



# Mineralogical Society of America



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## PRESIDENT'S LETTER

### MSA at 100: The other IMA and ...



Mickey Gunter

I write this letter a few days after returning from MSA's Centennial (discussed on the next page). The first session at that meeting discussed mineral resources, to which we could relate to "IMA". To a mineralogist, the "IMA" means the International Mineralogical Association; however, there's another meaning closely related to what many of us do: the Industrial Minerals Association (<https://www.ima-na.org>). This latter association is an umbrella organization that helps industry to provide the very materials we use daily. Some of these minerals are familiar to all of us (e.g., feldspars, talc), while others are less well known (e.g., barite, wollastonite). Regardless, in developed countries, we consume about 130 pounds of these minerals per day per person. And, while the 842 pounds of lunar material returned to Earth during the Apollo missions may provide more

excitement than the approximately 70 million tons of industrial minerals we use in the USA yearly, the latter are much more important for daily lives.

Over my career, I have worked on projects dealing with several industrial minerals, from aluminosilicates used as refractories, to zeolites used in water purification systems and radioactive waste treatment. I viewed this research as proactive and positive with the potential to help society. Over the past 10–20 years, my efforts in this field have turned more to defending this industry against the claims of purported asbestos content of their products. Asbestos contamination of commercial products is most certainly of concern, but what is critical in this area is something as straightforward as the correct identification of common rock-forming minerals. For example, shards of talc are often misidentified as anthophyllite asbestos because their Mg/Si ratios (3/4 versus 7/8, respectively), easily overlap in semi-quantitative energy dispersive X-ray spectroscopy (EDS) spectra. Also, both talc and anthophyllite yield a 5.2 Å repeat in electron diffraction, where that repeat is used to "prove" a particle is an amphibole in routine asbestos methods. The last talk of the MSA Centennial session gave several examples of incorrect identification being used against industry in the ongoing talc litigation. We also hear in these cases that miners apparently cannot tell talc from country rock, so the talc gets "contaminated." Somehow, I do not think that would be the situation in the above photo of me pointing to the contact between talc and country rock in an active underground talc mine.

While many reading this article might find this hard to believe, you will find it harder to believe the following statements I have read in legal and regulatory reports: anthophyllite and chesterite are polymorphs; one cannot distinguish monoclinic from orthorhombic amphiboles by electron diffraction; or better (worse) yet, that amphiboles cannot be distinguished from pyroxenes in soils. In Chapter 19, "Mineral Identification", of the book *Mineralogy and Optical Mineralogy* (Dyar, Gunter and Tasa, 2008, Mineralogical Society of America) we state, when handed a mineral, "Do you want me to guess what it is or tell you? If you want me to tell you, it will take a little work, but we'll know for sure." Our community can correctly identify minerals with the appropriate choice of analytical methods.

The final participant comment in the last session in DC was a plea that we "take back mineralogy." This was a fitting way to end the meeting. But how do we do this? It should be clear from my above comments that mineral misidentification is a common practice in the "real world." Perhaps it is time we mineralogists consider professional licensing, as exists for geologists, engineers, and many other fields. No doubt both of the IMAs can support this to aid in something as simple as proper mineral identification.

**Mickey Gunter**  
2019 MSA President

## NOTES FROM CHANTILLY

- Miss the Centennial Symposium? Videos of the lectures have been posted online. Visit the MSA Centennial website for the links <[http://www.minsocam.org/MSA/Centennial/MSA\\_Centennial\\_index.html](http://www.minsocam.org/MSA/Centennial/MSA_Centennial_index.html)>.
- MSA will continue to celebrate its Centennial Year at the GSA Meeting in Phoenix (Arizona, USA) on Monday, 23 September 2019 with an all-day session entitled "MSA at 100: Reflections, Refractions, Diffractions, Intrusions, Subductions, Reactions, etc." from MSA Past Presidents. The session will be chaired by MSA President Mickey Gunter and will include the Presidential Address. In addition to the MSA Past Presidents' all-day session, there are two more sessions to mark MSA's Centennial year:
  - T28. "Mineralogical Society of America at 100: The Many Faces of Tourmaline—From Crystallographic Complexity to Recorder of Crustal Evolution." ORGANIZERS: Darrell J. Henry, Barbara L. Dutrow.
  - T24. "Metamorphic Petrology Past, Present and Future: Preparing for the Next 100 Years with the Mineralogical Society of America." ORGANIZERS: Robert M. Holder, Mark J. Caddick, Sarah C. Penniston-Dorland.
- MSA at the Geological Society of America (GSA) will also include its Awards Luncheon; Awards Lectures; Joint Reception of the MSA, the Geochemical Society, and GSA's Mineralogy, Geochemistry, Petrology, and Volcanology (MGPV) Division; Annual Business Meeting; Council Meeting; Past Presidents Breakfast; and a booth in the exhibit hall.
- The MSA Awards Lunch is Tuesday, 24 September 2019 for presentation of the Roebling Medal to Peter R. Buseck (Arizona State University, USA); Dana Medal to Matthew J. Kohn (Boise State University, Idaho, USA); Distinguished Public Service Medal to Rodney C. Ewing (Stanford University, California USA); 2019 MSA Award to Olivier Namur (University of Leuven, Belgium); and the 2018 MSA Award to Laura Nielsen Lammers (University of California-Berkeley, California USA). The MSA Awards Lectures are the same day, beginning at 3 PM. The MSA Annual Business Meeting is at 5 PM, followed by the MSA/GS/MGPV Joint Reception from 5:45 PM to 7:30 PM.
- Topical sessions have been proposed for awardees:
  - T26. "Visions of Minerals at the Nanoscale: In Honor of Mineralogical Society of America Roebling Medalist Peter R. Buseck." ORGANIZERS: Mihály Pósfai, Jill F. Banfield, Lindsay P. Keller.
  - T18. "The Solidification Path of Magma—Information from Igneous Rocks, Eruptions, and Experimental Petrology: In Honor of the Mineralogical Society of America Awardee for 2019, Olivier Namur." ORGANIZERS: Michael D. Higgins, Bernard Charlier.

- T38. “Effects of Mineral–Water Interface Complexity on Geochemical Processes: A Session in Honor of Mineralogical Society of America Awardee for 2018, Laura Nielsen Lammers.” ORGANIZERS: Benjamin Gilbert, Donald J. DePaolo, Garrison Sposito, Rick Ryerson.
- Remember the **MSA Centennial Ambassador Project!** Volunteer to give a talk to a nonacademic audience about your favorite subject in mineralogy, geochemistry, and/or petrology. Possible venues are K–12 classrooms, mineral clubs, retirement centers, and local museum or library lecture series. Include one of the official MSA Centennial slides that can be downloaded from the bottom of the MSA Centennial Ambassadors web page. After you have given your talk, visit the Ambassadors web page again and register your presentation, or just to see the current list of ambassadors, at [http://www.minsocam.org/MSA/Centennial/MSA\\_Centennial\\_Ambassadors.html](http://www.minsocam.org/MSA/Centennial/MSA_Centennial_Ambassadors.html).

### MSA CENTENNIAL SYMPOSIUM

On 20–21 June 2019, 160 mineral enthusiasts gathered in the newly renovated Carnegie Institution for Science (Washington DC, USA) building to celebrate the 100<sup>th</sup> anniversary of MSA through moderated presentations of exciting advances in the solid Earth sciences. The 14 hour themed colloquia were proposed by MSA members, and they beautifully illustrated the broad reach and profound impact of mineralogy today. The opening session on sustainability included sobering messages from Gordon Brown and Michael Hochella regarding the lasting legacy of open-pit mining in the western USA and the role of incidental nanomaterials in controlling contaminant dispersal in mine wastes. A related theme by David Singer and Michael Schindler emphasized the need to characterize soil horizons across multiple length scales, with evidence that processes at the nanoscale do not extrapolate simply from larger size regimes.



MSA Centennial Symposium participants on the front steps of the Carnegie Institution for Science building, facing 16<sup>th</sup> Street NW (Washington DC, USA).



The MSA Centennial Symposium organizers: Peter Heaney (LEFT) and Steve Shirey (RIGHT). Thank you both!

Ross Angel and Lucie Tajcmanová offered perspectives on the future of metamorphic petrology by stressing that state-of-the-art characterization techniques require a commensurate understanding of the complex physics and chemistry that produce metamorphic textures. In their session on mineral analysis, Michael Wiedenbeck provided a historical overview of SIMS, while Simon Jackson impressed the audience with current capabilities in trace element mapping by LA–ICP–MS. Othmar Müntener and Roberta Rudnick next walked the audience



MSA President Mickey Gunter leading the 100<sup>th</sup> Anniversary toast at the Thursday evening Centennial Symposium reception.

through models of the formation of the lower and upper crust based on field studies and experimental petrology. Fabrizio Nestola and Graham Pearson took the audience even deeper through a review of the exotic inclusions and isotopic compositions that have been observed in diamonds. Kim Tait and Aaron Celestian closed Thursday’s session with their perspectives on how mineral museums can thrive in the next century by aligning their missions through close collaborations with the research community.

Friday began with a COMPRES-sponsored overview of synchrotron-based studies in mineral physics. Przemysław Dera discussed surprising 5- and 6-coordination states for Si at high pressure, and Jin Zhang described anisotropy in omphacite as a means of detecting eclogite in the Earth’s mantle. Elizabeth Rampe and Harry McSween next offered revelations into the early history of Mars through rover-based in situ rock analyses and characterization of the >100 meteorites that originated on Mars. In a session sponsored by Rob Lavinsky, Shaunna Morrison and Simone Runyon challenged the audience to imagine the power unleashed by connecting the dots in the enormously large mineralogical and petrologic datasets that geologists have amassed over the last century. Alexandra Navrotsky closed the morning with an announcement of the next chapter in her multifaceted career as director of a new Materials of the Universe program at Arizona State University.

Gilberto Artioli tugged us back in time to consider the earliest uses of minerals in ceramics from 18,000 BCE, and his talk was followed by Michael Tite’s history of the earliest Pb–Sn oxide glazes that were innovated in the Middle East in counterthrust to Chinese porcelain. The Gemological Institute of America funded the following session, with Wuyi Wang describing the emergence of synthetic gem diamonds over the last 15 years and Mandy Krebs illustrating trace element and isotope approaches to provenance colored gems. Supported by C2/m Mineralogy, John Hughes and Jill Pasteris expounded on the essentiality of apatite as a pillar for both our civilization and our bodies, and Ann Wylie and Matthew Sanchez concluded the meeting with presentations on the real, and supposed, health hazards of mineral dusts.

The inspirational science was enhanced by a spectacular evening reception among the stunning gem and mineral exhibits in the Smithsonian National Museum of Natural History, highlighted by President Mickey Gunter’s toast with specially embossed champagne glasses. The symposium proved that, despite the diversity of our interests, there is more that unites than divides us thanks to our common foundation in the minerals and rocks that support our existence.

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