Mineralogical Society of America

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PRESIDENT'S LETTER

Philanthropy

This contribution will appear in the August 2018 issue of *Elements* shortly before the annual dues letters are sent out for 2019; this time you will be paying your dues for the MSA Centennial year. Our centennial represents an opportunity to celebrate the society, and we will do so in style with a two-day scientific meeting in Washington DC (USA) on 20 and 21 June 2019, including an evening event in the Janet Annenberg Hooker Hall of Geology, Gems & Minerals at the Smithsonian Institution National Museum of Natural History. It is also an opportunity for us to reassess our individual level of support for the various programs undertaken by MSA. As with many learned societies, our dues cover only a small portion of the cost of what we do, and we rely on philanthropy—both corporate and individual—to support some of our activities, particularly the research grants and our various outreach programs. At the end of last year in my first letter I wrote, "It is a particular pleasure to acknowledge that more than five hundred of you have supported MSA with donations to the various funds in the past year and for many years before. But we can do more!" Now is the time to step up to the plate.

For the past decade, member donations have ranged between $40K and $50K annually. If you have donated in the past, I am asking you to consider doubling your usual donation in 2019. If you have not donated in the past, I ask you to consider doing so for our centennial year. I believe we can set an achievable target of $100K for donations in 2019. We can also set a long-term goal of maintaining donations at this level or higher. Our "Mineralogy4Kids" (http://www.mineralogy-4kids.org/) and our "Distinguished Lecturer" (http://www.minsocam.org/msa/Lecture_Prog.html) programs are not currently supported by specific sufficiently endowed funds. To support these important activities will require that we increase our endowment by something like $1M. Both these programs are worthwhile and the goal of supporting their activities via dedicated funding must be approached on a long timescale. However, without a start we will not get there!

In donating to MSA, you choose what you want to support. Unspecified contributions will be applied to the unrestricted MSA Endowment Fund in support of science research, education, and outreach. If you prefer, you may specify that your donation should support one of the following funds: the Edward H. Kraus Crystallographic Research Fund; the Mineralogy and Petrology Fund; the Mineralogy and Petrology Fund in memory of James B. Thompson Jr.; the Outreach Fund, which includes support for the MSA Distinguished Lecturer Program and the Mineralogy 4 Kids; or the F. Donald Bloss Optical Crystallography Fund. Whatever you choose to do during MSA Centennial Year, I thank you most sincerely on behalf of the society.

Michael Brown
2018 MSA President

NOTES FROM CHANTILLY

- At its May 2018 meeting, MSA Council voted an increase in 2019 dues for members from $80 to $85. Student membership remains the same at $20, and all members will have access to the electronic versions of both the *American Mineralogist* and *Elements*. Sustaining memberships will remain at $150 plus the regular dues.
- Council approved, on a trial basis, a lower membership rate for early career members. "Early career" is here defined as three years beyond being a student. The membership rate for this category would be $45.
- Member subscription rates to the print version of the 2019 *American Mineralogist* will increase. The US member print subscription price will be $135 (currently $125), and the foreign member print subscription price will be $145 (currently $135). US institutional subscription price (paper and electronic) will increase to $1,150 (from $1,100), and foreign institutional subscription will be raised to $1,175 (from $1,125). Institutional electronic-only subscription will increase to $1,050 (from $1,000). These prices represent increases of 4%–8%. Included in the institutional subscription would be all current-year (2019) print issues of *American Mineralogist*, *Reviews in Mineralogy and Geochemistry*, *Elements*, as well as access to the electronic versions of all these publications on the MSA website, starting with volume 1, number 1 of each journal. GeoScienceWorld institutional subscriber prices for archival print copies of *American Mineralogist* and the *Reviews in Mineralogy and Geochemistry* are $200 and $250, respectively. MSA offers institutional subscriptions to print + electronic [$315 (US) and $335 (non-US)] or electronic-only ($275) versions of the *Reviews in Mineralogy and Geochemistry*.
- Council approved a 20% surcharge for institutional subscribers renewing after 15 January of any given year. Such late institutional subscriptions are an extra expense that requires the purchase of extra inventory, processing, and packing of back issues, in addition to shipping at rates higher than the usual bulk periodical shipping.
- MSA 2019 membership renewals will start in September 2018, with membership renewal notices sent electronically followed by several electronic reminders before a paper copy is sent to those who do not renew online by the end of October.
- Members and Fellows who are in the senior, honorary, and life categories are sent renewal notices. They need not pay dues but are sent notices as the best way to prompt an update of membership information, particularly mail and e-mail addresses.
- If you subscribe to other journals through MSA—*Gems & Gemology*, *Journal of Petrology*, *Mineral News*, *Physics and Chemistry of Minerals*, *Mineralogy and Petrology*, or *Rocks & Minerals*—please renew early. MSA needs to forward your renewal to those publishers before your subscription expires.
- Council approved a reduced eligibility age limit for the Dana Medal. The work of a Dana award candidate must now have been accomplished within 20 years of his or her terminal degree rather than 25 years. This change is considered a better match to what we consider as a mid-career award. The change will not take effect until 2020 to allow those nominated in the 20–25 age gap to still be eligible for one additional year.
- To address the new data protection regulations, MSA has revised its privacy policy on how it collects, uses, discloses, transfers, and stores member and customer information. The updated policy has now been posted online at the MSA website.
- MSA now has a part-time accountant, Mary Endosome. She will assume the accounting duties that previously were done by the Executive Director. In addition, Gloria McFarland is transitioning into Gordon Nord's position as MSA Webmaster. There will be improvements and modernization to both software and hardware for both the office and website, though these will likely not be evident to users. The first steps have been taken already in increasing security and bandwidth.

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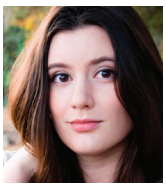
CONTRIBUTORS AND BENEFACTORS

Many members contribute to MSA by including a contribution with their annual dues and/or by responding to special appeals. Depending on the wishes of the member, the money is deposited with the principal of the MSA Endowment, MSA Outreach, MSA Mineralogy/Petrology, J. B. Thompson, Edward H. Kraus Crystallographic Research, F. Donald Bloss, or General Operating Funds. The income from these funds is used to support MSA's research grants in crystallography, mineralogy, and petrology; to publish the *American Mineralogist*; to support the MSA Undergraduate Prizes; to support the Mineralogical Society of America Award; to support the Distinguished Public Service Award, the Dana Medal, and the Roebling Medal; and to maintain the website and the lectureship program. If you have not done so previously, you may wish to consider contributing at the next opportunity. Here, we want to extend our gratitude to the individuals and organizations that have made contributions to MSA between 1 July 2017 and 30 June 2018. These contributors are listed on the MSA website and can be found by selecting "Contributions to MSA" on the MSA home page (http://www.minsocam.org/), under "About MSA".

MSA STUDENT GRANT AWARDEES



Shelby Nicole Johnston of the University of Houston (Texas, USA) received one of the 2018 Grants for Student Research in Mineralogy and Petrology for her proposal "The Effects of Alpha Damage on He Diffusion and Closure Temperatures in Zircons".

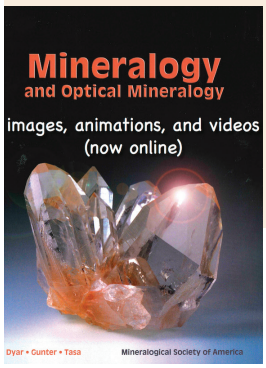
Zircon helium (ZHe) dating can provide information about time–temperature histories of samples at low temperatures (<180°C). Because ZHe is a low-temperature thermochronometer, it can be used to track uplift and erosion, fault motion, basin burial, temperature histories of petroleum source rocks, and track the evolution of Earth's topography. The closure temperature (T_c) of He in zircons is dependent on the amount of accumulated alpha damage. Retentivity of He, and thus T_c, increases with initial damage, because the damage zones form effective traps for the He. However, He retentivity quickly decreases with further damage, as these additional damage zones interconnect to form diffusion pathways out of the crystal. It is important to be able to calculate the alpha dose of each zircon using the concentration of alpha producers (U, Th, and Sm,) and the amount of time that alpha damage has been accumulating. If damage has accumulated throughout the zircon's entire history, the accumulation time used for this calculation would be equal to the U–Pb age. But for many samples this is too long, notably if there has been an intervening annealing event above some temperature. However, it is not clear what this temperature is. Shelby Johnston proposes to establish a more precise relationship between damage accumulation and later annealing on the zircon structure and relate these structural changes to He closure temperature.

Amy Catherine Moser of the University of California-Santa Barbara (USA) received one of the 2018 Grants for Student Research in Mineralogy and Petrology for her proposal "Directly Dating High-Temperature Deformation: U–Pb Resetting and Dynamic Recrystallization of Titanite".

A challenge in the fields of structural geology and geochronology is the ability to directly date crystal plastic deformation. The classic method of using cross-cutting relationships yields imprecise constraints on the timing and duration of mid- to lower-crustal strain accumulation. Microstructural analyses of plastic deformation usually focus on minerals that are not datable (e.g. quartz) or whose closure temperatures are below typical mid- to lower-crustal deformation temperatures (e.g. $^{40}Ar/^{39}Ar$ in muscovite and biotite). A true deformation chronometer would combine microstructural and geochronologic data from a single crystal. Titanite may be an ideal deformation chronometer: it is a common accessory mineral in crustal rocks, it has a high U–Pb closure temperature (800 °C), and it monitors host-rock conditions with its trace-element composition. Furthermore, titanite accommodates crystal plastic deformation at moderate to high temperatures (greenschist to granulite facies) and preserves deformation microstructures as a result. These characteristics suggest that titanite is well suited to directly dating crystal plastic deformation. Amy Moser's proposal tests this hypothesis with a combined microstructural, geochemical, and geochronologic analysis of deformed and undeformed titanite to assess the relationship between deformation microstructures and element diffusion in titanite.

Maija Raudsepp of the University of Alberta (Edmonton, Canada) received the 2018 Grant for Research in Crystallography funded by the Edward H. Kraus Crystallographic Research Fund for her proposal "Nanometere-Scale Characterization of Iron Minerals Produced by Biogenic Anaerobic Methane Oxidation Coupled to Iron Reduction".

The occurrence of many iron minerals in sedimentary environments is controlled by microbial dissimilatory iron reduction or oxidation. In anoxic environments, heterotrophic microorganisms can couple the reduction of ferric minerals to the oxidation of organic carbon *or* use the metabolic process of anaerobic methane oxidation (AOM) coupled to iron reduction (AOM-Fe). Most previous work on AOM is with sulfate as the terminal electron acceptor, due the high abundance of sulfate in ocean water and the occurrence of AOM coupled to sulfate reduction at cold methane seeps. In contrast to the many studies characterizing the iron minerals produced by heterotrophic iron reduction, there are no mineralogical characterizations of iron minerals produced by AOM-Fe. Maija Raudsepp proposes to characterize the following: 1) the mineralogy of iron minerals produced from AOM-Fe; 2) the microbe–mineral interactions between the Archaea species *M. nitroreducens* and iron minerals; 3) the identification of specific *M. nitroreducens* cells in the mixed microbial community responsible for the iron oxidation. Understanding the AOM-Fe iron minerals is important for characterizing natural environments. The metabolic process of AOM-Fe has been hypothesized to be an important microbial biogeochemical process in the sediments of iron-rich and ferruginous lakes and in hydrocarbon-contaminated aquifers. In addition, understanding AOM-Fe may be useful in interpreting the mineralogy of Precambrian banded-iron formations.



The images, animations, and videos that accompany the *Mineralogy and Optical Mineralogy* textbook by Dyar, Gunter, and Tasa are posted on the MSA website and are accessible at no cost.