



# Mineralogical Association of Canada

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## THE 2019 PINCH MEDAL AWARDED TO MR. GAIL E. DUNNING



The 2019 Pinch Medal of the Mineralogical Association of Canada has been awarded to Mr. Gail E. Dunning of Sunnyvale (California, USA). Through his detailed field studies and publications, Mr. Dunning has demonstrated a high degree of mineralogical expertise, primarily in the unusual primary and secondary minerals from the US (California and Nevada) and from northern Mexico. He has, to date, been involved in the discovery of 8 new minerals, with potentially more to come, and, in 2019, the new mercury mineral

gaildunningite, from the Clear Creek Mine (California), was named in his honour.

Mr. Dunning (born 1937) is a physical chemistry graduate of the University of California, Los Angeles and a retiree from the General Electric Company, where he had worked since 1959 as a chemist of radioactive materials and, later, as a senior metallurgical engineer overseeing the materials testing laboratory. The latter afforded him the opportunity to become proficient in many of the techniques applicable to studying minerals, such as X-ray radiography, metallography, and scanning electron microscopy.



Gail Dunning and MAC past-president Andy McDonald at the March 2020 meeting of the Bay Area Mineralogists.

In 1955, he met J. Fenimore ('Fen') Cooper, a geology major who became a lifelong friend and collecting partner. From 1962 to 1976, Gail and Fen collected extensively, traveling throughout California and the western US, studying mining sites and collecting common, rare and unusual minerals. Their most active and rewarding field collecting was done at the Kalkar Quarry in Santa Cruz (California). It was here that they discovered their first new mineral, "tin benitoite", which was subsequently named 'pabstite' after Dr. Adolf Pabst of the University of California, Berkeley. Gail and Fen wrote extensively of their findings and the mines they visited, co-authoring more than 20 articles together.

Over his near 50 years collecting and studying minerals, Mr Dunning has been involved in ~50 papers pertaining to mineralogy. His main interests have been in Ba-silicates and Hg-bearing minerals; he also has a keen interest in ore microscopy, this being applied to the examination and characterization of sulfides and sulfosalts (including to terrestrial occurrences of the rare mineral troilite). Three of the recent notable studies Gail has been involved with include: 1) mercury at the Clear Creek mine in San Benito County, California (Dunning et al. 2005); 2) barium silicate mineralogy of the Western Margin of North America (Dunning et al. 2018); and 3) the McDermitt Caldera Complex in Nevada and Oregon (Dunning et al. 2019). Mr. Dunning has served as President of the Bay Area Mineralogists (1988–1989) and as its treasurer (1990–1994); he is currently the awards chairperson for the mineral group. Still quite active, he is currently working on a paper describing the paragenesis of Hg minerals from cavities at the McDermitt mine in Humboldt County, Nevada.

In a break with tradition, Gail was presented with his Pinch Medal at the March 2020 meeting of the Bay Area Mineralogists. This took place under a moon-lit, star-filled sky, owing to the building closures surrounding the COVID-19 pandemic. At least 20 members and well-wishers were in attendance (100+, if not for the pandemic situation), many of whom personally congratulated Gail on his medal.

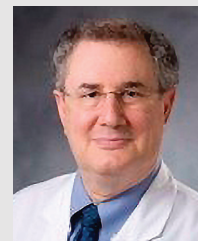
The Mineralogical Association of Canada is proud to recognize the long-term dedication and efforts of members of the collecting community. Mr. Gail E. Dunning is an exceptional member and, in light of his contributions to the science of mineralogy, we are pleased to award him the 2019 Pinch Medal.

## REFERENCES

- Dunning GE, Hadley TA, Magnasco J, Christy A, Cooper JF (2005) The Clear Creek mine, San Benito County, California: a unique mercury locality. *Mineralogical Record* 36: 337-363
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- Dunning GE, Cox M, Christy AG, Hadley TA, Marty J (2019) Geology, mining history, mineralogy and paragenesis of the McDermitt Caldera Complex, Opalite mining district, Humboldt County, Nevada, and Malheur County, Oregon. *Baymin Journal* 20: 1-165

## IN MEMORY OF DR. MARK NEIL FEINGLOS, MD, CM (1948–2020)

It is with great sadness that we report the unexpected passing of Dr. Mark Neil Feinglos on 14 March 2020. He died in the home he loved in Durham (North Carolina, USA) where he had lived for over 40 years.



He was a professor of medicine at Duke University Medical Centre where he was Chief of the Endocrinology, Metabolism and Nutrition Division for more than a decade.

Dr. Feinglos completed his BSc degree at McGill University (Canada) prior to pursuing a career in medicine.

Mark had one, central passion: mineral collecting. He began collecting minerals at the age of five when his aunt bought him a box set of minerals as a gift. Mark's passion for mineralogy grew over the course of his life, and he built up one of the most scientifically important private mineral collections in the world. Over the years, Mark identified many new minerals, as he was often sent specimens that could not be classified. Working within Duke's mineral collection, Mark discovered something that looked like a new mineral type, and worked to name the new mineral 'dukeite' in honor of Duke University and the Duke family. In 1997, Mark was honored to have a mineral named after him, 'feinglosite'. This was after he was the first to notice the unfamiliar specimen in the Natural History Museum of London (UK). And he felt privileged to be part of a project that led to the world's largest database of minerals, which became useful even to NASA in its analysis of moon rocks. Mark won the William Pinch Medal in 2003, its second recipient after its namesake, Mark's best friend Bill Pinch.

## GEOCONVENTION 2020 JOINT MEETING in association with GAC-MAC Annual Conference is going virtual on 21-23 September 2020.



**geoconvention**  
Virtual Event  
September 21-23 2020

GeoConvention will be hosting the 2020 program completely virtual! We are excited

to be exploring opportunities to bring nearly 800 presentations to your computer or mobile device through an interactive platform that will allow for learning, knowledge sharing and even networking! Content will be accessible wherever or whenever you are: no travel expenses, no commuting, sit back, relax and enjoy the show!

Registration rates have been updated to reflect a virtual meeting. The Registration Portal will open soon. Stay up-to-date by visiting the GeoConvention 2020 website at <https://geoconvention.com/>.

## MAC TRAVEL AND RESEARCH GRANT AWARDS IN 2019

The Mineralogical Association of Canada (MAC) awarded 23 Student Travel and Research Grants in 2019 that totaled \$15,000: six went to undergraduate students, nine to MSc students, and eight to PhD students. Congratulations to these deserving individuals! Report excerpts from 6 of the recipients follow.



**Andrew Wagner** is an undergraduate student at Saint Mary's University (Canada) under the supervision of Dr. Erin Adlakha. The MAC Student Travel Grant mitigated his transportation costs to the University of Toronto (Canada) where he completed analytical work using their laser ablation inductively coupled plasma mass spectrometer. His project focuses on characterizing trace element concentrations of apatite-hosted silicate melt inclusions from the Mine Stock Pluton, which is associated with the Cantung tungsten skarn deposit, Northwest

Territories (Canada). Through this work, he aims to understand the composition, metal content and origin of fertile magmas of tungsten skarns and evaluate the role of magma mixing in the production of mineralizing fluids.



**Serhiy Buryak** is a second-year MSc student at the University of Alberta (Canada) under the supervision of Dr. Alberto Reyes. His research project is titled "Geochronology and Characterization of the Wombat Kimberlite Pipe Post-Eruptive Maar Lake Sediment Fill, Subarctic Canada". The MAC Travel Grant provided a unique opportunity to showcase his research results at the European Geosciences Union (EGU) General Assembly 2019 in Vienna (Austria). He presented a poster at the "Limnogeology" session, which drew a lot of

constructive feedback from the international research community. Furthermore, through discussions with European colleagues, he was brought up-to-date on multidisciplinary paleolake research, including how to apply geochronological, geochemical and mineralogical tools to characterize ancient lake records. Attending EGU 2019 was a very rewarding experience.



**Chantal Norris-Julseth** recently received her BSc (Honors) in geology from Brandon University (Canada), and is currently at the University of Toronto under the supervision of Prof. Melissa Anderson. She is studying active seafloor volcanism and the role structures play in the formation of volcanic massive sulfide (VMS) deposits. The award allowed Chantal to attend the 2019 GAC-MAC-IAH conference in Quebec City to present results from her MSc, which was titled "Structural Evolution of the NE Lau Back-Arc Basin: Links to Tectonic Regime

and Magmatic-Hydrothermal Systems." She talked at the "Submarine Volcanism and Marine Minerals: Key Resources for the Future" session where she met many

of the leading researchers in her field. Attending related sessions and taking part in the student networking event allowed her to expand her network of contacts before she graduates. In the future, she would like to work in the field of economic geology, ideally in exploring for VMS deposits within Manitoba's greenstone belts.



**Teegan Ojala** is a first-year MSc student at McGill University (Canada) under the supervision of Dr. Galen Halverson. She is studying the Barney Creek Formation within the McArthur Basin, as well as the Fraynes Formation of the Birrindudu Basin (both in Australia), in order to look at the geochemistry of the shales in the two formations, which are thought to be equivalent and to have been linked in the past into one larger basin, the Greater McArthur Basin. Her research project was based on drill-core samples provided by Dr. Marcus Kunzmann, a sedimentologist with CSIRO in Australia. The MAC research grant permitted her to expand the scope of her research to working directly with Dr. Kunzmann on rocks of the McArthur basin, both in the field and in the drill core library in Darwin. During her time in Australia she was able to visit a number of geologically interesting sites including the Flinders Ranges in Southern Australia and she was able to collect a large number of samples from the Fraynes Formation from a drill-core library in Darwin. The newly collected samples will be analyzed for carbon, oxygen, and neodymium isotopes and will provide very useful data for her master's thesis.



**Catherine Crotty** is a PhD student at McGill University under the supervision of Prof. Vincent van Hinsberg. She used the MAC Travel and Research Grant to present recent research findings at Goldschmidt 2019 in Barcelona (Spain). Her project aims to quantitatively reconstruct the trace metal composition of the hydrothermal fluids that were being emitted into the Archean oceans by "black smokers". She is doing this by experimentally determining the partition coefficients between hydrothermal fluids and antigorite, chlorite, and albite,

which constitute dominant minerals in the main (ultra)mafic ocean crust lithologies. The partitioning data she obtained will be applied to natural samples from the 3.2 Ga Tartoq Group, a supracrustal belt for which the  $P$ - $T$  history and rock compositions are known. This allows for easy identification of samples that have experienced the lowest metamorphic grades and ones most likely to retain prograde fluid signatures. At the conference, she presented the successful synthesis of chrysotile and antigorite, at 325°C and 350°C respectively, and their partition coefficients. Once partitioning data are extended to higher  $P$ - $T$  conditions and applied to natural samples, it will be possible to indirectly constrain the composition of the Archean oceans by understanding the input of trace metals into the ocean by black smoker vents.



**Jacob Forshaw** is a second year PhD student at the University of Calgary (Canada) under the supervision of Prof. Dave Pattison. His research is concerned with a newly emerging, and fundamental, question in petrology: to what degree is the equilibrium model of metamorphism compromised by kinetic impediments to reaction? He used the MAC travel grant to attend the GAC-MAC-IAH 2019 meeting in Quebec City, where he presented the first findings of his PhD research on the interplay between equilibrium and kinetics in regional metamorphism. This work involved detailed petrographic, textural and chemical analysis to reveal the sequence, spacing, and nature of metamorphic reactions in two tectonic settings. Comparison of these observations with the reactions as predicted by equilibrium thermodynamics showed distinct differences between the two, which carries broad implications for the assessment of the pressure-temperature-time paths that underpin our understanding of tectonic processes. Attending this conference provided a fantastic opportunity for him to network with fellow metamorphic geologists from both the Canadian and international community, as well as receive critical feedback on his research.