2020

# Volume 16

# Meteoritical Society

## meteoriticalsociety.org

### IN MEMORIAM: AHMED EL GORESY

Noted mineralogist and meteoriticist Ahmed El Goresy passed away on 3 October 2019, aged 85. Ahmed El Goresy's research focused on minerals and mineral assemblages of extraterrestrial samples. Using his favorite tool, the reflected light microscope, he studied meteorite samples from asteroids, the Moon, and Mars, lunar rocks, and terrestrial impactites. He was a pioneer in complementing his microscope findings with scanning electron microscopy, electron microprobe, ion probe, and Raman spectroscopy. He made numerous discoveries of shock-induced high-pressure phases in meteorites and in samples from terrestrial impact craters; he detected unusual mineral assemblages in a variety of meteorite types and studied their chemistry and isotopic composition. He significantly contributed to a better understanding of the cosmochemical processes operating in the early solar system.

In 1955, Ahmed El Goresy obtained his BSc in mineralogy and petrology from the University of Heliopolis (Cairo, Egypt). In 1961, he received his PhD for work on ore deposits. His supervisor was the famous pioneer of ore microscopy, Paul Ramdohr at the Universität Heidelberg (Germany). In 1961, Ahmed briefly returned to Egypt taking a research position in Cairo. In 1963, he became research scientist at the Max-Planck-Institut für Kernphysik (Heidelberg, Germany). He then spent time as a guest scientist at the Smithsonian Astrophysical Observatory/Harvard University (USA) before taking a two-year post-doctoral fellowship at the Carnegie Institution of Washington (USA). After his return to Germany, he became senior scientist at the Max-Planck-Institut für Kernphysik and, later, professor at the Universität Heidelberg. In 1998, he officially retired from his position in Heidelberg and moved to the cosmochemistry department of the Max-Planck-Institut für Chemie in Mainz (Germany). After closure of the cosmochemistry department in 2005, he moved to the Bayerisches Geoinstitut in Bayreuth (Germany).

Over ~20 years, Ahmed El Goresy worked closely with Paul Ramdohr (1890–1985), who was a world-class scientist in opaque mineralogy and who began his studies on meteorites only after he had retired. Ramdohr shared his immense knowledge of opaque minerals and his special skills in reflected-light microscopy with Ahmed El Goresy. In 1969, Ramdohr became principal investigator of NASA's lunar sample analysis program (focusing on the opaque mineralogy of lunar rocks) and it was El Goresy who was coinvestigator. El Goresy and Ramdohr made fundamental contributions to the opaque mineralogy and phase assemblages of lunar mare basalts, as well as lunar highland rocks. They estimated the temperature and oxygen fugacity during the crystallization of lunar mare basalts.

In the meteorite community, Ahmed El Goresy is particularly well-known for his thorough studies of opaque assemblages and spinel morphologies in calcium–aluminum-rich inclusions (CAIs) in Allende and other carbonaceous chondrites, for isotopic studies of acapulcoites, and his work on enstatite chondrites. From about 1995 on, El Goresy intensified his studies of shock effects in chondrites, Martian meteorites and samples from terrestrial impact craters. He and his coworkers discovered new shock-induced mineral phases, including poststishovite polymorphs (e.g., seifertite), high-pressure aluminum-silicate phases (lingunite), akaogiite (a high-pressure polymorph of $TiO_2$), and a polymorph of graphite. El Goresy and his coworkers also observed solid-state transformations of olivine to wadsleyite and ringwoodite; the decomposition of olivine; and the growth of wadsleyite, ringwoodite, and majorite from melts during shock events. The study of high-pressure polymorphs, their textural occurrence, and relevant phase relations can be used to estimate the magnitude and conditions of impacts in the early solar system. These findings are important for the early collisional history of meteorite parent bodies and for studies of the structure and compositions of the interiors of Earth and other planets.

Ahmed El Goresy served the scientific community as Council Member of the Meteoritical Society, Chairman of the International Commission on Cosmic Mineralogy of the International Mineralogical Association, and United Nations Visiting Professor at the Institute of Mineral Deposits of the Chinese Academy of Geology. He participated in the NASA Lunar and Planetary Science Review Board. He was awarded the Victor-Moritz Goldschmidt Award and the highest award of the German Mineralogical Society, the Abraham-Gottlob-Werner Medal. In 1972, he became Fellow of the Meteoritical Society and, in 2013, was the recipient of the Meteoritical Society's highest honor, the Leonard Medal. He was a Fairchild Distinguished Scholar in 1983 at the California Institute of Technology (USA), a guest professor at the Muséum National d'Histoire Naturelle in Paris (France) in 1994, and, more recently, a guest professor at the Tohoku University (Japan) and at the École Polytechnique Fédérale de Lausanne (Switzerland).

In scientific meetings Ahmed El Goresy was very outspoken. He clearly stated his opinion and never avoided discussing controversial issues. He was extremely enthusiastic about his research. Indeed, it was almost impossible to talk to him about anything other than his research! He could easily become so excited about his findings that in his talks he would often exceed the time limit. His contributions and presence will be sorely missed.

**Herbert Palme**

(for full obituary, please see the Meteoritical Society's website).

### THE BARRINGER FAMILY FUND FOR METEORITE IMPACT RESEARCH

The Barringer Crater Company has established a special fund to support field work by eligible students interested in the study of impact cratering processes. The Barringer Family Fund for Meteorite Impact Research will provide a number of competitive grants in the range of $2,500 to $5,000 to support field research at known or suspected impact sites worldwide. Grant funds may be used to assist with travel and subsistence costs, as well as for laboratory and computer analysis of research samples and findings. Masters, doctoral, and postdoctoral students enrolled in formal university programs are eligible. Application to the fund will be due by 10 April 2020, with notification of grant awards by 12 June 2020.

Additional details about the fund and its application process can be found at: http:/www.lpi.usra.edu/science/kring/Awards/Barringer_Fund.

### ANNUAL MEETING SCHEDULE


2020 (83rd) 9–14 August, Glasgow (Scotland)

2021 (84th) 14–21 August, Chicago (Illinois, USA)

2022 (85th) 3–8 July, Perth (Australia)

2023 (86th) Dates to be determined, Brussels (Belgium)

### RENEW YOUR MEMBERSHIP NOW!

Please renew by 31 March 2020; after that date, a $15 late fee will be assessed. You can renew online at: http://metsoc.meteoritical-society.net.

# Meteoritical Society

## http://meteoriticalsociety.org

### THANK YOU TO OUR SOCIETY'S COMMITTEE MEMBERS

The Meteoritical Society (Met Soc) would like to extend its sincere thanks to all those members who are serving on society committees this year. We have listed their names below, with the names of the committee chairs in bold. Without the generous help of these members, the Met Soc could not function. We greatly appreciate their help!

## METEORITICAL SOCIETY COMMITTEE MEMBERS FOR 2020

### *Officers and Councilors 2020*

| | |
|---|---|
| President | Meenakshi Wadhwa |
| Past President | Trevor R. Ireland |
| Vice President | Brigitte Zanda |
| Treasurer | Tasha L. Dunn |
| Secretary | Munir Humayun |
| Councilor | Neyda Abreu |
| Councilor | Catherine Corrigan |
| Councilor | Chris Herd |
| Councilor | Kuljeet K. Marhas |
| Councilor | Takashi Mikouchi |
| Councilor | Pierre Rochette |
| Councilor | Mario Trieloff |
| Councilor | Maria Eugenia Varela |

### *Leonard Medal Committee*

| **Maria Schönbächler** | **Chair** | **2021** |
|---|---|---|
| Roger Hewins | | 2020 |
| Hiroshi Hidaka | | 2022 |
| Zita Martens | | 2023 |
| Jeff Cuzzi | | 2024 |

### *Barringer Award Committee*

| **Michael Poelchau** | **Chair** | **2020** |
|---|---|---|
| Michael Zanetti | | 2021 |
| Sarah T. Stewart | | 2022 |
| Roger Gibson | | 2023 |

### *Publications Committee*

| **Cécile Engrand** | **Chair** | **2020** |
|---|---|---|
| Ian Lyon | | 2020 |
| Qing-Zhu Yin | | 2020 |
| Nancy Chabot | | 2021 |
| Sandeep Sahijpal | | 2022 |
| Hikaru Yabuta | | 2022 |
| Tasha Dunn | Ex officio | |

### *Audit Committee*

| **Kevin D. McKeegan** | **Chair** | **2021** |
|---|---|---|
| Denton Ebel | | 2021 |
| Caroline Smith | | 2022 |

### *Joint Publications Committee*

| **Tina van de Flierdt** | **Chair, GS** | **2020** |
|---|---|---|
| Alex Ruzicka | MS | 2021 |
| Rosemary Hickey-Vargas | GS | 2021 |
| Karim Benzarara | GS | 2022 |
| Jon Friedrich | MS | 2022 |
| Sara Russell | MS | 2022 |
| Jeff Catalano<br>Editor of *Geochimica et Cosmochimica Acta* | Ex officio | |
| Timothy Jull<br>Editor of *Meteoritics & Planetary Science* | Ex officio | |
| Editor of Special Publication Series of GS | Ex officio | |
| Meenakshi Wadhwa<br>President of the Meteoritical Society | Ex officio | |
| Vickie Bennett<br>President of the Geochemical Society | Ex officio | |

### RENEW YOUR MEMBERSHIP NOW!

Don't forget to renew your membership! You can renew online at: http://metsoc.meteoriticalsociety.net

# METEORITICAL SOCIETY COMMITTEE MEMBERS FOR 2020

## *Endowment Committee*

| **Drew Barringer** | **Co-Chair** | **2020** |
|---|---|---|
| **Uwe Reimold** | **Co-Chair** | **2021** |
| Gary R. Huss | | 2021 |
| Rhian Jones | | 2022 |
| Allan Treiman | | 2022 |
| Candace Kohl | | 2022 |

## *Nomenclature Committee*

| **Audrey Bouvier** | **Chair** | **2021** |
|---|---|---|
| Francis McCubbin | | 2021 |
| Mutsumi Komatsu | | 2022 |
| Hasnaa Chennaoui-Aoudjehane | | 2020 |
| Vinciane Debaille | | 2020 |
| Emma Bullock | | 2020 |
| Bingkui Miao | | 2021 |
| Devin Schrader | | 2022 |
| Massimo D'Orazio | | 2022 |

## *Pellas–Ryder Award Committee*

| **Emily Martin** | **Chair, GSA** | **2020** |
|---|---|---|
| Lindsay Keller | MS | 2020 |
| Debra Needham | GSA | 2021 |
| Joseph Boesenberg | MS | 2022 |
| Jemma Davidson | MS | 2022 |
| Nick Lang | GSA | 2022 |

## *Nominating Committee*

| **Rhonda Stroud** | **Chair** | **2020** |
|---|---|---|
| Rhiannon Mayne | | 2020 |
| Tim McCoy | | 2020 |
| Gordon Osinski | | 2020 |
| Tomo Usui | | 2020 |
| Jutta Zipfel | | 2020 |

## *Membership Committee*

| **Mendy Ouzillou** | **Chair** | **2020** |
|---|---|---|
| Ludovic Ferriere | | 2020 |
| Tomas Kohout | | 2020 |
| Ozan Ünsalan | | 2021 |
| Lucy Forman | | 2022 |
| Arya Udry | | 2022 |
| Uwe Reimold | | 2022 |

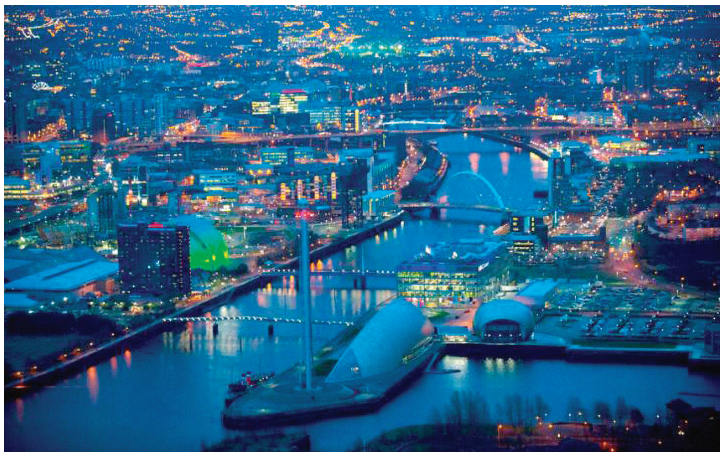
## *McKay Award Committee*

| **Romy D. Hanna** | **Chair** | **2022** |
|---|---|---|
| Lydia Hallis | vice chair | 2020 |

## *Jessberger Award Committee*

| **Mario Trieloff** | **Chair** | **2023** |
|---|---|---|
| **Noriko Kita** | **Vice Chair** | **2023** |
| Zita Martens | LMC liaison | 2023 |
| Sara Russell | | 2023 |
| Thomas Stephan | | 2023 |

## ANNUAL MEETING SCHEDULE



| | | |
|---|---|---|
| **2020** | **Glasgow (Scotland)** | RESCHEDULED |
| **2021** | **Chicago (Illinois, USA)** | 16–20 August |
| **2022** | **Perth (Australia)** | 3–8 July |
| **2023** | **Brussels (Belgium)** | Dates TBD |

## METSOC 2020

As the Covid pandemic continues to advance around the world it is clear that the Glasgow meeting, originally scheduled for August, will need to be rescheduled to another year. Please bear with us as the society adjusts its schedule of annual meetings to respond to the pandemic. It takes years to organize an annual meeting and moving all scheduled meetings is difficult but essential for the safety of our members and their communities. We will announce the rescheduling of annual meetings once arrangements have been finalized and Council has approved the revised schedule.

# Meteoritical Society

## http://meteoriticalsociety.org

## REPORT OF THE METEORITE NOMENCLATURE COMMITTEE

Audrey Bouvier

The Nomenclature Committee (NomCom) of the Meteoritical Society (MetSoc) continued its activities despite the major challenges we have all faced over the past few months. I would like to thank all the NomCom members for volunteering their time and effort, as well as Tasha Dunn (Colby College, Maine, USA) for her two terms on NomCom, and Devin Schrader (Arizona State University, USA) for joining us last January.

NomCom is currently composed of nine appointed members: Audrey Bouvier (Chair; Universität Bayreuth, Germany), Emma Bullock (Carnegie Institution of Washington, USA), Hasnaa Chennaoui Aoudjehane (Université Hassan II de Casablanca, Morocco), Vinciane Debaille (Université Libre de Bruxelles, Belgium), Massimo D'Orazio (Università di Pisa, Italy), Mutsumi Komatsu (Sōkendai, Japan), Francis McCubbin (Deputy Editor; NASA Johnson Space Center, USA), Bengkui Miao (Guilin University of Technology, China) and Devin Schrader (Arizona State University); and three ex-officio NomCom members: Jérôme Gattacceca (*Meteoritical Bulletin* Editor; CEREGE, France), Jeff Grossman (Database Editor; NASA, USA) and Brigitte Zanda (MetSoc Vice President; Muséum national d'Histoire naturelle, Paris).

The purpose of the NomCom is to approve new meteorite names, to establish guidelines, and to make decisions regarding the naming and classification of meteorites. New meteorites, dense collection areas, type-specimen repository collections, and revisions are published through the *Meteoritical Bulletin* and the Meteoritical Bulletin Database (MBDB) (https://www.lpi.usra.edu/meteor/).

### *Meteorites*

The 2018 entries of the MBDB, totaling 2,714 meteorites, have been published by Gattacceca et al. (2020) in issue 107 of the *Meteorite Bulletin*. The full write ups of 1,145 non-Antarctic meteorites and supplementary tables can be found online as Supporting Information and in the MBDB Archive. The number of Northwest Africa (NWA) meteorites reached a new peak with 799 meteorites. Antarctic and NWA meteorites make up 58% and 29% of the total number of meteorites, respectively. Over 200 submissions from South America were also approved. Notable entries are 7 meteorites from fall events reported in 2018: Hamburg (H4, USA, 16 January), Ablaketka (H5, Kazakhstan, 16 February), Aba Panu (L3, Nigeria, 19 April), Mangui (L6, China, 1 June), Ozerki (L6, Russia, 21 June), Renchen (L5-6, Germany, 10 July), and Gueltat Zemmour (L4, Morocco, 21 August).

*Meteoritical Bulletin* No. 108, containing the 2019 entries, is in preparation. It will contain 2,141 meteorites, including 12 newly approved falls, from which 4 more are from 2018: Benenitra (L6, Madagascar, 27 July), Komaki (L6, Japan, 26 September), Ksar El Goraane (H5, Morocco, 28 October), Mhabes el Hamra (H4/5, Mauritania, 23 December). Notable 2019 reported falls are Viñales (L6, Cuba, 1 February), Aguas Zarcas (CM2, Costa Rica, 23 April), Oued Sfayat (H5, Algeria, 16 May), and Taqtaq-e Rasoul (H5, Iran, 10 August).

The total annual numbers of lunar and martian meteorites reached 45 and 23, respectively, last year. Most of these were found in NW Africa. Coordinates are known for several lunar meteorites (e.g., Errachidia in Morocco; Swayyah in Western Sahara), plus the largest lunar so far: 103 kg of lunar feldspathic breccia designated as NWA 12691. New Martian meteorites are mostly shergottites, but two new nakhlites (Caleta el Cobre 022, first nakhlite from Chile; and NWA 12542) and five polymict breccias (including Rabt Sbayta 010 and 012 with coordinates) paired with NWA 7034 were reported. Martian meteorites that are likely paired with NWA 7034 are now classified as "Martian (polymict breccia)."

### *Dense Collection Areas (DCAs)*

There are currently over 340 named dense collection areas (DCAs).

Thirteen new DCAs were defined last year in Chad (Bardaï), China (Dunlike, Hongshagang, Huangtuya, Korla, Shanshan, Tamusubulage, Wubao), Libya (Hamadat Zegher), Morocco (Hassi Arsane), United States of America (Sunfair, Daveytown), and Western Sahara (Swayyah).

### *Type-Specimen Repositories*

Nine new type-specimen repositories were approved from 8 countries:

- BGI – Botswana Geoscience Institute, Lobatse (Botswana)
- CUG – Planetary Science Institute, China University of Geosciences, Wuhan (China)
- LeMans – Musée Vert, Muséum d'histoire naturelle du Mans, Le Mans (France)
- Wits – University of the Witwatersrand, Johannesburg (South Africa)
- MCNB – Museu de Ciències Naturals de Barcelona (Spain)
- KirkU – Faculty of Aeronautics and Space Sciences, Kirklareli University (Turkey)
- NASU – National Museum of Natural History, National Academy of Sciences, Kyiv (Ukraine)
- LVNHM – Las Vegas Natural History Museum, Las Vegas (Navada, USA)
- Marietta – Marietta College, Marietta (Ohio, USA)

### *Procedures*

Write-up instructions for the three most common groups of meteorites (ordinary chondrites, eucrites, and ureilites) are now available. These guidelines enable the editor and deputy editor to review and approve meteorites (ordinary chondrites, eucrites, and ureilites) from dense collection areas. Any submission not meeting these criteria will be reviewed by the committee as usual.

### *Guidelines to Authors*

Following the *Meteoritics & Planetary Science* article "Best Practices for the Use of Meteorite Names in Publications" by Heck et al. (2019), the guidelines to authors were updated in both the *Meteoritics & Planetary Science* and *Geochimica et Cosmochimica Acta* journals. Please use these guidelines when preparing your manuscripts for publication.

### *Meteorite Naming*

Remember to send your write-ups for new and provisional names to the *Meteoritical Bulletin* Editor at least three weeks before submitting your conference abstract or manuscript to journals to avoid potential issues with naming and classification and delays in publication. The release of the write-up to the database may be held on request if there is an embargo from publishers.

Finally, please do not hesitate to contact us with questions or concerns about the NomCom, especially with suggestions for improvement.

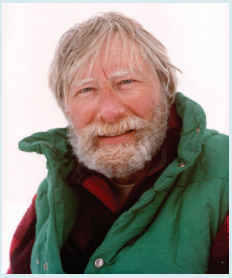
**Audrey Bouvier**
Chair of the Nomenclature Committee
Universität Bayreuth

### REFERENCES

Gattacceca J, McCubbin FM, Bouvier A, Grossmann J (2020) The Meteoritical Bulletin, No. 107. Meteoritics & Planetary Science 55: 460-462

Heck PR and 29 coauthors (2019) Best practices for the use of meteorite names in publications. Meteoritics & Planetary Science 54: 1397-1400

## IN MEMORIAM: WILLIAM A. CASSIDY (1928–2020)



William A. (Bill) Cassidy, emeritus professor in the Department of Geology and Planetary Science at the University of Pittsburgh (Pennsylvania, USA), quietly passed away on 25 March 2020 aged 92 at his home in Monroeville. Bill leaves behind a deep legacy of contributions to the fields of impact crater studies and meteoritics.

While pursuing a BS in geology at the University of New Mexico (USA) in the early 1950s, Bill was made aware of Campo del Cielo and the lost Meson de Fierro iron of Argentina during a class taught by Lincoln LaPaz. A Fulbright Scholarship in Australia and a PhD from Penn State University (Pennsylvania, USA) followed, leading to a research scientist position at the Lamont–Doherty Earth Observatory (New York, USA) from where Bill would mount the first of many expeditions to the Campo del Cielo crater field. Bill's studies of the site proved of historic importance. It was relatively young (4,000 years old) and consisted of over two dozen individual craters, most small enough to be fully excavated to reveal their original geometry and impactor trajectories. Meteorites were recovered from most of these craters, providing an early indisputable link between these two planetary phenomena. Bill's research on the Campo del Cielo site continued into his eighties, and he was loved throughout the region for his consistent efforts to include Argentine scientists, technicians, artists and laypeople in the work. Bill was involved in other seminal crater studies, including investigations of the Aouelloul and Tenoumer craters in Mauritania and the Monturaqui impact site in Chile. He also conducted pioneering research on Australasian microtektites (especially the very interesting but poorly studied "bottle green" variety), Muong Nong–type tektites, and lunar samples.

Another enduring part of Bill Cassidy's legacy is as founder of the US-led Antarctic Search for Meteorites (ANSMET) program. Bill was one of the first outside of Japan to recognize that nine meteorites recovered in 1969 from the Yamato Mountains of Antarctica were the vanguard of a huge number of specimens. He persistently submitted proposals to the US Antarctic Research Program until he finally achieved funding for the 1976–1977 field season, the first of several conducted jointly with Japanese collaborators. Since that time, the ANSMET program has operated without interruption, sending field parties to Antarctica annually and recovering over 24,000 meteorite specimens. These include several paradigm-shifting specimens, such as EET 79001 (the first meteorite determined to be Martian in origin), ALH 81005 (the first Lunar meteorite), and many samples from rare, scientifically valuable, and previously unknown classifications. The inherent altruism of the US Antarctic meteorite program, which provides samples of all recovered specimens to scientists from around the world, is a direct result of Bill's decision to give up privileged access to the meteorites in favor of a program (partnering with NASA and the Smithsonian Institution) that allows other scientists to make their own discoveries. The results have been extraordinary: a program that has lasted for generations, whose long-term impact on science easily rivals that of Apollo. Ultimately, Bill led fourteen ANSMET expeditions, the last in 1994. He returned to Antarctica again in the late 1990s as a part of a NASA-funded Carnegie Mellon University (Pennsylvania, USA) project to develop robotic meteorite search technologies.

Multiple honors have been bestowed upon Bill in recognition of his contributions to planetary science. He was awarded the Barringer Medal of the Meteoritical Society in 1995 for his lifelong work on impact craters and their debris. The mineral *cassidyite* [$Ca_2Ni(PO_4)_2 \cdot 2H_2O$], a rare mineral from Wolf Creek Crater (found in cracks and cavities in weathered meteorites), was named in his honor. Bill was awarded the Antarctic Service Medal in 1977, and also had a glacier named after him: the Cassidy Glacier, a tributary of the Taylor Glacier in the Dry Valleys region of Antarctica, which places his legacy firmly on the map. Asteroid 3382 Cassidy also places his legacy firmly in the heavens. And in 2015, a hall of the Parque Campo del Cielo Museum (Argentina) was named in his honor.

Bill will be long remembered for his dry sense of humor, his humility, and his generosity. His legacy extends far beyond the craters he explored and the tens of thousands of meteorites his projects recovered. Hundreds of scientists forged bonds of friendship, respect, and trust as a direct result of Bill's efforts during six decades of field work, both in Antarctica and elsewhere, learning to put aside personal gain or comfort in the pursuit of science.

**Ralph P. Harvey**, **John W. Schutt**
Case Western Reserve University (Ohio, USA)
Christian Koeberl, University of Vienna (Austria)

## GIFTS AND GRANTS GUIDELINES

The stated mission of the Meteoritical Society is "to promote research and education in planetary science with emphasis on studies of meteorites and other extraterrestrial materials that further our understanding of the origin and history of the solar system." Besides the society's publications, the annual scientific meetings, establishing official names for newly found meteorites, and the awards sponsored by the society, there are other ways by which we work toward furthering our mission. These include supporting student travel to conferences and workshops; supporting student research; assisting scientists from economically disadvantaged countries; supporting classes or field schools, especially those that bring meteoritics and planetary science to developing countries; compiling oral histories from prominent members of the society; and supporting outreach to the broader public community on meteoritics and planetary science.

To support these activities, the society has created an endowment fund. The majority of the endowment consists of the General Fund which can support one-time activities that are not part of normal society business. The endowment fund also has named funds: the Nier Fund, the McKay Fund, and the Travel for International Members Fund. Details about activities supported by all of these funds are given under Activities Supported on the society's website.

For those who wish to assist in this mission, donations can be made to the General Fund or to any of the specific funds (see Ways to Contribute on the society's website).

## ANNUAL MEETING SCHEDULE

Due to the worldwide restrictions caused by the Covid-19 pandemic, the 2020 Meteoritical Society meeting has been postponed. The schedule will be as follows: Chicago remains the meeting location for 2021, with Glasgow moving to 2022. The meetings for Perth (Australia) and Brussels (Belgium) have each been pushed back by one year to 2023 and 2024, respectively. We thank our members for their understanding, and our meeting hosts for their flexibility during this time of uncertainty.

| | |
|---|---|
| **2020** | Glasgow (Scotland), 9–14 August [POSTPONED] |
| **2021** | Chicago, Illinois (USA), 14–21 August |
| **2022** | Glasgow (Scotland), dates TBD |
| **2023** | Perth, Western Australia (Australia) dates TBD |
| **2024** | Brussels (Belgium), dates TBD |

## RENEW YOUR MEMBERSHIP NOW!

Please don't forget to renew your membership for 2020. Students—this is particularly important if you are interested in applying for one of our student presentation awards, as you must be a member to be eligible. You can renew online at: http://metsoc.meteoriticalsociety.net.

# Meteoritical Society

## http://meteoriticalsociety.org

## MESSAGE FROM THE PRESIDENT

Dear Meteoritical Society Members,

We have been watching, with the rest of the world, the unfolding race-related events in the United States and the resulting turmoil. This brings home to us, yet again, that we have a-ways to go before we achieve the just and equitable world that we all aspire to. If unacknowledged and unchecked, discrimination and injustice can enter any organization or community – and it can destroy the very foundations upon which we build our future.

We are a small society, but our membership is diverse and spans the globe. As an international scientific society, and per our position statement on inclusiveness (https://meteoritical.org/society/governance/position-statement), the Meteoritical Society is committed to a diverse and inclusive community that promotes the well-being of all its members. We realize that change comes with both small and bold steps in the right direction. As an example, we have asked our Endowment Committee to proactively consider supporting initiatives and programs that promote diversity, equity, and inclusion in our community. We affirm that discrimination and injustice have no place at the Meteoritical Society, in science, or in society as a whole. I am confident in our ability to be a force for science, a force for good, and a force for positive change in society.

It is our hope that we come together as colleagues and friends to support one another and to support others in our communities beyond our society. Science, scientists, and science advocates are going to be an absolute necessity to ensure that we successfully navigate these challenging times together.

**Meenakshi Wadhwa**
President, The Meteoritical Society

## 2020 METEORITICAL SOCIETY TREASURER'S REPORT

Despite the financial losses of last year's phishing scam, the society's finances continue to be on a sound footing; both the Operating Fund and our Investment Fund are currently very healthy. A large portion of the operating budget relates to publishing *Meteoritics and Planetary Science* (*MAPS*), our international monthly journal of planetary science which covers topics including the origin and history of the solar system, the planets, natural satellites, interplanetary dust, the interstellar medium, lunar samples, meteors, meteorites, asteroids, comets, craters, and tektites. The *MAPS* journal has been published by Wiley since 2010, and our income from Wiley typically exceeds the expenses of the Editorial Office at the University of Arizona (USA), which is managed by Editor Tim Jull.

Society memberships include subscriptions to *MAPS* and *Elements*. Membership with subscription to only the electronic version of *MAPS* is a popular option, although many of our members still purchase the print version. To keep up with rising publication costs, dues for members desiring the print copy of the journal were raised this year. Collection of membership dues for 2021 will begin in October 2020. I would like to encourage members to pay their dues in a timely manner, because this helps greatly with financial planning.

Our Investment Fund, which includes a number of endowed funds, continues to do well. The Nier Fund supports the annual Nier Prize, which recognizes outstanding research by young scientists in meteoritics and closely allied fields. The 2020 recipient is Dr. Thomas Kruiger of the Lawrence Livermore National Laboratory (California, USA). The Gordon A. McKay Fund supports the Mckay Award, which is presented to the student who gives the best oral presentation at the society's annual meeting. The 2019 award was given to Dana Laczniak of Purdue University (Indiana, USA). The newly established Jessberger Fund supports the Elmar K. Jessberger Award, which recognizes outstanding research in the field of isotope cosmochemistry by a mid-career female scientist. The Jessberger Award will be awarded for the first time at the 2021 meeting in Chicago (Illinois, USA).

The society also has two endowed funds that supports travel to our annual meetings. The Travel for International Members (TIM) Fund supports travel for members from low-income countries, while the O. Richard Norton Fund, which is generously supported by John H. and Dorothy Norton Kashuba, supports travel for early career scientists. We thank Tim Swindle for his generous annual donation to the TIM fund. Member contributions to these funds during the 2020 fiscal year will provide support for travel to the 2021 and 2022 meetings in Chicago and Glasgow (Scotland, UK), respectively.

The General Endowment Fund supports a variety of outreach projects. Over the last year, this fund provided support for what would have been the 2020 workshop entitled Data Analysis for Planetary Sciences, to be held in Antofagasta (Chile) but which is now scheduled for 2021. The General Endowment Fund also supports the newly created ATTARIK (All Together Taskforce for Advancing Research Innovation and Knowledge) Foundation for Meteoritics and Planetary Science (at the Hassan II University of Casablanca in Morocco), which aims to support and promote planetary science in the Arab world and in African-continent countries. Endowment funds were also used to support travel for students to attend the Meteoritical Society meeting in Sapporo (Japan). We always welcome suggestions and ideas for ways in which the General Endowment Fund can be used to promote the goals of the society and to enrich its activities.

In addition to major contributions, a total of $14,970 was donated to the various funds by you, our generous members. Over 250 separate donations were received this fiscal year. Your generous contributions provide the direct support that helps to strengthen our international community.

Donations are always greatly appreciated. It is simple to donate to any of our funds at the same time as you renew your membership. Donations by check(/cheque) or other means are also welcomed.

## ERRATUM TO COMMITTEE REPORT

In the April (v16n2) issue of *Elements*, we neglected to include the three ex-officio members of the Meteorite Nomenclature Committee in the section that thanked the society's committee members. We apologize for this omission and wish to fully acknowledge the contributions made to the society by Jérôme Gattacceca (Editor of the *Meteoritical Bulletin*; CEREGE, France), Jeff Grossman (Database Editor; Planetary Science Division, NASA) and Brigitte Zanda (Meteoritical Society Vice President; Muséum national d'Histoire naturelle, Paris, France).

## ANNUAL MEETING SCHEDULE

| | |
|---|---|
| **2020** | Glasgow (Scotland, UK) – postponed |
| **2021** | 14–21 August, Chicago (Illinois, USA) |
| **2022** | 15–19 August, Glasgow (Scotland, UK) |
| **2023** | Dates TBD, Perth (Australia) |
| **2024** | Dates TBD, Brussels (Belgium) |

## 2020 MEMBERSHIP REPORT

As of May 2020, the Meteoritical Society comprises 577 regular members, 75 students, 171 retired members, 3 life members, 11 members from developing countries, and 4 complimentary members (see MEMBERSHIP TABLE; note that the 4 complimentary members have not been included). This brings us to a grand total of 841 members. Many thanks to Everett Johnson and Tasha Dunn for providing these statistics. We have members in 44 countries; however, the statistics show that we still have a lot to do to gain members in many other countries and to increase the number of student members. Student memberships remain an inexpensive US$40, and we continue to subsidize the registration fee for the Meteoritical Society's Annual Meeting. Student members also have the opportunity to attend a student reception at this meeting, providing an excellent forum where they can interact with their peers and meet senior scientists in the community. *Please encourage your students to join!* In addition, the society has a mechanism in place to subsidize the annual dues for members in low-income countries. Prior approval is required from the Membership Committee for this rate, so please refer to our website http://www.meteoriticalsociety.org for more information.

For those wishing to avoid the hassle of paying dues every year, consider a life membership! For more information and details on how to become a member of the Meteoritical Society, please see our web page at www.meteoriticalsociety.org.

## WINNER OF THE PAUL PELLAS/GRAHAM RYDER AWARD

The Pellas–Ryder Award for the best student paper in planetary sciences is jointly sponsored by the Meteoritical Society and the Planetary Geology Division of the Geological Society of America. It is awarded to an undergraduate or graduate student who is first author of the best planetary science paper published in a peer-reviewed scientific journal during the year prior to the award. The award has been given since 2001 and honors the memories of meteoriticist Paul Pellas and lunar scientist Graham Ryder.

**Sabina D. Raducan**, currently a PhD student in the Department of Earth Science and Engineering at Imperial College, London (UK) is awarded the 2020 Pellas–Ryder Award for her paper "The Role of Asteroid Strength, Porosity and Internal Friction in Impact Momentum Transfer" (2019, *Icarus* 329, 282-295). Sabina has been part of NASA's Double Asteroid Redirection Test (DART) program investigation team, which examines the use of an impactor spacecraft as a planetary defense against potential threats posed by Earth-crossing asteroids. She is supervised by Gareth Collins, and she applies the iSALE shock physics code to model the effect of asteroid properties (cohesion, porosity, internal fraction) on ejecta momentum distribution and to calculate the resulting deflection induced by the impactor. Sabina's important contributions to this study involved modifying the iSALE code to track high-speed early ejecta in a computationally efficient manner; she also modified the ejecta scaling laws. Her work will be essential in interpreting the results of the DART mission and, more generally, in developing a planetary defense against asteroid threats.

| Country | Developing Country | Member | Retired Member | Student | Life Member | Total |
|---|---|---|---|---|---|---|
| Algeria | 1 | | | 1 | | **2** |
| Argentina | | 1 | | | | **1** |
| Australia | | 14 | 2 | 4 | | **20** |
| Austria | | 5 | 3 | 1 | | **9** |
| Belgium | | 4 | 1 | 3 | | **8** |
| Brazil | | 3 | | | | **3** |
| Canada | | 17 | 7 | 6 | 1 | **31** |
| Chile | | 1 | | 2 | | **3** |
| China | 1 | 10 | | | | **11** |
| Colombia | 1 | | | | | **1** |
| Costa Rica | | 1 | | | | **1** |
| Czech Republic | | 2 | | 1 | | **3** |
| Denmark | | 3 | 1 | 1 | | **5** |
| Finland | | 2 | | | | **2** |
| France | | 21 | 8 | 4 | | **33** |
| Germany | | 57 | 11 | 7 | | **75** |
| Greece | | 1 | | | | **1** |
| Holy See (Vatican City State) | | 2 | | | | **2** |
| Hungary | | 1 | | | 1 | **2** |
| India | 2 | 1 | 1 | | | **4** |
| Ireland | | | 2 | | | **2** |
| Italy | | 9 | 1 | 3 | | **13** |
| Japan | | 80 | 10 | 11 | | **101** |
| Korea, Republic of | | 3 | | 1 | | **4** |
| Latvia | | | | 1 | | **1** |
| Lithuania | | 1 | | | | **1** |
| Luxembourg | | | 1 | | | **1** |
| Malaysia | | 1 | | | | **1** |
| Morocco | 4 | | | | | **4** |
| Netherlands | | 5 | 1 | | | **6** |
| Norway | | 2 | | | | **2** |
| Oman, Sultanate of | 1 | 1 | | | | **2** |
| Poland | | 3 | 1 | | | **4** |
| Romania | 1 | 1 | | | | **2** |
| Russian Federation | | 8 | | 2 | | **10** |
| South Africa, Republic of | | 2 | | | | **2** |
| Spain | | 6 | 1 | | | **7** |
| Sweden | | 3 | | | | **3** |
| Switzerland | | 15 | 7 | 2 | | **24** |
| Turkey | | 1 | | 1 | | **2** |
| United Arab Emirates | | 1 | | | | **1** |
| United Kingdom | | 34 | 7 | 7 | | **48** |
| United States of America | | 254 | 106 | 17 | 1 | **378** |
| Uruguay | | 1 | | | | **1** |
| **Countries (n = 44)** | **11** | **577** | **171** | **75** | **3** | **837** |

# Meteoritical Society

## http://meteoriticalsociety.org

### 2021 ANNUAL MEETING INVITATION


You are cordially invited to attend the 84th Annual Meeting of the Meteoritical Society to be held 14–21 August 2021 in Chicago (Illinois, USA). Please mark your calendars. We are planning for an in-person meeting but are prepared to hold the meeting online should the situation with the COVID-19 pandemic require it. The Meteoritical Society (Met Soc) 2021 meeting is being organized by planetary scientists at the Field Museum of Natural History and the University of Chicago. The Field Museum is the birthplace of the Meteoritical Society, which was founded there in 1933 as the Society for Research on Meteorites. Chicago has a long history of pioneering work in meteoritics, cosmochemistry, and planetary science, and several of its scientific institutions are still active in these fields.

The 2021 Met Soc meeting will feature special sessions on asteroid sample-return missions Hayabusa2 and OSIRIS-REx. More details about the meeting program and events will be provided later. The meeting venue will be downtown at the Hilton Chicago on 720 South Michigan Avenue, with views overlooking Grant Park, Lake Michigan, and the museum campus. The venue is within walking distance to most major attractions. Chicago is a top tourist destination in the USA and a world-class cosmopolitan city with two international airports. It has a safe, walkable downtown, with beautiful parks, beaches, and cultural attractions, including many museums. Chicago is also known for its vibrant restaurant and microbrewery scene, many of which offer outdoor experiences in the summer.

We have COVID-19 precautions for an in-person meeting. The event organizers will do whatever is possible to minimize the risk for attendees of exposure to the SARS-CoV-2 virus. The hotel has already started implementing special cleaning procedures to minimize pathogen exposure to guests. The City of Chicago has reopened cautiously and has implemented comprehensive guidelines to reduce the spread of COVID-19. The organizers will work with city and hotel officials to provide the safest and most enjoyable meeting possible. The event organizers and the Council of the Meteoritical Society will decide if an in-person meeting can be held when we get closer to the meeting. Information will be provided on our meeting website: https://www.metsoc2021-chicago.com.

The meeting, be it in-person or virtual, will be an excellent venue to present and discuss your research and learn about the state-of-the-art in our fields. We encourage you to reserve the dates of 14–21 August 2021 in your calendar today, and we hope to welcome you to Chicago in the summer of 2021.

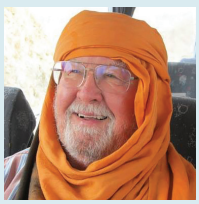
**Philipp R. Heck** (e-mail: prheck@fieldmuseum.org)

### 2020 GOLDSCHMIDT MEETING AWARDS

With the postponement of the Annual Meeting of the Meteoritical Society in Glasgow (UK) due to COVID-19, no student travel awards were made this year. Instead, the Met Soc chose to assist students and postdocs who were interested in attending the Goldschmidt2020 Virtual Meeting. Those who registered for Goldschmidt2020 and were selected will have their 2021 Meteoritical Society membership dues paid for by an award from the Meteoritical Society's Endowment Committee. The society's travel awards will resume for the 2021 Meteoritical Society meeting in Chicago, assuming that meeting takes place in person. Travel grant awardees are as follows:

- Kana Amano (Tohoku University, Japan)
- Brendan Chapman (Arizona State University, USA)
- Yankun Di (Australian National University)
- Emilie Dunham (University of California, Los Angeles, USA)
- Hideyuki Hayashi (University of Tokyo, Japan)
- Zilang Jin (Arizona State University)
- Tanya Kizovsky (University of Toronto, Canada)
- Linnea McCann (Arizona State University)
- Souma Ray (Arizona State University)
- Quinn Shollenberger (University of California, Los Angeles)
- Sherry Singerling (US Naval Research Laboratory, Washington DC, USA)
- Amanda Stadermann (University of Arizona, USA)
- Zachary Torrano (Arizona State University)
- Krysten Villalon (University of Chicago)
- Craig Walton (University of Cambridge, UK)
- Zoe Wilbur (University of Arizona)

### IN MEMORIAM: RICHARD (DICK) PUGH (1940–2020)



Our colleague, friend, and long-time member of the Meteoritical Society, Richard (Dick) Pugh passed away 15 June 2020 from complications associated with liver failure. His passing was peaceful and at home.

In 2003, Dick helped establish the Cascadia Meteorite Laboratory at Portland State University together with myself and Dr. Melinda Hutson. He also helped establish an endowment for meteorite curation at the university for a collection that now numbers over 1,300 different meteorites. In 2011, Dick received the Service Award from the Meteoritical Society for his excellent efforts in outreach and informal education. Throughout his career, Dick contributed to the recognition of seven new meteorite finds in Oregon, Idaho, Nevada, and Texas (all USA), and one new fall from Trapeang Ronoas (Cambodia). Dick was active in informal education right through last year when his health began to deteriorate. Dick was, in many ways, the heart of the Cascadia Meteorite Lab. His enthusiasm for meteorites was infectious, his world both that of the researcher and teachable layperson. He will be missed, but memories of him will live on and inspire.

This website at the Cascadia Meteorite Laboratory, Portland State University, has more information on Dick's many contributions: http://meteorites.pdx.edu/Pugh-tribute.html.

**Alex Ruzicka**, Portland State University

# German Mineralogical Society

www.dmg-home.org

## ABRAHAM GOTTLOB WERNER MEDAL IN GOLD TO EKKEHART TILLMANNS

With the Abraham Gottlob Werner Medal in Gold, the German Mineralogical Society (DMG) honors outstanding efforts in advancing the mineralogical sciences. This year, the DMG honors Prof. Dr. Ekkehart Tillmanns (University of Vienna, Austria) in appreciation of his outstanding merits. Prof. Tillmanns' career has been characterized by exchanging scientific ideas in the fields of mineralogy and crystallography. He served as a co-editor for the journals *Mineralogy & Petrology* and *Zeitschrift für Kristallographie*, as well as associate and chief editor of the *European Journal of Mineralogy*. For many years, he was member of the advisory board of *Physics and Chemistry of Minerals*. Being a member of several national and international mineralogical societies, he actively helped shape their development. Within the DMG, he was member of the advisory board and was a representative of the crystallography working group; in the Austrian Mineralogical Society he served as a board member and became an honorary member. For the board of the International Mineralogical Association (IMA), he was first a councillor before serving as president of this worldwide society, including the responsibility of organizing the IMA meeting in Budapest (2010). Besides his services to the scientific community, he was an outstanding scientist, publishing more than 185 scientific papers. In his contributions, he focused on the crystal chemistry of minerals and inorganic compounds and their physico-chemical characterization. The work of Ekkehart Tillmanns has been honored several times over his career. Highlights are the 1998 Distinguished Grantee Award of the International Centre for Diffraction Data, the 2002 Erwin Schrödinger Award of the Austrian Academy of Sciences, his election as a foreign member of the Russian Academy of Natural Sciences (Moscow) in 1999, as well as his election as a member of the Deutsche Akademie der Naturforscher Leopoldina – National Academy of Sciences (Halle/Saale) in 2000. With the Abraham Gottlob Werner Medal in Gold, the German Mineralogical Society honors Ekkehart Tillmanns as an internationally renowned mineralogist and crystallographer.

**Peter Paufler, Dresden**

*Cont'd from page 348*

## CALL FOR AWARD NOMINATIONS

**Please consider nominating a colleague for one of the Meteoritical Society's awards.**

Nominations should be sent to Secretary Munir Humayun (metsocsec@gmail.com) by **January 15** (January 31 for the Service Award and the Paul Pellas–Graham Ryder Award). For more information and details on how to submit a nomination for any of these awards, please see the latest *Meteoritical Society Newsletter* at the society's website or e-mail the secretary.

The society gives a number awards each year. The ***Leonard Medal*** honors outstanding contributions to the science of meteoritics and closely allied fields. The ***Barringer Medal and Award*** recognizes outstanding work in the field of impact cratering and/or work that has led to a better understanding of impact phenomena. The ***Nier Prize*** recognizes outstanding research in meteoritics and closely allied fields by a young scientist. The ***Service Award*** honors members who have advanced the goals of the Meteoritical Society to promote research and education in meteoritics and planetary science in ways other than by conducting scientific research. The ***Paul Pellas–Graham Ryder Award*** is given for the best student paper in planetary science and is awarded jointly by the Meteoritical Society and the Planetary Geology Division of the Geological Society of America. The newest society award, the ***Elmar Jessberger Award***, recognizes a mid-career female scientist in the field of isotope cosmochemistry.

# Société Française de Minéralogie et de Cristallographie

www.sfmc-fr.org

## *EUROPEAN JOURNAL OF MINERALOGY*

In the first seven months of 2020, the *European Journal of Mineralogy* (*EJM*) published 32 articles in 425 pages. All *EJM* papers are full open access, giving you the opportunity to freely enjoy reading them.

Until the end of 2020, as part of the promotion of the *EJM*'s new open access format, we will continue to offer a very attractive discount with an article processing charge (APC) at €50 per page (€40 for members).


### *A New Series*

We are pleased to announce the launching of a new series of special issues under the general title "**Probing the Earth**".

The production of first two special issues in the series are now underway:

### *PROBING THE EARTH: REVIEWS OF OH GROUPS IN ANHYDROUS AND HYDROUS MINERALS*

Submissions open until 31 January 2021.

Editors: Patrick Cordier, Etienne Balan, István Kovács, and Roland Stalder.

Provisional article titles already scheduled include:

- Influence of water on the transport properties of olivine, wadsleyite, and ringwoodite
- OH in quartz
- OH in orthopyroxene
- OH point defects in olivine
- Hydrogen-bonding topology of hydroxide perovskites

### *PROBING THE EARTH: EXPERIMENTS AND MINERAL PHYSICS AT MANTLE DEPTHS*

Submissions open until 30 June 2021.

Editors: Elisabetta Rampone, Patrizia Fumagalli, Stephan Klemme, Monika Koch-Müller, Didier Laporte, and Max Wilke.

More information on these special issues is provided on the web-page of the journal at https://www.european-journal-of-mineralogy.net/.

We look forward to receiving your exciting papers, either for the *EJM* itself or as part of the new Probing the Earth series.

# Meteoritical Society

## http://meteoriticalsociety.org

### SOCIETY AWARD WINNERS

The Meteoritical Society now gives five major awards each year. The Elmar Jessberger Award was added in 2020.

The award winners cited below were announced in 2019. The awardees received their awards at a special virtual ceremony as part of the online annual society business meeting in August 2020. For more information on individual awards, please see the Call for Nominations and the society's webpage.

The LEONARD MEDAL is the society's highest and oldest award and is given to individuals who have made outstanding original contributions to the science of meteoritics or closely allied fields. It is named for Frederick C. Leonard who was a founder and the first president of the society. The 2019 winner is **Michael E. Zolensky** (NASA Johnson Space Center, USA). Mike has made many remarkable contributions to meteoritics and allied fields; his discoveries, innovative science, enthusiastic sharing of his encyclopedic meteoritic and mineralogical knowledge as well as tireless curatorial service to the sample analysis community have profoundly enriched our field. The citation was given by Don Brownlee.

The BARRINGER MEDAL AND AWARD are sponsored by the Barringer Crater Company, which was created in memory of D. Moreau Barringer Sr and his son D. Moreau Barringer Jr. The award is given for outstanding work in the field of impact cratering. This year, the Barringer Medal and Award is given to **Joanna Morgan** (Open University, UK) for her fundamental contributions to our understanding of impact cratering, and, in particular, the Chicxulub (Mexico) impact crater as co-chief scientist of the International Ocean Discovery Program–International Continental Drilling Project Expedition 364. The citation was given by Richard Grieve.

The NIER PRIZE is for young scientists in the field of meteoritics. This year's winner is **Thomas Kruijer** of the University of Muenster (Germany). Thomas receives this award for his significant contributions using W isotope geochemistry to understand nucleosynthetic anomalies, the timing of earliest melting of asteroids, and the differences between the Earth and Moon's late veneer.

The METEORICAL SOCIETY SERVICE AWARD. **Agnieszka Baier** of the University of Arizona (USA) is the winner of this year's Meteoritical Society Service Award. Agnieszka receives this award for her effort in advancing the goals of the society and the far-reaching impact of her work. Her contribution to the society's goals is accomplished through her work with and dedication to our society's journal, *Meteoritics and Planetary Science*.

### *Call for Award Nominations*

Please consider nominating a colleague for one of the society's awards. Nominations should be sent to Secretary Munir Humayun (metsocsec@gmail.com) by 15 February 2021, or 31 January 2021 for the Paul Pellas–Graham Ryder Award and the Meteoritical Society Service Award. For more information and details on how to submit a nomination for any of these awards, please see the latest *Meteoritical Society Newsletter* at the society's website, or e-mail the secretary.

### IN MEMORIAM

### *Nadine G. Barlow (1958–2020)*

Nadine Gail Barlow passed away 17 August 2020. A native of San Marcos (California, USA), Nadine received her BSc in astronomy with minors in geology and chemistry from the University of Arizona (USA) in 1980. She received her PhD in planetary sciences from the University of Arizona in 1987 under Dr. Robert Strom.

Nadine then did a post-doc at the Lunar and Planetary Institute (Texas, USA) followed by a National Academy of Sciences/National Research Council Assistantship at NASA's Johnson Space Center (Texas, USA). She taught astronomy and planetary geology courses part-time at the University of Houston Clear Lake (USA) where she realized that she enjoyed both teaching and research. Nadine then spent 6.5 years at the University of Central Florida (USA) teaching and restoring the college's Robinson Observatory while serving as its director. In 2002, during her last year at the University of Central Florida (UCF), Nadine was honored both with the UCF College of Arts and Sciences Excellence in Undergraduate Teaching Award and with the overall university Excellence in Undergraduate Teaching Award.

Nadine then returned west and became an assistant professor at Northern Arizona University (NAU), eventually becoming the Chair of the Department of Astronomy and Planetary Science. Nadine received numerous awards for teaching excellence (e.g., the NAU Research and Creative Activity Award for Most Effective Research Mentor, 2011). Largely responsible for doubling the size of the department, she grew its curriculum into a PhD-granting program. Nadine supervised many students over the years and was a popular mentor. A prize for Undergraduate Research Excellence is being established at NAU's Department of Astronomy and Planetary Sciences in her name.

Nadine specialized in impact cratering processes, particularly on Mars. For her PhD dissertation—almost on a dare—she mapped, measured, and classified every crater on the entire planet over 8 km in diameter. These data were then used in numerous fundamental studies, including to establish the detailed relative chronology of Martian geologic features. Throughout her career, Nadine maintained and expanded this database, as later spacecraft missions returned increasingly detailed images of Mars. She also wrote many papers on martian craters, and authored the 2008 textbook *Mars: An Introduction to its Interior, Surface, and Atmosphere*. Asteroid 15466 Barlow is named in her honor.

Nadine was central to the creation of the Mars Crater Consortium in the late 1990s (now the Planetary Data Consortium), which provides a forum for the discussion of studies of impact craters on all planetary bodies. Nadine served as the Chair for the first 15 years of its existence, establishing its direction and character. Nadine also served the Division for Planetary Sciences, American Astronomical Society, in a variety of roles. She served on the Meteoritical Society's Barringer Award Committee. Nadine brought the Arizona Space Grant Program to NAU, and she fostered cooperation between NAU, the Lowell Observatory (Arizona), and the US Geological Survey. She served as Director, NAU Space Grant Program and Associate Director of the Arizona Space Grant Consortium.

Friends and colleagues remember Nadine's positive outlook toward life. She is survived by her sister and several nieces and nephews and their families. Throughout her career, Nadine made many lifelong friends, and she will be missed by all of us.

For a more complete version of Nadine's story, please see the Meteoritical Society's website.

**Bob Marcialis, Faith Vilas, Lisa Prato, Lynn Hayden**

## *John T. Wasson (1934–2020)*

John Taylor Wasson passed away peacefully at home on 8 September 2020, at the age of 86. John, an emeritus professor at the Department of Earth, Planetary, and Space Sciences at University of California, Los Angeles (UCLA) (USA), was passionate about meteorites and what their properties reveal about the formation and early evolution of the solar system. Over a research career spanning six decades, he left a rich legacy of contributions to meteoritics and planetary science.

John was born in Arkansas (USA) in 1934. He attended the University of Arkansas as an undergraduate, graduating in 1955. Only three years later, he received his PhD in chemistry from the Massachusetts Institute of Technology (USA), with his now-famous independent streak facilitated by loose supervision from his thesis advisor, Dr. Charles Coryell. At just 24 years of age, the newly minted Dr. Wasson accepted a one-year postdoc at the Technische Hochschule in Munich (Germany), working in nuclear physics. There, he met his future wife, Gudrun Hanewald (with whom he later had two daughters, Christina and Kerstin). He also started a project using a form of activation analysis.

In 1959, John spent time as a postdoc with Coryell back at MIT, and then, fulfilling his US Reserve Officer Training Corps requirement, spent 3.5 years working at the Air Force Cambridge Research Laboratories (based in Ohio, USA) while Gudrun completed her PhD at nearby Harvard University (Massachusetts, USA). John and Gudrun then returned to Germany where John did a postdoc at the University of Bern (Switzerland) with Franz Houtermans. There, he published his first work in cosmochemistry, entitled "Radioactivity in Interplanetary Dust". He also coauthored a paper involving neutron activation analysis and started his meteorite research in earnest.

In 1964, John was hired to the faculty at UCLA, appointed to both the Department of Chemistry and the Institute of Geophysics and Planetary Physics, where he immediately gave full rein to his passion for meteoritics, going on to author some 260 notable papers on the classification and interpretation of iron meteorites, siderophile and volatile trace elements in lunar samples (having been allocated Apollo 11 samples), chondrites, and achondrites. John also wrote two books: *Meteorites: Classification and Properties* in 1974, and *Meteorites: Their Record of Early Solar-System History* in 1985.

The Meteoritical Society always was an important part of John's scientific life. In 1980, he served as president. He served five years as editor of *Meteoritics*, beginning in 1987, during which time he oversaw a tremendous enhancement of the quality and stature of the society's journal (now the prestigious *Meteoritics and Planetary Science*).

John was awarded the Meteoritical Society's highest honor, the Leonard Medal, in 1992. In 2003, he was awarded the US National Academy of the Sciences' triennial J. Lawrence Smith Medal. In 2011, the mineral wassonite (TiS), indicative of extremely reducing conditions, was formally approved. In 2013, with key assistance from fellow UCLA researcher and curator Alan Rubin, John established the UCLA Meteorite Gallery, offering thousands of visitors the chance to encounter meteorites and to learn more about the solar system using the UCLA collection (the 5$^{th}$ largest in the USA) that John helped grow throughout his career.

After John formally retired from UCLA in 2015, he still remained active in research, cycling to his office nearly every day and continuing his instrument neutron activation analysis of iron meteorites. He was also a very good tennis player, even into his eighties, and could often be seen sporting his tennis gear in the venues of the Lunar Planetary Science Conferences and at Meteoritical Society meetings.

For a more complete version of John's story, please see the Meteoritical Society's website.

**Paul Warren, Alan Rubin, Kevin McKeegan**

## ANNUAL MEETING SCHEDULE

| | |
|---|---|
| 2021 (84$^{th}$) | 14–21 August, Chicago (Illinois, USA) |
| 2022 (85$^{th}$) | August TBD, Glasgow (Scotland, UK) |
| 2023 (86$^{th}$) | 3–8 July, Perth (Australia) |
| 2024 (87$^{th}$) | July/August TBD, Brussels (Belgium) |

## RENEW YOUR MEMBERSHIP NOW!

Please renew by 31 March 2021; after that date, a $15 late fee will be assessed. You can renew online at: http://metsoc.meteoriticalsociety.net