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IN MEMORIAM, BOB CLAYTON (1930–2017)



Robert N. “Bob” Clayton passed away 30 December 2017 after several years of declining health at his home in Michigan City (Indiana, USA) surrounded by family. Bob was the Meteoritical Society’s 1982 Leonard Medalist. He was born 20 March 1930 in Hamilton, Ontario (Canada). He received his BS and MS degrees from Queen’s University (Ontario) and his PhD from the California Institute of Technology (USA) (1955) where he was mentored by Samuel

Epstein. He joined the University of Chicago’s Chemistry Department and its Enrico Fermi Institute in 1958, and then joined that university’s newly founded Department of Geophysical Sciences in 1961. He was the Enrico Fermi Distinguished Service Professor at the University of Chicago until he retired in 2001, remaining active in emeritus status until about 2014.

Bob joined the cosmochemistry community during the Apollo program during the late 1960s, where he started measuring oxygen isotopes ($\delta^{18}\text{O}$) in ordinary chondrites. He is best known for his discovery of oxygen isotope variability in calcium–aluminum-rich inclusions (CAIs) with his now-classic 1973 paper that launched a new stage of his career. Bob’s superb three-isotope oxygen isotopic analyses so dominated the field that he established an isotopic classification of solar system materials and analyzed every new meteorite for 25 years with no competition, all with a late-1950s mass spectrometer equipped with a chart recorder, a ruler, and a pocket calculator. He developed O, N and Si isotope studies of lunar samples and meteorites by gas source mass spectrometry with Toshiko Mayeda (his long-term research associate from 1958 to 2004), Richard Becker, Mark Thiemens, and many other students and postdocs. His studies (with Typhoon Lee and Gerry Wasserburg) led to the recognition of fractionated unknown nuclear (FUN) isotopic anomalies in CAIs. In 1977, with Ian Hutcheon, Richard Hinton and Andy Davis, he pioneered secondary ion mass spectrometry (SIMS) techniques applied to in situ Al–Mg systematics of CAIs and chondrules. Bob, with Michael Pellin and Andy Davis, initiated an effort to develop resonance ionization mass spectrometry for cosmochemistry that led to the isotopic analysis of Ba, Sr, Ru, Fe, and other elements within individual pre-solar SiC grains. This launched a new form of laboratory-based nuclear astrophysics. After retirement, Bob’s note on self-shielding (2002) marked a major departure from his previous thinking on a variety of topics: he realized that NASA’s *Genesis* mission could yield a key piece of the solar system’s oxygen puzzle, and initiated the still-ongoing debate on the role of photochemical effects in producing the solar system’s oxygen isotope variability.

Bob will be remembered as a generous collaborator who worked selflessly with most of the major teams in meteorite research. He produced over 23 PhD students and 22 postdoctoral fellows in a career that spanned over five decades, the last four of which saw him heavily involved in meteoritics. Clayton’s morning coffee group in his Enrico Fermi Institute laboratory was a famous gathering place throughout his long career at the University of Chicago. His contributions are widely recognized, including by his being awarded the Goldschmidt Medal (Geochemical Society, 1981), the Bowie Medal (American Geophysical Union, 1987), the Urey Medal (European Association of Geochemistry, 1995), and the National Medal of Science (2004), not to mention the Meteoritical Society’s own Leonard Medal. He was a Fellow of the Royal Society of London, of the Royal Society of Canada, and a Member of the US National Academy of Sciences.

Bob Clayton is survived by his wife, Cathy, his daughter, Elizabeth, and his granddaughter, Leonora.

IN MEMORIAM, ELMAR JESSBERGER (1943–2017)



Elmar K. Jessberger passed away 29 November 2017 at the age of 74. Elmar was a Fellow of the Meteoritical Society since 1994 and Chairman of the Leonard Medal Committee from 2001 to 2002. He was organizer of the society’s 66th annual meeting, in 2003, in Münster (Germany). Main belt asteroid 16231 Jessberger, discovered in 2000, was named after him in 2005.

Elmar received his PhD from Heidelberg University (Germany) in 1971 with a thesis on mass spectrometric analysis of trapped gases in lunar material, meteorites, and terrestrial basalts. This study was performed with Josef Zähringer and Till Kirsten at the Max Planck Institute for Nuclear Physics in Heidelberg, where Elmar had started working as an undergraduate in 1968 and where he stayed, ultimately as a senior scientist, until 1996. During that time, he received an NSF (US National Science Foundation) fellowship and worked from 1972 to 1973 with Jerry Wasserburg at the California Institute of Technology (Caltech) (USA). As a guest scientist in 1981, Elmar visited the State University of New York in Stony Brook (USA), and in 1984 he visited the McDonnell Center for the Space Sciences, Washington University in Saint Louis. Between 1991 and 1992, he spent a sabbatical at the University of Vienna and the Natural History Museum in Vienna (Austria).

Most of Elmar’s early work related to ^{40}Ar – ^{39}Ar dating of lunar rocks, meteorites, and terrestrial impact crater material. Later, he started working on interplanetary dust particles using proton-induced X-ray spectroscopy (PIXE). In 1986, after the flyby of the *Vega 1*, *Vega 2* and *Giotto* space probes at comet 1P/Halley, Elmar got heavily involved in the evaluation and interpretation of the data from the impact-ionization mass spectrometers onboard those missions. During his involvement in further space experiments, which ultimately led to the COSIMA instrument for the European *Rosetta* mission to comet 67P/Churyumov–Gerasimenko, he promoted time-of-flight secondary ion mass spectrometry (TOF-SIMS) as a new technique in cosmochemistry. His credo always was that sample analysis in space has to be complemented by state-of-the-art laboratory analysis here on Earth.

In 1996, Elmar became full Professor of Analytical and Experimental Planetology at the Institute for Planetology at the University of Münster. During his time in Münster, he established a dedicated TOF-SIMS laboratory, which played an important role in the analysis of cometary samples returned by the *Stardust* mission. He was one of the initiators of the Mercury radiometer and thermal infrared spectrometer (MERTIS) for the joint ESA/JAXA *BepiColombo* mission to the planet Mercury, and he promoted GENTNER, a combined laser-induced breakdown spectroscopy (LIBS) and Raman spectroscopy instrument, for the ESA/Roscosmos *ExoMars* mission.

After his retirement in 2008, Elmar stayed involved in science, mainly as an advisor in some of the projects he initiated. He was especially pleased to see his scientific legacy live on in the work of his numerous former students. Elmar constantly promoted the careers of his students and enabled them to become successful scientists.

We, who had the privilege to work closely with Elmar, will miss him as a great mentor and very good friend. We will especially miss the endless discussions, which usually involved a lot of cigarette smoke and a glass of wine (or two), about science, life, and everything.

Towards the end of his fulfilled life, Elmar became a devoted family man, who took the greatest pleasure in spending time with his five grandchildren (Jonathan, Luise, Lotte, Stella, and Jil). Elmar is survived by his wife, Ulrike, their sons Florian and Sebastian, and their families.

THANKS TO OUR SOCIETY COMMITTEE MEMBERS

The Meteoritical Society 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

Name	Affiliation	Ends
AUDIT • 3 members; 3-year term		
Beda Hofmann (Chair)	Natural History Museum (Switzerland)	2017*
Harold Connolly	Rowan University (USA)	2019*
Jutta Zipfel	Senckenberg Research Institute, Frankfurt (Germany)	2020
BARRINGER AWARD • 4 members, 4-year term		
John Spray (Chair)	University of New Brunswick (Canada)	2018
Akiko Nakamura	Kobe University (Japan)	2019
Michael Poelchau	University of Freiburg (Germany)	2020
Michael Zanetti	Washington University, St. Louis (USA)	2021
METEORITICAL SOCIETY COUNCIL		
Trevor Ireland (President)	Australian National University	2019
Meenakshi Wadhwa (Vice President)	Arizona State University (USA)	2019
Michael Zolensky (Past President)	NASA/JSC (USA)	2019
Michael Weisberg (Secretary)	City University of New York/AMNH (USA)	2019*
Candace Kohl (Treasurer)	Del Mar, California (USA)	2019*
Catherine Corrigan	Smithsonian NMNH (USA)	
Mario Trieloff	Heidelberg University (Germany)	
Maria Eugenia Varela	Instituto de Ciencias Astronomicas de la Tierra y del Espacio (Argentina)	
Pierre Rochette	Aix-Marseille University (France)	
François Robert	Museum national d'histoire naturelle, Paris (France)	*
Caroline Smith	Natural History Museum, London (UK)	*
Keiko Nakamura-Messenger	NASA/JSC (USA)	*
ENDOWMENT • 5 members; 3-year term		
Gary Huss	University of Hawaii (USA)	2018
Uwe Reimold	Leibniz Institute, Humboldt University, Berlin (Germany)	2018
Rhian Jones	University Manchester (UK)	2019
Allan Treiman	Lunar and Planetary Institute (USA)	2019
Drew Barringer (Co-Chair)	The Barringer Crater Company (USA)	
Candace Kohl (ex-officio)	Del Mar, California (USA)	
Trevor Ireland (ex-officio)	ANU College of Science (Australia)	
LEONARD MEDAL AND NIER PRIZE • 5 members; 3-year term		
Sara Russell	Natural History Museum, London (UK)	2018
Richard Binzel (Chair)	Massachusetts Institute of Technology (USA)	2019
Roger Hewins	Rutgers University (USA)	2020
Maria Schönbachler	ETH Zürich (Switzerland)	2021
Hiroshi Hidaka	Hokkaido University (Japan)	2022
MCKAY AWARD • 6-8 members; 1-year term		
Tasha Dunn (Chair)	Colby College (USA)	2018
Marina Ivanova (Vice Chair)	Vernadsky Institute (Russia)	2018

in **bold**. Without the generous help of these members, the MetSoc could not function. We greatly appreciate their help!

Name	Affiliation	Ends
MEMBERSHIP AND SERVICE AWARD		
Erin Walton (Chair)	Grant MacEwan University (Canada)	2018*
Tomas Kohout	University of Helsinki (Finland)	2018*
Devin Schrader	Arizona State University (USA)	2019
Gretchin Benedix	Curtin University (Australia)	2019
Matthias Meier	ETH Zürich (Switzerland)	2019
Mendy Ouzillou	Meteorite Collector (Skyfall Meteorites)	2020
Ludovic Ferriere	Natural History Museum (Austria)	2020*
NOMENCLATURE • 12 members; 3-year term • 3 ex officio		
Hasnaa Chennaoui-Aoudjehane	Université Hassan II de Casablanca (Morocco)	2017*
Jérôme Gattacceca, Bulletin Editor (ex-officio)	CEREGE (CNRS) (France)	2018
Knut Metzler	Universität Münster (Germany)	2018*
Meenakshi Wadhwa (ex-officio)	Arizona State University (USA)	2018
Tasha Dunn	Colby College (USA)	2019*
Laurence Garvie (Chair)	Arizona State University (USA)	2019
Mutsumi Komatsu	Waseda University (Japan)	2019
Tasha Dunn	Colby College (USA)	2019*
Jeff Grossman, Database Editor (ex-officio)	NASA/HQ (USA)	2019
Francis McCubbin	NASA/JSC (USA)	2019
Emma Bullock	Smithsonian – NMNH (USA)	2020*
Vinciane Debaille	Université Libre de Bruxelles (Belgium)	2020*
PELLAS/Ryder AWARD • 3 MetSoc; 3 GS; 3-year term		
Katherine Joy (MetSoc)	Universität Münster (Germany)	2018
Brad Thomson (GS, Chair)	University of Tennessee (USA)	2018
Emily Martin (GS)	Smithsonian – NASM (USA)	2019
Sharon Wilson Purdy (GS)	Smithsonian – NASM (USA)	2019
Jon Friedrich (MetSoc)	Fordham University (USA)	2019
Lindsay Keller (MetSoc)	NASA/JSC (USA)	2020
PUBLICATIONS • 6 members + Treasurer; 3-year terms		
Alan Rubin	UCLA (USA)	2018
Martin Bizzarro	Natural History Museum (Denmark)	2019
Tomoki Nakamura	Tohoku University (Japan)	2019
Cecile Engrand (Chair)	University of Paris (France)	2020*
Ian Lyon	University of Manchester (UK)	2020*
Qingzhu Yin	University of California at Davis (USA)	2020
PUBLICATIONS (JOINT PUBLICATIONS) • 6 members; 3-year terms		
Steve Shirey (GS) Chair	Carnegie Institution of Washington (USA)	2018
George Flynn (MetSoc)	SUNY Plattsburgh (USA)	2018
Thorsten Kleine (MetSoc)	Universität Münster (Germany)	2019*
Jisun Park (MetSoc)	CUNY, Kingsborough Community College (USA)	2019*
Mark Rehkemper (GS)	Imperial College, London (UK)	2019

* = 2nd term