

Medals and Awards

National Awards

Logan Medal Barbara Sherwood Lollar

The Logan Medal, the highest award of the Geological Association of Canada is presented to an individual for sustained distinguished achievement in Canadian earth science. The 2018 medal is awarded to **Dr. Barbara Sherwood Lollar**, University of Toronto, for her innovative applications of compound specific stable isotope analysis which have revolutionized geochemistry.

Citation: Barbara Sherwood Lollar's sustained distinguished achievements span more than two decades. They are based largely on a state-of-the-art stable isotope laboratory that she has established at the University of Toronto, and, thereby, on her innovative, insightful applications of compound specific, stable isotope, analytical technology in the elucidation of the nature and significance of organic compounds that occur in geological fluids from a variety of geological environments. These fluids vary from shallow groundwater flowing through soil, sediments, and near surface rocks, to fluids that are isolated within pores and cracks in crystalline rocks. Barbara has demonstrated how this analytical technology can be used to establish both the source and fate of organic contaminants in groundwater, as well as the abiogenic generation of methane and hydrogen in water that has been trapped for more than 1 billion years in fractured crystalline rocks that are now more than 2 km below the surface of the Canadian Shield. These discoveries have stimulated the application of stable-isotope geochemistry in environmental science and engineering, and also research on the evolution of life on Planet Earth and other terrestrial planets.



Her research on the development of new techniques for using stable-isotope tracers to determine the fate and distribution of organic contaminants in near-surface groundwater and the effectiveness of groundwater remediation processes has involved extensive collaboration with industrial partners, consultants and regulators in Canada, United States, and Europe. She has lectured widely in North America, Europe, and worldwide on her scientific findings and their implications, on water quality issues, on the remediation of contaminated groundwater resources, on 'carbon capture' and subsurface 'carbon' isolation and storage. At the same time, Barbara has contributed important leadership and support to the international geochemistry community. She has served as president of the international Geochemical Society, Editor-in-Chief of the international journal *Chemical Geology*, and Editor of Volume 8 (*Environmental*

GEOLOGICAL ASSOCIATION OF CANADA

The MISSION of the Geological Association of Canada is to facilitate the scientific well-being and professional development of its members, the learned discussion of geoscience in Canada, and the advancement, dissemination and wise use of geoscience in public, professional and academic life. The VISION of the GAC® is to be a multidisciplinary scientific society supportive of the entire scope of the geosciences in Canada. The GAC® aims to be a geoscience community that is knowledgeable, professionally competent and respected, whose input and advice is relevant, widely sought and utilized, and whose vital contribution to the economic prosperity and social well-being of the nation is widely acknowledged.

La MISSION de l'Association géologique du Canada est d'aider au développement scientifique et professionnel de ses membres, de favoriser les échanges géoscientifiques au Canada ainsi que de promouvoir et de diffuser l'utilisation éclairée des géosciences dans un contexte public, professionnel et académique. La VISION de l'AGC® est de faire connaître une communauté géoscientifique de grand savoir, dont les compétences professionnelles sont respectées, dont les suggestions et les avis sont pertinents, recherchés et utiles, et dont la contribution largement reconnue est considérée comme vitale pour la prospérité économique et le bien-être de la nation.

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GAC® Awards / Prix de l'AGC®

National Awards / Prix nationaux

Logan Medal

W. W. Hutchison Medal

E. R. Ward Neale Medal

J. Willis Ambrose Medal

Eric Mountjoy Exchange Award

Student Awards / Prix étudiants

Mary-Claire Ward Geoscience Award

Jerôme H. Remick Poster Awards

Eric Mountjoy Exchange Award

GAC®-PDAC Logan Student Prize

Prix Section and / et Division Awards

AQUEST—

Certificat d'excellence de l'AQUEST

Canadian Geomorphology Research Group—

J. Ross Mackay Award, Olav Slaymaker Awards

Geophysics Division—

Geophysics Division Student Award

Canadian Sedimentology Research Group—

Middleton Medal

Marine Geosciences Division—

Michael J. Keen Medal

Mineral Deposits Division—

Duncan R. Derry Medal, William Harvey Gross Award,

Julian Boldy Certificate Awards

Paleontology Division—

Elkanah Billings Medal, Pikaia Award

Precambrian Division / Mineral Deposits Division —

Howard Street Robinson Medal

Canadian Tectonics Group—

Jack Henderson Prize for Best Thesis, Ph.D. and M.Sc.

Volcanology and Igneous Petrology Division—

Career Achievement Award, Léopold Gélinas Medal

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GEOLOG (ISSN 0227-3713; 1712-3747) is the quarterly newsmagazine of the Geological Association of Canada, St. John's, Newfoundland and Labrador. *GEOLOG* is published for the benefit of GAC® members and its content reflects the diversity of the organization. News items and short articles on topics of potential interest to the membership including public geoscience awareness are encouraged. Also encouraged are communications promoting interaction among academic, industry and government sectors. *GEOLOG* accepts and publishes contributions in both of Canada's official languages. Opinions expressed herein are those of the writers and do not necessarily represent the official positions of the GAC®. *GEOLOG* is one of several forums provided by the GAC® for scientists worldwide.

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GEOLOG (ISSN 0227-3713; 1712-3747) est le bulletin trimestriel de l'Association Géologique du Canada, à St. Jean, Terre-Neuve-et-Labrador. *GEOLOG* s'adresse aux membres de l'AGC® et son contenu reflète le caractère polyvalent de cette organisation. Nous invitons la soumission de nouvelles et articles courts pouvant intéresser les membres, incluant les thèmes de sensibilisation du public aux sciences de la Terre. Les articles suscitant des échanges d'opinions et d'informations entre les secteurs académique, industriel et gouvernementaux sont également la bienvenue. *GEOLOG* accepte et publie les articles dans les deux langues officielles du Canada. Les idées sont celles des auteurs et ne représentent pas nécessairement la position officielle de l'AGC®. *GEOLOG* n'est qu'un des nombreux forums offerts par l'AGC® aux scientifiques à travers le monde.

ABONNEMENT: L'abonnement à *GEOLOG* est un des privilèges dont bénéficient les membres de l'AGC®. On peut se procurer un formulaire d'adhésion par courrier ou par fax en communiquant avec l'Association Géologique du Canada.

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Contributions for next issue

Please send items for the next issue of *GEOLOG* by e-mail to Alwynne.Beaudoin@gov.ab.ca on or before **September 1 2018**.



Eric Thiessen, Simon Fraser University,
winner of the 2018 Mary-Claire Ward
Geoscience Award (see p. 10)

Continued from p. 1

Geochemistry) in the award-winning major reference work: *Treatise on Geochemistry*. She also provided scientific support to many other organizations such as: NSERC, the Canadian Space Agency, the Canadian Nuclear Waste Management Organization, UNESCO, International Atomic Energy Agency, the US National Research Council; NASA, the U.S. Environmental Protection Agency, and the U.S. Department of Energy.

She has received many prestigious awards and appointments, including: Fellow of the Royal Society of Canada, Fellow of the AGU, the Eni Award in Protection of the Environment from the President of Italy, NSERC's 2016 John C. Polanyi Award, and Companion of the Order of Canada.

J. Willis Ambrose Medal Peter T. Bobrowsky

The Ambrose medal, named after the first GAC® President, J. Willis Ambrose, is awarded to an individual for sustained dedicated service to the Canadian earth science community. The 2018 medal is awarded to **Dr. Peter T. Bobrowsky**, Geological Survey of Canada (Pacific).

Citation: In recognition of his sustained, long term commitment and dedicated service aimed at promoting and advocating on behalf of Earth Scientists both in Canada and globally; outreach focused on the education of both Earth Scientists and the broader public about geological hazards; and scientific contributions focused on understanding the Quaternary Earth system, we are very pleased to award Dr. Peter Bobrowsky the J. Willis Ambrose Medal.

Peter has an unparalleled record of volunteer service at the very highest levels in Canada's and the globe's premier Earth Science organizations. He has served as President of CANQUA, one of the world's foremost Quaternary Geology associations, the Geological Association of Canada, and as the Director of International Affairs for the Canadian Federation of Earth Science. Internationally, Peter was elected Vice-President of the International Union of the Geological Sciences, and subsequently served 8 years as Secretary of the IUGS, perhaps the most demanding volunteer position in Earth Science globally. And he continues to serve as an active member of our Canadian National Committee for the IUGS.

Peter's contributions to Earth Science meetings is equally meritorious. This meeting, the RFG2018 Vancouver meeting, owes its very existence to the efforts of Peter. It was Peter who first imagined this conference; who penned the proposal for the meeting, and then presented it to IUGS; and it was Peter who then successfully lobbied for the involvement of the major Canadian Earth Science organizations, including the CIM, the GAC,® the MAC and CFES. And it is due to Peter's efforts as a scientist and an educator, that those living in Vancouver understand and are aware of the earthquake and tsunami hazard of this region. It was Peter's research that demonstrated for the first time that the Cascadia subduction zone had been responsible for a mega-quake and related tsunami in 1700. More importantly, it was Peter's outreach and educational efforts, much like his work on landslide hazards, that brought home the impact and significance of his research findings for both the scientific community and for the broader public.



Peter has been tireless in his efforts on behalf of the global Earth Science community, as a volunteer in local, national and international organizations; as an educator reaching across disciplines and communities; and as a scientist.

He is a most deserving recipient of the Ambrose Medal, and to receive the medal here at the RFG2018 meeting, a meeting that owes its very existence to Peter's efforts, is fitting.

Acceptance: My thanks to the Geological Association of Canada for awarding me the Ambrose Medal for 2018. I wish to express my appreciation to my award advocates – Professors Stephen Johnston, Nathaniel Rutter and John Clague for their support and especially their effort in proposing my candidature for this medal. Stephen, Nat and John have been the best of mentors, colleagues and friends for over three decades, and they continue to expand my perception and admiration for our discipline.

When I look at the list of previous recipients for the Ambrose Medal – all of which are exemplary geological practitioners, academics, researchers and contributors to Canadian geosciences – I am honored and humbled to be included in their company.

Like many before me, as a first generation Canadian I was fortunate to have parents that viewed access to higher education as an incredible privilege, and it was always their highest priority in life to give their children the opportunities to follow personal educational passions. Notwithstanding this unfettered support, I fondly recall my mother politely asking me one day, while I was still an undergraduate, why in the world do I want to pursue an education and career that requires me to work in the field for months at a time. I quote “Wouldn’t a nice job in a bank be better?” I stopped justifying the values and benefits of being a geologist to all who asked a long time ago. But I remain indebted to my parents for giving me the rare freedom to turn a great hobby into a fulfilling career.

My research and practical work in Quaternary geology and engineering geology, from mapping bluffs to monitoring landslides has been consistently satisfying. Equally rewarding have been my committee and volunteer efforts for international entities like the IUGS, national groups like the GAC® and especially the opportunities to have taught students at a number of universities as well as to continue to educate the public on behalf of the Smithsonian Institution. No matter what the activity, geology has rewarded me the good fortune to meet a great number of good people, smart individuals and fascinating characters. Regrettably, it is not possible to recognize all of the spectacular professionals who have crossed paths with me over 35 years of geologic history, their positive impacts and their lasting influence.

I am grateful to the BC Geological Survey and the Geological Survey of Canada for unflinchingly supporting almost every idea, suggestion and request I put forward during respective tenures. As a geologist that lives and works in Canada, I identify the Geological Association of Canada as our country’s premier geological society, so receiving peer acknowledgement from the GAC® by awarding me the Ambrose Medal is a recognition I will always cherish. Thank you very much.

W. W. Hutchison Medal Gordon “Oz” Osinski

The W. W. Hutchison Medal is named after Dr. William W. Hutchison in recognition of his many contributions to the Geological Association of Canada and to Canadian and international geoscience. The medal is awarded to a young individual for recent exceptional advances in Canadian earth science research.



The 2018 medal is awarded to **Dr. Gordon “Oz” Osinski** for his outstanding contributions to Canadian and international earth science research in understanding the role that meteorite impact events have played in shaping the Earth’s geological and potentially biological evolution.

Citation: Dr. Gordon “Oz” Osinski is one of the best geoscientists in Canada, and indeed internationally. His research is leading the way in showing that meteorite impact events have played an important role

throughout Earth's history, shaping the geological landscape, affecting the evolution of life, and producing economic benefits, such as the Cu-Ni-PGE ores in the Sudbury Basin. Dr. Osinski has made significant contributions to the understanding of several major aspects of the impact cratering process, in particular the effects of impacts in to sedimentary target rocks, the emplacement of impact ejecta, the tectonics of complex crater formation, and impact-generated hydrothermal systems.

Fieldwork remains the foundation for his research program and he is known for his exemplary field mapping skills as well as his unwavering enthusiasm and stamina in the face of challenging terrains and adverse weather conditions. Dr. Osinski is a talented mountaineer and explorer and has conducted fieldwork on six continents and has been an annual visitor to the Canadian North since 1999. The strength of his work stems from the synthesis of field observations with remote sensing data together with a range of geochemical and petrographic data. He is a highly innovative and incredibly active and productive researcher. His research has resulted in the publication of over 140 peer-reviewed articles in international journals and special papers since 2001 and he has given over 100 conference presentations.

Dr. Osinski is also an extraordinary science communicator, teacher, and mentor. He is known for providing a safe, friendly and nurturing environment for his students and he is an excellent mentor. He has successfully graduated over two-dozen Ph.D. and M.Sc. students. Many of his students have been highly successful with external awards, with 16 having held, or presently holding, NSERC and Ontario Graduate Postgraduate Scholarships and three others having been awarded prestigious Vanier Canada Graduate Scholarship.

Dr. Osinski is a firm proponent of outreach and public engagement and in the value of being able to communicate research results not just to other scientists but to the public. He places a strong emphasis on the inclusion and advancement of women in STEM. In addition to his scientific and other achievements, Dr. Osinski is recognized nationally and internationally for his vision and leadership.

Dr. Osinski is highly deserving of the W. W. Hutchison Medal.

E. R. Ward Neale Medal Mark M. Fenton

The Neale Medal is named after the legendary E. R. Ward Neale. The award recognizes outstanding efforts to communicate and explain geoscience to the public through one or more of the following vehicles: public lectures, print or electronic media articles, school visits, elementary and secondary school educational materials, field trips, science fairs, and other public communications. The 2018 medal is awarded to **Dr. Mark M. Fenton**.



Citation: Dr. Mark Fenton is well-known by geologists across Alberta for his enthusiasm for geology and willingness to share his earth science knowledge. Throughout his more than forty year career, two threads have run through his activities: a commitment to excellence in mapping and a dedication to public outreach. His scholarly achievements and publication record are impressive. His outreach activities have touched professional and avocational geologists, students of all ages from elementary to university level, members of societies and special interest groups, and many other people with interests in natural history and landscape.

Despite carrying a heavy work load in his "day job", Mark has consistently offered his "spare time" to geoscience education. For fifteen years, he taught a course in environmental geology through the Faculty of Extension at the University of Alberta in Edmonton.

Through his efforts, hundreds of people have been introduced to the fascinating history of the ground beneath their feet. For Mark, geology is best explained in the field and so fieldtrips of various different kinds form an important component of his geoscience outreach work. He makes good use of Edmonton's river valley as well as parks and natural areas in central Alberta as outdoor classrooms. He helps people to see earth science in the places where they live. He has led many geowalks both in urban and country settings, pointing out landforms and terrain features and making connections for participants between geology, history, and landscape. Wearing his trademark Tilley hat and jacket, Mark is an imposing figure as he stands in front of a section, pointing out rock and sediment features with his walking stick. But he is never intimidating; his obvious enthusiasm, in-depth knowledge, and friendly demeanour encourage enquiry and discussion. He is an outstanding and effective communicator at all levels.

Mark's commitment to outreach and willingness to step outside narrow disciplinary confines have also led him into some fruitful collaborations. In the early 1980s, for example, he collaborated with archaeologists in a search for the bedrock source of the Beaver River Sandstone, an important archaeological toolstone in northeastern Alberta. Recently, he partnered with museum professionals to offer a rock walk through parts of downtown Edmonton that focussed on building stone. His insightful exploration of the fossils in the Tyndall Stone forming the walls of City Hall was a particular highlight of that tour. Young participants were inspired to search for more fossils in the building's walls, excitedly calling out when they spotted another piece of coral or shell, much to the amusement of other visitors! In the meantime, their parents were fascinated by Mark's account of the history of the Tyndall Quarry, complete with historic photographs, pictures, maps, and anecdotes.

Mark's outreach activities are firmly rooted in his geological expertise, especially his wide ranging knowledge of the Quaternary geology of Alberta. His field and mapping experience enable him to point out the subtleties of landscapes shaped by ice. His commitment to Quaternary mapping culminated with the publication of Map 601 "The Surficial Geology of Alberta" by the Alberta Geological Survey in 2013. Mark inspired and led the team that brought this map to completion. Affectionately known as "Mark's Map", this stellar publication has become a staple for fieldwork

and fieldtrips in archaeology, geoarchaeology, and palaeoecology. It is an outstanding distillation and compilation of decades of detailed fieldwork and geological knowledge. Through this publication, Mark's influence extends well beyond the people that he personally meets and interacts with and into the broader Canadian community.

In recent years, Mark has been quick to see and embrace the public outreach potential of new technology for terrain visualization, especially LiDAR imagery. Some of the imagery that he compiled will be featured in the natural history gallery at the new downtown Royal Alberta Museum. These spectacular images will help to explain glacial landscapes for museum visitors. Developing this imagery was a highly collaborative process and involved much discussion about visitor experience and interpretation. Thus, Mark's skills and expertise have now contributed to a new mode of earth science communication. Mark has also become an advocate for engaging new communities in geology, for example, through the compilation of 3D models specifically built for gaming in Minecraft or the use of 3D glasses to "see" terrain features "pop up" on LiDAR imagery. Although retired, his efforts to share earth science continue.

In all respects, Dr. Mark Fenton is an outstanding candidate for the E. R. Ward Neale Medal. He exemplifies the best traditions of public service, in all the dimensions of his career. Without question, he has made sustained effort over many decades to share earth science with Canadians.

Eric Mountjoy Exchange Award

The 2018 Eric Mountjoy Award is given to **Clara Waelkens**, a Ph.D. student at McGill University, Montreal. The award is intended to encourage the exchange of young geoscientists between Québec and other parts of Canada. The award is named after Eric Mountjoy, a distinguished Canadian professor of geology at McGill University, explorer,



Fellow of the Royal Society of Canada, and recipient of the Douglas Medal of the Canadian Society of Petroleum Geologists and the Pettijohn Medal of the Society for Sedimentary Geology. He was renowned for his contributions to the understanding of sedimentary carbonate rocks, particularly those of Devonian age, in his pioneering geological explorations and geological maps and cross-sections of the Canadian Rockies, particularly in the region of Jasper National Park and Mount Robson Provincial Park.

CJES Best Paper Award

Given jointly by the NRC Research Press and the Geological Association of Canada, it is awarded to the authors of the “Best” paper published in the *Canadian Journal of Earth Sciences* within a calendar year (volume year). It was first awarded in 2009 for the best paper published in *CJES* in 2008. The 2018 award is given to **Tiffani A. Fraser**, Yukon



Geological Survey, for her paper, published in 2017 and co-authored with Matt P. Hutchison, entitled: “Lithogeochemical characterization of the Middle–Upper Devonian Road River Group and Canol and Imperial formations on Trail River, east Richardson Mountains, Yukon: age constraints and a depositional model for fine-grained strata in the Lower Paleozoic Richardson trough” *Canadian Journal of Earth Sciences* 54: 731–765.

Service Awards 50-year Member

This award is presented to those members who have consistently paid membership in the GAC® for 50 years. The first time the award was presented was in 1997, on GAC’s 50th Anniversary. This year, certificates and pins were awarded to **Neil Church**, **Peter Green**, and **J. G. Maniw.**

Certificates of Appreciation

Certificates of Appreciation are given to recognize the efforts and contributions of individuals on the Local Organizing Committees for past annual conferences. Certificates were awarded to the members of the 2016 Whitehorse GAC-MAC local organizing committee including **Carolyn Relf**, **Joel Cubley**, **Patrick Sack**, **Lee Pigage**, **David Moynihan**, **Rosie Cobbett**, **Many Samolczyk**, **Tiffani Fraser**, and **Heather Burrell**.

Sections and Divisions Awards

Canadian Sedimentology Research Group Middleton Medal

The Middleton Medal for Sedimentology is awarded biannually by the Canadian Sedimentology Research Group. The medal is named in honour of Gerard V. Middleton, a Canadian pioneer in academic sedimentology, and recognizes either an outstanding long-term contribution or a seminal contribution to any aspect of sedimentology by a Canadian or a sedimentology researcher working in Canada. The 2018 medal is awarded to **Dr. Martin Gibling**, Dalhousie University.



Canadian Tectonics Group Dave Elliott Best Paper Award

The 2018 Award is given to **Jordan A. McDivitt** for his paper “The Structural Evolution of the Missanabie–Renabie Gold District: Pre-orogenic Veins in an Orogenic Gold Setting and Their Influence on the Formation of Hybrid Deposits”, co-authored with Bruno Lafrance, Daniel J. Kontak and Lise Robichaud, and published in *Economic Geology* 112(8): 1959–1975.



Jack Henderson Prize for Best Ph.D. thesis

The 2018 prize is given to **Jeremy Powell**, University of Ottawa, for his thesis *Burial and Exhumation History of the Mackenzie Mountains and Plain, NWT, Through Integration of Low - Temperature Thermochronometers*, supervised by Dr. David Schneider.



Jack Henderson Prize for Best M.Sc. thesis

The 2018 prize is given to **Kelian Dascher-Cousineau** McGill University for his thesis: *The Evolution of Fault Slip Surfaces with Displacement*, supervised by Dr. Jamie Kirkpatrick



Mineral Deposits Division Duncan R. Derry Medallist

The Duncan R. Derry Medal is the highest award bestowed by the Mineral Deposits Division (MDD). It is awarded annually to an outstanding economic geologist who has made significant contributions to the science of economic geology in Canada. The 2018 medal is awarded to **Wouter Bleeker**, Geological Survey of Canada, Ottawa.



Paleontology Division Pikaia Award

The *Pikaia* Award is named after *Pikaia*, an early cephalochordate known from the Burgess Shale. The *Pikaia* Award is awarded biennially in even-numbered years by the Paleontology Division. It is awarded in recognition of a recent contribution to research on any aspect of Canadian paleontology, or by a Canadian to paleontology that is judged to constitute an outstanding accomplishment in the field. The 2018 Pikaia award is given to **Dr. Ryan McKellar**, Royal Saskatchewan Museum.



Volcanology and Igneous Petrology Division Career Achievement Award

The Career Achievement Award is made by the Volcanology and Igneous Petrology Division in recognition of career achievements in the field of volcanology and/or igneous petrology. The 2018 award is given to **Roger Mitchell**, Lakehead University.



Leopold G  linas Medal

The Volcanology and Igneous Petrology Division annually presents three medals for the most outstanding theses, written by Canadians or submitted to Canadian universities, which comprise material at least 50% related to volcanology and igneous petrology. A gold (plated) medal is awarded for the best Ph.D. thesis, a silver medal for the best M.Sc. thesis and an antique copper medal for the best B.Sc. thesis. Theses are evaluated on the basis of originality, validity of concepts, organization and presentation of data, understanding of volcanology, and depth of research.

Gélinas Award (Gold, Best Ph.D. Thesis)

The 2018 Gold Medal is awarded to **Warna Downey**, University of New Brunswick, for her thesis *The Fluid Dynamic Constraints on Peperite Formation, and the Vibrational Liquefaction Model*, supervised by Dr. Cliff Shaw.



Gélinas Award (Silver, Best M.Sc. Thesis)

The 2018 Silver Medal is awarded to **Brigitte Gélinas**, Lakehead University, for her thesis *Geology and Geochemistry of the Laird Lake Property and Associated Gold Mineralization, Red Lake Greenstone Belt, Northwestern Ontario*, supervised by Dr. Peter Hollings.



Gélinas Award (Bronze, Best B.Sc. Thesis)

The 2018 Bronze Medal is awarded to **Corin Jorgenson**, Dalhousie University, for her thesis *Sulphur solubility of carbonatites as a mass transfer agent in the mantle*, supervised by Dr. James Brennan.



GeoFact: June 8 1783: Beginning of the Laki fissure eruption in Iceland. Large quantities of acid gasses were emitted during the eruption and had a detectable effect on northern hemisphere climates in the following few years.

Precambrian Division Howard Street Robinson Medal

The Howard Street Robinson Medal recognizes a respected and well-spoken geoscientist who will further the scientific study of Precambrian Geology or Metal Mining through presentation of a distinguished lecture across Canada. The medal is named in honour of Howard Street Robinson, a founding member of the GAC®, whose bequest to GAC® in 1977 of approximately \$100,000 makes the lecture tour possible. The bequest was "for the furtherance of scientific study of Precambrian Geology and Metal Mining". The GAC®'s Mineral Deposits Division and Precambrian Division award the medal in alternate years. In 2018, the Medal is presented by the Precambrian Division to **Dr. Derek Thorkelson**, Simon Fraser University.



Student Awards

Mary-Claire Ward Geoscience Award

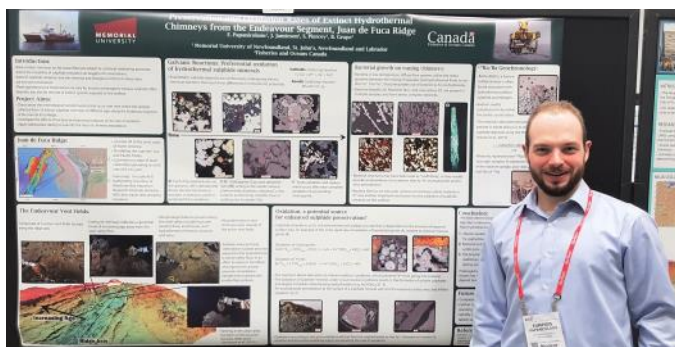
The award is given annually and honours the memory of Mary-Claire Ward who died in 2004. At the time of her death Mrs. Ward was the chair of the PDAC's geoscience committee, chairman of Watts Griffis McOuat Ltd., and a past president of the Geological Association of Canada. She was a passionate advocate for the geosciences in Canada. The award's intent is to encourage and support a graduate student in Canada whose thesis contributes to our knowledge about the geological history of Canada. Mapping is a significant component of the winning thesis. The award is administered by the Geological Association of Canada, the Prospectors & Developers Association of Canada, the National Geological Surveys Committee, the Canadian Geological Foundation, and Watts, Griffis and McOuat Ltd. The 2018 award is given to **Eric Thiessen**, Simon Fraser University, for work towards his thesis on the Paleoproterozoic tectono-metamorphic evolution of the south Rae craton in southeastern N.W.T. This involves regional and detailed mapping, structural, metamorphic and isotopic analyses of multiple deformed terranes and crustal-scale shear zones.

Jerôme H. Remick Poster Awards

The purpose of the Remick Poster Awards is to acknowledge the growing use of posters as a legitimate geoscience communication vehicle, and to encourage higher standards by recognizing the best posters at any given meeting. The following awards were presented for posters at the RFG meeting in Vancouver.

Gold (1st place)

First place is awarded to **Euri Papanicolaou**, Memorial University, for “Preservation and Oxidation Rates of Extinct Hydrothermal Chimneys from the Endeavour Segment, Juan de Fuca Ridge”, co-authored with John Jamieson, Steve Piercey, and Ben Grupe. Euri is working on completing an M.Sc. with the same title as his poster. His main interests are focused around modern hydrothermal systems and their relationships with the formation of ore deposits on the seafloor. Below, Euri stands with his poster at the RFG conference.



Silver (2nd place)

Second place is awarded to **Thomas Edward Gore**, Laurentian University, for “A study of millerite from Ni-Cu -PGE footwall veins, Sudbury, ON: Crystal-chemistry, morphology, and geological implications”, co-authored with Andrew McDonald. Thomas is working on a research-based M.Sc. thesis pertaining to the crystal-chemistry of millerite. Specifically, he is investigating how the structure, chemistry and genesis influence the morphology of millerite in magmatic systems.



Bronze (3rd place)

Third place is awarded to **Antonina Calahorrano-Di Patre**, Simon Fraser University, for “Gravity Monitoring at Cotopaxi Volcano, Ecuador: Challenges, Results, and Future Plans”, co-authored with G. Williams-Jones, M. Battaglia, Mario Ruiz, and J. Witter. She is pursuing a Master's degree as a member of the Physical Volcanology Group in the Earth Sciences Department. Her focus is on time-lapse gravity changes before and after volcanic eruptions. More specifically, her thesis deals with gravity and deformation changes at Cotopaxi volcano during its 2015-2016 period of unrest. The picture above shows Antonina in her field area.



Honourable Mentions

Honourable mention to **Andrew Paul Steiner**, University of British Columbia, for “Structural Framework for Carlin-type gold mineralization: Nadaleen trend, Yukon”, co-authored with Ken Hickey. Andrew is working towards an M.Sc. focussing on mapping auriferous fluid pathways in the Nadaleen trend Carlin-type Au deposits, Yukon. Here he is in his field area.

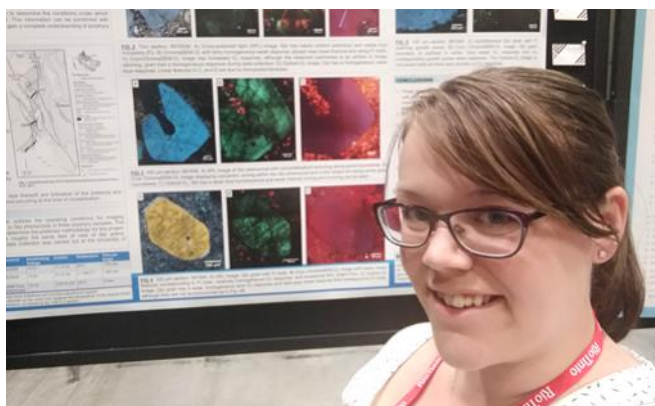


Honourable mention to **Paul Slezak**, for “Ghosts of apatites past: Using hyperspectral CL and micro-analyses to reveal multi-generational apatite in the Gifford Creek Carbonatite Complex, Western Australia”. Photo shows Paul in the Commerce Resources core



shack as part of the Upper Fir carbonatite field trip put on by Alexei Rukhlov from the BCGS as part of the RFG conference. Paul is a Ph.D. candidate in Geochemistry set up to submit his thesis this September (2018). His project is on the petrology of the Gifford Creek Carbonatite Complex and associated Yangibana LREE deposit in Western Australia. He specializes in using laser ablation mass spectrometry and high resolution multi-collector mass spectrometry to tell a “mantle to mine” story for the LREE mineralization. He uses trace element geochemistry and radiogenic isotopes obtained *in situ* on key mineral phases to establish petrological connections between discrete alkaline igneous phases in the carbonatite complex. Ultimately, the project explains how and why the area is prospective for LREE, helps to better understand REE endowment in carbonatites, and contributes to regional exploration models for REE-bearing carbonatites.

Honourable mention to **Sarah Speight**, University of New Brunswick, for “SEM-Cathodoluminescence Imaging and Analysis of Quartz Phenocrysts and Phenoclasts from Porphyritic Intrusions in the Yellowknife Greenstone Belt, NWT”. Sarah Speight is pursuing her Ph.D. with her research focused on the magmatic history of the Yellowknife greenstone belt, which hosts two historic gold mines. Her poster was based on a mineralogical study of quartz phenocrysts, which compared cathodoluminescence techniques to observe the internal structures of quartz and determine the preferred method of data collection. elow, Sarah with her poster at the RFG meeting.



GeoFact: Jun 10 1793: Establishment of the Muséum d'Histoire Naturelle (Natural History Museum) in Paris, France.

Honourable mention to **Vincent Marc Roche**, Université d'Orléans, France, for “Subduction dynamics: a first order control on the distribution of high-enthalpy geothermal systems (HEGRs)?” His thesis topic deals with the link between subduction dynamics (i.e., slab rollback and tearing) and associated thermal anomalies at different scales. Although the mechanical consequences of slab dynamics on lithospheric and crustal behaviors have already been studied, thermal effects have not been investigated yet. The Menderes geothermal Province (Turkey) offers the opportunity to study amagmatic geothermal systems, without necessarily invoking a magmatic heat source in the upper crust. The Menderes geothermal Province is recognized as a most important active geothermal province in the world because it results from subduction dynamics. These dynamics thus control the spatial and temporal distribution of thermal anomaly and extension, inducing crustal-scale permeable structures (detachments) that enhance fluids circulation.



Honourable mention to **Theron Finley**, University of Alberta, for “Structural heterogeneity, thermal spring distribution, and geothermal energy potential along the Southern Rocky Mountain Trench”, co-authored with Martyn Unsworth, Stephen Johnston, and Jonathan Banks. Theron is pursuing his M.Sc., researching possible fault-controlled geothermal systems in the Canadian Cordillera. His main research interests lie in structural geology and how it can be applied to tectonics, hydrogeology, and renewable energy questions.



GeoFact: Jun 05 2012: The last Transit of Venus of this century. The next Transit will not happen until 2117, 105 years hence.

CFES National Earth Science Mentorship Medal

The CFES mentorship award was created in 2008 to recognize the sustained and inspirational mentorship of colleagues and employees including peers, graduate students, undergraduate students and technicians. The award was set up in honour of Paul F. Williams, a geologist known for scientific and mentoring excellence, candour and integrity.

Mentorship is recognized as a critical part of professional and academic development and is vital to the health of any professional community. With this award, CFES recognizes an earth scientist from Canadian industry, academia or government. The sole criterion for the award is excellence in mentoring over a sustained period of time. The 2018 CFES Mentorship Medal is awarded to **Dr. Herwart (Herb) Helmstaedt** of Queen's University, Kingston, Ontario. The citation is read by Dr. Kathy Bethune.

Citation: In his 36+ year career as a Professor of Geology, Dr. Herwart (Herb) Helmstaedt of the Dept. of Geological Sciences and Geological Engineering, Queen's University, has served as a dedicated advisor, role model and mentor for 59 graduate students, 26 Ph.D. and 33 M.Sc., along with numerous undergraduate students and M.Sc. students in the Mineral Exploration Program. Over his career, Herb continually exhibited an unparalleled interest and enthusiasm for geology. This enthusiasm was driven by an energetic yet at the same time highly focused and deep intellectual curiosity in how the earth works, in particular the nature of tectonic processes and how they have changed through time. This broad-based perspective strongly framed his entire career, and his related drive, energy, and enthusiasm were a continuous source of inspiration to his students and colleagues alike. At its height, in the late 1980s and early 1990s, Herb's research program was unique in fostering a wide range of field-based structural and tectonic studies in diverse areas of the Canadian Shield, facilitated by excellent collaborations with several geological surveys, including the Geological Survey of Canada but also DIAND and the OGS, among others.

Herb's approaches benefited his students enormously, both by providing an environment in which they could develop individual knowhow and skills, while at the



Dr. Shoufa Lin (Chair of the Medal Award Committee) presents Dr. Herb Helmstaedt (left) with his medal on September 29, 2018 in Saint Martyrs Canadiens, Quebec, during the annual field trip and meeting of the Canadian Tectonics Group of the Geological Association of Canada.

same time learn from fellow, like-minded students within a collaborative research group at Queen's. Herb created this unique environment and, in doing so, trained and mentored a generation of strongly field-oriented geologists/tectonicists who have contributed their talents and expertise within the realms of government, academe and the mineral exploration industry. The success of each and every one of these 'mentees' is in large part due to Herb's inspirational leadership coupled with his support, advice, and encouragement, both in their formative years and beyond, as they transitioned into the professional world. Herb truly epitomizes what it means to be a great mentor and his legacy within the Queen's University 'family' and in the greater Canadian geoscience community will be enduring.

Acceptance: Thank you, Kathy, for the kind words about me and my wife in your citation. I am overwhelmed that my graduate students believed that being their advisor, which I considered part of my normal job as geology prof, merited a mentorship award. However, I am grateful to have been nominated for the award, and I thank the Canadian Federation of Earth Sciences, the awards committee and Shoufa Lin, for making the award possible. I consider myself extremely lucky to have been involved with so many

bright students and their exciting research projects, both graduate and undergraduate, all of which were as much of a learning experience for me as they were for the students. I especially enjoyed the many field visits which took me to all provinces and territories of Canada and to many places beyond. Although designed to help my students with their various geological problems, they also widened my personal horizon and greatly enriched my professional career. All my students were self-motivated, and most of them had arranged their own field projects and financial support from various geological surveys and mining companies. I treasure the memories of being in their field camps, getting involved in their projects, sharing many Eureka moments while out on traverse, and enjoying discussions and fellowship in the evenings. Thanks to all of you for letting me know that whatever advice I could offer was appreciated. I also like to thank my own mentors.

Coming in the 1960's from what I then considered a much more confining university system in Germany, I first experienced real mentorship and true freedom of inquiry when I became a graduate student to the University of New Brunswick, in Fredericton. I am thankful especially to professors Arnie McAllister, Ernie Hale, George Pajari, and Dick Brown, my thesis supervisor, not only for being great teachers, but also for helping me adjust to my new environment and guiding me to become an independent researcher. During my post-doc year at Lamont-Doherty Earth Observatory, in New York, Orson Anderson and Mineo Kumazawa mentored me in the mineral physics lab, and Ian Dalziel introduced me into the emergent field of plate tectonics. At the Geological Survey of Canada, in Ottawa, Bill Poole took me under his wings and showed me the ropes of being a survey geologist. Last but not least, I would like to thank my wife, Audrey, for her support and for putting up with my frequent absences during the field seasons.

Dr. John Percival receives PIPSC Gold Medal Award

On Friday, April 13, 2018, at a celebration to mark the 176th anniversary of the Geological Survey of Canada (GSC), President Debi Daviau presented the PIPSC Gold Medal Award to Dr. John Percival to recognize his leadership and advancement of geoscience in Canada and internationally. His expertise has proven essential for land use decisions and the promotion of social and economic development in Canada and in countries around the world. An active Professional Institute of the Public Service of Canada (PIPSC) member, Dr. Percival currently heads the GSC's Ore Systems Research Section at Natural Resources Canada.

President Daviau commented: "Dr. Percival is an example of the role model that the Institute's Gold Medal is intended to honour. His innovative work has advanced the field of geoscience in Canada and abroad."

In 1984, Dr. Percival's discovery of a block of deep-crustal rocks up-thrust 20 kilometres to the surface in the Kapuskasing structure of Northern Ontario led to the launch of Lithoprobe, Canada's national geoscience program, recognized as one of the world's most successful deep investigations of Earth's structure. Dr. Percival has pioneered innovative methods for



geological mapping, leading to new discoveries of gold, base metals and diamonds in Canada. These success stories illustrate the leverage of publically funded geoscience on private sector investment.

Geo-mapping is essential for informed land-use planning (zoning, recreation, development, protection) and thus for the execution of programs by governments at all levels. It plays a key role for industry in the exploration for, and development of, mineral and energy resources, thereby providing employment and royalties for northern communities and hope for their future.

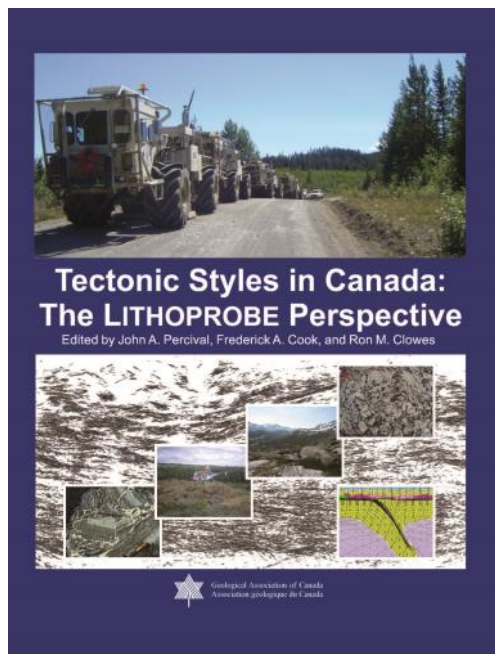
"The tremendous contribution dedicated professionals like Dr. John Percival make to the public good confirms that the federal government has a unique role to play in scientific research. The federal government is responsible for creating and maintaining a climate in which fruitful research can take place and flourish. Scientific research is a critical component in our success as a society – whether it is our ability to protect the health and safety of our fellow citizens, preserve our environment, or ensure future economic prosperity," added President Daviau.

Dr. Percival has represented Canada as an advisor for United Nations projects. He has often been called upon to lend his expertise to international geoscience missions to developing countries. These missions aim to enhance the adoption and application of Canadian knowledge and technology to support sustainable development. Dr. Percival's work is also widely applied in Australia, South Africa, Brazil and the United States. The Professional Institute established the Gold Medal Award program in 1937 to recognize professional public service employees whose outstanding work has led to the improvement and enhancement of public well-being. The program's other objective is to promote greater awareness of the role and value of professional public services in Canada and globally.

Editor's note: This article is slightly modified from a media release issued by the PIPSC on April 13, 2018. Tectonic Styles in Canada is still available through the GAC® bookstore. Charlie Jefferson, Emeritus Scientist, Geological Survey of Canada, who submitted the article, provided this additional context:

The Professional Institute of the Public Service of Canada (PIPSC) receives annual submissions for its gold medal prize decided by a national committee of university presidents. Some years there are no winners. Last Friday here at the GSC, PIPSC awarded John Percival the gold medal at a Logan Day ceremony in Camsell Hall.

I submitted the nomination with glowing letters of support by Ron Clowes (Lithoprobe leader and Order of Canada recipient), Donna Kirkwood (Chief Scientist of Natural Resources Canada), Matthew MacLeod (National President of the PIPSC Research Scientist Group, all disciplines), and Maurice Lamontagne (PIPSC Steward for the Geological Survey of Canada in Ottawa).



Some previous notable recipients include:

RAY THORSTEINSSON, ROBERT CHRISTIE, HANS TRETTIN - 1987 - Pure or Applied Science. For their work on geological maps covering almost all of the Arctic Archipelago leading to the discovery of significant oil and gas fields which have proved essential for land use decisions and military planning on the Arctic Islands (last NRCan winners).

GERHARD HERZBERG - 1969 - Pure or Applied Science. For his world-caliber achievements in spectroscopy and astrophysics. Dr. Herzberg was the recipient of the Nobel Prize for Chemistry in 1971.

JAMES HARRISON - 1966 - Field Other than Pure or Applied Science. For qualities in leadership and coordination in the encouragement of production and high quality in scientific work. His nomination stated that he was, above all, a "diplomat-scientist".

HAR GOBIND KHORANA - 1960 - Pure or Applied Science. For pilot research in the field of the chemical structure of nucleic acids and enzymes, among the most complex ever investigated by chemists. Dr. Khorana was one of the recipients of the Nobel Prize for Medicine in 1968.

CHARLES CAMSELL – before 1937 – they write books about this guy.

GAC Student Photography Competition

*Photography competition is open to all student members of GAC/AGC
Supported by Jérôme H. Remick III Endowment Trust Fund*

*Photographs should showcase Canada's varied scenery from a geological perspective or
spectacular geological features (e.g., outcrops, fossils, thin sections, minerals).*

*Supported by Jérôme H. Remick III Endowment Trust Fund
1st Prize – \$500; 2nd Prize – \$200; 3rd Prize – \$100*

2018 GAC Student Photography Competition Winners

*1st Place: **Matthew Sommers** (below)
2nd Place: **Sydney Kaiora Hampson** (top image, p. 11)
3rd Place: **Matthew Sommers** (bottom image, p. 11)*

Congratulations to the winners!

Image: Matthew Sommers





Image: Sydney Kaiara Hampson



Image: Matthew Sommers

Howard Street Robinson Fund

The Robinson Fund was established in 1977 by the Geological Association of Canada, using a bequest from the estate of Howard Street Robinson. The fund is dedicated to the furtherance of scientific study of Precambrian Geology and Metal Mining by:

- sponsoring an annual Distinguished Lecturer Tour whose focus alternates between Precambrian research and economic geology (lecturer alternately chosen by the GAC®'s Precambrian and Mineral Deposits divisions)
- supporting Special Projects including publications, symposia and conferences.

Proposals for special projects on Precambrian Geology or Metal Mining should be submitted to the Robinson Fund Committee. Projects should be sponsored or organized through the GAC® or one of its Divisions or Sections. Proposals that have a wide appeal or degree of accessibility to the GAC® membership are preferred.

For further information and proposal submissions, please contact: Dr. Stephen Piercey, Chair, Robinson Fund, c/o Department of Earth Sciences, Memorial University of Newfoundland, St. John's, NL A1B 3X5 Canada, E-mail: spiercey@mun.ca

Vancouver, RFG, June 2018



Information for Contributors

Contributions should be submitted by e-mail to Alwynne.Beaudoin@gov.ab.ca, with GEOLOG in the subject line. Contributions are welcome in either of Canada's two official languages. MS Word (.doc or .docx) is the preferred format for contribution but generic word processing (.rtf or .txt) files are also fine. Please do not submit PDF files. Up to four hi-res images may be submitted per contribution: preferred format is .jpg, RGB colour, with a minimum 300 dpi resolution at 5" x 3" size. Please ensure that images are cropped and colour-corrected, and provide a caption for each image, and an image credit line if needed. Contributors are responsible for securing permission to publish for any third-party images or images of living recognizable people. Diagrams (vector graphics) may also be submitted. Preferred format for graphics is Adobe Illustrator (.ai); make sure that the file is saved with "save text as lines" option enabled to ensure no font substitutions. Additional information on other file formats can be obtained from the Editor. Please do not embed images or graphics in your text document; images or graphics should be submitted as separate files. In your text, use a call-out in parentheses to indicate the approximate placement of each image and graphic. If files are larger than 10 mb, please contact the Editor for alternate delivery arrangements. Your contribution will be copy-edited to ensure consistent spelling and orthography and to correct any obvious typos or errors. Contributions may also be edited for clarity and length. If the Editor has questions about specific information in the text, she will contact contributors for clarification. Contribution deadlines are March 1, June 1, September 1 and December 1.

Consignes aux auteurs

Les contributions d'auteur doivent être soumises par courriel à Alwynne.Beaudoin@gov.ab.ca, en indiquant GEOLOG à la rubrique Objet. Les articles seront acceptés dans l'une des deux langues officielles du Canada. Les fichiers de format MS Word (.doc ou .docx) sont préférables, mais les formats génériques (.rtf ou .txt) sont aussi acceptables. Veuillez ne pas soumettre de fichiers au format PDF. Par article, jusqu'à quatre images haute résolution peuvent être soumises; format préféré est .jpg, couleurs RVB, avec un minimum de 300 PPP en taille 5 po x 3 po. Veuillez vous assurer que les images sont recadrées et leurs couleurs corrigées, qu'elles sont accompagnées d'une légende ainsi que des informations de référence le cas échéant. Il est de la responsabilité des auteurs d'obtenir la permission de publier toute image de tiers ou de personne reconnaissable. Des diagrammes (graphiques vectoriels) peuvent également être soumis. Le format préféré pour les diagrammes est celui d'Adobe Illustrator (.ai); assurez-vous que le fichier est sauvegardé avec l'option « Sauvegarder le texte comme ligne » activée pour éviter toute substitution de police de caractère. On peut obtenir des informations sur d'autres formats de fichiers en communiquant avec l'éditrice. S'il vous plaît ne pas incorporer d'images ou de graphiques dans votre texte; ces images ou graphiques doivent être soumis sous forme de fichiers distincts. Dans votre texte, veuillez utiliser des notes numérotées entre parenthèses pour indiquer l'emplacement approximatif de chaque image et graphique. Dans le cas de fichiers dépassant 10 Mo, veuillez contacter l'éditrice pour convenir des modalités de téléchargement. Vos articles seront révisés afin d'en assurer la cohérence orthographique et corriger les fautes de frappe ou erreurs évidentes. Les articles pourront aussi être corrigés pour plus de clarté et éviter des longueurs. Dans les cas où l'éditrice aurait besoin d'informations particulières concernant le texte, elle communiquera avec les auteurs. Les dates limites pour soumettre des articles sont le 1 mars, le 1 juin, le 1 septembre et le 1 décembre.