GEOLOG

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GEOLOGICAL ASSOCIATION OF CANADA
ASSOCIATION GÉOLOGIQUE DU CANADA

GAC® Student Member Photography Competition

The Geological Association of Canada is proud to congratulate the winners of the 2019 GAC® Student Member Photography Competition, and thank all of our Student Members who participated by sending in amazing photographs from across the country!

1st place – Cole Narfason, University of Calgary
Dinosaur Provincial Park, Alberta

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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GEOLOGICAL ASSOCIATION OF CANADA
c/o Dept. of Earth Sciences, Memorial University of Newfoundland
St. John's, NL A1B 3X5
Tel: 709-737-7660
Fax: 709-737-2532
E-mail: gac@mun.ca
Web: www.gac.ca
Editor / Éditeur
ALWYNNE B. BEAUDOIN
c/o Royal Alberta Museum
9810-103A Avenue, Edmonton, AB T5J 0G2
E-mail: Alwynne.Beaudoin@gov.ab.ca

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.

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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 members 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 ouvernementaux 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.

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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: Rene Barendregt, Greg Brooks, Karen Dawe, Les Henry, Roger Paulen, Eleanor Penney, Eileen van der Flier -Keller, and Deanne van Rooyen. 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 by **March 1 2020**.

Geolog Editor cooking breakfast in the filed, 1976

Rock Stars: A collection of recipes and stories from the field

What is your favourite field recipe, and what makes it special to you? Tell us about it, and your story and recipe may appear in *Rock Stars: A collection of recipes and stories from the field*.

Send submissions to:
Karen Dawe at Kfmdawe@mun.ca,
with Field Recipes in the subject line,
or mail to GAC Field Recipes, c/o Geological Assn of Canada, Dept of Earth Sciences, Memorial University,
St. John's NL A1B 3X5

Cont'd from p. 1

2nd Place – Alejandro Alvarez, University of Alberta

"Aerial photograph taken near Inuvik, NWT. Picture shows a relatively small meandering tributary flowing into the Mackenzie River."

3rd Place – Mollie Patzke, Laurentian University

"Two sedimentologists descend into a canyon to examine the Mesoproterozoic Fury and Hecla Group sandstone on northwest Baffin Island, Nunavut. A gabbro sill forms a peninsula in the distance."

Honourable Mentions-Brie Dinsdale, Thompson Rivers University
"Tucked away on the west coast of Vancouver Island is Mystic Beach. It is found within the Juan de Fuca Provincial Park and this photo features a small run-off waterfall that flows over the sheer cliff."

Honourable Mention—Mollie Patzke, Laurentian University
"Taken August 2018, this photo shows an outcrop of a previously unmapped Mesoproterozoic sedimentary succession located on northwestern Baffin Island, Nunavut. The fluid escape structures resemble bunting."

Milestones, Memories, and Tributes

Alice Telka
1956-2019

Alice Telka passed away on September 23 2019 after a long illness. Alice was a former member of Terrain Science Division, Geological Survey of Canada (GSC), and well known to the Canadian Quaternary community. Many in that community used her macrofossil expertise through Paleotec Services, a successful company she established after leaving the Geological Survey of Canada in 1998. Her expert advice on macrofossils, palaeoenvironments, and recommend-ations on sample selection for radiocarbon dating contributed significantly to many studies by numerous scientists.

Alice had an inquisitive mind and a passion for science and the natural world around her. Her passions transferred into her studies in biology at Carleton University and translated into a successful 40 year career of studying and dating plant and insect macrofossils of ages gone by. She founded Paleotec Services after having started her career in the federal public service and her passion for the pursuit of knowledge allowed her to create a thriving business and a platform to challenge herself to never stop learning. Alice recreated ancient environmental conditions and used her understanding and connection to the present day to help unlock some of the mysteries of the past and predict how environments may adapt and survive in the future. To her scientific community, her friends and her family, that is where she will always remain in our hearts and minds; in our past, our present, and our future. She will be missed.

[*Editor's note on sources: announcement shared by Greg Brooks, with additional content adapted from her obituary at https://www.arbormemorial.ca/kelly/obituaries/alice-telka/38997*]

Student Member Photography Competition
Honourable Mention—Natasha Barrett – University of Alberta
"Mt. Tekarra, Jasper, Alberta. View of Mt. Tekarra from the Skyline Trail."

Brian John Skinner
1928 - 2019

Brian Skinner was born in Wallaroo, South Australia, on December 15, 1928. Although brought up in Australia, he spent most of his professional life in the United States. After graduating from the University of Adelaide in 1950, he attended Harvard University, earning a Ph.D. in 1954. He lectured on crystallography for several years at the University of Adelaide before returning to the U.S.A. in 1958 and joining the U.S. Geological Survey. In 1966, he joined the faculty at Yale University, where he spent the rest of his career, retiring in 2015. Among other contributions, he was chair of the Department of Geology and Geophysics (1967-1973) and from 1972 he held an appointment as Eugene Higgins Professor of Geology and Geophysics. According to his faculty obituary he

> "was one of the world's leading experts on the crystallography and geochemistry of metallic ores. While his work was invaluable in the mining industry, he also wrote extensively about resource management and sustainability. He was an expert on sulfide mobility from ores to brines to lava lakes in Hawaii, did extensive work on the mineralogy of sea floor rocks, and performed some of the first analyses of lunar rocks returned from the Apollo 11 mission." (Anon. 2019).

In a tribute written for his retirement, he was acknowledged for his studies that had "deepened our understanding of the geology of the ocean floor, the surface of the Moon, the Australian outback, and nearly everywhere else in between" (Laurens 2015). He authored or co-authored many publications and was the author or editor of more than 20 books, including textbooks focussed on economic geology and resources (Laurens 2015). Among these is a well-known introductory geology text, *The Blue Planet* (Skinner and Murck 2010). More recently, he provided a review of *Four Billion Years and Counting* for *Geoscience Canada*.

Dr. Skinner was member of the Geological Association of Canada for many years, until "retiring" his membership in 2014. His professional service included terms President of the Geological Society of America (1985), President of the Society of Economic Geologists (1995), and President of the Geochemical Society (1973) as well as a long term as editor of *Economic Geology* (1969-1995). The Society of Economic Geologists (SEG) named an award in his honor for an outstanding paper published in *Economic Geology*, which has been awarded annually since 2002. SEG also presented him with the R. A. F. Penrose Gold Medal in 2005. Among other accolades, he received an honorary D.Sc. degree from the University of Toronto in 1998 for scholarship in Geology. The mineral skinnerite was named in his honour by Karup-Møller and Makovicky (1974). Dr. Skinner died on August 21, 2019, in New Haven, Connecticut.

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[Editor's note on sources: article was compiled primarily from on-line sources listed above.]

GeoFact: *Dec 12 1731: Erasmus Darwin, physician, scientist, writer and grandfather of Charles Darwin, born at Elston Hall, Nottinghamshire, England.*

GeoFact: *Sep 14 1769: Alexander von Humboldt, naturalist, South American traveller, and travel writer much admired by Charles Darwin, born in Berlin.*

Earl Alfred Christiansen
1928-2019

Earl Christiansen, one of western Canada's best known Quaternary geologists, died on September 20, 2019, just after his 91st birthday. Earl was born September 20, 1928 in Shellbrook, Saskatchewan, and raised on a farm northeast of Shellbrook. He attended Summit Prairie School 1936-1943, Shellbrook High School 1943-1946 and Prince Albert Collegiate Institute 1946-1947 where his portrait and contributions to geology hang on a Wall of Honour.

He attended the University of Saskatchewan from 1947-1956 receiving a B.S.A. degree in Soil Science and an M.Sc. in Geology. His M.Sc. thesis was entitled "Glacial Geology of the Moose Mountain Area, Saskatchewan".

Earl obtained his Ph.D. in Geology in 1959 under the supervision of Dr. George White at the University of Illinois. The thesis work was based in Saskatchewan and entitled "Glacial Geology of the Swift Current Area, Saskatchewan". This started a long relationship between Illinois and Saskatchewan. Other geology graduate degrees came from Illinois with work being done on a map area in Saskatchewan. Earl spoke often about the influence of Dr. White on his career and on others who studied under him.

From 1959 to 1977, Earl directed the groundwater geology program of the Saskatchewan Research Council (SRC) which published geology and groundwater resources maps for the settled area of Saskatchewan. The program was started using cable tool drilling which provided core samples. Earl soon realized that the rate of progress would not do the job so he hired contract drillers with hydraulic rotary equipment. He devised a procedure to obtain useful 1.5 m samples from the drill cuttings. Technical staff of SRC designed and built a side-hole core sampler. That sampler provided the cores to prove that the cuttings samples were sufficient. The program established the methodology to use hydraulic rotary drilling for geologic logs, drillers logs and elogs as a basis for establishing the stratigraphy of drift and bedrock deposits.

Earl had great respect for the private drill contractors and they learned from one another. The drillers also had great respect for Earl and would do anything they could to 'deliver the goods' for him. Earl's motto was "there must be no ambiguity at the testhole".

Each testhole was a new and exciting challenge for Earl. His curiosity about the underground was without equal. When the rig, crew and sampling equipment were assembled, Earl would fold his arms over his chest and pronounce: "now, we will find out what is going on around here". His enthusiasm for the task was infectious and all involved were anxious to see the outcome.

The testhole information was just the beginning. From that, and all previously existing information, he constructed geologic cross sections of whatever length required to communicate the information. The elogs, well screens and static water levels were included on the cross section to integrate all the information

Earl, in the white hat, keeps a watchful eye on the whole drilling process
Photo credit: Rene Barendregt

needed for the intended application. They were hand colored and easily used by the clients who needed to know what was happening 'underground'.

From 1977-2007, Earl operated his own company, E.A. Christiansen Consulting Ltd. From the basement office of their home, Earl and Muriel continued the work he had started in the public sector but now the work had immediate practical application to problems in a wide variety of disciplines. Earl provided the geologic framework for (1) soil salinity investigations by soil scientists in agriculture; (2) groundwater studies by hydrogeologists; (3) engineering challenges in mining, highways and slope stability, and (4) problems associated with urban development.

In the soil salinity program of the 1980s/90s Earl's cross sections wallpapered small town halls throughout the agricultural area of Saskatchewan. Farmers' names were placed at each testhole so farmers had no need for a plan map. They quickly grasped the information and application to their situation.

In his consulting career, Earl continued to publish scientific articles in refereed journals, principally *Canadian Journal of Earth Sciences* and *Canadian Geotechnical Journal*. At considerable personal expense in time and materials, he continued to advance the glacial stratigraphy of Saskatchewan and the protocols he established are now the accepted practice in that field.

In addition to scientific papers, Earl completed nearly 100 private consulting reports. Release was obtained and the original reports now comprise the E.A. Christiansen collection, safely filed with Special Collections, University of Saskatchewan Library. Those reports, including complex hand drafted cross sections, have also been scanned and are available at https://www.wsask.ca/water-info/ground-water/science-and-geology-reports/

Along the way Earl was the recipient of many awards from the Canadian Geotechnical Society: 2017 Collaboration to Characterize the Quaternary and Cretaceous Deposits in Saskatchewan - Joint with E. K. (Karl) Sauer; 2014 Saskatchewan Geotechnical Pioneer; 2005 R. M. Hardy Keynote Address; 2000 R. M. Quigley Award (Best Paper in the *Canadian Geotechnical Journal*); 1992 CGS Prize (Best Paper in the *CGJ*, in 1995 the CGS Prize was renamed the R. M. Quigley Award), 1984, 1992, and 1994 Thomas Roy Award (of the Engineering Geology Division). Earl received more Thomas Roy Awards than anyone!

Earl's legacy will be in the extensive written record he has left behind. When it comes to glacial processes and stratigraphy in Saskatchewan Earl Christiansen 'wrote the book'.

Les Henry
Professor Emeritus, Soil Science
University of Saskatchewan
Saskatoon, Saskatchewan

Earl (R) supervising drilling, Shaunavon, Saskatchewan, 1982
Photo credit: Les Henry

Fieldwork with Earl Christiansen

I very much enjoyed working with Dr. Earl Christiansen on the many cores and core logs he and Karl Sauer and their Saskatchewan teams collected and processed. Earl really put the entire western Canadian Prairie

Karl Sauer, Rene Barendregt and Earl Christiansen in the field
Photo credit: Rene Barendregt

Quaternary and late Tertiary stratigraphy together, and many of us benefitted from that monumental work!

Earl remained young at heart and enjoyed good prairie fun after the hard work was done and it was time to tell stories over a beverage. We would often spend a number of hours in the evening after field work, drawing out stratigraphy on restaurant napkins, or sharing our stories and fascination with prairie soils, agriculture, farmers (including their ability to adapt to droughts and government), the delight of growing up in small prairie towns, glacial history, bedrock geology and paleontology, to name just a few. It was a real honor to publish with Earl and know that it was based on thoroughly researched field data. Earl's wife Muriel was always an important part of the logs and publications, being a very ingenious draftsperson, able to fit a myriad of details into the stratigraphic logs, and also a very gracious host during visits! Earl will be missed!

Rene Barendregt
Geography Department
University of Lethbridge

Rene and Earl relaxing in the field
Photo credit: Rene Barendregt

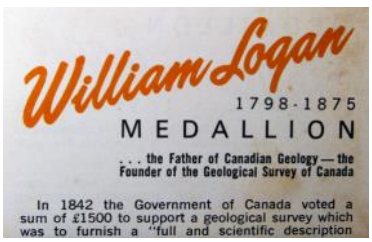
Medallion Donation

The GAC® recently received the kind donation of a medallion as an addition to the Association's small collection of Logan memorabilia. The medallion was owned by David Doerner, a registered geologist with a B.A.(1963) and M.A. (1968) in Geology from the University of California Santa Barbara. Until 1979, he worked at UCSB as a Senior Museum Scientist. After leaving UCSB, he was an Environmental Geologist for Santa Barbara County until his retirement.

The medallion recognizes Sir William Logan as founder of the Geological Survey of Canada in 1842. It was issued in 1972 in conjunction with the 24th

International Geological Congress, which was held in Montreal. The medallion has a protective case and is accompanied by a leaflet with a biography of Sir William Logan, written by T. H. Clark of the GSC.

David Doerner died at the age of 95 in 2019. The medallion was donated to GAC® in his memory by his daughter, Khulda bat Sarah. We thank Sarah and her husband, Moshe ben Ashe, for this donation and for the photo of David in the field.



Events and Happenings

Howard Street Robinson Medal Citation Derek Thorkelson Robinson Lecturer 2018-2019

The Howard Street Robinson Medal of the Geological Association of Canada is awarded annually to meet the bequest of the Howard Street Robinson Fund, which was "for the furtherance of scientific study of Precambrian Geology and Metal Mining".

The Robinson Medal recognizes respected and well-spoken geoscientists who have made exceptional contributions towards the scientific study of Precambrian geology and or metal mining through a presentation of a distinguished lecture series across Canada. The medalist is selected by the Howard Street Robinson Committee and the Executive of the Division sponsoring the tour – the Mineral Deposits Division or the Precambrian Division on an alternating annual basis.

The Precambrian Division is extremely proud to present the 2018-2019 Robinson Medal to Dr. Derek Thorkelson, from Simon Fraser University, for his lecture tour, but more importantly in recognition of his invaluable contribution to the understanding of the Precambrian geology through the study of tectonic evolution of Northwestern Laurentia.

I'm going to read a few excerpts from Dr. Rob Rainbird's nomination letter for the HSR medal:

> "It is my great pleasure to nominate Dr. Derek J. Thorkelson for the Howard Street Robinson Medal of the Geological Association of Canada. I have known Derek since he was a graduate student at Carleton University in the 1990s. Since then, he has become a leader in the field of Precambrian geology in the Canadian Cordillera. His work has unravelled a rich and complex geological history spanning a quarter of Earth's history, from the Paleoproterozoic to the Cambrian. His

Deanne van Rooyen presents Derek Thorkelson with the Howard Street Robinson Medal at the GAC-MAC Annual Meeting, Quebec City, May 15 2019

contributions from field and laboratory research have influenced geologists in Canada and around the world, in both academe and industry. Dr. Thorkelson's dedication to field geology, coupled with expertise in petrology, geochemistry and geochronology, have facilitated his rise as a major authority on the evolution of western Laurentia and its role in Precambrian tectonics and continental reconstructions.

Dr. Thorkelson received BSc and MSc degrees from U.B.C. (1983 and 1986) and a PhD from Carleton University in 1992. He began working on Precambrian geology in 1992 as a founding member of the Canada/Yukon Geoscience Office (now the Yukon Geological Survey). He carried out an intensive mapping program over three years in the rugged and remote Wernecke Mountains of northern Yukon. Dr. Thorkelson accepted a faculty position at Simon Fraser University and, as founding member, helped to build a new program, which blossomed into the Department of Earth Sciences. Building on his experience as a geological mapper, he initiated a program of student research into the Precambrian of Yukon, spanning a vast area in the Wernecke, Ogilvie and Richardson mountains.

Specific contributions include a completely new model of the Racklan orogen, the characterization and interpretation of the Wernecke Breccias and Slab Volcanics in them and their correlation with units in the Gawler Craton, an important link between Australia and Laurentia and the more general history of Northwestern Laurentia.

Dr. Thorkelson is an outstanding scientist whose passion for field geology and targeted laboratory studies have led to a series of major advances in the Precambrian of western Laurentia. His work will leave an enduring mark on our understanding of the Precambrian geology of Canada and for that he is highly deserving of the Howard Street Robinson Medal."

Deanne van Rooyen
Precambrian Division Chair

Precambrian Division Student Travel Grants for the GAC-MAC-IAH meeting

Katie Maloney

I recently had the opportunity to attend the GAC-MAC Annual Meeting with the support of the Precambrian Division Student Travel Grant and share my recent work on previously undocumented Tonian macrofossils. The main objective of my research is to understand early Neoproterozoic paleoenvironments and Tonian life, which precede several events (including the Cryogenian glaciations and the appearance of the Ediacara biota) that are crucial to understanding the coevolution of life and its environment. During the conference, I was able to discuss new research during the poster session and engage in several interesting sessions including Precambrian Sedimentology, which incorporated a range of talks focusing on the Precambrian stratigraphy in the Canadian Arctic, constraining the global Proterozoic Ocean conditions, and paleomagnetism. I have greatly benefited from attending this conference by networking with other students, learning about new geochemical methods and receiving invaluable feedback from experts in the field.

Katie Maloney searching for Tonian macrofossils in the Yukon's Wernecke Mountains.

Taylor Ducharme

The annual GAC-MAC meeting for 2019 came and went more quickly than I anticipated. To see several months' work culminate in just a few short days would in many cases feel anticlimactic. As anyone who's attended a scientific conference before can attest however, this sense of brevity is rarely accompanied by one of dissatisfaction. Being in the first year of my Master's at the University of New Brunswick, GAC-MAC 2019 was my first experience with a national-scale conference.

The value of any chance to receive feedback in the early stages of research can't be overstated, nor can hearing about scientific progress delivered straight from the mouths of those responsible for it. But more important than either of these are the connections, be they new or old, amicable or professional, the making and upkeep of which are often only made possible by events like these. Although my tenure in the geological community has so far been a short one, the camaraderie I've seen within it has always been its most striking feature. Anybody who's made a run

through the academic circuit, no matter for how long, has seen close friendships come and go – thankfully, the people tied to them are in many cases just a conference meeting away.

Charlevoix Impact Structure rocks
Photo credit: Taylor Ducharme, M.Sc. student, University of New Brunswick

My experience at GAC-MAC 2019 opened with a field excursion to the nearby Charlevoix impact structure, where I had a chance to learn about impact cratering, a field of the Earth Sciences that often goes criminally underexposed. The remaining three days were a dense assortment of talks, poster-viewing, and socializing. Much to the conference's credit, the latter was not in any way overshadowed by the scenic views and striking geological features of the first day. If my stay in Québec City seemed short, it was only by way of constant engagement in something – an experience that I wouldn't hesitate to revisit in the future.

Carolyn Hill

I had a wonderful experience at GAC-MAC-IAH 2019, where a number of exciting topics on geoscience and society were presented. This year's themes aligned very closely with my interests in Precambrian geology, geoscience education and geoheritage, and I am grateful for the support of the Precambrian Division of the GAC in the form of a student travel grant, which afforded me the opportunity to attend the entire

Carolyn Hill, Ph.D. student, Western University, at GAC-MAC-IAH Quebec City

conference and meet many leaders in these fields. I presented a talk in the Precambrian Sedimentology session on my thesis research. My thesis focused on determining the key indicators of ancient life and sedimentary processes in the Paleoproterozoic Gordon Lake Formation, Huronian Supergroup. I received valuable feedback and had many meaningful discussions about my work and that of others. I also attended the workshop on geoheritage and geotourism in Canada and the field trip around the Charlevoix Aspiring Geopark, both of which were fantastic experiences and opportunities to learn more about Canada's geoheritage resources. GAC-MAC provides a great opportunity for practice and constructive dialogue and I look forward to attending more GAC-MAC conferences in the future!

Eric Thiessen

I am studying the metamorphic and tectonic history of the South Rae craton of NWT to understand the extent, origin and significance of a large region of amphibolite- to granulite facies metamorphism related to Paleo-proterozoic tectonism during <2.0 Ga cratonization of Laurentia. I am addressing the nature of polyphase deformation, high-grade metamorphism and the tectonic processes responsible for their development; the absolute timing of metamorphism, plutonism, and deformation; and the structural relationships between

high-grade metamorphic regions and adjacent low-grade domains. This work concentrates on crustal-scale structures that record the kinematics, prograde and exhumation history of the region. Techniques employed include detailed mapping and structural analysis, zircon, monazite and titanite U-Pb dating via the SHRIMP and LA-ICPMS, garnet Lu-Hf dating and thermobarometric techniques including multi-equilibrium thermos-dynamics, isochemical phase diagrams and quartz-in-garnet barometry. Three manuscripts from this work have been published (peer-reviewed), and a fourth submitted and fifth in preparation.

At GAC-MAC 2019 I presented results of a structural and geochronological study of a proposed 1.9 Ga suture zone between the Hearne and Rae cratons. I was able to document comparable structures and lithological domains found elsewhere along strike ~200 km away. However, my U-Pb data document 2.55 Ga deformation and rare 1.9 Ga deformation, which is in contrast to the purely 1.9 Ga age for the structure farther south. Reasons for the disparity in ages may be due to distinct metamorphic conditions attained or variable structural levels exhumed along strike. I had many good discussions regarding these results with both Canadian geological survey scientists and researchers as well as international researchers, which helped stimulate interesting questions and avenues for future research in the area. I was also able to secure post-doctoral research for the Fall of 2019 partly because of these interactions.

Overall GAC-MAC was a success for me in terms of promoting discussion of my work and networking with the broader academic community. For this I am very thankful for the support from the GAC Precambrian Division that helped cover travel costs to the conference.

Christopher Zelt

I am a student at the University of New Brunswick currently pursuing a Masters of Earth Science. When I work on my project, I am reading scientific literature in my office, working through lab-work or any number of tasks necessary to make progress happen. I find it very easy to forget that there is an entire geoscience community out there that is doing the same in a huge variety of areas. This community is made up of professionals scientists, professors, students and enthusiasts who are actively making discoveries in many different fields right at this very moment. I was reminded of this last May where I attended the GAC-MAC-IAH conference in Quebec City. There I had the chance to renew my sense of curiosity by seeing what other geoscientists are working on. Not only that I was able to make connections between their work and my own. Giving me new perspective and ideas about how to proceed. At GAC-MAC-IAH I was able to present my findings so far and discuss new methods and the future direction of my project with very enthusiastic people who gave me very high-level feedback. The chance to practice presenting my own work is what I valued most from my wonderful experience attending GAC-MAC-IAH.

Christopher Zelt, M.Sc. student, University of New Brunswick

Quebec City, from Lévis. *Photo credit: Wilfredor, Creative Commons Attribution-Share Alike 4.0 International license*
https://commons.wikimedia.org/wiki/File:Vieew_of_Qu%C3%A9bec_from_L%C3%A9vis_city,_Qu%C3%A9bec_11.jpg

Announcements

Quaternary Stratigraphy of Canada, in honour of Earl Christiansen

In many regions of Canada, thick successions of Quaternary sediment have been identified from outcrops, water well and technical logs, exploration dripping, open pit mining, oil and gas drilling, and geophysical surveys. Dr. Earl Christiansen was a pioneer in mapping the Quaternary subsurface and stratigraphy in the western plains of Canada. His work and legacy laid a foundation on which additional research has been expanding and modified throughout western Canada. This session will focus on studies of Quaternary stratigraphy in Canada, including correlative stratigraphic chronologies as well as other research including mapping buried bedrock topography, investigating thick packages of Quaternary sediment, and applying new (and old) techniques to discriminate Pleistocene units. We also invite submissions of a more general nature related to surficial geology mapping, glacial sedimentary processes and Quaternary palaeoecology.

Dan Utting (Alberta Geological Survey) and Roger Paulen (Geological Survey of Canada) are hosting this session at GAC-MAC-CSPG (GeoConvention) in Calgary, 2020. Abstract submissions are invited.

Canadian Geological Foundation Invitation for 2020 Grant Applications

The Canadian Geological Foundation invites all interested parties to submit proposals for the 2020 CGF grant competition. The secretary must receive your application by March 31, 2020.

The Foundation is a non-profit, charitable organization dedicated to assisting the development of geological sciences in Canada and to promoting public interest in the value of the geological sciences to society. Grants are generally made in support of activities of national interest and broad significance, with emphasis on those of long-term importance. Grants are made on the basis of written applications giving a summary and detailed budget for the proposed project. The Foundation disburses more than $175,000 annually. Note that grants are paid upon completion of the project.

The CGF uses a three-tiered grant system related to the size of the grants being requested: small grants (<$10,000), medium grants ($10,001 to $30,000) and large grants (up to $45,000). In addition, the Foundation will consider the possibility of multi-year grants (i.e., specific amounts to be paid in each of up to 4 years). Application forms and detailed instructions are available on the CGF website at http://www.canadiangeologicalfoundation.org/?page_id=393

Please submit applications electronically as one pdf file to the Secretary. Applicants should read the instructions carefully to ensure that their application meets the CGF grant criteria and that it is complete. Incomplete applications will not be returned for correction and any material in the application in excess of the five pages limit will not be circulated for review. Queries about the Canadian Geological Foundation grants and grant program should be addressed to the Secretary: Eileen van der Flier-Keller at evanderf@sfu.ca or by phone 778-782-3789

Reminder: GAC® National Medals

November 30th is the deadline to submit GAC ® National Medal nomination packages! The Logan Medal is awarded for sustained distinguished achievement in Canadian Earth Science, the Hutchison Medal recognizes early-career geoscientists making exceptional advances in Canadian Earth science, the Neale Medal for sustained outstanding efforts in sharing Earth science with Canadians, and the Ambrose Medal for continued, dedicated service to the Canadian Earth science community. Find out more and download the nomination package here: https://gac.ca/about/grants-awards/

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

Sunrise, North Saskatchewan River, Edmonton, October 2015

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. Veillez 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. Veillez vous assurez 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 communicant 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, veillez 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.