

## President's Preamble

When I wrote this, I was looking out my window at one of those perfect Manitoba summer days, and wishing that my fieldwork in the Hudson Bay Lowlands was not still over a month away. But I knew that some of you would have already been in the field for quite some time. I imagined you reading this article in tents or field stations. Or perhaps you are seeing this as you dig it out of your accumulated e-mail sometime in late September.

I am delighted to have been elected President of GAC® during June's GAC®-MAC meeting in Whitehorse. It was wonderful to see so many of you there – and for those who weren't, you missed one of the best meetings ever, ably organized by Carolyn Relf, Joel Cubley, Patrick Sack, and their team, in a spectacular and unique location. The sessions, social events, short courses, field trips, public lectures, and other aspects of the meeting all seemed to work wonderfully; smaller meetings in relatively remote places can provide a memorable experience for attendees, and this one set a standard for future conferences.

The business meetings of GAC® Council were busy, interesting, and challenging. Like other academic societies, we are dealing with many changes associated with trends in demographics, the economy, and new technologies. I am always struck by how hard-working and serious the Councillors are when it comes to such matters. In addition, GAC® is addressing another distinct and pressing aspect of change: after a long career as our Finance and Administration Manager, Karen Johnston-Fowler plans to retire in 2017, so we are preparing a detailed plan for succession. My last year's *Geolog* report at this time mentioned that we were working on governance; this has now moved forward substantially as Council has accepted the idea of creating an Executive Director position. The

Governance Committee is working very actively this summer to define terms of reference and a position description, and considering budgetary implications of this significant change, so that a definite plan of action and schedule will be in place this autumn.



At the same time, we are trying to keep many other matters moving forward, with the knowledge that some approaches may change with the change in staff. Fortunately, the other staff members, Karen Dawe (Publications Director) and Eleanor Penney (Membership and Annual Meeting Registrar), have deep experience and knowledge, which will be put to good use during our interval of transition. We are continuing to address marketing, fundraising, and membership – both the overall strategies for these, and many small and concrete steps, such as the membership discount for early career members and an improved explanation to members of how they can take advantage of the new benefits provided by our agreements with other societies.

The planning of our future GAC®-MAC meetings is in very good shape thanks in large part to the immense efforts of outgoing Scientific Program Chair David Corrigan. Conferences that are now on the books include GAC®-MAC 2017 in Kingston ("Back to Where it Began"), our participation as a partner in the large RFG 2018 ("Resources for Future Generations") meeting in Vancouver, and GAC®-MAC 2019 in Québec City, with additional

*Cont'd on p. 4*

## 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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Carolyn Relf (Director, Yukon Geological Survey), Graham Young (GAC® President), and Dène Tarkyth (GAC® Finance Chair) visit the Yukon Beringia Centre, Whitehorse, June 2016



Dead Horse Gulch cantilever bridge, White Pass and Yukon Railway, on a cloudy day in late May, 2016

## GEOLOG

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*GEOLOG* (ISSN 0227-3713; 1712-3747) is the quarterly news-magazine 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.

**SUBSCRIPTIONS:** *GEOLOG* is one of the privileges of GAC® membership. To become a member, application forms are available by mail or fax from the Geological Association of Canada, or can be printed from the website.

**ADVERTISING:** Paid advertising is accepted. Digital copy is preferred. Contact the Editor for more information or go to the GAC® website and click on Publications then *GEOLOG* and look for the Rate Card.

*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.

**PUBLICITÉ:** Nous acceptons la publicité rémunérée. Une copie prête pour la reproduction est préférable. Veuillez communiquer avec le Rédacteur en chef pour des renseignements additionnels à ce sujet.

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## Acknowledgements and Thanks

This *GEOLOG* benefits from the contributions and assistance of / Nous voulons souligner la contribution et l'assistance de: David Corrigan, Karen Dawe, Karen Johnston-Fowler, Rob Fensome, Brian Jones, David Pattison, Eleanor Penney, Liz Stock, Scott Swinden, Erica Williams, and Graham Young. Apologies to any contributors that have been missed. This *GEOLOG* was produced with support from the Royal Alberta Museum. Your contributions for future editions are welcome / Désolé pour ceux qui auraient été involontairement oubliés. Cette copie de *GEOLOG* a été produite grâce à l'assistance du Royal Alberta Museum. Nous sollicitons vos contributions pour les publications à venir.

## 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 28 2016**.



Takhini Hot Springs, near Whitehorse. An inviting venue for a relaxing soak after a long day of conferencing!

Photo: Erica Williams

*GeoFact: Aug 06 1766: William Hyde Wollaston, chemist, born in East Dereham, Norfolk, England. The Wollaston Medal of the Geological Society, London, is named for him.*

conferences well along in the preliminary planning. Each of these will add a unique perspective on geological research, practice, and education: next year's Kingston meeting promises a focus on practical applications, and I look forward to seeing many of you there.

Publications continue to be a major focus of GAC®, and the growth of *Geoscience Canada* under the able leadership of Andy Kerr continues to be a major priority. Steps will continue to be taken to raise the journal's profile, and to make it more broadly available to Canadians; much of this associated with the launch of the new *Geoscience Canada* website. In addition to the potential increased circulation, the sustainability of *Geoscience Canada* could also be enhanced through the solicitation of direct sponsorships and advertising. Through all of our plans, we recognize that we need to function in a fiscally responsible way, in the complicated modern environment for scholarly associations. We are, for instance, re-visiting how some of our awards are handled, to deliver these important services while ensuring that they do not have negative impacts on our organizational finances.

There have also been changes at the Council table; these are of course "usual" with our limited terms, but still they mean that things are substantially different for those of us sitting around that table. Those who left Council at the Spring meeting have contributed hugely to the ongoing development and direction of GAC®. We will genuinely miss the energy, enthusiasm, and good humour of Brian Pratt (departing Past President), David Corrigan (Science Program Chair), Lori Kennedy (Campus Liaison), and Brad McKinley (Short Courses). My deepest thanks to all of them for their immense contributions to this organization.

Who is new? Steve Morison (SRM Consulting), who was president when I had my first time on GAC® Council sometime near the start of this millennium, has graciously agreed to return as Vice President. I am delighted by this as I thought Steve did an excellent job in his previous term, and I know that his deep experience means that I will have to be working very hard to keep up.

Liz Stock (Teck) is taking on the important Short Courses portfolio, while Louise Corriveau (Natural Resources Canada) is taking over from David as Science Program Chair, and Ihsan Al-Aasm (University of

Windsor) is stepping in as Campus Liaison. I look forward to working with all of them, particularly as we move toward our next in-person meeting at Kingston in October.

With new Councillors in and "learning the ropes", I am grateful that there will also be some familiar faces at the table. Vicki Yehl (BC Securities Commission), our President last year, has now moved along to the Past President's chair. Vicki is always fizzing with energy and ideas, and I feel that I learned a lot about GAC® and the President's role by watching her last year. I know that I will need her sage advice in the coming year, even if she is a mere youngster in chronological years. I am also grateful that I can rely on Sandra Barr (Acadia University), the President's Assistant, for advice and corporate knowledge. Other continuing Councillors this year include Alwynne Beaudoin (Royal Alberta Museum; Lecture Tours and *Geolog* Editor), Oliver Bonham (Geoscientists Canada; Sections and Divisions Liaison), James Conliffe (Geological Survey of Newfoundland and Labrador; Secretary-Treasurer), Andy Kerr (*Geoscience Canada* editor), David Pattison (University of Calgary; Awards Co-ordinator), Sally Pehrsson (Natural Resources Canada; Communications Chair), Dène Tarkyth (Anglo American Exploration; Finance Chair), and Chris White (Nova Scotia Dept. of Natural Resources; Publications Chair).

In its variety of people, scientific backgrounds, and career paths, I am pleased that Council reflects some of the broad diversity of Canadian geologists. Further, the Councillors are all very talented people who somehow make the time to carry out GAC®'s business; their talent and energy will be needed as we survey the year ahead. We welcome your correspondence, and will be happy to respond to any questions or comments you may have.

Enjoy your summer, wherever your travels may take you.

Graham Young  
GAC® President

*GeoFact: Jul 18 1635: Robert Hooke, scientist especially known for work in microscopy, born in Freshwater, Isle of Wight, England.*

*GeoFact: Jul 17 1909: Birth of Knut Faegri, botanist and palynologist, in Bergen, Norway.*

## Medals and Awards

### National Awards

#### Logan Medal Brian Jones

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.

#### Citation:

**Professor Brian Jones** is an internationally renowned paleobiologist and sedimentologist whose credentials make him one of the nation's most respected earth scientists.



His original research field was in paleontology, specifically the taxonomy, ecology, and paleobiology of brachiopods. In these studies, models of clarity and analysis, he beautifully married biology and statistics to illustrate their linked heritage through much of middle Paleozoic time. This interest inevitably led him to the Caribbean where he used the Cayman Islands as a natural research laboratory.

There he illustrated the breadth of his talents, producing works on the structure of reefs, the nature of grass-bed benthic communities, and the role of micro-organisms in deposition and diagenesis. He further used the Cenozoic rocks as a testing ground for his theories of dolomitization, early diagenesis, hydrology and fluid flow in carbonate aquifers, and the evolution of cave systems. His skills at applying this to the rock record are illustrated by his utilization of the Caymans as a model for now-buried petroleum reservoirs. In recent years he has been pulled towards trying to understand the role of extremeophiles,

particularly those micro-organisms that live in intolerably hot environments, and mineral precipitation. These studies in the thermal springs of the African rift, western Canada, Iceland, New Zealand, and China have revealed an astonishing array of such organisms. More important, it has allowed us to see which parts of the biota are preserved and why, critical to any understanding of the evolution of life. In all of this he has mentored and encouraged innumerable graduate students who are now respected members of academia and industry.

Brian, a tireless worker in the geological community of this country and internationally was, for more than a decade, chair of one of the largest earth sciences departments in Canada. He has had a long record of liaison with the Cayman Government by providing critical geological information and guidance for development of island water resources. He was editor-in-chief for *Canadian Journal of Earth Sciences* for 10 years and under his stewardship he raised the journal to international stature and brought it into the electronic age. He is now associate editor-in-chief of the prestigious international journal *Sedimentary Geology*.

This international scholar, teacher, scientist, mentor, and advocate for the Earth sciences follows in the footsteps of Logan himself.

#### Acceptance:

I am greatly honoured to receive this tremendous recognition from the Geological Association of Canada. To find my name added to the list of Canadian geologists who have received this award in the past is truly humbling. I am here because numerous people and organizations have helped me as I progressed through my career. As an undergraduate student at Liverpool University, one of my mentors was Dr. Robin Bathurst who introduced me to the world of carbonate sedimentology and encourage me to follow my passion for this area of study. Dr. Owen Dixon at the University of Ottawa then accepted me as a Ph.D. student and let me loose in the Canadian Arctic where I had the chance to visit and work on superbly exposed successions of Silurian carbonates. He also taught me the importance

of careful writing and editing. Most of my research on spring deposits was done jointly with Dr. Robin Renaut at the University of Saskatchewan. Together we had the chance to visit and work on spring deposits throughout the world and I will always remember the many days that we spent working in the field. I must also thank Dr. Noel James, Queen's University, for the many hours that we have enjoyed discussing all aspects of carbonate sedimentology that ultimately led to us co-authoring a text book on the subject. Finally, I must thank those individuals who took the time to nominate me for this award.

All of this would have been impossible without the support that I have received from my home department at the University of Alberta. Equally important has been the research support that I have received from numerous organizations, including NSERC. The opportunity to supervising numerous students as they worked towards their graduate degrees has been truly stimulating.

My thanks are also extended to my family who have commonly had to endure my absence from home as I undertook fieldwork in various parts of the world. Without their support, none of this would have been possible.

In closing, I will reiterate my thanks to GAC® for this award – it is truly appreciated.

### J. Willis Ambrose Medal Scott Swinden

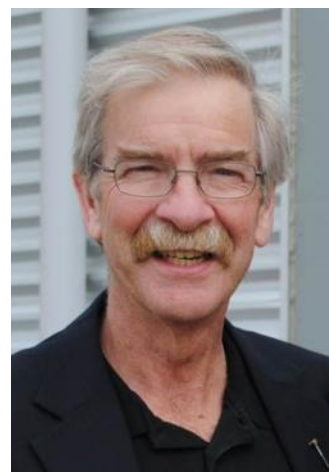
The Ambrose medal, named after the first GAC® President, J. Willis Ambrose, is awarded to an individual for sustained dedicated service to the Canadian earth science community.

#### *Citation:*

**Harold Scott Swinden** is the epitome of someone who has made "...sustained dedicated service to the Canadian Earth-science community". The basis of his success has been: mineral-deposit research, scientific leadership, and personal integrity.

Dr. Swinden pursued his interest in economic geology early in his career through mineral exploration in Canada and the U.S. Later, as a Survey geoscientist, he spent nearly two decades making seminal contributions

to our understanding of mineral deposits, not only in Newfoundland and the Canadian Appalachians, but in orogenic belts generally. Scott was inspired to research the relationship between mineral deposits and tectonic environments, on scales from isotopes to island arcs. His published work has garnered much acclaim and formal recognition, including the Duncan R. Derry Medal, and remains highly regarded today.



While carrying out his research, Scott was also providing science leadership to a group of mineral-deposit geologists in the Geological Survey of Newfoundland and Labrador, and making strong, documented, arguments for the importance of public geoscience. His cogent reasoning and convincing examples made a compelling case that is still quoted today to justify Geological Survey budgets across Canada.

Scott's skill in science management and his expertise in geoscience policy eventually led to his taking the job of Director of the geoscience program in Nova Scotia's Mineral Resources Branch. Two years later he was promoted to Executive Director for the entire branch. After 14 years of successfully advancing sustainable resource-development policies, he retired in 2010.

Throughout his career, Scott Swinden has served the geoscience community with distinction. His exceptional contributions to GAC® are many: President of the Newfoundland Section; Chair of the Mineral Deposits Division; national President. Along the way, he has supported and led numerous committees and activities, including a six year stint as President of the Canadian Geological Foundation.

With such a stellar record of leadership, it's not surprising that in 2013 the geoscience community came calling again. This time it was to take the helm of the Canadian Federation of Earth Sciences (CFES), which desperately needed an infusion of vitality and new strategic direction. This has now been accomplished, and Scott stepped down as President just a few weeks ago.

Meanwhile, back home in idyllic Wolfville, Scott is pursuing his love of economic geology through his own consulting company, and supporting student activities in his native Nova Scotia. There's no doubt that his record of scientific achievement, executive ability and community service, along with his unimpeachable integrity, portend further acclaim. It is fitting that today the GAC® is honouring this distinguished member by presenting him with the prestigious J. Willis Ambrose Medal.

*Acceptance:*

First of all I'd like to thank the GAC for this singular honour. It is a special pleasure to be recognized by ones peers in this way and I truly appreciate it. I particularly want to thank my good friend Frank Blackwood who led the nomination and all of you who supported it. I am very grateful for your efforts.

In my few minutes here, I would like to pick up on a theme that was raised in Vicki's Presidential Address this morning - the importance of volunteering for the future of our association and our community. Clearly, the importance of volunteering is something that I believe in very strongly - acting on this belief has led me to many interesting places and ultimately resulted in this award. When I was starting out as a geoscientist, volunteering wasn't just something that was recommended, it was **expected**. Everybody recognized that the associations that we have built to serve our community can only survive and thrive if we are all willing to help - and the more who are willing to help, the fewer individuals it actually takes to keep things running. I grew up in an environment that was particularly supportive of this world view - Ward Neale's geology department at Memorial University. Ward lived the philosophy of giving back to the community every day of his life, and taught us all by example how to do it. Volunteering was practically a way of life in Ward's department. The importance of effective mentors can't be overestimated, when it comes to instilling a sense of community and responsibility in youngsters - probably the best evidence of this is that the no fewer than 5 former grad students in Ward's department went on to become Presidents of GAC and many others have served the association in many important ways.

My sense is that this notion of the importance of volunteering for the good of the geoscience community is not as strong in today's young geoscientists as it was

in my day. I think this is a real shame and does not bode well either for the young geoscientists who hold this view, or for our institutions. As I look back over my career, I can say without hesitation that the volunteer activities I undertook added enormous texture and variety to my life. I have learned to do things that I would not otherwise have been exposed to, made many close and lifelong friends that I would not otherwise have met, and derived great satisfaction from seeing the community thrive through the success of its institutions. I think that young geoscientists who are reluctant to get involved, or invest any of their "non-work" time in volunteering for the community are missing a tremendous opportunity. The geoscience community in Canada is diverse and interesting, and the best way to take advantage of your membership in this community is to get involved in its institutions, at a local level, a scientific level and a national level. This is particularly important in the geoscience community because our institutions are so fragmented and diverse - there are a great number of geoscience specialty societies and national associations that contribute materially to all of our wellbeing, and they need interested and committed volunteers to run them. I encourage you to get involved. The geoscience community's institutions are many and diverse and provide a wide range of opportunity for interesting and rewarding activities. The alternative is an increasingly insular community, with weak institutions that do not serve our interests, and the increasing marginalization of geoscience in the science community as a whole.

### W. W. Hutchison Medal Stephen J. Piercey

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.

*Citation:*

The 2015 W.W. Hutchison Medal is awarded to **Dr. Stephen J. Piercey**, Professor and NSERC-Altiis Industrial Research Chair in the Metallogeny of Ores in Volcanic and Sedimentary Basins at Memorial University, for outstanding contributions to Canadian earth science research.

After receiving B.Sc. Honours (Memorial 1996), M.Sc. (Memorial 1998), and Ph.D. (British Columbia 2001) degrees, Dr. Piercey taught at Laurentian University (2001-2008) and consulted for industry (2008-2009), before taking up his Chair at Memorial University. In the 14 years since receiving his PhD, Dr. Piercey has amassed a truly amazing record of published research, student training, and research funding, including having published 48 peer-reviewed papers and book chapters in some of the top geoscience journals and geoscience books in the world; trained 6 postdoctoral fellows, 28 graduate students, 5 undergraduate students, and 3 research assistants; and generated almost \$17.5m in research funding. His research is field-based, utilizes state-of-the-art geochemical and isotopic data, and has made significant contributions to our understanding in a wide range of areas, including: 1) lithostratigraphy, volcanology, and sedimentary evolution of mineral deposits, 2) hydrothermal alteration systems, 3) exploration geochemistry, 4) ore mineralogy and geometallurgy, 5) shales and hydrothermal sediments, 6) origin of fluids and metals in ore deposits, and 7) crustal growth, tectonics, and metallogeny of ancient orogens.

His achievements have been previously recognized in numerous awards, including the 2005 *Waldemar Lindgren Medal* (best young scientist award) from the Society of Economic Geologists, the 2006 *William Harvey Gross Medal* (best young scientist award) from the Mineral Deposits Division of GAC®, the 2011 *Past President's Medal* from the Canadian Institute of Mining and Metallurgy, and the 2015 *Howard Street Robinson Medal* by the Mineral Deposits Division of GAC®. In 2015 he was elected as a Fellow of the *Geological Society of America*. All this has been done while teaching numerous courses at the undergraduate and graduate level, and serving in a wide range of capacities on university, national, and international committees. Dr. Piercey is one of the top young geologists in the world and a most worthy recipient of the W. W. Hutchison Medal.



## Yves O. Fortier Earth Science Journalism Award Ivan Semeniuk

The Yves Fortier Earth Science Journalism Award is given for excellence in journalistic presentation of earth science in the newsprint media. Entries deal with a broad spectrum of Earth science topics and are judged on the basis of originality, clarity of interpretation, scientific accuracy and value in promoting a broader understanding of Earth sciences to the public.

The 2016 recipient is **Ivan Semeniuk**, a journalist with *The Globe and Mail*. The award recognizes a series of articles: published in 2015 “The dawn of life” (February 13); “Listening to the planet’s story, right down to its roots” (May 4); and “No more coasting” (December 17). All articles can be retrieved from *The Globe and Mail’s* website at [www.theglobeandmail.com](http://www.theglobeandmail.com)



## E. R. Ward Neale Medal Rob Fensome

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.

### Citation:

Available literature on Canadian geology that is accessible to the general public and students is often dull and uninspiring. Fortunately some far-sighted geologists, of which **Rob Fensome** is an excellent example, have introduced a new freshness into the writing and illustrating of geological phenomena both in the Maritime Provinces and across





On behalf of Rob Fensome, David Corrigan (L) accepts the E. R. Ward Neale medal from David Pattison (R) at the GAC® Awards Luncheon in Whitehorse.  
Photo: Erica Williams

Canada. This is demonstrated in the two books *The Last Billion Years: A Geological History of the Maritime Provinces of Canada* and *Four Billion Years and Counting: Canada's Geological Heritage*. Rob was co-editor for the former and editor-in chief for the latter.

Both two books represent major milestones, primarily because of Rob Fensome's crowning accomplishment in outreach, which has been his realization that people are most attracted to spectacular images initially, rather than by accompanying text. Rob has nurtured this attraction by being a pioneer in the art of geological photography, raising it to a level that is beautifully displayed in *The Last Billion Years* and *Four Billion Years and Counting*. The visual impact of such presentations, especially when accompanied by an entertaining yet educational text, has set new standards in geological outreach.

Response to publication of the books has exceeded expectations. Over 8,500 copies of *The Last Billion Years* have been sold, making it a Canadian best seller. Recognition of its significance was highlighted in *The Globe and Mail*, which in 2001 listed it as one of the ten best science books of the summer.

*Four Billion Years and Counting* was steered through its 12 year gestation by Rob, who co-ordinated the writing

of the text and collected thousands of photographs from which the final selection was made. The book, written with the assistance of over 100 geoscientists, includes more than 700 illustrations in its 408 pages. One reviewer in the *Geological Journal* wrote "*Four Billion Years* is a splendid accomplishment." Praise indeed!

Rob has also played a leading role in development of the accompanying website, intended for educational purposes, and provided assistance in production of the French edition *Quatre milliards d'années d'histoire. L'héritage géologique du Canada*.

Rob Fensome is the latest of the dedicated geologists who have maintained the high standards demanded of winners of the Ward Neale Medal. We offer him our sincerest congratulations for this accomplishment.

#### Acceptance:

It is a tremendous honour to receive the Ward Neale Medal and humbling to join the list of prestigious recipients, including Ward himself. One previous recipient is sitting in the next office as I write. Indeed, it was Graham Williams who enticed me away from the microscope (albeit partially and temporarily) to get involved with outreach activities, for which I will be forever grateful.

To anyone out there who is tempted to dip into the outreach realm, I can thoroughly recommend it as a way to connect with people, diversify interests and, as any teacher knows, truly understand things.

I am indebted to many, many colleagues with whom I have collaborated on outreach projects and activities over the years. I don't have time to name them all, but I would like to recognize especially my co-editors of the *Four Billion Years and Counting* book project (which I consider the crowning achievement of all the outreach efforts that I've been involved with): Graham Williams, Aicha Achab, John Clague, David Corrigan, Jim Monger, and Godfrey Nowlan. Without their contributions, encouragement, enthusiasm and support, the FBY book could not have been completed. Thanks to David Corrigan also for graciously agreeing to receive the Ward Neale Medal on my behalf. I'd also like to recognize Jennifer Bates, who has led so many of the outreach ventures in the Maritimes that I've been part of. And of course I am hugely grateful to my employer of the past 32 years, the Geological Survey of Canada,

Natural Resources Canada, which has so indulgently tolerated my outreach diversions. I can't imagine a better place to work.

Thanks again to the Geological Association of Canada for this great honour.

### Eric Mountjoy Exchange Award

The Eric Mountjoy Award is available 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. **Timothy Gibson** of McGill University has been selected as the 2016 recipient of the GAC®'s Mountjoy Exchange Award.



### CJES Best Paper Award

**Luke Ootes**, NWT Geological Survey, has been named the 2016 *CJES* Best Paper Award winner for his paper with William J. Davis, Valerie A. Jackson, and Otto van Breemen entitled "Chronostratigraphy of the Hottah terrane and Great Bear magmatic zone of Wopmay Orogen, Canada, and exploration of a terrane translation model", *Canadian Journal of Earth Sciences*, Volume 52(12), pp. 1062-1092.

## Sections and Divisions Awards

### Canadian Geomorphology Research Group J. Ross Mackay Award

Presented in recognition of a significant achievement by a young geomorphologist within Canada. The purpose of the award is to foster the development of geomorphology in Canada and to provide recognition of young scientists in this field. The recipient of the award in 2016 is **Alberto Reyes** of the University of Alberta.

Dr Reyes has published 21 papers (18 since his Ph.D. in 2010) in leading venues for geomorphology research, including first-authored papers in *Nature*, *Proceedings of the National Academy of Sciences*, *Quaternary Science Reviews*, and *Journal of Quaternary Science*. His nomination was based on the following three publications:

Reyes, A. V., G. C. Wiles, D. J. Smith, D. J. Barclay, S. Allen, P. E. Calkin and J. J. Clague, 2006. Expansion of alpine glaciers in Pacific North America in the first millennium A.D. *Geology* 34: 57-60.

Reyes, A. V., D. G. Froese and B. J. L. Jensen, 2010. Permafrost response to last interglacial warming: field evidence from non-glaciated Yukon and Alaska. *Quaternary Science Reviews* 29: 3256-3274.

Reyes, A. V., A. E. Carlson, B. L. Beard, R. G. Hatfield, J. S. Stonor, K. Winsor, B. Welke and D. J. Ullman, 2014. South Greenland ice sheet collapse during Marine Isotope Stage 11. *Nature* 510: 525-528.

The selection committee noted the impressive productivity of Dr Reyes' research and very high quality and impact publications. His work also demonstrates careful observation coupled with model and field evidence, and addresses broad-scale palaeoenvironmental issues of interest across research disciplines. They also agreed that his research engages in truly "big picture" questions that cause readers to re-think assumptions about past climates and effects on cold landscapes with notable implications for improving understanding of the foreseeable impacts of contemporary climate warming, such as with the potential collapse of Greenland's ice sheet and the resilience of permafrost during warming phases. Indeed, Dr Reyes'

contributions truly exemplify the spirit of Dr Mackay's legacy and CGRG's vision for this award.

#### *Current research:*

Alberto Reyes is currently working on a variety of projects, with a general focus on past environments and landscape change in Canada's northern regions. A current major interest is to develop records of early Cenozoic palaeoclimate and greenhouse gas forcing in Canada's North, with particular emphasis on a unique Eocene lacustrine mud and peat sequence in kimberlite crater infill sediments. Reyes is also interested in applying geochemical provenance tools to problems in Quaternary geoscience. Other projects in early exploratory stages include tracking changes in sediment supply to Kluane Lake (Yukon) due to Holocene drainage reorganization, and prospecting for ancient early Archean rock localities using glacial sediments. Closer to Edmonton, Reyes is developing new interests in deglacial ice-sheet history of the western Laurentide ice sheet, particularly as it relates to the northwest outlet of Glacial Lake Agassiz. In Yukon and Alaska, Reyes has ongoing projects to develop new records of interglacial landscape change, and to refine regional geochronological frameworks by correlating tephra in terrestrial and marine sedimentary records.



### 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 2016 Middleton Medal was awarded to **Denis Lavoie**, Geological Survey of Canada (Québec City office).

### Canadian Tectonics Group Dave Elliott Best Paper Award

The 2016 winner of the Dave Elliott prize for the best paper published in 2015, selected by the Canadian Tectonics Group of the Geological Association of Canada is being awarded to **Mark Higgins** of McGill University for his paper entitled "New kinematic and geochronologic evidence for the Quaternary evolution of the Central Anatolian fault zone (CAFZ)." Co-authors include Lindsay M. Schoenbohm, Gilles Brocard, Nuretdin Kaymakci, John C. Gosse, and Michael A. Cosca" published in *Tectonics*, Volume 34(10), pp. 2118–2141(2015).

### Jack Henderson Prize for Best Ph.D. thesis

**Jessica Shaw**, Western Washington University, for her thesis: "Oroclines of the Iberian Variscan Belt: Tectonic and Paleogeographic Implications," supervised by Stephen Johnston.

### Jack Henderson Prize for Best M.Sc. thesis

**Noah Phillips**, University of New Brunswick for the thesis "The micromechanics of phyllosilicate-rich fault zone: case studies from the Minas Fault Zone, Nova Scotia, Canada and the San Andreas Fault, California" supervised by Joseph White.

### Mineral Deposits Division Duncan 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 2016 recipient is **Dr. Dan Kontak** (Laurentian University).

### Citation:

Dr. Daniel J. Kontak is an internationally recognized scientist who has made outstanding contributions to research, mentoring, and service in Economic Geology, especially in Canada. He holds a B.Sc. Honours degree from St.



Francis Xavier University, a M.Sc. degree from the University of Alberta, and a Ph.D. degree from Queen's University, did post-doctoral work at Memorial University, and worked for 24 years at the Nova Scotia Department of Mineral Resources. He joined Laurentian University in 2006, where he is currently Professor of Ore Deposits.

Dan is a world leader in multidisciplinary studies of hydrothermal ore deposits, in particular orogenic Au, Sn-W, rare metal, and Zn-Pb, where he has made critical contributions to understanding their geology, mineralogy, geochemistry, and genesis through careful, meticulous, integrated field and laboratory studies. His seminal work on Meguma Au deposits is a key example of the importance of his approach of integrating of field and laboratory methods in understanding the complex hydrothermal processes involved in generating ore deposits. He has published an incredible 104 peer-reviewed papers in some of the best peer-reviewed, internationally-circulated journals in the world, 19 chapters in special volumes and books, 3 scientific communications and discussions, 2 field guidebooks, 255 abstracts, 85 government reports and publications, and 5 published maps. He has also trained 9 Ph.D. students, 18 M.Sc. students, and 7 B.Sc. Honours students. He has also served as President of MAC and AGS (Atlantic Geoscience Society), and on the editorial boards of several journals. He has previously been awarded the 2015 and 2011 Julian Boldy Awards for best Economic Papers presented at Annual GAC®-MAC meetings, the 2011 Gesner Medal from the Atlantic Geoscience Society for distinguished scientific contributions, the 2011 Peacock Medal from MAC to a scientist who has made outstanding contributions to the mineral sciences in Canada, and the 2002 and 1990 Hawley Medals from MAC for best papers published in *Canadian Mineralogist*, and being selected the 1997 APICS Distinguished Lecturer for Atlantic Canada, the 1996 H. S. Robinson Lecturer for the Mineral Deposits

Division of GAC®, and the 1996 C. F. Davidson Memorial Lecturer at St. Andrews University in Scotland.

Professor Kontak is one of the top economic geologists in the world and a most worthy recipient of the Duncan R. Derry Medal.

### Acceptance:

Mr. President, distinguished guests, MDD members, my many colleagues and friends both here and afar, and lastly past and future Duncan Derry Medalists.

I stand here quite humbled and somewhat short of breath as I enter into the rarified atmosphere of a most distinguished club, this being Derry Land. I say most distinguished because this achievement is for me not one of just national stature, but instead one elevated to a much higher podium. You see, to me Canadian ore-deposit geologists, in fact Canadian geologists in general, are second to none on the international stage. In defence of such a lofty claim one need only look at the list of distinguished past Duncan Derry Medalists on view here today as I speak, the list of other Society Medalists at this meeting, and the many talented geologists attending GAC-MAC 2016 to realize our collective contribution to the study of geology on the highest stage. Thus, it is quite an honour, and I might add a burden, that you bestow upon me today. However it is also an honour which I promise to carry forward with the understanding that I am to live up to the highest standards and expectations that such distinction expects.

Before continuing, I would wish to acknowledge with a deep gratitude the efforts of my colleague and friend Dr. Mike Leshner for putting forth the nomination, the supporters of this nomination, Drs. A. Williams-Jones, M. Hannington and R. F. Martin, and the MDD committee members who thought me worthy of their highest award. I know, admire and respect all of the aforementioned individuals which brings even more meaning to the award for me.

Although I have been singled out from a large group of equally or more deserving candidates, I note that this acknowledgement is really an affirmation of the incredible support that I have been the fortunate benefactor of over several decades. Thus to my family, many friends, exceptional and selfless teachers and mentors, past and current students, and my numerous

collaborators, I express to you all my sincere gratitude for your unwavering faith in me and long sustained support. This encouragement has allowed me to pursue that which I so love and enjoy. I also want you all to know that you share a part of this medal with me.

So you may wonder what is it that I so love to do. Well, quite simply, it is no more than the extraction of the mysteries so cleverly hidden within my favourite rocks (granites/pegmatites), minerals (perthitic orthoclase) and, dare I say it, fluid inclusions (aqueous-carbonic). Honestly, I lose all sense of time when I come face-to-face with such geological bling and am most content and at peace when faced with intriguing outcrops, looking down a microscope, or delving into the fascinating world that unfolds at the micron-scale as viewed with electron microscopes. I hope that my delivery of these findings over the years has in a small way contributed to advancing our understanding of ore-deposit systems.

To be honest, I do not know where my fascination of geology originated, but when I do stop and think of this I invariably end with the reading of National Geographic as a young kid with dirty knees and reminiscing of my many forays into the beautiful outdoors of northern Nova Scotia where I grew up, this being the Highland Heart of Nova Scotia. I think there is a message here for the young members of our community. I implore you to pursue what you love. I had no road map, certainly no compass pointed at anything other than adventure, and always felt and was lead to believe that if you worked hard and did your best there would be opportunities. I continue to live by this somewhat simple and perhaps for some naïve belief, but it has served me well and for this I am very thankful and encourage others to embrace it.

I would like to finish my noting where I find myself at present, this being Sudbury, and the internationally recognized Department of Earth Sciences at Laurentian University. It has been a decade since leaving my beloved Nova Scotia - where I worked for 20 amazing and satisfying years as a provincial mineral deposits geologist - and the transition could not have been easier. I have simply fallen in love with the Canadian Shield, its beauty and geological challenges, and in particular Archean gold systems. I am most thankful at the support I have received from the entire community there, in particular my dear colleagues in the department, the government agencies I interact with,

and numerous companies. This support has allowed me to develop an active research program and most importantly engage with numerous capable and enthusiastic young geologists who are constantly challenging me. These students represent our future and it is a privilege to work to mentor them.

In closing, I again express my sincere gratitude to the MDD and its members for this honour. I also wish to thank the organizers of GAC®-MAC 2016 for putting on such a splendid meeting here in Whitehorse. I cannot have imagined a more lovely setting and metallogenetically challenging place to have received the prestigious Duncan Derry Medal.

### William Harvey Gross Award

The William Harvey Gross Award is bestowed annually by the Mineral Deposits Division to a geoscientist less than 40 years of age who has made a significant contribution to the field of economic geology in a Canadian context. The contribution may relate to studies that include all aspects of what is generally referred to as economic geology, and which represents the broad spectrum of fields to which Bill Gross contributed. The 2016 recipient is **Sarah Dare**, University of 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 2016 recipient is **Dr. Marc Laflamme** (University of Toronto – Mississauga).

### Citation:

Dr. Laflamme obtained his Ph.D. at Queen's University in 2007 on Ediacaran fronds from the world famous Mistaken Point assemblage, Newfoundland. He



went on to secure three prestigious post-doctoral fellowships (NSERC, Yale University, and the Smithsonian Institution) before landing a tenure track position at the University of Toronto - Mississauga in January of 2013.

Dr. Laflamme has established himself as one of the world's foremost experts on Ediacaran organisms. This biota characterizes a critical phase in the history of life on Earth with the ascendance of the first large multicellular organisms, some of which might have been precursors to true animals. In addition to undertaking detailed systematic and evolutionary studies, Dr. Laflamme has led pioneering research on the mode of life of Ediacaran organisms using innovative theoretical modelling and functional morphology approaches. He has also published global syntheses relevant to large-scale questions in the Ediacara biota worldwide.

His current research program focuses on developing experimental techniques to better understand the preservation - and, in consequence, the affinities and ecologies - of these often-enigmatic organisms. He has so far co-authored 37 peer-reviewed papers including a number in such prestigious journals as *Science*, *PNAS*, and *Geology*, and has co-edited several books and special volumes. Dr. Laflamme is currently Secretary of the IUGS-ICS Ediacaran Subcommission, Chair of the Geological Society of America Geobiology and Geomicrobiology division and he is also the Associate Editor of *Frontiers and Geobiology*. In addition to his professional services and editorship activities, he has chaired numerous sessions at international academic meetings. Dr. Laflamme is a well-respected teacher and supervises several graduate students. To sum up, Dr. Laflamme is a very active young Canadian palaeontologist who has already demonstrated an immense potential for ground-breaking research. He brilliantly exemplifies the qualities that the GAC® Paleontology Division's *Pikaia* Award seeks to recognize.

## Volcanology and Igneous Petrology Division Career Achievement Award

The Career Achievement Award is made by the Volcanology and Igneous Petrology Division of the Geological Association of Canada in recognition of career achievements in the field of volcanology and/or igneous petrology. The Career Achievement Award was awarded in 2016 to **Joseph Whalen**, Geological Survey of Canada Emeritus.

## Leopold Gélinas Medal

The Volcanology and Igneous Petrology Division of the Geological Association of Canada 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)

**Jason Coumans**, McGill University, Montreal, Québec, for his thesis titled "*Magmatic and volcanic processes at near -ridge seamounts*", supervised by John Stix.



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

**Michael D'Angelo**, Lakehead University, for his thesis entitled "*Geochemistry, petrography and mineral chemistry of the Guichon Creek and Nicola batholiths, south central British Columbia*".



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

**Sam Metteer**, Lakehead University, Thunder Bay, Ontario, for his thesis titled *"Mineralogy and Petrology of the Rabbit Foot Dyke, White River ON"*, supervised by Dr. Shannon Zurevinski.



## 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 2016, the Medal is presented by the Precambrian Division to **Dr. Rebecca Jamieson**, Dalhousie University, Halifax.



## 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, the award was given to **Edward Procyshyn, Garth Jackson and Donald Sangster**.

## Student Awards

### Mary-Claire Ward Geoscience Award

The Mary-Claire Ward Geoscience Award Selection Committee is pleased to announce that the 2016 recipient is **Jordan McDivitt** of Laurentian University for his M.Sc. thesis: "Gold Mineralization at the Renabie Mine (Wawa subprovince, Ontario)".



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 intent of the award 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 (GAC®), the Prospectors & Developers Association of Canada (PDAC), the National Geological Surveys Committee, the Canadian Geological Foundation, and Watts, Griffis and McOuat Ltd.

### 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 GAC®-MAC meeting in Whitehorse.

#### Gold (1st place)

**J. M. Emberley** (University of Ottawa), with D. A. Schneider "Tracking low temperature tectonism of the St. Lawrence Platform and Humber Zone, northwest Appalachians through apatite and zircon (U-Th)/He thermochronology"

### Silver (2nd place)

**Jennifer L. Bentz** (Queen's University), with R. C. Peterson "Arsenic in saline to hypersaline brines on the Bolivian Altiplano"

### Bronze (3rd place)

**J. Spalding** (University of Ottawa), with D. A. Schneider and J. Brown "Long-term stability at the edge of the Canadian Shield: Insights from calcite-filled fractures inherited from basement structures, southern Ontario, Canada"

### Honorable mentions:

**K. R. Grodzicki** (University of British Columbia), with M. M. Allan, E. Buitenhuis and T. R. Smith "Hypogene gold mineralization at the Coffee deposit, Dawson Range, west-central Yukon, Canada"

**M. M. Gilbert** (University of Saskatchewan), with L. A. Buatois and R. W. Renaut "Stratigraphy and sedimentology of the Belly River Group (Campanian) in the Cypress Hills region, southwestern Saskatchewan, Canada"

**R. W. Campbell** (Memorial University of Newfoundland), with L. P. Beranek, S. J. Piercey and R. M. Friedman "Early Paleozoic magmatism and stratigraphy of the Kechika group, Pelly Mountains, Yukon"

**E. R. Lockier** (University of Adelaide, Australia), with J. Tyler, J. Tibby, G. Jacobsen, H. Heijnis and P. Gadd "Hydroclimate variability during the past millennium: A new record from West Basin Lake, Victoria, Australia"

## 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 CFES is pleased to announce that the winner of the 2016 Mentorship Medal is **Valerie Jackson** of the Northwest Territories Geological Survey, in recognition of her outstanding and continued mentorship of geoscience students and colleagues.

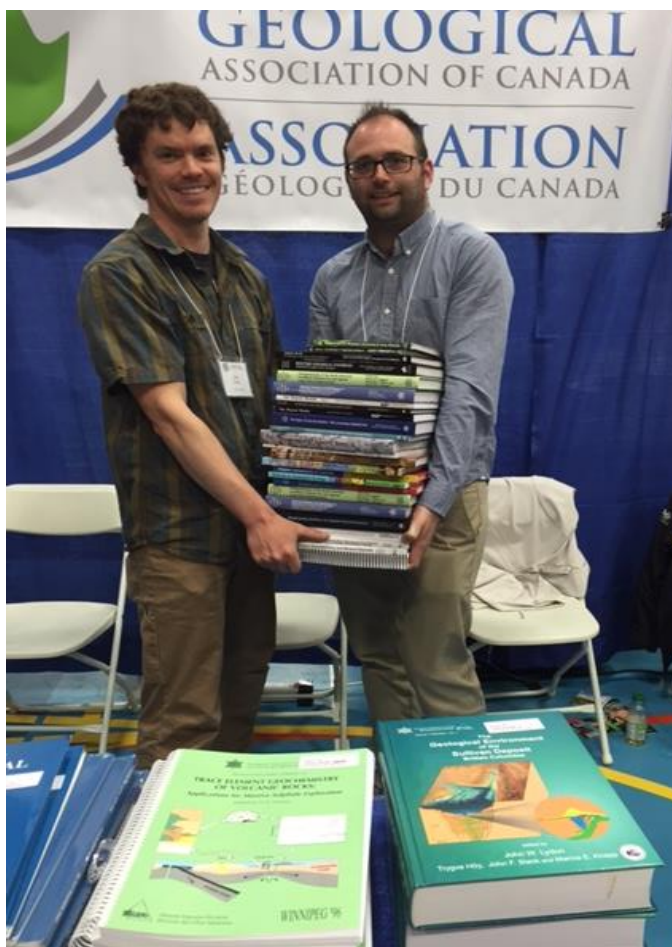


Ms. Jackson, a Project Geologist with Northwest Territories Geological Survey, epitomizes the criteria for the Canadian Federation of Earth Sciences Mentorship Medal, summarized as "excellence in mentoring over a sustained period of time." To her many colleagues and former students, she is an obvious choice for this national award and recognition.

Valerie began bedrock mapping in the late 1970s in Ontario and Newfoundland, and by the early 1980s was running bedrock mapping projects in the Northwest Territories, which then included what is now Nunavut, for the Canadian Government. She has conducted remote northern mapping campaigns since that time and in the process has trained, mentored, and inspired well over 100 undergraduate and graduate students and colleagues who have served in her field crews. An exceptional geologist in her own right, she recognizes the exceptional opportunity that her project work provides for her field staff and has consistently sought to provide a unique and high-quality professional and personal experience.

As Valerie's numerous mentees attest, this decades-long exercise in experiential learning has positively shaped the way that the current generation of geoscientists in Canada and elsewhere conduct their profession. Geological mapping in remote northern field locations is a remarkably complex task that her students ultimately excelled at under her patient

guidance and teaching. For many, it has been a life-changing experience. Valerie Jackson has an insatiable work ethic and a determined pursuit of excellence. Her lead-by-example approach is contagious and inspires others to learn and perform at a high level and to be excited about their work. At a difficult time for employment in the geosciences, the list of still-practicing professional geoscientists that Valerie has mentored attests to this. Perhaps most significantly, Valerie's mentoring style has inspired the next generation to mentor using a similar approach, ensuring a legacy of training and mentorship that will inspire future generations of geoscientists.



James Conliffe (R) donating a collection of GAC® books to Yukon College's Joel Cubley as a thank-you for hosting the GAC®-MAC conference in Whitehorse.

Photo: Karen Johnston-Fowler

*GeoFact: Jul 20 1969: The Apollo 11 mission reaches orbit around the moon. Neil Armstrong and Buzz Aldrin land and become the first humans to walk on the moon's surface.*

## Events and Happenings

### Mistaken Point is named a World Heritage Site

On July 17 2016, Mistaken Point in Newfoundland was added to the list of UNESCO World Heritage Sites. It became the 18th World Heritage Site in Canada.

Mistaken Point is an Ediacaran fossil site located on the southern tip of Newfoundland's Avalon Peninsula. Much of this area falls within Mistaken Point Ecological Reserve, a provincial protected area managed by Parks and Natural Areas Division (PNAD) of the Newfoundland and Labrador Department of Environment and Conservation. Visitorship to the site is expected to increase considerably now that it has been declared a World Heritage Site. In order to protect the fossils, access to the fossil exposures in the reserve is by guided hike only.

The fossils found at Mistaken Point date to the Middle Ediacaran Period (580 to 560 million years ago) and represent the first appearance in the fossil record of large, complex, multicellular, animal-like organisms, a pivotal event in the evolution of life on Earth.

*Editor's Note: Some information taken from a Government of Canada media release and backgrounder archived at [news.gc.ca](http://news.gc.ca)*



Led by Dr. Alex Liu (Bristol University, UK) members of GAC® Newfoundland and Labrador Section examine fossils at Mistaken Point during their annual fall fieldtrip, September 2015.

See *Geolog* 44(4): 9-12.

Photo: Stefanie Lode

## Milestones, Memories, and Tributes

### Celebrating the life of Charlie Stelck

Celebrated researcher and educator Charles Stelck ('37 BSc, '41 MSc, '03 DSc) has passed away at the age of 98.

Stelck had a long career as a faculty member at the University of Alberta, beginning as one of only three professors in the British Empire teaching petroleum geology. Over the course of his tenure, he authored 111 refereed articles—the last at the age of 98—wrote dozens of works on the geology of Alberta and northeastern British Columbia, and supervised 44 MSc and nine PhD theses.

Says Dean of Science Jonathan Schaeffer, “Charlie Stelck is an integral part of the history of the Faculty of Science and the University of Alberta. He helped put us on the map as the best place in Canada to get an education in petroleum geology.”

Stelck’s early research had the romantic character of hardened adventuring in Canada’s most forbidding landscapes. In his pursuit of evidence to support his theory that coral reefs had once occurred in what is now the Arctic—which would mean that there might also be oil—he took a dog team out in the mountains of Norman Wells and found there had been a reef there.

The groundbreaking work Stelck began will continue to make an impact for decades to come through the C. R. Stelck Chair in Petroleum Geology, currently held by distinguished U of A professor George Pemberton.



“Charlie Stelck has dedicated himself to Alberta for the past 50 years—creating a legacy as a professional geologist, a highly accomplished researcher and an inspiring teacher,” says Pemberton. “Stelck has pioneered some of Alberta’s most important discoveries—from his early field work on the wartime Canol Project in the Norman Wells and Upper Peel River areas of the Northwest Territories to his discovery of the Fort St. John and Monkman Pass gas fields.” A founding father of geology research in Alberta, Stelck also taught as a professor for almost 35 years, guiding many of his students into iconic discoveries of their own. His pioneering fossil research in Western Canada led to his students’ discovery of Alberta’s massive oil reserves. Doug Layer, a former student of Stelck’s, was instrumental in the discovery of oil in Devon (Leduc No. 1) a half-century ago, sparking Alberta’s oil rush. Later, Stelck’s students Arne Nielsen and Tony Mason



discovered the Pembina oilfield—the largest pool of oil found in Canada. Nielsen later went on to become president of Mobil Oil.

“[Stelck’s] graduates have carried the name of the department with them to both industry and academia, and the reputation of the department for producing excellent students owes much to the standards of teaching and mentoring established by Charlie,” says Robert Creaser, professor in the Department of Earth and Atmospheric Sciences. “The department’s strength today is built upon this foundation of excellent teaching and research made by Charlie.”

After the discovery of Leduc no. 1, the Geological Survey of Canada discontinued identifying fossils outside of their own collections. Stelck and colleague P. S. Warren took up the torch, identifying more than 50,000 fossils each year for a decade and dating many of the most significant discoveries during this period. Most of this work was conducted free of charge.

“The contribution of Dr. Charles R. Stelck’s lifetime of research and teaching to the Department of Earth and Atmospheric Sciences is immeasurable,” adds Creaser. Stelck is recognized for his humanity, integrity, enthusiasm and accessibility to students. His enduring legacy is his inspired graduates.



His honours and awards for geology are numerous, including Petroleum Hall of Fame, AAPG Distinguished Educator, CSPG, APEGA, Engineers Canada, and the Geological Association of Canada. He was named a fellow of the Royal Society of Canada in 1960 and appointed as an officer of the Order of Canada in 1997. In 2008, the astronomer Andrew Lowe named Asteroid 187680 after Stelck.

Notes: Article reproduced with permission from University of Alberta’s Faculty of Science website. Original at: [uofa.ualberta.ca/science/science-news/2016/may/celebrating-the-life-of-charlie-stelck](http://uofa.ualberta.ca/science/science-news/2016/may/celebrating-the-life-of-charlie-stelck)



Dr. Stelck visiting Red Rock Coulee (L) and conducting fieldwork, (above) in southern Alberta in the early 1980s. These two photos: Ron Mussieux. Royal Alberta Museum collection.

## Reading on the Rocks

***The Whisper of Legends*** by Barbara Fradkin, 2012, Dundurn Press. 400 pages.

Inspector Mike Green is a police officer in Ottawa. A forceful go-straight-ahead detective, he is used to the rough and tumble of the city and knows exactly how to go about dealing with any situation he encounters there. In this tale, the ninth in the series by Fradkin, he heads to Canada's north where he's out of his comfort zone and finds himself in terrain where his street-smarts are of no help.

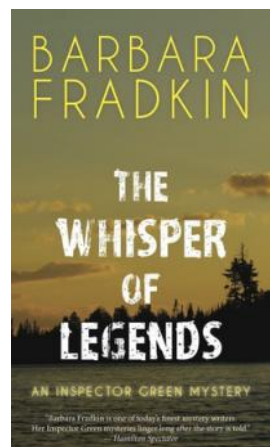
His daughter, Hannah, at university on the west coast, tells him she's going on a canoeing trip down the Nahanni River with three other students, including her current boyfriend, Scott, a geology grad student. Mike's apprehensive and makes her promise to check in regularly. When he doesn't hear from her, he panics and starts hassling the local RCMP detachment to find her. Understandably, the officers are reluctant to go haring off on a search, in part because they don't know where the group was heading. The foursome put in outside Nahanni National Park and didn't file a trip plan nor was their trip arranged by a tour operator. The RCMP and Park officials point out that trippers are overdue all the time and searches don't start until there is a sound reason to do so. Green, pugnacious, is furious and determines to head north himself and galvanize them into action. Using his vacation time and accompanied by his Staff Sergeant, Brian Sullivan, he sets off to sort them out.

His foray starts badly. Arriving in the northern community, Mike demands to be taken to a hotel, only to find out that there isn't one. He's floored by this, and his arrogant, demanding, do-it-now style does not go over well with the locals. Luckily, Brian is more simpatico. Mike persuades a bush pilot to take him on a reconnaissance flight down river and he is overwhelmed by what he sees - miles and miles of forest and, as he sees it, absolutely nothing. He starts to appreciate the difficulty of doing a search. Then a broken canoe is found and Mike becomes even more frantic. The Parks staff point out that upset canoeists usually make camp on shore and signal for help and that it's most unlikely all four could have drowned.

They ask other groups and outfitters to keep an eye out for stranded tourists. Meanwhile, Mike has used his urban cop skills to investigate Scott, becoming worried by what he finds. Scott, it appears, is secretive and unstable, with a troubled family background. Mike's convinced Scott's motives for proposing the trip have less to do with adventure and more to do with some confused idea of proving himself as a geologist.

As days go by and there's no sign of the four, concerns ramp up and a ground search is launched. It looks as if the group may have left the river, making finding them more difficult. Despite being a total urbanite, physically unfit, and having absolutely no bush skills, Mike insists on joining the search party. The journey is brutal. He's wet, cold, tired and hungry most of the time. He has to cope with bugs, whitewater, and difficult terrain. His muscles ache from carrying a pack. He's bruised from scrambling across scree and deadfall. What looks like a short distance on the map takes hours to travel on foot, even with an experienced Dene guide. He rapidly learns that travelling in this country requires a repertoire of skills that he lacks, adding to his anger and frustration. Gradually and grudgingly, he learns some respect for his companions' knowledge of the country.

Interleaved with this modern story is the tale of two brothers from eastern Canada who came to the Yukon to seek their fortune decades ago. The brothers disappeared, leaving behind a legend of fabulous wealth in the mountains. Today, developers want to explore an area on the edge of the Park for potential mineral resources, whereas environmental groups want the area protected and added to the Park. Tensions between these groups run high, while local people are divided on the issue. The search party may be heading into disputed territory, where there's some familiar urban-style danger making Mike feel quite at home.



Alwynne B. Beaudoin  
Edmonton, Alberta

## Announcements

### Canadian Geological Foundation Grants

The following is a list of grants approved on May 31, 2016 in Whitehorse by the Canadian Geological Foundation. A total of 21 grants were funded (\$164,200) this year. People are invited to visit the CGF

website at [www.canadiangeologicalfoundation.org](http://www.canadiangeologicalfoundation.org) for the details of how to apply and what sort of projects are supported. The next application deadline is March 31, 2017.

<b>2016 Grant Competition - Whitehorse</b>		
<b>#</b>	<b>Project Title (Applicant)</b>	<b>Award</b>
16_01	History of Mining and Geologic Exploration in the East Kootenays (Rohanna Gibson)	\$1,250.00
16_02	Publication of text: History of Geochemistry and Cosmochemistry by Robert Boyle (Dr. Heather Robinson)	\$10,000.00
16_03*	Mining Rocks Earth Science programs for Aboriginal Youth (PDAC Mining Matters)	\$20,000.00
16_04	Inner City Program - Pilot (PDAC Mining Matters)	\$6,000.00
16_05	McConnell and Brock 1903 Frank Slide report reprint (Matthais Grobe, Edmonton Geological Society)	\$3,500.00
16_07	Black smokers at Britannia Mine Museum (Diane Mitchell)	\$9,000.00
16_08	Fortune Head Geology Museum: Geological concepts activity stations (Fortune Head ECO Friends Inc.)	\$10,000.00
16_09	The wired landscape: A living geological museum in Squamish, BC (Dr. Steve Quane, Quest University)	\$3,150.00
16_10	Burgess Shale Colouring book for children (Burgess Shale Geoscience Foundation)	\$5,000.00
16_11	Nova Scotia Pebbles (Jennifer Bates, AGS)	\$5,500.00
16_12*	Foundations: The Science beneath the Art (Dr. Jeffrey Packard)	\$11,500
16_13	Geosite Interpretation for discovering aspiring Geo-Park on Bonavista Peninsula NL (Sir William Ford Coaker Heritage Foundation Inc.)	\$10,000.00
16_14	MAP (Minerals and Products) Event (Saskatchewan Mining Association)	\$7,000.00
16_15	SMA Classroom Resource Kit (Saskatchewan Mining Association)	\$4,500.00

16_16	Saskatchewan Geological Society Education and Outreach Activities (Kate MacLachlan)	\$3,900.00
16_17	Cougar Creek Walk (Canadian Rockies Earth Science Resource Centre)	\$750.00
16_19	Treasures from the Earth: A mineral gallery guide (Redpath Museum, McGill University)	\$10,000.00
16_20	Open repository for virtual and augmented reality geoscience fieldtrips and geo-tours (Dr. Derek Turner)	\$3,500.00
16_22	Stonehammer UNESCO Global Geopark - Education materials (Gail Bremner)	\$20,000.00
16_23	Geoscience for Canadian Society (Oliver Bonham)	\$10,000.00
16_24	Learning resources to connect Earth Science and Aboriginal Knowledge (Eileen Van der Flier-Keller)	\$9,650.00
15_11*	Geoscience Canada (Chris White - GAC)	\$21,000.00
15_16*	Students on Beamlines - CLS (Tracy Walker)	\$8,000.00
14_11*	CGEN Websites (CGEN)	\$5,000.00
14_20*	EdGeo websites and workshops	\$20,000.00
14_31*	Science North - Interactive Earth Science program	\$5,000.00
<b>TOTAL</b>		<b>\$223,200.00</b>

\* These are multi-year grants. 16-03 is for 3 years, 16-12 is for 2 years, 15-11 is for 3 years (\$21,000 for 2 years, \$15,000 for year 3). 15-16 is for two years. 14-11, 14-20 and 14-31 are in the third year of three years of funding.

**International Symposium on the Ediacaran–Cambrian Transition  
(ISECT NL2017)**

St. John's, Newfoundland, Canada

15 - 29 June 2017



This symposium will provide a forum for discussion of the stratigraphy, geochemistry and palaeobiology of the Ediacaran and Cambrian systems. Organized under the support of the International Subcommissions on Ediacaran and Cambrian Stratigraphy, the meeting will celebrate 50 years since the discovery of the exceptional Ediacaran macrofossil localities at Mistaken Point.

A two day conference in St. John's (21-22 June 2017) will feature dedicated sessions on all aspects of the Ediacaran and Cambrian systems. The meeting will have a particular focus on stratigraphic discussions relating to subdivision of the Ediacaran System, and the criteria for the global recognition of the Ediacaran–Cambrian boundary. Associated field excursions both before and after the meeting will visit: the Ediacaran localities of Mistaken Point Ecological Reserve, Spaniard's Bay and the Catalina Dome; Ediacaran–Cambrian sections on the Burin, St. Mary's, and northern Avalon peninsulas; and Cambrian–Ordovician sections on the West Coast of Newfoundland.

For more information and to download the First Circular, please see the website: [www.ISECT2017.org](http://www.ISECT2017.org).

# GEOSCIENCE CANADA

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Encounter some tough but polished Italians, Brazilians and Slovenians  
The granites in Spain are anything but plain  
Nice Neoproterozoic Nubian anorthositic gneiss  
Wonderful Whitehorse 2016: Field Trip Preview

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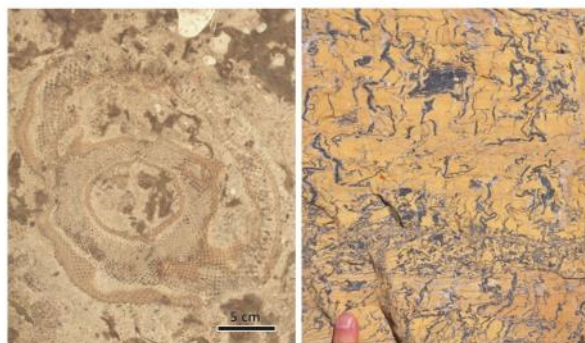
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## Howard Street Robinson Fund

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: Patrick Mercier-Langevin, Chair, Robinson Fund, c/o Geological Survey of Canada, 490 rue de la Couronne, Québec G1K 9A9, Tel: 418 654-3101, E-mail: pmercier@nrcan.gc.ca

### The Last Word

The GAC®-MAC meeting in Whitehorse provided me with an opportunity to travel to a part of Canada I hadn't visited before, finally achieving a small ambition of travelling north of 60! This was undoubtedly one of the best conferences I've attended, in part because of the fabulous setting, as well as the excellent conference

arrangements by the Local Organizing Committee. I enjoyed hiking along the Millennium Trail beside the Yukon River, journeying in a train over the White Pass, and exploring the displays at the Beringia Centre. The range and quality of presentations at the conference was impressive. I returned home with great memories and new ideas.

Alwynne B. Beaudoin, *GEOLOG* Editor

### 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.