karrie Weaver
Mark David Welch
Ray E. Wilcox
Kenneth E. Windom
William S. Wise
Alan Woodland
Kenzo Yagi
Takamitsu Yamanaka
Eiju Yatsu
Hatten S. Yoder
Shu-cheng Yu
David J. Zobkiw

MSA Endowment Fund

Richard N. Abbott
Irmgard Abs-Wurmbach
Gerald E. Adams
David G. Agresti
Anthony L. Ahmat
Masaki Akaogi
John T. Alfors
Thomas P. Anderson
Yoshikazu Aoki
Peter Appel
Makoto Arima
Charles E.S. Arps
Paul D. Asimow
Charles R. Bacon
Leslie L. Baker
William A. Bassett
Robert L. Bauer
John L. Baum

Amanda C. Bean
Udo Becker
Massoud Behruzi
Anton Beran
Christopher A. Berg
Jonathan H. Berg
Rob Berman
Ralf Bernhardt
Barry R. Bickmore
David L. Bish
Achille Blasi
James G. Blencoe
Charles W. Blount
Robert J. Bodnar
Tiziana Boffa Ballaran
Howell Bosbyshell
John R. Bowman
Susan M. Bradley
Adrian J. Brearley
Donald A. Brobst
J. Michael Brown
Joel Brugger
L. Taras Bryndzia
Steffen Buettner
Ernst A.J. Burke
Charles W. Burnham
Donald M. Burt
Peter R. Buseck
Heather Lee Buss
Louis J. Cabri
Christopher L. Cahill
John B. Callen
Fernando Camara
William Carlson
Ian S. Carmichael
Elizabeth J. Catlos
Aaron J. Cavosie
Vincent M. Ceci
Bernardo Cesare
Bryan C. Chakoumakos
Sumit Chakraborty
John T. Cheney
D. J. Cherniak
Wen-An Chiou
Jin Beom Choi
Joan R. Clark
Roy S. Clarke
Cory C. Clechenko
Mark R. Colberg
Richard M. Conrey
Douglas S. Coombs
Michelle L. Coombs
Brian J. Cooper
Fidel Costa
Thomas V. Dagenhart
Peter S. Dahl
Cameron Davidson
Subarnarekha De
Christian E. De Capitani
Marissa J. Detschel
Robert C. DeVries
Gregory M. Dipple

David Dolejs
David Dolejs
Raymond A. Donelick
Colin S. Doyle
Gregory K. Druschel
Thomas Duffy
Barb Dutrow
Denton S. Ebel
Mary C. Eberle
Carrick M. Eggleston
John L. Emmett
Martin Engi
Eric J. Essene
Joseph M. Evensen
Rodney C. Ewing
Fred W. Farwell
Anne Feenstra
M. Lourdes Fernandez-Diaz
Robert Finch
Roberta L. Flemming
Eric A. Fritz
Michael Froeba
Alfred J. Frueh
Kiyoshi Fujino
Ken-ichi Funakoshi
William S. Fyfe
Antonio Garcia-Casco
Will P. Gates
Thomas A. Gegan
Edward D. Ghent
M. Charles Gilbert
Bruno J. Giletti
Philippe A. V. Gillet
Matthias Gottschalk
Edward S. Grew
Lee A. Groat
L. Peter Gromet
Charles V. Guidotti
Robert J. Gunthorpe
Purificacion Fenoll Hach-ali
Michel T. Halbouty
George E. Harlow
Peter J. Heaney
Christopher D. Herd
Stephen W. Herman
Richard L. Hervig
Kai-Uwe Hess
Allen V. Heyl
H. Stanton Hill
David M. Hirsch
Marc M. Hirschmann
Heidi Eva Hoefler
Alexander R. Hoelzel
Anne M. Hofmeister
John P. Hogan
Donald D. Hogarth
Thomas D. Hoisch
Rolf Hollerbach
Christian Holzapfel
Astrid Holzheid
Liang-chi C. Hsu
F. Javier Huertas

John M. Hughes
Katrina Helene Hunter
Cornelius Hurlbut
Jannick Ingrin
Michiya Inomata
Alfred Irouschek-Zumthor
Steven Dollard Jacobsen
Bjorn Jamtveit
Janusz R. Janeczek
J. Ben H. Jansen
Ronald E. Januzzi
David M. Jenkins
Gi-Young Jeong
Raymond Joesten
Ole Johnsen
Jennifer E. Johnson
Mary L. Johnson
Blair F. Jones
Rhian H. Jones
Pedro J. Jugo
Shun-ichiro Karato
Takeshi Kasama
Masayuki Kawasaki
Lindsay Keller
Boris Kiefer
Daniel E. Kile
Mitsuyoshi Kimata
Jun-ichi Kimura
Robert L. King
Cornelis Klein
Monika Koch-Muller
Tadaomi Kohno
Michael Kokinos
Hiromi Konishi
Fawna J. Korhonen
Randolph A. Koski
Patrick K. Kozak
Yasuhiro Kudoh
Martin Kunz
Takahiro Kuribayashi
Keiji Kusaba
T. Kurtis Kyser
George A. Lager
Charles H. Lake
Edward D. Lane
Rebecca A. Lange
Benjamin F. Leonard
Axel Liebscher
J. G. Liou
Elizabeth A. Lipski
Darren R. Locke
Andrew J. Locock
William S. Logan
James J. Luedtke
Gregory R. Lumpkin
Craig Lundstrom
Emil Makovicky
Charles W. Mandeville
Maciej Manecki
Charles J. Mankin
Craig E. Manning
Walter Grant Margerum

Sara-Eva Martinez-Alonso
 Frederic C. Marton
 Roger A. Mason
 Edmond A. Mathez
 Tomoaki Matsui
 Frank K. Mazdab
 Claudio Mazzoli
 Patti Jo McCall-Elledge
 Elizabeth A. McClellan
 William F. McDonough
 Suzanne A. McEnroe
 Christopher R.M. McFarlane
 Marcello Mellini
 William G. Melson
 Kenji Mibe
 Richard C. Mielenz
 Daniel J. Milton
 Hideo Minato
 Hideo Minato
 Thomas P. Mitchell
 Seiko M. Miyagi
 Nobuyoshi Miyajima
 Takashi Miyano
 Ritsuro Miyawaki
 Eric C. Moloy
 Robert D. Monnar
 Duane M. Moore
 Renato Moraes
 John W. Moreau
 Laurence J. Mutti
 Takaya Nagai
 Andrew L. Neal
 Bruce W. Nelson
 Sally Newman
 Fumito Nishi
 Gordon L. Nord
 Britt Hall Norlander
 Marc Douglas Norman
 Paul A. Northrup
 Suzanne Y. O'Reilly
 Chang W. Oh
 Eiji Ohtani
 Akihiko Okada
 Jerry C. Olson
 Kazuhito Ozawa
 Roberto T. Pabalan
 J. Michael Palin
 Lambis Papelis
 Jeanne Paquette
 John B. Parise
 R. Lee Penn
 Alain F. Person
 Maik Pertermann
 Lee S. Potter
 Dean C. Presnall
 Jason R. Price
 Alan T. Prince
 Francesco Princivale
 Jean N. Protas
 Paula Provencio
 Loren A. Raymond
 Richard J. Reeder

Hans Josef Reichmann
 Joy Emily Reid
 Stephen P. Reidel
 Paul H. Ribbe
 W. D. Richey
 Eugene C. Robertson
 Richard A. Robie
 Peter Robinson
 Francois R. Roeth-lisberger
 Gregory T. Roselle
 John L. Rosenfeld
 Nancy L. Ross
 David A. Rothstein
 James R. Rougvie
 Roberta L. Rudnick
 Douglas Rumble
 Malcolm J. Rutherford
 Nils A. Sandin
 Kaye S. Savage
 Julius Schlocker
 Nicholas Charles Schmerr
 Jane Selverstone
 Kurt Servos
 William M. Shannon
 Yen-Hong Shau
 Samuel Shaw
 Andy H. Shen
 Masahiro Shimizu
 Toru Shinmei
 Leon T. Silver
 Kyla K. Simons
 Thomas W. Sisson
 Sorena S. Sorensen
 Hans A. Stalder
 Libby A. Stern
 Edward F. Stoddard
 Bernhard Stoeckert
 Daniel R. Strongin
 Shu-Chun Su
 Ichiro Sunagawa
 Peter Susse
 Akio Suzuki
 Rup K. Taku
 Takao Tanosaki
 Regina N. Tempel
 Tres Thoenen
 Priestley Toulmin
 Allan H. Treiman
 Allan C. Turnock
 James A. Tyburczy
 Peter Ulmer
 Use for Contributions
 Wim Van Westrenen
 David T. Vaniman
 Juan C. Varela
 Ilya V. Veksler
 Adrian Villegas
 Carin M. Wallfuss
 David A. Wark
 Yosiharu Watanabe
 E. Bruce Watson
 J. Scott Weaver

Peter Georg Weidler
 Christopher G. Weisener
 John H. Weitz
 Wilfred R. Welsh
 Donna L. Whitney
 Martin C. Wilding
 Max Wilke
 Erika L. Williams
 Michael B. Wolf
 Mariette Wolthers
 Bernhardt John Wuensch
 Peter J. Wyllie
 Takamitsu Yamanaka
 Toru Yamasaki
 Atsushi Yamazaki
 Hexiong Yang
 Eiju Yatsu
 Takeyoshi Yoshida
 E-an Zen
 Michael J. Zieg
 Hans D. Zimmermann
 David J. Zobkiw
 Michael E. Zolensky

MSA Outreach Fund

Steven C. Bergman
 Charles W. Burnham
 Rebecca W. Carmody
 Joan R. Clark
 Randall T. Cygan
 Raymond A. Donelick
 Barb Dutrow
 Robert F. Dymek
 Susan C. Eriksson

Bernard W. Evans
 Franklin F. Foit
 John Harold Fournelle
 Edward S. Grew
 Michael J. Holdaway
 Lincoln S. Hollister
 Hidemichi Hori
 Mary L. Johnson
 Helen M. Lang
 Rebecca A. Lange
 Gregory R. Lumpkin
 Nancy J. McMillan
 Calvin F. Miller
 William G. Minarik
 David W. Mogk
 Paul A. Northrup
 Kazuhito Ozawa
 Maik Pertermann
 William A. Ranson
 Douglas Rumble
 Oliver J. Schatz
 Virginia B. Sisson
 Victor Wei-Chia Ting
 David A. Vanko
 Glenn A. Waychunas
 Peter M. Whelan
 Takamitsu Yamanaka
 David J. Zobkiw

Benefactors

ExxonMobil Upstream Research Co
 Cargille Laboratories
 Blake Industries

Treasurer Report, Continued from page 6

is covered by transferring "extra" money from the Roebling and Endowment Funds to the Society's annual operating budget. In 2001, a total of ~\$77K was transferred from these two funds to the annual operating budget. This figure is significant in relation to the total value of the two funds at the end of 2001, which was \$1561K. Dividing \$77K by \$1561K, it is evident that the monetary transfers from the Roebling and Endowment Funds during 2001 represent ~5% of the total value of the two funds at the end of 2001. This percentage is slightly higher than in past years, due partly to a decrease in the total value of the two funds between December, 2000, and December, 2001. However, it should be borne in mind that, in the recent past, both funds grew at an annual rate substantially greater than 5% per year. (Hence,

More about electronic artwork

by Rachel A. Russell

Although we still scan the hardcopies to create electronic artwork for some authors and will gladly continue to do so, many other authors are sending us their original electronic files and may not even have a hardcopy. Thus a small list of recommenda-

tions about submitting electronic artwork might be helpful. I suspect these general guidelines will help the *Reviews in Mineralogy and Geochemistry* (RIMG) authors as well as it evolves to electronic page layout

There are technical necessities to electronic art that

must be followed to ensure proper printing. The file saved for publication must be a .tif or .eps file (although *The Lattice* can use jpegs). From your program (such as PhotoShop, Illustrator, Corel Draw, and many others) under "file" should be a "save as" and/or an "export" op-

tion. When the box comes up, look for the format options and choose .tif or .eps. Simply adding .tif or .eps to the filename is not sufficient!

Generally, the .tif setting creates bitmap artwork; so it is vital to have the resolution set high enough and the scale

Call for Papers for the "Environmental Mineralogy" issue

In an era of rising public awareness of and scientific interest in the environmental and health effects of human activity, mineralogists clearly have an exciting new role in a multidisciplinary field. In keeping with this emerging role, the Editors of the *American Mineralogist* are pleased to announce the inaugural Environmental Mineralogy issue to be published in 2003. We encourage the submission of papers covering a range of environmental issues including, but not limited to, the following general research topics:

- Effects of minerals on human health
- Use of minerals to sequester deleterious materials
- Interpretation of minerals as monitors of the surficial environment
- Biominerals as recorders of the biological and geological environment
- Minerals that form in surficial, acidic environments
- Microbe-mineral interactions of environmental significance
- Environmental applications of clay minerals.

Letters, full-length research papers, and review articles will be considered for publication in this special "green" issue. This issue will be published in addition to the regular issues. Depending upon the response from the mineralogy community, it might prove necessary to publish more than one green issue or to set aside sections of regular issues for papers on environmental mineralogy. Authors considering the submission of a review paper should consult one of the editors beforehand regarding the suitability of the proposed subject. All submissions for this issue will go through the regular peer-review process.

Prospective authors may submit their manuscripts on line at the address <http://minsocam.allentrack.net>. Firstly, you must register, then log in and follow the steps to submit your paper. Note that instead of registering your paper type as "regular", you should click "Environmental". In the Associate Editor preferences list, you can specify one of four Environmental Associate Editors listed below, or we will make the assignment on your behalf. Complete instructions are located at <http://www.minsocam.org> and authors are encouraged to read them. If you have any questions about submitting a paper, please contact the Managing Editor (see below). If you do not have e-mail/web access, contact the editorial office for alternate instructions.

The development of this special issue reflects a commitment on the part of the Editors to make environmental mineralogy an important part of the journal.

Associate Editors for the special issue:

UDO BECKER (ubecker@uni-muenster.de)

JOHN JAMBOR (ljambor@aol.com)

GREG LUMPKIN (grl@ansto.gov.au)

JILL PASTERIS (pasteris@levee.wustl.edu)

Managing Editor:

Rachel Russell (editorial@minsocam.org)

TECHNICAL SETTINGS

For ".tif" art

Halftones and combination art = 300 dpi.

Line art = 1200 dpi

For .eps fault

Embed, outline, or include fonts; default resolution ok.

Embedded art should conform to tif resolutions

of the art set appropriately. If the pixels are not there, there is little we can do to make the art less jaggy or "bitmap" looking. Thus, at the final, optimal size (19 picas for one column art, 29 picas for two column width), line art needs to be at 1200 dpi (dots per inch), halftones (photographs) should be at 300 dpi, and combination art (a photograph with letters in the middle for example) should be at least 300 dpi but may need to be higher depending on the importance of the lettering, lines, or symbols that are nonphotographic. A graph that is 1200 dpi but is set to the size of a postage stamp will not work. We have to make it bigger to fit in the layout and to be viewable, thus lowering the dpi. On the other hand, a graph that is something like 11 inches tall by 8 inches wide is going to be reduced quite a bit and if the dpi is already 1200, the compression may yield a dpi that is so high the resultant file size of the artwork makes it unusable! So, the two factors of scale and resolution work together. Electronic artwork is not that different from traditional drawing of figures. For best results, the size of the original should not differ greatly from the final, printed figure size.

The .eps setting for artwork is a vector setting. The artwork "knows" to add or subtract pixels as needed. Thus generally the artwork defaults at say 800 dpi for all artwork and that is fine. **The absolute key with .eps artwork is proper fonts, not resolution or scale.** All fonts must be embedded, outlined or included with the art. Or use fonts that we (and the printer) can guarantee, which are Helvetica, Symbol (for a, b, and so on), Zapf Dingbats (e.g., for arrowheads, diamonds, and such), and perhaps Times (but not Times Roman because there are Mac to PC and vice versa problems with this font). I strongly prefer artwork to not use Times because I would like the artwork typeface to be different from the text typeface. However, I admit there are occasions when Times makes clearer differences between "ones" and "ohs" that can be important in science material!

To "outline" material in Illustrator, "select all" then go to "Type" and "convert to outlines". If we do not have the typeface involved, we can substitute a typeface that looks close to us and then outline it for you, but of course errors could be generated this way. Outlining turns the font to artwork (to pixels instead of type) and, while that means it is no longer editable, it guarantees the fonts stay correct!

If you use these guidelines for artwork, then if/when your paper is accepted we can download the artwork from the web based system and will only need to contact you if there is some specific sort of problem. In those cases, we will

send the author instructions about our author ftp site, because receiving too many artwork files over the regular e-mail can crash our computers. It is also perfectly reasonable to want to speed up the submission process by using smaller, faster files. In this case, publication-ready files could be uploaded with the revision or just add a note that higher resolution files are available upon request and then we'll ask when we are ready!

Right now, most accepted papers are still coming from the old system, and we work pretty much one-on-one with each author in this system. Some authors will send us artwork (after acceptance, once they receive our instructions) via the author ftp site. And, of course, some authors send the artwork to us on diskettes, zip disks, or cd-roms. Often we just scan the hardcopy ourselves.

LETTERING AND OTHER ELEMENTS

No hairlines. Lines differentiated by dashes, dots, etc. need to be clear and distinct. Do not put a box around your artwork. Keep it all sharp and dark. Variables (e.g., T for temperature, P for pressure, or V for Volume) must be in italics. Names such as Ca for calcium are never italic. In other words, all the basic manuscript rules are followed in the artwork as well, whenever possible (for example, s for second not sec; superscripts and subscripts, etc.) Take special care that your lettering is not too small or too large.

There are some examples of nice artwork in the July issue of the *American Mineralogist*. The figure on page 880 of Ye et al. (p. 875-881) although the degree sign was wrong (but understandable) is one. Zhang et al. on pages 886 and 887 is good. Figure 1 on p. 910 of Liebscher et al. is excellent. Figure 1 of Viani et al. on p. 968 is nice. In general, the most common imperfection is artwork with lines that are too thin and faint. The second most common imperfection is with some sort of abbreviation, italicizing, or other font element being not quite perfect.

Am Min Stats at a Glance (for July)

No. of Pending "Web" Manuscripts (on 1-JUL-2002): 55
 No. of New "Web" Manuscripts Submitted: 27
 No. of Accepted "Web" Manuscripts: 3
 No. of Declined "Web" Manuscripts: 3
 No. of Withdrawn "Web" Manuscripts: 0
 No. of Pending "Web" Manuscripts (on 31-JUL-2002): 78
 No. of Total Manuscripts, old and new systems: 158

Short Course Announcement

PLASTIC DEFORMATION OF MINERALS AND ROCKS

- Dates:** Short Course sessions are December 4th and 5th, 2002. The short course will start at 8:30 a.m. on Wednesday, December 4th and end in the evening of Thursday, December 5th so people can attend the American Geophysical Union Meeting in San Francisco, CA that starts Friday, December 6, 2002. There is a dinner reception on Wednesday, December 4th from 07:00-10:00 p.m.
- Location:** Short Course sessions are from 8:30 am to 6:30 pm Wednesday and 8:30 am to 5 pm on Thursday. All events are at the Holiday Inn-Bay Bridge, 1800 Powell Street, Emeryville, CA 94608, conveniently located next to Berkeley and near the bay bridge (phone: (510) 658-9300, FAX: (510) 595-1914).
- Conveners:** *Shun-ichiro Karato*, Yale University, Department of Geology and Geophysics, 319 Kline Geology Laboratory, New Haven, CT 06520, USA. phone: (203) 432-3147; fax: (203) 432-3134; e-mail: shun-ichiro.karato@yale.edu.
Hans-Rudolf Wenk, University of California-Berkeley, Department of Geology & Geophysics, Berkeley, CA 94720-4767 USA. phone: (510) 642-7431; fax: (510) 643-9980; e-mail: wenk@seismo.berkeley.edu.
- Registering:** Registration forms are available from the MSA Business Office, 1015 Eighteenth St NW Ste 601, Washington, D.C. 20036-5212, USA. Tel: (202) 775-4344 Fax: (202) 775-0018 e-mail: business@minsocam.org; or from the MSA Home Page (<http://www.minsocam.org>). Registration forms with payment must be returned to the MSA Business Office. Registration fees will be fully refunded if cancellation is received in writing on or before November 1, 2002. You can also register online with a credit card. Registration is limited to 100 participants. All participants and speakers must register.
- Practical:** Registration fee includes MSA short course sessions, breakfasts, refreshments at breaks, lunch on Wednesday and Thursday, Wednesday evening banquet, the *Reviews in Mineralogy and Geochemistry* volume. Registration fee does not include room, incidentals, or other transportation costs to or from Emeryville, CA. Both participants and speakers must make arrangements and pay their own lodging and ground transportation to reach the short course. Preferred lodging is Holiday Inn-Bay Bridge (1800 Powell Street, Emeryville, CA 94608, conveniently located next to Berkeley and near the bay bridge (phone: (510) 658-9300, FAX: (510) 595-1914)), where a block of rooms has been reserved at a special rate (\$104 plus tax, single or double). In order to qualify for the special rate, room reservation must be made at least one month in advance of the meeting and guaranteed with a credit card.
The hotel is easily reached from San Francisco and Oakland airports with the Bayporter Shuttle Service (877-467-1800, no reservation is necessary, the shuttle leaves from the upper level at the airport), by BART train (e.g., from San Francisco or Berkeley to MacArthur Station and from there free Emery Go Round Shuttle), or car (Ashby exit on US80, free parking).

Short Course Description

This short course aims at providing a series of lectures on some fundamentals of mineral and rock deformation as related to various geological and geophysical processes. Plastic flow in minerals and rocks is the most important process of heat transfer in terrestrial planets. Unlike other properties such as elastic properties, plastic properties are time and strain-dependent. Therefore application of laboratory results at laboratory time scales to geological processes needs a large extrapolation. In addition, plastic flow in minerals and rocks is far more complicated than the flow in a simple fluid such as water. This is due to the very fact that a rock is composed of discrete crystals and has internal structure at various levels, ranging from the atomic level (point defects, dislocations etc.) to the grain level (lattice preferred orientation or shape preferred orientation). In particular, grain-scale microstructures are critical to understanding dynamics of the Earth's interior. For example, the grain-size can significantly affect the creep strength of rocks and lattice preferred orientation results in seismic anisotropy that could provide a clue to infer flow geometry in the deep interior of the Earth. An understanding of plastic deformation of minerals and rocks, as applied to the dynamics of the Earth, must involve understanding of nonelastic behavior at various time and space scales under Earth-like temperature and pressure conditions. Furthermore, factors other than temperature and pressure, e.g., fugacity of water and partial melting, can have a significant effect.

Plastic deformation can often be unstable. This instability could cause important geological processes including the formation of shear zones (mylonites) in the crust (and mantle) as well as (deep) earthquakes.

These complications are likely to have an important influence on the dynamics and evolution of terrestrial planets. Recent progress in experimental and theoretical understanding of deformation and deformation-induced microstructures has made it possible to evaluate some of these complications on the basis of crystal structure and bonding (i.e., atomistic scale). In this short course the state-of-the-art of mineral physics studies of plastic deformation and deformation-related microstructures will be reviewed. Part of it will be a discussion of methods to investigate deformation features and to characterize deformed materials. The short course also includes lectures from experts in seismology, geodynamics and engineering that are relevant for a better understanding of plasticity in minerals and rocks.

Scope of workshop, Overview	Karato
Deformation of crustal materials	Tullis
Deformation of upper mantle materials	Hirth
Deformation of deep mantle materials	Cordier
Deformation of ice	Schulson
Instability of deformation	Green
Partial melting and deformation	Kohlstedt
New development in deformation studies:	
High pressure deformation	Weidner/Durham
High strain deformation	Mackwell/Paterson
Meso- and Macroscopic modeling	Dawson
Preferred orientation and seismic anisotropy	Wenk
Seismic wave attenuation	Cooper
Rheology and geodynamics	Bercovici
Seismic anisotropy and mantle dynamics	Montagner

Complete and return this registration form to the MSA Business Office, 1015 Eighteenth St NW Ste 601, Washington, D.C. 20036-5212, USA. Telephone: (202) 775-4344. FAX: (202) 775-0018. Please type or print. Use one form per registrant. Payment must accompany this form. Registration is limited to 100 people on a first-come, first-served basis. Payment must accompany this form, which will be fully refunded if cancellation is received in writing on or before November 1, 2002.

Registration fee includes MSA short course sessions, refreshments at breaks, lunch on Wednesday and Thursday, and the *Reviews in Mineralogy and Geochemistry* volume. There is a dinner beginning 7:00 pm on Wednesday evening, December 4. All events are at the Holiday Inn-Bay Bridge, 1800 Powell Street, Emeryville, CA 95608, conveniently located next to Berkeley and near the Bay bridge (Phone: (510) 658-9300, FAX: (510) 595-1914), website: www.holidayinnbaybridge.com. Registration fee does not include room, other meals, or transportation costs to or from the short course site. A block of rooms has been reserved in the Holiday Inn at a special rate (\$104 plus tax, single or double). Information on the short course, lodging, ground transportation, and course updates are on the MSA Home Page (<http://www.minsocam.org>).

Professional Registration:	<i>on or before 10/04/2002</i>	<i>after 10/04/2002</i>	cost
<input type="checkbox"/> Member	\$280	\$330	_____
<input type="checkbox"/> Non-member	\$370*	\$420*	_____
<input type="checkbox"/> Speaker	no cost	no cost	_____
Student Registration:			
<input type="checkbox"/> Member	\$130	\$180	_____
<input type="checkbox"/> Non-member	\$170*	\$220*	_____

Total Due \$_____

[] Enclosed is a check (in US \$ drawn on a US bank) or money order in the amount of \$ _____

[] Charge my: ____ Visa ____ Mastercard ____ Diner's Club ____ American Express card
(Your credit card will be charged when the registration form is received) in the amount of \$ _____

(name on card — please print)

(exp. date)

ENVIRONMENTAL ASPECTS OF **MINE WASTES**

Mineralogical Association of Canada

Short Course 2003, May 24-25 (Sat.-Sun.), 2003,

prior to the GAC-MAC-SEG meeting, Vancouver, British Columbia

This two-day intensive short course, to be held at **Robson Square in the heart of downtown Vancouver**, will cover a wide spectrum of environmental issues dealing with mine-waste solids and effluents. Presentations will be given on environmental regulations and compliance, mine-waste geology, hydrology, mineralogy, geochemistry, microbiology, drainage prediction, remediation,

The advances in ARD modelling, and case pre-studies. The course will not only ensure entry-level familiarization with the various topics of primary concern in studies of mining-related wastes, but will also provide exposure to the advances that have been made in these and related fields over the past decade.

R. Beckie (UBC): *Hydrogeology of waste rocks*; **A.I.M. Ritchie** (ANSTO, Australia): *Gas transport and sulfide oxidation in waste-rock accumulations*; **D.W. Blowes** (U. Waterloo): *Mine-tailings hydrogeology and geochemistry*; **J.L. Jambor**

(LRC, Vancouver): *Mine-waste mineralogy and mineralogical perspectives of ABA*; **K. Lapakko** (Minnesota Dept. Natural Resources): *Kinetic testing and its applications*; **M. Raudsepp**

(UBC): *Applications of Rietveld analyses to environmental problems*; **W.D. Gould** (NRCan, Ottawa): *Mine-waste microbiology*;

D.K. Nordstrom (USGS, Boulder): *Effects of microbiological and geochemical interactions in mine drainage*; **C.J. Ptacek** (U. Waterloo):

Application of the Pitzer ion-interaction model to ARD; **Brian Kimball** (USGS, West Valley, UT): *ARD surface-water modelling*; **U. Mayer** (UBC):

Reactive-solute transport modelling; **R. Seal** (USGS, Reston): *Applications of isotopic studies to environmental problems*; **W. Wilson** (UBC): *Covers and caps*;

D.W. Blowes (U. Waterloo): *Permeable reactive barriers and passive treatment*; **K. Walton-Day** (USGS, Denver): *Water-treatment installations and wetlands*;

J.W. Bennett (ANSTO, Australia): *Rum Jungle waste-rock case study*; **C.N. Alpers** (USGS, Sacramento): *Extremely acid mine-drainage at Iron Mountain, California: an end-member model for sulfide-rich deposits*; **M. Logsdon** (Geochimica, Ojai CA): *The Diavik story, a model for sulfide-poor deposits*. Conveners: **J.L. Jambor**, **D.W. Blowes** and **A.I.M. Ritchie**.

Registration
fee: **CDN
\$375**
(students
**CDN
\$250**)

Early registration (PRIOR TO APRIL 15, 2003): **CDN\$325** (regular) and **CDN\$200** (students).

PAYABLE TO: MAC SHORT COURSE. Remittances: MAC BUSINESS OFFICE

For more information: John Jambor (JLJambor@aol.com) or the MAC website (www.mineralogicalassociation.ca) To download a registration form or to register online: www.mineralogicalassociation.ca

MAC Business office, P.O. Box 78087, Meriline Postal Outlet, 1460 Merivale Road, Ottawa On Canada K2E 1B1

Short Course Announcement

Phosphates: Geochemical, Geobiological, and Materials Importance

- Dates:** Saturday and Sunday October 26-27, 2002 (preceding the Mineralogical Society of American-Geological Society of America Annual meeting in Denver, Colorado)
- Location:** Short Course sessions are between 8:00 am - 6:00 pm Saturday, and 8:00 am - 12:00 noon Sunday at the Holiday Inn Denver West Village, 14707 West Colfax Ave, Golden, Colorado 80401, U.S.A. voice: (303) 279-7611, (800) 729-2830, fax: (303) 278-1651.
- Conveners:** *Matthew J. Kohn*, Department of Geological Sciences, University of South Carolina, Columbia, SC 29208, Tel: (803) 777-5565, Fax: (803) 777-6610, E-mail: mjk@geol.sc.edu.
John Rakovan, Department of Geology, Miami University, Oxford, OH 45056, USA, Tel: (513) 529-3245, Fax: (513) 529-1542, E-mail: rakovajf@muohio.edu.
- Registering:** Registration forms are available from the MSA Business Office, 1015 Eighteenth St NW Ste 601, Washington, D.C. 20036-5212, USA. Tel: 202-775-4344 Fax: 202-775-0018 E-mail: business@minsocam.org; or the MSA Home Page (<http://www.minsocam.org>). Registration form with payment must be returned to the MSA Business Office.

Practical: Registration fee includes MSA short course sessions, refreshments at breaks, Saturday lunch and evening banquet, and *Reviews in Mineralogy and Geochemistry* volume. There is an informal welcoming reception beginning 5:30 pm Friday evening, October 25 on a self-pay basis at the Holiday Inn. Registration fee does not include room, other meals, or transportation costs to or from Golden. Participants must contact the Holiday Inn Denver West Village, 14707 West Colfax Ave, Golden, Colorado 80401, USA voice: (303) 279-7611, (800) 729-2830, fax: (303) 278-1651 to make reservations and pay for rooms. A block of rooms is reserved for short course participants at the Holiday Inn until October 4, 2002. Use the group code 2-MIN when making reservations so that you receive the discounted group rate.

Ground transportation to and from the Denver Airport (DIA) is available. Among the services available to Golden is Golden West Commuter (800) 894-8033. It is regularly scheduled to leave DIA about every hour, reservations must be made to return from Golden to Denver of DIA. Cost ~\$24 one way, ~\$44 round trip.

Short Course Description: Phosphate minerals are an integral component of geologic and biologic systems. They are found in virtually all rocks, are the major structural component of vertebrates, and when dissolved are critical for biologic activity. Their unique chemical and physical behavior permits a wide range of geochemical applications in geology and biology. This short course reviews past work on phosphates, and explores new areas of phosphate research indicated by recent rapid developments in measuring and interpreting the geochemistry of phosphates. Although the short course is accompanied by a comprehensive *Reviews in Mineralogy* volume on phosphate mineralogy, geochemistry, geobiology, and materials applications, the shortcourse will focus on 3 rapidly developing areas in the Earth sciences—geochronology, petrology, and biogeochemistry. The geochronology of phosphates has been revolutionized by new thermochronologic and analytical methods. Examples include the *in situ* analysis of monazite for U-Th-Pb age, analysis of single apatite grains for U-Th/He age, and retrieval of detailed temperature-time paths from the apatites of a single rock. Petrologic applications include understanding of phosphate mass balance in rocks, and the use of the chemistry of phosphates such as monazite and apatite for inferring physical and chemical conditions of rock formation. Significantly, the chemistry of metamorphic monazites has the potential to reveal both the temperature and age of metamorphism. Sedimentary apatites are linked to surficial cycling of phosphate, a critical nutrient for bioproductivity, while the stable and trace element geochemistry of modern and fossil bioapatites now yield insights into (paleo-) ecologies and climates. While diverse, these fields are all linked crystal chemically and geochemically. The shortcourse will provide a lively forum for interdisciplinary discussion.

Topics and Speakers/Authors for RIM Volume and Shortcourse

Mineralogy and Crystal Chemistry

Introduction [*Shortcourse Only*]

Overview [*Shortcourse Only*]

The Atomic Arrangement of Calcium Phosphate Apatite [*No Lecture*]

Compositions of the Apatite-Group minerals [*No Lecture*]

Growth, Dissolution and Surface Properties of Apatite [*No Lecture*]

Structure and Chemistry of Monazite and Xenotime [*No Lecture*]

The Crystal Chemistry of the Phosphate Minerals [*No Lecture*]

J. Rakovan & M. Kohn

F. Hawthorne

J.M. Hughes & J. Rakovan

Y. Pan & M.E. Fleet

J. Rakovan

L. Boatner

D. Huminicki & F. Hawthorne

Petrology

Apatite in Igneous and Hydrothermal Systems

Phosphates in Metamorphic Rocks

Sedimentary Phosphorites.

P. Piccoli & P. Candela

F. Spear & J. Pyle

A.C. Knudsen & M.E. Gunter

Biomineralization

The Global Phosphorus Cycle

Calcium Phosphate Biominerals in Man [*No Lecture*]

Stable isotopes of Biogenic Phosphates

Trace elements in Recent and Fossil Bone Apatite

G. Filippelli

J. Elliott

M. Kohn & T. Cerling

N. Tuross & C. Trueman

Geochronology

U-Th-Pb Dating of Phosphate Minerals
(U-Th)/He Dating of Phosphate Minerals

Fission Track Thermochronology of Phosphate Minerals

M. Harrison, E. Catlos, & J-M. Montel

K. Farley & D. Stockli

A. Gleadow, D. Belton, B. Kohn & R. Brown

Materials Applications

Apatite Luminescence [No Lecture]

G. Waychunas

Biomedical Application of Apatites [No Lecture]

K.A. Gross & C.C. Berndt

Phosphates as Nuclear Waste Forms [No Lecture]

R.C. Ewing & L. Wang

The short course will be held in conjunction with an MSA topical session (Topical Session T69) at the Mineralogical Society of America—Geological Society of American Annual Meeting, Denver, Co. If you submit an abstract for this special session, please let the short course conveners know about it.

Sponsor: U.S. Dept. of Energy

Short Course Registration

Phosphates: Geochemical, Geobiological and Materials Importance. Golden, Colorado, October 26–27, 2002

Complete and return this registration form to the MSA Business Office, 1015 Eighteenth St NW Ste 601, Washington, D.C. 20036-5212, USA. Telephone: (202) 775-4344. FAX: (202) 775-0018. Please type or print. Use one form per registrant. Registration is limited to 120 people on a first-come, first-served basis. Payment must accompany this form, which will be fully refunded if cancellation is received in writing prior to September 27, 2002.

Name _____
(first) (middle) (last)

Address _____

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

Telephone: (Voice) _____ (Fax) _____ E-mail: _____

Registration fee includes MSA short course session costs, break refreshments, Saturday lunch and banquet, and the *Reviews in Mineralogy and Geochemistry* volume. All MSA short course sessions are at the Holiday Inn Denver West Village, Golden, Colorado. There is an informal welcoming reception 5:30 pm Friday evening, October 25 at the Holiday Inn. Registration fee does not include room, other meals, or transportation costs to or from Golden. A block of rooms has been reserved for short course participants until 10/4/2002 at the Holiday Inn Denver West Village, 14707 West Colfax Ave, Golden, Colorado 80401, USA voice: (303) 279-7611, (800) 729-2830, fax: (303) 278-1651. Participants must contact the hotel to make reservations and pay for rooms. Use the group code of 2-MIN. Information on the short course, lodging, ground transportation, and course updates are on the MSA Home Page (<http://www.minsocam.org>).

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

Professional Registration:	<i>on or before 8/30/02</i>	<i>after 8/30/02</i>	cost
[] Member	\$225	\$275	_____
[] Non-member	\$310*	\$360*	_____
[] Speaker	no cost	no cost	_____
Student Registration:			
[] Member	\$100	\$150	_____
[] Non-member	\$140*	\$190*	_____
* includes MSA membership dues for 2003.		Total Due	\$ _____

Amount Enclosed (Indicate payment method and amount of payment enclosed)

- [] Enclosed is a check (in US \$ drawn on a US bank) or money order in the amount of \$ _____
- [] Charge my: _____ Visa _____ Mastercard _____ Diner's Club _____ American Express card
(Your credit card will be charged when the registration form is received) in the amount of \$ _____

(card number)

(name on card — please print)

(signature)

(exp. date)

Mineralogical Society of America Publications Price List and Order Form

Reviews in Mineralogy and Reviews in Mineralogy and Geochemistry (25% member discount)

v. 08: Kinetics of Geochemical Processes (1981)	\$20
v. 9A: Amphiboles: Mineralogy (1981)	\$20
v. 9B: Amphiboles: Petrology, Phase Relations (1982)	\$20
v. 10: Characterization of Metamorphism through Mineral Equilibria (1982)	\$20
v. 11: Carbonates: Mineralogy & Chemistry (1983)	\$24
v. 12: Fluid Inclusions (1984)	\$32
v. 13: Micas (1984)	\$28
v. 14: Microscopic to Macroscopic: Atomic Environments to Mineral Thermodynamics (1985)	\$20
v. 15: Mathematical Crystallography (rev.) (1990)	\$24
v. 16: Stable Isotopes in High Temperature Geological Processes (1986)	\$24
v. 17: Thermodynamic Modeling of Geological Materials: Minerals, Fluids, Melts (1987)	\$28
v. 18: Spectroscopic Methods in Mineralogy and Geology (1988)	\$28
v. 19: Hydrous Phyllosilicates (Exclusive of Micas) (1988)	\$28
v. 20: Modern Powder Diffraction (1989)	\$28
v. 21: Geochemistry and Mineralogy of Rare Earth Elements (1989)	\$28
v. 22: The Al SiO ₂ Polymorphs (1990)	\$24
v. 23: Mineral-Water Interface Geochemistry (1990)	\$36
v. 24: Modern Methods of Igneous Petrology (1990)	\$24
v. 25: Oxide Minerals: Petrologic and Magnetic Significance (1991)	\$28
v. 26: Contact Metamorphism (1991)	\$32
v. 27: Minerals and Reactions at the Atomic Scale: Transmission Electron Microscopy (1992)	\$28
v. 28: Health Effects of Mineral Dusts (1993)	\$32
v. 29: Silica: Physical Behavior, Geochemistry and Materials Applications (1994)	\$32
v. 30: Volatiles in Magmas (1994)	\$32
v. 31: Chemical Weathering Silicate Minerals (1995)	\$32
v. 32: Silicate Melts (1995)	\$32
v. 33: Boron (2002 reprint)	\$36
v. 34: Reactive Transport in Porous Media (1996)	\$32
v. 35: Geomicrobiology (1997)	\$32
v. 36: Planetary Materials (2002 reprint)	\$40
v. 37: Ultra-High Pressure Mineralogy (1998)	\$32
v. 38: U Minerals & Chemistry (1999)	\$32
v. 39: Mineral Transformation Processes (2000)	\$32
v. 40: Sulfate Minerals (2000)	\$32
v. 41: High T & P Crystal Chemistry (2001)	\$36
v. 42: Molecular Modeling (2001)	\$32
v. 43: Stable Isotopes (2001)	\$32
v. 44: Nanoparticles (2001)	\$28
v. 45: Zeolites (2001)	\$32
v. 46: Micas (2002)	\$32
v. 47: Noble Gases (2002)	\$40

To Order: Indicate quantity, shipping, and cost information. MSA, CMS, and Geochemical Society members may take the 25% member discount where noted. Prepay orders under \$300. Send entire form to: Mineralogical Society of America, 1015 18th Street NW Ste 601, Washington, DC 20036-5212 USA. Phone: (202) 775-4344; Fax: (202) 775-0018 E-mail: business@minsocam.org. Publications may not be returned for refund or credit.

Shipping: Please add the following amounts for postage to book orders for which shipping is not indicated. Shipping is by surface mail that may take up to 4 months to some destinations. Contact the MSA Business Office for shipping rates by air mail, United Parcel Service, Federal Express, or other express service.

Shipping cost			
No. of books	US	Canada	other
1	\$2.50	\$6.50	\$8.00
2	\$3.50	\$14.00	\$18.00
3 to 4, per book	\$1.25	\$5.50	\$7.00
5 to 7, per book	\$1.25	\$4.00	\$5.00
8 +, per book	\$1.25	\$3.00	\$4.00

Monographs (25% member discount)

Crystallography & Crystal Chemistry, F. D. Bloss	\$32
v. 1: Metamorphic Phase Equilibria, Spear	\$60
v. 2: Crystal Structures v. 1, O'Keeffe & Hyde	\$36
v. 3: Teaching Mineralogy	\$28
v. 4: Bowen, D.A. Young	\$16
v. 5: Optical Crystallography, F. D. Bloss	\$32

Handbook of Mineralogy (25% member discount, except shipping)

v. III: Halides, Hydroxides, Oxides	\$100+\$11 shipping
v. IV: Arsenates, Phosphates, Vanadates	\$108+\$11 shipping
set (volume I+II+III+IV)	\$446 (\$334.50 MSA members) plus shipping
	\$25.00 (US address) \$40.00 (non-US address)

European Mineralogical Union Notes (25% member discount)

v. 1: Modular Aspects of Mineral (1997)	\$24
v. 2: Environmental Mineralogy (2000)	\$24
v. 3: Solid Soltns. in Silicate & Oxide Systems (2001)	\$24

Mineralogical Society Series (25% member discount)

v. 2: High-Temp. Metamorphism (1990)	\$168
v. 3: Stability of Minerals (1993)	\$210
v. 4: Clay-Pore Fluid Interactions (1993)	\$230
v. 5: Mineral Surfaces (1994)	\$74
v. 6: Microprobe Techniques (1994)	\$83
v. 7: Rare Earth Minerals (1995)	\$74
v. 8: Deformation-Enhanced Fluid Flow (1997)	\$122
v. 9: Environmental Mineralogy (2000)	\$70

Other Publications (no member discount)

Fifth International Kimberlite Conference Proceedings	\$45
shipping: U.S.-\$4/set, Canada -\$16/set, Elsewhere-\$20/set.	
Centennial History Geological Society of Washington	\$10
MSA Membership Directory (MSA members only)	\$15

American Mineralogist – back and single issues

(For volumes 1-81, contact Periodicals Service Company, 11 Main St., Germantown, NY 12526 USA. (518) 537-4700)

Vol.	member	non-member
82-86	\$10/issue, \$35/volume	\$55/issue, \$430/volume
volume: _____	issue no. _____	price _____
volume: _____	issue no. _____	price _____

ORDER FORM

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Country: _____ Postal Code: _____

A. Total for member discount books	_____
B. 25% member discount [] MSA [] GS [] CMS	_____
C. Total for non-discounted items	_____
D. Shipping (see left)	_____
Total (A-B+C+D)	_____

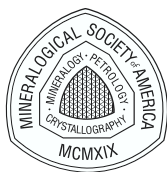
Payment: check in US\$ drawn on a US bank, money order, UNESCO coupons, or credit card:

[] Visa [] MasterCard [] Diners Club [] American Express

Card no.: _____ Exp Date: _____

Signature: _____

Print name as it appears on card: _____



Mineralogical Society of America Membership Application

To join the MSA, please send a copy of this application, along with the required payments for dues and subscriptions, to the Mineralogical Society of America, 1015 Eighteenth St NW Ste 601, Washington DC 20036-5212, USA phone: (202) 775-4344; fax: (202) 775-0018; e-mail: business@minsocam.org; website: www.minsocam.org

Membership Category Requested: ☐ Member ☐ Student Member ☐ Life Member

Address Information:

☐ Dr. Name: _____ Phone _____
☐ Prof First Middle Last
☐ Mr. Address: _____ Fax _____
☐ Ms. _____ E-mail _____
☐ Mrs. _____ Birth date _____
☐ Other: _____

Areas of Interest: (Check as many as apply) ☐ Mineralogy (MI), ☐ Crystallography/Crystal Chemistry (CC), ☐ Material Properties (PP), ☐ Igneous Petrology (IP), ☐ Metamorphic Petrology (MP), ☐ Sedimentary Petrology (SP), ☐ Geochemistry (GE), ☐ Phase Equilibria (PE), ☐ Economic Geology (EG), ☐ Clay Mineralogy (CM), ☐ Industrial Mineralogy (IM), ☐ Environmental Mineralogy (EM), ☐ Gems GM, ☐ Planetary Materials (PM), ☐ Teaching (TC), ☐ Descriptive (Topologic) Mineralogy (TP), ☐ Mineral Surfaces (MS), ☐ Biological-Mineral Interactions (BM), ☐ Others (Please indicate) _____

Professional Information:

Highest Degree earned: ☐ Doctorate ☐ Masters ☐ Bachelors ☐ No College Degree
 Institution at which Highest Degree was earned _____ Year _____
 Location _____
 Employer _____ Job Title _____
 Job Function(s): _____
 What other professional societies do you belong to? _____

Student Certification: (Applicants for student membership must supply the following information.)

Institution _____ Location _____
 Degree sought _____ Expected completion date _____
 A faculty member who can verify your student status:
 Name _____ E-mail _____

2002 Fee Schedule

Memberships are entered and renewed on a calendar basis. You will receive all publications for the year you join. Membership applications received after October 1 will be made effective January 1 of the following year unless you request otherwise. Members will receive the newsletter, *The Lattice*, as part of their dues. As an additional benefit, members may elect to receive the *American Mineralogist*, as well as some related publications, at substantially reduced rates. Please indicate all options that apply in the box to the right. Members are entitled to a 25% discount on other MSA publications given on our Publication List.

Member Dues	US\$50.00
Student Member Dues	5.00
<i>American Mineralogist</i> (paper & online member price)	35.00
<i>American Mineralogist</i> (online member price)	10.00
International airlift for paper <i>American Mineralogist</i>	40.00
Life Membership Dues (with <i>American Mineralogist</i>)	2125.00
<i>Mineralogical Abstracts</i> , published quarterly by the Mineralogical Society of Great Britain & Ireland	58.00
<i>Physics and Chemistry of Minerals</i> , published eight times a year by Springer-Verlag	523.00
<i>Journal of Petrology</i> , published twelve times a year by Oxford University Press	395.00
<i>Rocks & Minerals</i> published 6 times a year by Heldref Foundation \$41.00 (\$51.00 for non-US addresses)	
<i>Mineralogical Record</i> published 6 times a year \$43.00 (\$47.00 for non-US addresses)	
TOTAL	

Payment: Payment can be made by money order or check in US dollars drawn on a US bank and payable to the Mineralogical Society of America. US\$ _____ enclosed or charge my: ☐ Mastercard ☐ Visa ☐ Diners Club ☐ American Express credit card

Card # _____ Exp. Date: _____
 Cardholder: _____ Signature: _____

Welcome New Members

The following individuals joined MSA July 17 through November 17, 2001. We welcome them to the Society. The areas of interest are: Mineralogy (MI), Crystallography/Crystal Chemistry (CC), Material Properties (PP), Igneous Petrology (IP), Metamorphic Petrology (MP), Sedimentary Petrology (SP), Geochemistry (GE), Phase Equilibria (PE), Economic Geology (EG), Clay Mineralogy (CM), Industrial Mineralogy (IM), Environmental Mineralogy (EM), Gems (GM), Planetary Materials (PM), Teaching (TC), Topologic Mineralogy (TP), Biological-Mineral Interactions (BM), and others as indicated.

If you know of someone who would like or should join MSA, give them the membership application that appears in this issue of *The Lattice*, or is available from either MSA's web site (<http://www.minsocam.org>) and the MSA Business Office, 1015 Eighteenth St NW Ste 601, Washington, DC 20036-5212, USA.

Dera, Dr. Przemyslaw, Carnegie Inst of Washington, Geophysical Lab M-G08, 5251 Broad Branch Rd NW, Washington DC 20015. Ph: (202) 478-8915. Fax: (202) 478-8901. E-mail: p.dera@gl.ciw.edu (11-00). MI, CC, PP, PE, CM, BM,

Ford, Dr. Frederick D., INCO Technical Services Ltd, 2060 Flavelle Blvd, Sheridan Park, Mississauga ON L5K 1Z9, CANADA. Ph: (905) 403-2624. Fax: (905) 403-2401. E-mail: fford@inco.com (11-00). MI, CC, MP, PE,

Ghosh, Ms. Ayati, 1071 Clayton Ln Apt 311, Austin TX 78723-1044. Ph: (512) 323-2366. E-mail: ayati@mail.utexas.edu (12-00). MI, CC, PP, IP, MP, GE, PE, TC,

Gyllenhammer, Mr. Ronald J., Univ of Massachusetts, Crampton Dorm - UMSS, 256 Sunset Ave Rm 118, Amherst MA 01003-0000. Ph: (978) 590-7534. E-mail: rgyllenh@student.umass.edu (12-00). MI, CC, PP, IP, MP, SP, GE, PE, EG, CM, IM, EM, GM, PM,

Ito, Prof. Eiji, Oze, 937-3, Misasa Tottori-ken 682-0121, JAPAN. Ph: +81 (858) 433753. Fax: +81 (858) 433450. E-mail: eiito@misasa.okayama-u.ac.jp (11-00). CC, PP, GE, PE, PM,

Kimura, Dr. Makoto, Ibaraki University, Astrophysics and Planetary Science, 2-1-1 Bunkyo, Mito, Ibaraki 310-8512, JAPAN. Ph: +81 (29) 228-8388. Fax: +81 (29) 228-8405. E-mail: kimura@mito.ipc.ibaraki.ac.jp (11-00). MI, IP, MP, GE, PE, PM, TP,

Knight, Mr. Ronald Lamar, 6394 Duckett Ln, Elkridge MD 21075-6103. Ph: (410) 579-1435. E-mail: rknight@jhsph.edu (12-00). MI, EM, GM, TC, MS,

McAdam, Ms. Amy Catherine, 5101 S Mill Ave Apt 226, Tempe AZ 85282-0000. Ph: (480) 897-1502. E-mail: amcadam@asu.edu (12-00). MI, CC, IP, SP, GE, CM, GM, PM, BM,

Mullen, Ms. Emily K., P.O. Box 1245, Lyman WA 98263-1245. Ph: (360) 826-3165. E-mail: emullen@u.washington.edu (12-00). MI, CC, IP, MP, SP, GE, PE, EG, EM, GM, PM, TC, TP, BM,

Shahar, Ms. Anat, 1002 Smith Manor Blvd, West Orange NJ 7052. Ph: (973) 615-0525. E-mail: as194@cornell.edu (12-00). MI, CC, EM,

Sibley Jr., Mr. Samuel D., Georgia Institute of Technology, Sch of Earth & Atmospheric Sciences, 221 Bobby

Dodd Way, Atlanta GA 30332-0340. Ph: (404) 894-3928. Fax: (404) 894-5638. E-mail: ssibley@eas.gatech.edu (12-00). GE, CM, BM, OTHER, BIOGEOCHEMISTRY

Thomson, Dr. Jennifer A., Eastern Washington Univ, Dept of Geology - SCI 130, Cheney WA 99004-0000. Ph: (509) 359-7478. Fax: (509) 359-4386. E-mail: jennifer.thomson@mail.ewu.edu (11-00). MP,

Vignola, Dr. Pietro, Via Centrale Venina, No. 4, Piateda Sondrio I-23020, ITALY. Ph: +39 (347) 5060638. Fax: +39 (342) 2264651. E-mail: pietro.vignola@provincia.so.it (11-00). MI, IP, MP, GE, EM, TP,

Watson, Ms. Heather C., 2101 Sausse Ave Apt 3A, Troy NY 12180-1734. Ph: (518) 266-9697. E-mail: watsoh@rpi.edu (12-00). MI, CC, PP, IP, MP, GE, PE, GM, PM, MS,

Advertisements in *The Lattice*

The Lattice accepts paid advertisements. Rates:

Ad frequency: 1 time 4 times

Ad type (per insertion)

Full page: \$500 \$400

Half page: \$250 \$200

Quarter page: \$125 \$100

Eighth page: \$75 \$50

Details may be obtained from the MSA Business Office: J. Alex Speer, Mineralogical Society of America, 1015 Eighteenth Street, N. W., Suite 601, Washington D. C. 20036, Telephone: 202-775-4344, Fax: 202-775-0018, E-mail: business@minsocam.org.

Electronic advertisements in tiff or eps formats, or Word (**text only**), can be accepted, and should be sent directly to the MSA Business Office. **Please embed, subset, or include fonts for all eps and PDF files!**

November 2002 Lattice

DEADLINE:

October 18, 2002

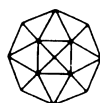
Andrea Koziol: e-mail:

Andrea.Koziol@notes.udayton.edu

Workshop held for MSiG

The MSA Mineral Structures Special Interest Group (MSiG) hosted a workshop entitled "Freely available crystallographic software for mineralogists" during the American Geophysical Union's Spring Meeting in Washington, D.C. The group, which included attendees from academia, industry, government branches and other museums, gathered in the afternoon at the Smithsonian Institution's National Museum of Natural History on Thursday, May 30 to hear some informative presentations by Lachlan Cranswick. Lachlan is the Secretary of the Collaborative Computational Project Number 14 (or CCP14) and maintains a website of freely available programs for crystallography. Aside from publicizing these programs, Lachlan also evaluates the software and writes highly valuable tutorials on their use. A very detailed "how-to" on using Brian Toby's GSAS GUI was also presented at the workshop and certainly brought many of us up to date. Notes from this presentation can be found at the CCP14 website: <http://www.ccp14.ac.uk/index.html> (which is also contained in the list of links on MSA's website). The workshop concluded with a reception in the famous "Blue Room" of the National Gem and Mineral Collection. Cool drinks were enjoyed during a show-and-tell of recent specimen acquisitions.

The Reviews in Mineralogy and Geochemistry volume 36, *Planetary Materials* has been reprinted. There are corrections as well as updating addenda, but the most important difference in this second printing is the figures. The halftone figures have been redone and the book printed on a sheetfed press. The figures are much sharper and richer. The price remains at \$40, and it can be ordered with either the order form that appears elsewhere in this issue (page 15), or online at www.minsocam.org.



NEW

Handbook of MINERALOGY

Anthony • Bideaux • Bladh • Nichols

NEW - NOW AVAILABLE

Vol. IV Arsenates, Phosphates, Vanadates
680 p., 2000 (ISBN 0-9622097-3-2)

AND STILL AVAILABLE

Vol. I Elements, Sulfides, Sulfosalts
588 p., 1990 (ISBN 0-9622097-0-8)

Vol. II Silica, Silicates in two books
904 p., 1995 (ISBN 0-9622097-1-6)

Vol. III Halides, Hydroxides, Oxides
628 p., 1997 (ISBN 0-9622097-2-4)

"...well established as the definitive
reference work in mineralogy..."

P.J. Dunn, Smithsonian Institution

25% MSA member discount
Use MSA order sheet

\$5 REWARD

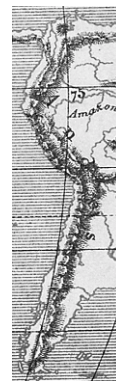
paid for each error found
For details visit mineraldata.com

24th FM-TGMS-MSA Mineralogical Symposium

GEMS AND MINERALS OF THE ANDES MOUNTAINS

in conjunction with the Tucson Gem and
Mineral Show

Saturday February 15, 2003



The twenty-fourth annual Mineralogical Symposium will be held on February 15, 2003 at the Tucson Gem and Mineral Show (February 13-16, 2002). The Friends of Mineralogy (FM), the Tucson Gem and Mineral Society (TGMS), and the Mineralogical Society of America (MSA) cosponsor it. The topic of the symposium is Gems and Minerals of the Andes Mountains, the Tucson Show's theme for 2003. Papers on descriptive mineralogy, paragenesis, classic and new locations, and related subjects about the minerals of the designated region are welcome. An audience of amateur and professional mineralogists and geologists is expected.

Anyone wanting to present a paper should submit a 200 to 300 word abstract to: Dr. Robert B. Cook, Auburn University, Department of Geology and Geography, Auburn University, AL 36849-5305: phone (334) 844-4891; fax: (334) 844-4486, e-mail: cookrob@auburn.edu.

Presentations will twenty minutes, followed by a period for questions. Abstracts must be submitted by September 10, 2002.

Meetings Calendar 2002

2002 September

1–6 Mineralogy for the new Millennium (IMA 2002): 18th general Meeting of the International Mineralogical Association. Edinburgh, Scotland. Details: Dr. Adrian Lloyd-Lawrence, Executive Secretary, Mineralogical Society of Great Britain and Ireland, 41 Queen's Gate, London SW7 5HR, United Kingdom. Phone: 44 171 584 7516. Email: IMA@minersoc.demon.co.uk. Web page: <http://www.minersoc.org/IMA2002>.

2–3 Transport and Flow Processes within Shear Zones: Joint International Research Meeting of the Tectonic Studies Group, Geological Society of London. London, England. Details: Ian Alsop, Crustal Geodynamics Group, School of Geography & Geosciences, University of St. Andrews, Fife, Scotland, KY16 9AL UK. E-mail: gia@st-andrews.ac.uk. Web page: http://www.st-and.ac.uk/~www_sgg/tsg2001.html

9–11 Iron Ore 2002. Perth, Australia. Details: Angie Spry, Publications Coordinator. Fax (03) 9662 3662. e-mail: publications@ausimm.com.au. Web page: http://www.ausimm.com/events/event_writeups/ironore.asp

10–11 Uranium 2002-Uranium deposits from their genesis to their environmental aspects. Prague, Czech Republic. Details: Bohdan Kribeck, Czech Geological Survey, Geologická 6, CZ-152 00 Praha 5, Czech

Republic. Tel., Fax: +420-2-5817390. E-mail: kribeck@cgu.cz. Web page: <http://xrd.cgu.cz/uranium.htm>.

12–14 The Moon Beyond 2002: Next Steps in Lunar Science and Exploration. Taos, New Mexico. Details: David J. Lawrence, Space and Atmospheric Sciences, NIS-1, Mail Stop D466, br. Los Alamos, NM 87545. Phone: (505) 667-0945 Fax: (505) 665-7395. Email: djlawrence@lanl.gov. Web page: <http://www.lpi.usra.edu/meetings/moon2002/>

26–30 Melt Inclusions: Methods, Applications and Problems. Napoli, Italy. Email: info@ersambiente.com. Web page: http://www.dgv.unina.it/convegini/workshop_de_vivo.htm.

October

6–10 The Minerals, Metals & Materials Society 2002 Annual Fall Meeting. Columbus, OH. Details: TMS Programming Department, 184 Thorn Hill Road, Warrendale, Pennsylvania 15086. Tel. (724) 776-9000, ext. 237; fax (724) 776-3770. E-mail: ckobert@tms.org. Web page: <http://www.tms.org/Meetings/Fall2002/Fall2002.html>.

11–14 Mineral Diversity-Research and Preservation. Sofia, Bulgaria. Details: Organizing Committee, Earth and Man National Museum, 4, Cherny Vrah Blvd., 1421 Sofia, Bulgaria. phone (+359 2) 656 639; Fax (+359 2) 661455. E-mail: mindiv@web.bg. Web page: <http://www.lam.mus.ca.us/~smmp/meetings.htm>.

www.lam.mus.ca.us/~smmp/meetings.htm.

27–30 Geological Society of America Annual meeting. Denver, CO, USA. Details: GSA Meetings, Box 9140, Boulder, Colo. 80301-9140. Phone: +1-303-447-2020, ext. 164. Fax: +1-303-447-1133. E-mail: meetings@geosociety.org. Web page: <http://www.geosociety.org/meetings/index.htm>.

December

2-6 Materials Research Society Fall Meeting. Boston, MA USA. Details: Materials Research Society, 506 Keystone Drive, PA 15086-7573, USA. Tel: 724-779-3003. Fax: 724-779-8313. E-mail info@mrs.org. Web page: <http://www.mrs.org/meetings/fall2001/>

6–10 AGU 2002 Fall Meeting. San Francisco, CA, USA. Details: AGU Meetings Department, 2000 Florida Avenue, NW, Washington, DC 20009. Phone: +1-202-462-6900 (in D.C. or outside North America) or 1-800-966-2481 (toll-free in North America). Fax: +1-202-328-0566. E-mail: meetinginfo@agu.org. Web page: <http://www.agu.org/meetings>.

2003 March

2–6 The Minerals, Metals & Materials Society Annual Meeting. San Diego, CA. Details: TMS, Meeting Services, 184 Thorn Hill

Road, Warrendale, PA 15086 USA. Tel: (724) 776-9000 x243; Fax: (724) 776-3700. Email: mtgserv@tms.org. Web page: <http://www.tms.org/Meetings/Annual-03/AnnMtg03Home.html>.

17–21 2003 34rd Lunar and Planetary Science Conference. Houston TX 77058-1113. Phone: 281-486-2188; Fax: 281-486-2125. E-mail: walley@lpi.usra.edu. Web page: <http://cass.jsc.nasa.gov/meetings/lpsc2003/>

April

7–11 2003 EGS-AGU-EUG Joint Assembly. Nice, FRANCE. Details: AGU Meetings Department, 2000 Florida Avenue, NW, Washington, DC 20009 USA. Phone: +1-202-462-6900; Fax: +1-202-328-0566. Email: meetingsinfo@agu.org. Web page: <http://www.agu.org/meetings/>

15–16 The Mineralogical Society Spring meeting. Glasgow University, Scotland. Details: Martin Lee or Tim Dempster. Email: leemarti@earthsci.gla.ac.uk or tjd@earthsci.gla.ac.uk. Web page: <http://www.minersoc.org/pages/meetings/Socspring.htm>.

21–25 Materials Research Society Spring Meeting. San Francisco, CA, USA. Details: Materials Research Society, 506 Keystone Drive, PA 15086-7573, USA. Tel: 724-779-3003. Fax: 724-779-8313. E-mail info@mrs.org. Web page: http://www.mrs.org/meetings/future_meetings.html

May

11–14 AAPG Annual Convention and Exhibition. Salt Lake City, UT. Email: convene@aapg.org. Web page: <http://www.aapg.org/meetings/slc03/index.html>

12–16 GeofluidsIV: Fourth international conference on fluid evolution, migration and interaction in sedimentary basins and orogenic belts. Utrecht, The Netherlands. Details: Mrs. Marielle Hoogendoorn, FBU Congress Bureau, Utrecht University, P.O. 80125, 3508 TC Utrecht, The Netherlands. Fax +31 30 253 58 51. E-mail: m.hoogendoorn@fbu.uu.nl. Web Page: <http://www.nitg.tno.nl/eng/geofluid2.pdf>

May 29–June 1 Geology Without Frontiers: Magmatic and Metamorphic Evolution of the Central European Variscides. Blansko, Czech Republic. Details: Dr. Jaromir Leichmann, No Frontiers, Dept. of Geology and Palaeontology, Masaryk University, Kotlarska 2, 611 37 Brno, Czech Republic. Phone: +420 (5) 41 12 92 61; Fax: +420 (5) 41 21 12 14. e-mail: cgs@mail.natur.cuni.cz.

June

4–15 High Pressure Crystallography. Erice, Italy. Details: Andrzej Katrusiak, Dept of Crystal Chemistry, Adam Mickiewicz University, ul. Grunwaldzka 6, 60780 Poznan, Poland. Phone : +48 61 86 99 181 Fax : +48 61 86 58 008. E-mail: katran@amu.edu.pl. Web page: <http://www.geomin.unibo.it/orgv/erice/highpres.htm>.

7–11 40th meeting of the Clay Minerals Society. Athens, Georgia USA. Details: Paul A. Schroeder, University of Georgia, Department of Geology, Athens, GA 30602-2501, USA. Phone: (706) 542-2384. Email: schroe@gly.uga.edu. Web page: <http://www.gly.uga.edu/CMS2003/>.

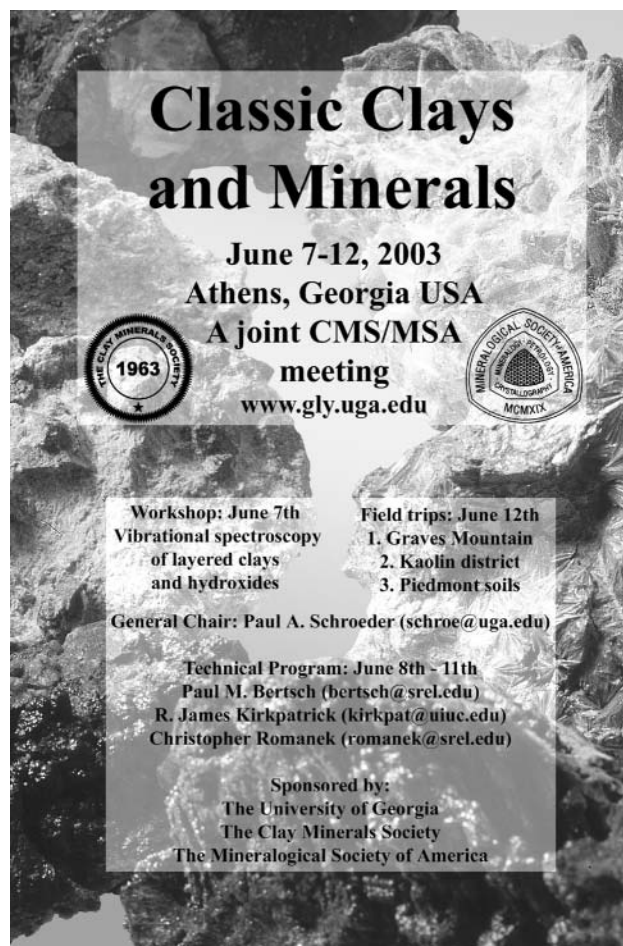
16–18 5th International Conference on the Analysis of Geological and Environmental Materials. Rovaniemi, Finland. Details: Lars-Martin Westerberg, Geological Survey of Finland P.O. Box 1237 FIN-70211 KUOPIO, Finland. Email: Lars.Westerberg@gsf.fi or geoanalysis@gsf.fi. Web page: <http://www.gsf.fi/geoanalysis2003>

22–26 Euroclay 2003. Modena, Italy Details: Maria Franca Brigatti, Dipartimento di Scienza della Terra, Universita di Modena e Reggio Emilia, Largo S. Eufemia 19, 41100 Modena-ITALY. Fax: +39-059-2055887. E-mail: ec2003@unimo.it. Web page: <http://www.unimo.it/euroclay2003/>.

22–27 8th International Kimberlite Conference. Victoria, British Columbia, Canada. Details: Dr. Roger H. Mitchell, Geology Department, Lakehead University, Thunder Bay, Ontario, Canada P7B 5E1. Phone. 807-343-8287, Fax 807-623-7526. E-mail: Roger.Mitchell@lakeheadu.ca. Web page: <http://www.venuewest.com/8IKC>

IN MEMORIAM

Paloa Gallitelli (Life Fellow–1950)
Lloyd W. Staples (Life Fellow–1934)



Classic Clays and Minerals

June 7-12, 2003
Athens, Georgia USA
A joint CMS/MSA meeting
www.gly.uga.edu

1963 THE CLAY MINERALS SOCIETY

MINERALOGICAL SOCIETY OF AMERICA MCMXXIX

Workshop: June 7th
Vibrational spectroscopy of layered clays and hydroxides

Field trips: June 12th
1. Graves Mountain
2. Kaolin district
3. Piedmont soils

General Chair: Paul A. Schroeder (schroe@uga.edu)

Technical Program: June 8th - 11th
Paul M. Bertsch (bertsch@srel.edu)
R. James Kirkpatrick (kirkpat@uiuc.edu)
Christopher Romanek (romanek@srel.edu)

Sponsored by:
The University of Georgia
The Clay Minerals Society
The Mineralogical Society of America

America's oldest popular magazine about minerals

Amateurs as well as professional scientists delight in and pore over *Rocks & Minerals*, which has published articles on mineralogy, geology, and paleontology since 1926. Regular departments explore such topics as minerals for the collector, microminerals, and current geologic events. Detailed lists of collecting opportunities in specific localities appear periodically, as do special theme issues. Spectacular color photographs appear throughout each issue. *Rocks & Minerals* works with the Mineralogical Society of America to promote cooperation between collectors and professional mineralogists.

Recent articles include:

- *Mineralogy of Point Prospect*, Keweenaw County, Michigan
- *The Rogerley Mine*, Weardale, County Durham, England
- *Mineralogy, Geology, and Mining History of the Telluride District*, San Miguel County, Colorado
- *The Geological Museum*, Johannesburg, South Africa
- *Mineral Collecting in Russia*

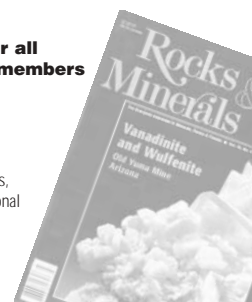
Special Offer

15% off a one-year subscription for all Mineralogical Society of America members
call (800) 365-9753



Rocks & Minerals is published by Heldref Publications, a division of the nonprofit Helen Dwight Reid Educational Foundation.

www.heldref.org
www.rocksandminerals.org



Short Course Announcement

**Applications of Synchrotron Radiation in
Low-Temperature Geochemistry and Environmental Science**

Monterey, California, Dec. 4–5, 2002

Time: Reception Tuesday evening, Dec. 3; short course Wednesday and Thursday, Dec. 4 and 5, 2002. The 2002 Fall Meeting of the American Geophysical Union is in San Francisco from Dec. 6–10, 2002.

Conveners: *Paul Fenter*, Argonne National Laboratory (fenter@anl.gov), *Mark Rivers*, University of Chicago (rivers@cars.uchicago.edu), *Neil Sturchio*, University of Illinois at Chicago (Sturchio@uic.edu), *Steve Sutton*, University of Chicago (Sutton@cars.uchicago.edu)

Registration: Registration will be handled by *The Geochemical Society* Business Office. The cost will be \$200 per professional registrant (reduced to \$100 per student) for registration before October 15, 2002. See the short course web site for more details and to register (<http://cars.uchicago.edu/shortcourse2002/>)

Practical: Registration fee includes short course sessions, refreshments at Tuesday evening reception, breakfast, lunch, and refreshments at breaks on Wednesday and Thursday, Wednesday evening banquet, and a copy of the *Reviews in Mineralogy and Geochemistry* volume. Transportation will be arranged to the Fall AGU meeting in San Francisco after the short course for those who request it. Short course participants should arrange their stay at the DoubleTree Hotel-Monterey (<http://doubletreemonterey.com/>) Tuesday and Wednesday night, where a block of rooms is reserved at a special rate for the short course.

Rationale: The powerful applications of synchrotron radiation in geochemistry and environmental science began to be realized about two decades ago. With the advent of third-generation synchrotron radiation sources in Europe, North America, and Japan, significant progress has been achieved in the development and application of synchrotron methods to geological and environmental materials. There has been exponential growth in the number of synchrotron users from the earth and environmental science communities. This Short Course is designed to fill the need for a comprehensive, in-depth review of the underlying theory and application of various synchrotron radiation methods as they pertain specifically to geochemical and environmental science applications.

Speakers:

Mark Rivers, University of Chicago
Gordon E. Brown, Jr., Stanford University
Paul Fenter, Argonne National Laboratory
Michael J. Bedzyk, Northwestern University
Glenn A. Waychunas, Lawrence Berkeley National Laboratory
Carol Hirschmugl, University of Wisconsin at Milwaukee
Satish Myneni, Princeton University
Paul M. Bertsch, Savannah River Ecology Laboratory
Alain Manceau, University of Grenoble
Steve Sutton, University of Chicago

Sponsors: U. S. Department of Energy, Argonne National Laboratory

President's Letter, Continued from page 3

London. Based on my visit of just a year ago, I doubt that the Sedgwick Museum is much changed since his death in 1923, and this is all to the better. **John Casper Branner** (1850-1922) passed away in Palo Alto having been a Professor of Geology and President at Stanford University. As a graduate student, I spent many hours in the Branner Library at Stanford and have just co-authored a paper on the enthalpies of formation of brannerite phases. This little-known mineral is an important phase in waste forms considered for plutonium immobilization. **Herbert Thomas Burls** (1856-1924) was inquiring after his missing copy of the *Mineralogical Magazine* just five days before his death in 1924. What computer system can keep such details of our subscriptions today? **Grenville Arthur James Cole** (1959-1924) published a note in *Nature* shortly before his death on the spelling of Feldspar *versus* Felspar, recommending that in the Irish Free State the former should be followed, as in America and Australia, leaving Felspar to the British. I wonder if Cole considered impact factors when submitting his paper to *Nature*? **Petr Iustinovich Grishchinsky** (?-1920), an Assistant in Mineralogy at the University of Kiev, served in the sanitary corps during the War, and died of typhus at Pyatigorsk in the Caucasus. The only woman to appear in the list is **Silvia Hillebrad** (?-1923), daughter of G. Tschermak. Her paper (1913) on the analyses of aegerine and babingtonite is described as giving "no definite result", a strange comment for this brief obituary. **Gustavus Detlef Hinrichs** (1836-1923) developed a theory on the unity of matter, calling the primitive materials "pantogen". **Kotora Jimbo** (1867-1924) studied in Berlin in 1892, with C. Klein. "He was of a charming and jovial disposition and (for a Japanese) remarkable for his large stature. With a liver complaint, he was in the University hospital in Tokyo since August 1923, and, surviving the earthquake of September, he died on January 18, 1924." **Auguste Ledoux** (1887-1918) volunteered for the War and was wounded at Liège. "Being subject to fits, he met a sudden death by drowning in a bath at Sudbury, Ontario." **Wallace Goold Levinson** (1846-1924), a graduate of Harvard in 1870, was the first editor in 1916 of the *American Mineralogist*. **Gustaf Lindström** (1838-1916) was largely instrumental in bring together the relics of J.J. Berzelius to create the Berzelius Museum in the Swedish Academy of Sciences. He also described the new species blomstrandine, a mineral that I included in a statistical classification of Nb-Ta-Ti oxides (*Canadian Mineralogist*, 1976) that has only been cited 15 times, and the majority are self-citations. **Robert Mauzelius** (1864-1921) "wrote a few papers, under his own name, . . . but the bulk of his careful analytical work appeared in the papers of other authors [mainly Sjögren, see below]. . ." The entry for **Wilhelm Conrad von Röntgen** (1845-1923) describes his accidental discovery of X-rays and their importance in investigating the internal structures of minerals, but noted "Röntgen himself has taken no active part in this work. . ." Instead,

the description of Röntgen's work emphasized his studies of the electrical properties of crystals, such as the first observation of the change in birefringence of quartz in an electric field. The "Rosiwal method" developed by **August Karl Rosiwal** (1860-1923) is described as a method of "geometrical rock analysis" with the admonition, "This method has been adopted by many authors, and beautiful columns of figures to two places of decimals may unfortunately be readily mistaken for real chemical analyses, especially when published in a paper in some strange language." **Sten Ander Hjalmar Sjögren's** (1856-1922) paper in 1885 "On the physical and geometrical properties of graphite . . . remains the best paper on the crystallography of graphite". Most notably he resigned his professorship at the University of Upsala in 1894, having become a wealthy man "by marrying Ludvig Nobel's daughter". **Horace Vaughn Winchell** (1865-1923) was part of the distinguished family of Winchells in Michigan. His brother, Alexander N. Winchell, was a Professor of Geology at the University of Michigan, and his picture still hangs in the room where faculty meetings are held. The brothers co-authored *Elements of Optical Mineralogy*, a volume on my shelf and still a very useful reference. Alexander Winchell built an octagon house in Ann Arbor, a style that enjoyed some popularity during the second half of the 19th Century. The house had three stories with a central spiral staircase, but it was razed in 1904 to make room for campus expansion.

As my flight landed in Detroit, this thin volume left me with two impressions. First, there is a historical fabric to our science, and no matter how sophisticated our present efforts, there is always some distant personality who first touched the subject. This historical perspective brings some much-needed humility to our own "modern" efforts. Second, it is just over 75 years since this volume was published, approximately the same time as the present life expectancy. This means that within each lifetime, the changes in our science will be so great that the future can hardly be imagined. Still, most of us construct our careers around the assumption that not much will change, and for those of us who are educators, we design courses and curricula with little space or preparation for these future changes.

A special thanks to Frannie Skomurski and Chris Palenik for compiling information on the present mortality rates for mineralogists. I remain amazed at what students will do when asked.

**RIMGs =
Reviews in Mineralogy and
Geochemistry
see order form on page 16
or go to
<http://www.minsocam.org>**

**Coming in the *American Mineralogist*:
LETTERS**

- 1257 Natural occurrence of Fe₂SiO₄ -spinel in the shocked Umbarger L6 chondrite**
Zhidong Xie, Naotaka Tomioka, and Thomas G. Sharp
- 1261 Structural refinements of magnesite at very high pressure**
Guillaume Fiquet, François Guyot, Martin Kunz, Jan Matas, Denis Andrault, and Michael Hanfland

ARTICLES

- 1029 Evidence for magmatic vapor deposition of anhydrite prior to the 1991 climactic eruption of Mount Pinatubo, Philippines**
Ryan T. Jakubowski, John Fournelle, Sue Welch, R. J. Swope, and Patrick Camus
- 1046 Experimental and modeled solubilities of chlorine in aluminosilicate melts, consequences of magma evolution, and implications for exsolution of hydrous chloride melt at Mt. Somma-Vesuvius**
James D. Webster and Benedetto De Vivo
- 1062 Temperature-induced Al-zoning in hornblendes of the Fish Canyon magma, Colorado**
Olivier Bachmann and Michael A. Dungan
- 1077 Analytical techniques for volatiles: A case study using intermediate (andesitic) glasses**
P.L. King, T.W. Vennemann, J.R. Holloway, R.L. Hervig, J.B. Lowenstern, and J.F. Forneris
- 1090 Anomalous optical properties of fibrous tremolite, actinolite, and ferro-actinolite**
Jennifer R. Verkouteren and Ann G. Wylie
- 1096 Protoanthophyllite from three metamorphosed serpentinites**
Hiromi Konishi, István Dódoný, and Peter R. Buseck
- 1104 Synthesis of beryllian sapphirine in the system MgO-BeO-Al₂O₃-SiO₂-H₂O and comparison with naturally occurring beryllian sapphirine and khmaralite. Part 1: Experiments, TEM, and XRD**
A.G. Christy, Y. Tabira, A. Hölscher, E.S. Grew, and W. Schreyer
- 1113 Intersite distribution of Fe²⁺ and Mg in the spinel (sensu stricto)-hercynite series by single-crystal X-ray diffraction**
Giovanni B. Andreozzi and Sergio Lucchesi
- 1121 Structural relationships in (Mn_{1-x}Zn_x)Mn₂O₄ (0 ≤ x ≤ 0.26): The "dragging effect" of the tetrahedron on the octahedron**
Ferdinando Bosi, Sergio Lucchesi, and Antonio Della Giusta
- 1128 The grid-work texture of authigenic microcrystalline quartz in siliceous crust-type (SCT) mineralized horizons**
Gianfranco Camana, Daniel Chateigner, Michele Zucali, and Gilberto Artioli
- 1139 The crystal structure of ykanite-(Ce), a borosilicate showing an unusual (Si₃B₃O₁₈)¹⁵⁻ polyanion**
Paolo Ballirano, Athos Callegari, Franca Caucia, Adriana Maras, Fiorenzo Mazzi, and Luciano Ungaretti
- 1144 Submicrometer optical characterization of the grain boundary of optically active Cr³⁺ doped polycrystalline Al₂O₃ by near-field spectroscopy**
Yoshihito Narita and Hiroshi Murotani
- 1148 High-temperature, high-pressure optical spectroscopic study of ferric-iron-bearing tourmaline**
Michael N. Taran and George R. Rossman
- 1154 Infrared and Mössbauer study of Brazilian tourmalines from different geological environments**
Ester Figueiredo De Oliveira, Cristiane Castañeda, Sigrid Griet Eeckhout, Messias Menezes Gilmar, Rogério Ribeiro Kwitko, Eddy De Grave, and Nilson Francisquini Botelho
- 1164 Isothermal compression of staurolite: A single-crystal study**
Paola Comodi, Michela Montagnoli, Pier Francesco Zanazzi, and Tiziana Boffa Ballaran
- 1172 Equation of state measurements of chlorite, pyrophyllite, and talc**
A.R. Pawley, S.M. Clark, and N.J. Chinnery

AND MANY MORE!

A Most Comprehensive Photo CD!

The Photographic Guide to Mineral Species.

An astounding 5400 photographs depicting 3100 different mineral species are pictured in this remarkable CD, four times the number of different minerals seen in any other product! Completely hyperlinked among species names, localities and associations, this outstanding photographic record captures many of the rarely seen, frequently overlooked phases in the mineral kingdom. An invaluable teaching aid and reference work, this multi-featured, dual platform CD will operate in both Windows and Mac operating systems! Only **\$69.95 plus \$5.00 shipping.**

The Finest New Books!

Lovozero — by Dr. Igor Pekov.

A comprehensive study of the history, geology and mineralogy of this prolific area of the Kola Peninsula, with nearly 500 pages and fully illustrated with hundreds of color and b/w photos, maps and drawings. Hardcover volume, superbly done, just **\$79.00 plus \$8.00 surface shipping.**

Langban — Mines, Minerals, Geology & Explorers.

A superb 215+ page hardcover book printed on exquisite heavy stock that tells the complete story of this prolific Swedish mineral locality. Filled with excellent color photos as well as black and white images of the rich mineralogy and history of this famous area, this book is a long-awaited masterpiece of regional mineralogy that every library should have! Full descriptive mineralogy of the hundreds of species that occur there, with a marvelous historical treatment! Large format (30 x 22 cm), superb printing quality. **\$75.00 plus \$7.00 surface shipping.**

The Best Database! Now on CD!

The Fersman Museum Mineral Database.

This excellent software product is a comprehensive database of all approved mineral species. Information for each mineral includes chemistry, mineral group, X-ray data and space group, optical data, other physical properties as well as type locality and literature references! Most importantly, every field or combination of fields is fully searchable! This DOS-based program works well in any Windows environment with an IBM-compatible system. With full installation package and instruction guide, this excellent software is just **\$99.00 plus \$5.00 shipping.**

Use your Visa, MasterCard, or American Express card for immediate shipment!

Excalibur Mineral Company

1000 North Division Street, Peekskill, NY 10566

Tel: (914) 739-1134 Fax: (914) 739-1257

E-mail: order@excaliburmineral.com

Website: www.excaliburmineral.com

Information Form for the *Earth Sciences Speakers Directory*

Yes! I want to advance the public's knowledge of the importance of minerals and the earth sciences. I am willing and able to speak to mineral clubs, Scout groups, museums, schools, etc., about the earth sciences. Please add me to the *Earth Sciences Speakers Directory*. PLEASE TYPE OR PRINT CLEARLY.

Full Name (Title, First, Middle, Last): _____

Affiliation: _____

Primary Address: _____ **2nd address:** _____

City: _____ **City:** _____

State/Prov: _____ **ZIP:** _____ **State/Prov:** _____ **ZIP:** _____

Country: _____ **Country:** _____

Phone: _____ **Phone:** _____

FAX: _____ **FAX:** _____

Email: _____ **Email:** _____

WEB: _____ **WEB:** _____

Professional Background:

Degree/year: _____ **Major:** _____ **College/Univ:** _____

Current / most recent employer: _____ **Title:** _____ **Retired?** _____

Professional societies: ☐ MSA ☐ FM ☐ GSA ☐ SEG ☐ SME ☐ Other: _____

Topics and Titles of talks, programs, and/or demonstrations which I can give:

Topic Title of Talk (e.g. *Topic* = "Volcanoes", *Title* = "Minerals from Mt. St. Helens")

_____	_____
_____	_____
_____	_____
_____	_____

Please list up to 3 articles you have authored about which you'd be willing to talk to the public:

I'm willing and interested in speaking to the following types of groups:

- ☐ General public ☐ Rock & Mineral clubs ☐ Gem & Mineral shows ☐ Museum groups
☐ Grade schools ☐ High schools ☐ Professional groups ☐ Youth groups (Scouts, etc.)
☐ Other: _____

Do you require:

Honorarium? ☐ Yes ☐ No ☐ No, but I'd like one! How much? \$ _____

Travel expenses? ☐ Yes ☐ No I'm am not willing to travel more than _____ miles from my home.

Equipment? ☐ Slide projector ☐ Overhead projector ☐ Video player ☐ Video projector

I am willing to have the information above listed in the Earth Sciences Speakers Directory.

Print Name: _____ **Signature:** _____ **Date:** _____

Send completed forms to: Dr. Andrew Sicree (Director, Penn State Univ. Museum), Attn: Speaker's Directory, PO Box 10664, State College, PA 16805. Call (814) 865-6427 or email <sicree@geosc.psu.edu> for more info. Please feel free to add additional comments and/or materials such as bio., CV, clippings, other work and speaking experience.

I nternational C entre for D iffraction D ata

Serving the Scientific
Community for over Sixty Years



PDF-4/Minerals 2002

More Data

More Savings

More Software

More Capability

“More with PDF-4”

The PDF-4 product line offers total pattern analysis with unprecedented power to do full data mining with Boolean searches of all data fields.

Featuring

- ▼ 17,022 mineral entries
- ▼ Lower cost per pattern
- ▼ Awesome data mining capability
- ▼ Integrated retrieval and full pattern display software
- ▼ 460 distinct mineral classes
- ▼ 5,020 entries with optical property references
- ▼ 8,803 I/I_c entries

Purchase the Mineral Powder Diffraction File Data Book & Search Manual along with the first year's license for PDF-4/Minerals 2002 and save 25%. You will receive the power of the PDF-4 along with the handy reference set.



Visit us at www.icdd.com



Phone: 610.325.9814 ▼ Fax: 610.325.9823 ▼ info@icdd.com

ICDD, the ICDD logo, and PDF are registered trademarks of the JCPDS—International Centre for Diffraction Data.
PCPDFWIN is a trademark of the JCPDS—International Centre for Diffraction Data.

7/2002

NEED PORTABILITY?

*"THE MINIFLEX™ ...
provides Portable X-ray Diffraction"*



Instant information is what everyone wants. From drilling platforms to laboratory desktops, Rigaku's Miniflex™ lets you identify compounds immediately and locally. Difficult problems? Data can be e-mailed to your offsite analytical laboratory. No analytical laboratory? Let Rigaku's contract services help.

**Rigaku
MSC**

www.RigakuMSC.com
phone: 281-363-1033
fax: 281-364-3628
e-mail: info@RigakuMSC.com

The Miniflex™ is made for rugged environments. Miniflex's™ are found at mine sites, in pick-up trucks for mobility, glove boxes for isolation and under graduate laboratories. The low cooling requirements and 110 V operation makes it ideal for portable power units. With an outstanding cost-to-performance ratio the Miniflex™ provides data when you need it.



1015 Eighteenth Street NW Ste 601
Washington, DC 20036-5212

RETURN SERVICE REQUESTED

NON-PROFIT ORG.
U.S. POSTAGE PAID
PERMIT NO. 4450
DAMASCUS, MD