



Mineralogical Society of America

www.minsocam.org

PRESIDENT'S LETTER



MSA at a Crossroads

Leading this historic and influential scientific society is a great honor, and a daunting task. As the 93rd president, following names like Kraus (1920), Winchell (1932), Bowen (1937), Buerger (1947), Hess (1955), Thompson (1968), and too many extraordinarily eminent scientists in the latter decades to list here, one is completely humbled.

Then you realize, as does every president of every society, that there is much work to be done. Now well into the 21st century, with science and technology seemingly advancing at the speed of light and with much of what the world has to offer at our fingertips, you can be sure of at least two things: if you make measured and incremental progress, you will eventually be passed, and if you stop to catch your breath, you will be passed quickly.

I have been a member of MSA for three and a half decades, and I'm still in my fifties. That means that I spent my formative years as a scientist (a.k.a. my graduate school years, plus about 10 more) growing up in MSA and in the fields that it represents. However, even in those days, and continuing until today, I have spent just as much time in the physics, chemistry, and biology literature as I have in the Earth science literature, which perhaps explains why I have been placed, for better or worse, on advisory committees that help oversee federally funded science in all these fields. From this vantage point, I have noticed a disturbing thing. Despite its triumphs, and there are several, MSA has not kept up a pace necessary to truly flourish in today's lightning-fast scientific environment. A sign: many of the world's most influential mineralogists publish only sparingly in MSA's flagship journal, *American Mineralogist*, if at all. A symptom of this is that the journal's impact factor is lower than it should be. Another sign: whereas many scientific societies have grown in membership, some dramatically, MSA membership has been relatively flat for 40 years. And another sign: many mineralogists complain that optical mineralogy is only rarely taught these days and, more importantly, that many university mineralogy courses have been dropped altogether.

At the same time, people in the developed world are demanding more (and sometimes less) from science. Developing the next "miracle" drug or field-deployable bio-hazard sensor may be all the rage, not to mention developing faster, cheaper, and even-more-miniaturized electronics using nanoscience wizardry. But great segments of society could definitely do without some areas of science, for example, climate change research, new evolutionary biology insight, and research involving stem cells. Voters elect politicians, politicians fund agencies, and agencies fund science. Whether we like it or not, we are tied to the rank-and-file voter, more than ever. And if you haven't noticed, doing science for the sake of science is out. Practicality is in. Relevance is in. Solving critical problems is in. Cost recovery would be nice too. Besides, we have just surpassed seven billion people on this planet, a total roughly three times higher than when today's senior citizens were born! Social issues are overwhelming everything else, really.

Where does this leave mineralogy? Actually, everywhere, in a science that is highly relevant and, by any measure, interdisciplinary and in its early stages of development. The massive store of mineral dust in the atmosphere provides radiative forcing (heating and cooling) and catalytic substrates for gaseous reactions that help drive Earth's surface temperature and atmospheric chemistry. Bacteria, representing the great majority of Earth's biomass, depend on minerals as much as fluids, and many minerals depend on bacteria. The primary CO₂ consumers on the planet, the phytoplankton of our vast oceans, need key trace

nutrients that are highly insoluble in seawater but readily abundant in minerals shed from the continents. The rare earth elements needed for modern electronics are derived from, of course, minerals. An intimate knowledge of many minerals is necessary in several aspects of contaminant transport, both down the street and around the world. And still, exotic and very useful materials properties are often first observed in mineral analogues. Energy propagation through minerals relates to everything from seismicity to Earth's internal heat engine. Gems are inherently and emotionally invaluable to humans, something that will never change, and the science behind them has a long way to go. And the list goes on and on and on.

How can MSA better reflect the fact that the study of minerals is literally more important than ever before, even by today's accountability standards? There are many ways, including changes that can be made to *American Mineralogist*, adding key new relationships with other societies, and lengthening terms for officers so that they can be around long enough to shepherd substantial programs through the system. These I will discuss in this column as my presidential year goes along. In the meantime, we will all be hard at work. Stay tuned.

Michael F. Hochella Jr. (Hochella@vt.edu)
MSA President

NOTES FROM CHANTILLY

- MSA announced its 2012 award recipients at the 2011 Annual Meeting in Minneapolis, Minnesota, USA. The Roebling Medal is awarded to **Harry W. Green II** of the University of California at Riverside, the Dana Medal (for 2013) to **Max W. Schmidt** of the ETH Zürich, and the MSA Award to **Karim Benzerara** of the Centre National de la Recherche Scientifique (CNRS) and the Institute of Mineralogy and Physics of condensed matter (IMPMC). The new Fellows of the Society are **Udo Becker**, **Michael Robert Carroll**, **Giacomo Diego Gatta**, **Shun-ichiro Karato**, **Dominique Lattard**, **Hanna Nekvasil**, **Tracy Rushmer**, **Jing-Sui Yang**, and **Tzen-Fu Yui**.
- The 2012 recipients of the research grants in mineralogy and petrology from MSA's Mineralogy/Petrology Research Fund are **Jessica A. Matthews**, Colorado School of Mines, for "Testing the Usefulness of Oxygen Isotope Signatures from Zircon Grown in Migmatites: Mt Stafford, Central Australia," and **Johnbull Otah Dickson**, Washington State University, for "Characterization of Peritectate Aluminosilicate Mineral Phases and the Stability of Tc-99 to Ion Exchange in the Presence of Competing Ions." The 2012 recipient of the research grant in crystallography from the Edward H. Kraus Crystallographic Research Fund is **Joshua Paul Townsend**, Northwestern University, for "Extra-solar Planetary Mineralogy: The Role of H₂O in Crystal Structures."
- All 2010 and 2011 MSA members have been contacted by mail, electronically, or both about renewing their membership for 2012. If you have not renewed your MSA membership, please do so. If you have not received a notice by the time you read this, please contact the MSA business office. You can also renew online at anytime.

J. Alex Speer (jaspeer@minsocam.org)
MSA Executive Director

IN MEMORIAM

ROBERT J. GUNTORPE – Member, 1973

HARRISON CORBIN VAN COTT – Member, 1946

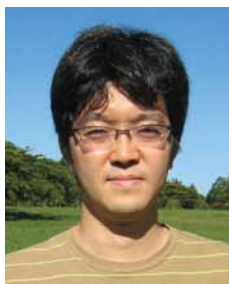
JAMES B. THOMPSON – Fellow, 1950

AWARDEES AT THE 2011 ANNUAL MEETING



At this year's meeting in Minneapolis, Minnesota, **Dr. Juhn G. Liou**, Stanford University, Stanford, California, received the 2011 Roebling Medal, given for a lifetime of outstanding original research in mineralogy. Dr. Liou pioneered work on the formation conditions of several important hydrous silicates that dominate low-grade metamorphic and hydrothermally altered rocks. More recently, in studying orogenic belts in China and the former USSR, Dr. Liou discovered microinclusions of dense, ultrahigh-pressure (UHP) polymorphs of SiO_2 (coesite) and C (diamond) enclosed in tough, refractory container minerals, thus demonstrating the burial of continental crust to astounding depths of more than 120 km. He has also identified multiminerall aggregates that are now interpreted to represent the bulk compositions of even more deeply buried UHP minerals, such as K- and/or Si-rich clinopyroxene, majorite, wadsleyite, and a PbO_2 -type polymorph of TiO_2 . Normally the trip back to the surface for such deep rocks results in mineral back-reactions and nearly complete obliteration of the UHP minerals during decompression. Thus the ability to recognize these earlier minerals adds significantly to our understanding of how the Earth works.

The Mineralogical Society of America Award is given for outstanding contributions by a scientist beginning his or her career. **Dr. Motohiko Murakami** of Tohoku University received the 2011 MSA Award for his discovery that MgSiO_3 -perovskite, the most abundant component of the lower mantle, transforms to a "post-perovskite" phase under P - T conditions corresponding to the D'' region, just above the core-mantle boundary. The stability relations of this phase give the potential to determine temperatures in D'' , the only anchor point for the geotherm in the lowermost mantle. Dr. Murakami's accomplishments also include providing evidence that lower mantle perovskite phases and $(\text{Mg,Fe})\text{O}$ can contain significant amounts of water and discovering a new ultrahigh-pressure amorphous phase of SiO_2 , which suggests that melts in the lowermost mantle are probably denser than previously thought, causing them to sink.



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AMERICAN MINERALOGIST SPECIAL COLLECTIONS

THE JOURNAL PUBLISHES SPECIAL THEMATIC SECTIONS. THESE CAN COMPRISE ALL-NEW ARTICLES, COLLECTED ARTICLES FROM PAST ISSUES, OR BOTH.

Recent themes

Minerals in the Human Body, Mineralogy and the Nuclear Industry, Amorphous Materials, Petrologic Mineralogy: Guidotti Memorial, Microbeam Cathodoluminescence, Planetary Materials, W.G. Ernst Commemorative Issue, Monazite Geochronology, Clathrate Hydrates

See the View Special Issues links for the *American Mineralogist* on the GeoScienceWorld and MSA websites.

NOMINATIONS SOUGHT FOR 2013 AWARDS

Nominations must be received by June 1, 2012

The **Roebling Medal** is MSA's highest award and is given for eminence as represented by outstanding published original research in mineralogy.

The **Dana Medal** recognizes continued outstanding scientific contributions through original research in the mineralogical sciences by an individual in the midst of his or her career.

The **Mineralogical Society of America Award** is given for outstanding published contribution(s) prior to the 35th birthday or within 7 years of the PhD.

The **Distinguished Public Service Medal** is presented to an individual who has provided outstanding contributions to public policy and awareness about mineralogical topics through science.

Society **Fellowship** is the recognition of a member's significant scientific contributions. Nomination is undertaken by one member with two members acting as cosponsors. Form required, contact committee chair or MSA home page.

MINERALOGICAL SOCIETY OF AMERICA

Submission requirements and procedures are on MSA's home page:
<http://www.minsocam.org/>

THE MINERALOGICAL SOCIETY OF AMERICA

2013 Grants for

Research in Crystallography

*from the Edward H. Kraus Crystallographic Research Fund
with contributions from MSA membership and friends*

Student Research in Mineralogy and Petrology

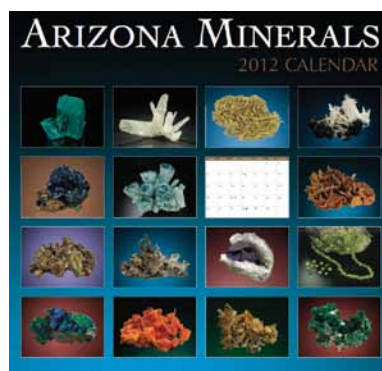
from an endowment created by MSA members



Selection is based on the qualifications of the applicant, the quality, innovativeness, and scientific significance of the research as judged from a written proposal, and the likelihood of success of the project. There are three US\$5000 grants with no restrictions on how the funds may be spent, as long as they are used in support of research. Application instructions and online submission are available on the MSA website, <http://www.minsocam.org/>. Completed applications must be submitted by June 1, 2012.

2012 CALENDAR

Arizona Minerals



Arizona was granted statehood on February 14, 1912. This calendar is part of a community-wide Centennial tribute to Arizona's minerals and mines and to their champions. Published by Lithographie, LLC, in cooperation with MSA and Martin Zinn Expositions, it is available from MSA, <http://www.minsocam.org/>.