# GEOLOG Volume 49 Number / Numéro 1 Spring / Printemps 2020

Volume 49



# **Events and Happenings**

## **2019 Canadian Tectonics Group Annual Workshop**

For the first time in the 39-year history of the Canadian Tectonics Group (CTG), the annual fall meeting was hosted in Newfoundland, from October 4 to 6, 2019. This excellent workshop and field trip was organized by John Waldron (University of Alberta), with help from Dawn Kellett (GSC Atlantic), and James Conliffe (Newfoundland and Labrador Geological Survey) of the GAC® Newfoundland Section. The spectacular geology of Western Newfoundland was prominent in the development of plate tectonic theory as applied to orogens and remains an important part of Canadian tectonic heritage. The Cormack region (north of Deer Lake) in western Newfoundland was the base for the field trip and workshop. The participants who assembled in Cormack included members and students of the Canadian tectonics community from across Canada, Newfoundland government geologists, industry professionals, and a strong student contingent from Memorial University. In addition, several Parks Canada workers joined us on Day 1 of the field trip to learn more about the geology of Gros Morne National Park.

Due to the logistical challenges associated with travel to western Newfoundland, an additional day was added to the fall meeting, making it a three day event. Participants trickled into Cormack late into Thursday evening. On Friday morning, and after a first stop right at our accommodations, we piled into vans and began with several field trip stops along Highways 430 and 431 including locations in the Long Range Inlier (Mesoproterozoic



John Waldron describes the regional geological framework as participants take a break partway up Table Mountain Photo credit: Donnelly Archibald

basement of the Laurentian margin), spectacularly folded rocks of the Cambrian Port au Port Group, and quartz-rich turbiditic sandstone of the Curling Group. Just before lunch, we stopped at the Visitor Centre near the entrance to Gros Morne National Park. John was involved in creating the informative geological display housed in the Visitor Centre that highlights the remarkable geology of Western Newfoundland.

We then continued along Highway 431 to the base of the Tablelands hiking trail. Table Mountain displays a deep section through oceanic lithosphere and is famous for its ultramafic rocks indicating exposed lithospheric upper mantle. The mantle section is mainly peridotite and the oxidation of Febearing minerals is responsible for the rust colour that is characteristic of the weathered surfaces. The peridotite is mainly tectonite harzburgite with olivine (mostly replaced by serpentine) and orthopyroxene. The harzburgite displays a tectonic fabric and represents the lithospheric upper mantle

## **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<sup>®</sup> is to be a multidisciplinary scientific society supportive of the entire scope of the geosciences in Canada. The GAC<sup>®</sup> 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.

### GAC® Executive / Comité exécutif de l'AGC® 2019-2020

President / Président Kathryn Bethune, Regina, SK Vice President / Vice Président Deanne van Rooyen, Sydney, NS Past President / Président sortant Dène Tarkyth, Vancouver, BC Secretary / Secrétaire Holly Steenkamp, Sudbury, ON / Rebecca Hunter, Victoria, BC Treasurer / Trésorier James Conliffe, St John's, NL Finance Chair / Responsable des finances Michael Michaud, Oshawa, ON Audit Committee Chair / Responsable d'audit Hendrik Falck, Yellowknife, NWT Science Program Chair / Responsable du programme scientifique Deanne van Rooyen, Sydney, NS Communications Chair / Responsable des communications Rebecca Hunter, Victoria, BC Publications Chair / Responsable des publications Roger Paulen, Ottawa, ON

## GAC® Councillors / Conseillers de l'AGC® 2019-2020

Section and / et Division Liaison David Lentz, Fredericton, NB Short Courses / Programmes courts Hendrik Falck, Yellowknife, NWT Campus Liaison / Liaison Campus Paul Alexandre, Brandon, MB GAC® Lecture Tours / Tournées de conferences de l'AGC® Alwynne B. Beaudoin, Edmonton, AB Geoscience Canada Editor / Éditeur du Geoscience Canada Andy Kerr, St John's, NL GEOLOG Editor / Éditeur du GEOLOG Alwynne B. Beaudoin, Edmonton, AB Awards Co-ordinator / Coordinateur des Prix Holly Steenkamp, Sudbury, ON

**GEOLOG** 

## GAC<sup>®</sup> Corporate Members / Membres corporatifs de l'AGC<sup>®</sup> 2019-2020

#### Platinum / Platine

Memorial University of Newfoundland

## Gold / Or

Anglo American Exploration (Canada) Ltd.

Northwest Territories Geological Survey

### Silver / Argent

British Columbia Geological Survey

Royal Tyrrell Museum of Palaeontology

Yukon Geological Survey

## Nickel / Nickel

University of Waterloo

## GAC<sup>®</sup> Awards / Prix de l'AGC<sup>®</sup>

National Awards / Prix nationaux Logan Medal W. W. Hutchison Medal E. R. Ward Neale Medal J. Willis Ambrose Medal Eric Mountjoy Exchange Award

Student Awards / Prix étudiants Mary-Claire Ward Geoscience Award Jerôme H. Remick Poster Awards Eric Mountjoy Exchange Award GAC<sup>®</sup>-PDAC Logan Student Prize

Prix Section and / et Division Awards AQUEST-Certificat d'excellente de l'AQUEST Canadian Geomorphology Research Group-J. Ross Mackay Award, Olav Slaymaker Awards Geophysics Division-**Geophysics Division Student Award** Canadian Sedimentology Research Group-Middleton Medal Marine Geosciences Division-Michael J. Keen Medal Mineral Deposits Division-Duncan R. Derry Medal, William Harvey Gross Award, Julian Boldy Certificate Awards Paleontology Division-Elkanah Billings Medal, Pikaia Award Precambrian Division / Mineral Deposits Division -Howard Street Robinson Medal Canadian Tectonics Group-Jack Henderson Prize for Best Thesis, Ph.D. and M.Sc. Volcanology and Igneous Petrology Division-Career Achievement Award, Léopold Gélinas Medal

## GEOLOG

Vol. 49, No. 1 Spring / Printemps 2020

Publisher / Publié par 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 newsmagazine of the Geological Association of Canada, St. John's, Newfoundland and Labrador. *GEOLOG* is published for the benefit of GAC<sup>®</sup> 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<sup>®</sup>. *GEOLOG* is one of several forums provided by the GAC<sup>®</sup> for scientists worldwide.

SUBSCRIPTIONS: *GEOLOG* is one of the privileges of GAC<sup>®</sup> 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<sup>®</sup> 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 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.

ABONNEMENT: L'abonnement à *GEOLOG* est un des privilèges don't bénéficient les membres de l' AGC<sup>®</sup>. 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.

## Contents / Table des matiéres

Events and Happenings	1, 3, 4
Announcements	12
GAC®-PDAC Logan Student Prize Winners	12

#### **Acknowledgements and Thanks**

This *GEOLOG* benefits from the contributions and assistance of / Nous voulons souligner la contribution et l'assistance de: Donnelly Archibald, Emily Bamforth, Karen Dawe, Dawn Kellett, Roger Macqueen, Sandy McCracken, Katie Maloney, Eleanor Penney, Rob Raeside, Holly Steenkamp, Anne Westhues, and Chris White. 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 **June 1 2020**.

#### Cont'd from p. 1



The Moho. Gabbro representing the crust (top) underlain by mantle peridotite (bottom) *Photo by Donnelly Archibald* 

Cont'd on p. 4

**GeoFact:** Jan 23 1857: Andrija Mohorovíčić, geophysicist after whom the Mohorovičić discontinuity or Moho is named, born in Volosko, Opatija, now Croatia.

## Cont'd from p. 3

of an oceanic plate that formed as the solid residue of partial melting beneath a spreading center. Participants traversed the mantle-crust boundary by embarking on a challenging 3.5 km hike up onto the Tablelands with several (breathing and geological) stops along the way culminating with outstanding outcrops of the Moho. To the west, gabbro dominates the landscape and to the east; the landscape is dominated by the orangeweathering peridotite. We then hiked back to the cars and returned to Cormack for a traditional Newfoundland dinner consisting of fish and brewis.

On Saturday morning, we drove to Corner Brook through the Humber River Valley. The first stop was Captain Cook's Lookout that provided panoramic views of the city of Corner Brook, the carbonate-dominated dominated rocks to the east, the Humber Arm to the north, and the Bay of Island ophiolite to the west. The structure on top of the hill is notable because the beds dip and young to the west but the cleavage planes pass downward though the beds. This is an unusual situation and shows that these rocks were deformed twice, once during westward thrusting (D1) in the Taconian Orogeny and again during deformation that produced the cleavage (D2), which probably transported higher rocks back toward the east. We then travelled south to Black Point on the Port au Port Peninsula to visit spectacularly folded section of the Middle Arm Point Formation (part of the Humber Arm Super Group). We spent the rest of the day visiting examples of the mainly Ordovician stratigraphy on the Port au Port Peninsula. These rocks were deposited when the passive margin of Laurentia came into collision with an arc-trench system beginning in the Late Cambrian. We then travelled back



John Waldron interpreting the spectacular folds at Black Point on the Port au Port Peninsula for the group *Photo credit: Donnelly Archibald* 

to Cormack for another traditional Newfoundland dish: jigs dinner. On Saturday night after dinner, the CTG business meeting was held followed by a small poster session.

Day 3 got underway on Sunday morning with seven oral presentations representing a global scope, with talks on rocks from Western Newfoundland to Nepal. The meeting wrapped up around lunchtime so that everyone could catch their flights or drive back to St. John's.

The field guide and the program-with-abstracts volume can be downloaded from the CTG website at http:// www.canadiantectonicsgroup.ca/workshops.html. We would like to thank the organizers, especially John Waldron, and all the contributors.

> Donnelly Archibald St. Francis Xavier University



Participants in the Canadian Tectonics Group workshop in Newfoundland, 2019 Photo credit: Dawn Kellett

# Opening of the Anita and Eric Mountjoy Geology Garden, Jasper, Alberta

Geological rock gardens are an important form of geoscience public outreach. On September 9, 2019, Canada's newest geological rock garden, the **Anita and Eric Mountjoy Geology Garden**, opened on the grounds of the Jasper-Yellowhead Museum & Archives in Jasper. Richard Ireland, Mayor of Jasper, Jasper museum manager Rob Hubick, and museum board member Warren Waxer spoke at the opening, as did Anita Mountjoy, Ben Gadd and Roger Macqueen. A number of townspeople attended the event. A World Heritage site, Jasper National Park illustrates, protects and celebrates one of the world's better geological records. This is a stack of sedimentary and metamorphic rocks about 14 kilometres thick, deposited in ancient seas over approximately 635 million years.

The Mountjoy Geology Garden displays eight large boulders from various bedrock exposures in the region. Each boulder illustrates an important element in Jasper National Park's geological history. Interpretive consultant Ben Gadd, who is a former Jasper resident and long-time friend and colleague of Eric and Anita, located the representative specimens. Warren Waxer arranged for transport to the museum grounds. Ben oversaw the emplacement of the specimens and provided the explanations that appear in both English and French on small signs beside the boulders. A larger sign introduces the exhibit and presents a brief bio on the Mountjoys. KEI Space Design Ltd. of Vancouver prepared the physical plan for the exhibit and produced all the signage. Jasper local Darcy Ruddy used his excavator to move the boulders into position with minimal damage to them.

The boulders are arranged from oldest (Neoproterozoic gritstone) to youngest (Recent hot-springs travertine). The information provided on the small signs includes formation names, ages and rock types, with brief comments on the sedimentary environment in which each originated. Interested visitors can enter the museum building to see Eric Mountjoy's 1985 geological map and cross-sections of the Jasper area. Two large interpretive panels on the museum's deck display annotated photos of the surrounding scenery.

Eric Mountjoy (1931–2010), Ph.D., F.R.S.C. (Fellow of the Royal Society of Canada) was a pioneer geologist of Jasper National Park. Following completion of his B.Sc. in engineering geology at the University of British Columbia in 1955, Eric enrolled as a graduate student at the University of Toronto. Because Eric had shown promise in geological mapping, the Geological Survey of Canada (GSC) funded him to study and map the geology of the Miette map-area, located northeast of Jasper and covering 929 square kilometres. Rock exposures there are excellent, permitting a variety of structural and stratigraphic studies.

Much of the Miette area lies within Jasper National Park, which at the time was largely remote. This was before today's common helicopter support for field studies, and thus the 1950s Miette fieldwork was by means of horse parties. During the summers of 1957 and 1958, Eric and his field assistants, with Roger Macqueen as Eric's senior field assistant in 1958, explored the wilderness valleys and scrambled over the rocky ridges. Eric's reward for a stellar job? In 1960 he was awarded a Ph.D. from the University of Toronto.

In 1963, following three years with the Geological Survey of Canada, Eric joined the Geology Department (now the Department of Earth and Planetary Sciences) at McGill University in Montreal. Soft-spoken, loyal, trusting, and dedicated to excellence in all things, Eric was an exceptional teacher, field leader and mentor.

Over his career, Eric kept returning to Jasper National Park. With continuing GSC support while at McGill, Eric published seven geological maps of the Jasper region. He also developed outstanding expertise in Devonian reef geology, and undertook a number of carbonatecentred research projects in the area with his students. Eric's impressive legacy is both his geological mapping and the efforts that he and his students have made to help unravel the mysteries of Alberta's oil-rich buried reefs under the Western Canada plains.

During Eric's field-research summers in the park, Anita often visited Jasper. Their shared love for the community grew such that they provided funds to the Jasper Museum & Archives to create the Anita and Eric Mountjoy Geology Garden, a superb introduction to Jasper National Park geology.

Roger Macqueen Former Geological Survey of Canada geologist and former Professor of Earth Sciences (now Earth and Environmental Sciences), University of Waterloo

## Edmonton Geological Society: A Year in Review

This year the Edmonton Geological Society (EGS) has been busy with a number of events throughout the city. We began 2019 by inviting our members to the newly opened Royal Alberta Museum for an evening of exploring the galleries and enjoying tours of the Ancient Alberta and Minerals of the World exhibitions. Soon after, the EGS shared responsibilities with ATLAS (the University of Alberta's geology graduate student association) in their hosting of Dr. Hanika Rizo from Carleton University as an installment of the Grace Anne Stewart Speaker Series. The day with Dr. Rizo included afternoon and evening talks on various isotopic systems as well as a lunch and a wine and cheese gathering.

The spring in Edmonton meant a busy time for the EGS as sponsors for the ATLAS Symposium and as our Annual General Meeting approached. The ATLAS Symposium is an annual event consisting of graduate student talks and undergraduate poster presentations featuring student research from across the U of A's Earth and Atmospheric Sciences Department. The Annual General Meeting took place at the end of April with an excellent turnout. The night consisted of a dinner, a talk on mineral mine wastes as resources for metal recovery and carbon sequestration given by Dr. Sasha Wilson from the University of Alberta, and the election of a new EGS executive team.

The summer was quiet for the EGS, but September featured two very successful events, the Gold Panning Picnic and the Mill Creek Ravine Walking Tour. Supported by volunteers from the Alberta Gold Prospectors Association to provide equipment and show proper technique, EGS members were able to enjoy lunch and learn to pan for gold in the North Saskatchewan River. The Mill Creek Ravine Walking Tour was our most popular event in 2019. Led by Dr. Mark Fenton and John Pawlowicz (both recently retired from the Alberta Geological Survey), the tour introduced participants to the geology and development history of Mill Creek Ravine, including excellent examples of geohazards, methods of mitigation and the intended and unintended results of those methods.

Rounding out the year, we organized a family-friendly holiday/geology themed afternoon at the Paleontology and Mineralogy/Petrology Museums at the U of A with crafts, activities and tours, which was well attended and received. EGS hopes to take the momentum and feedback from a wonderful 2019 and channel it into a fantastic 2020.

> Celine McEachern Edmonton Geological Society



EGS members watch a demonstration of gold panning ...



... and then get to try it out for themselves

## Eric Mountjoy Exchange Award 2019

I am a third-year Ph.D. Candidate at University of Toronto and I am interested in early eukaryotic life and their paleoenvironments during the Proterozoic. I was awarded the Eric Mountjoy Exchange Award to support my geochemical analyses at McGill University. The goal of my research is to constrain the paleoenvironmental conditions that prevailed during the Tonian Period in NW Canada using redox proxies and facies analysis. The Tonian (1000 to 720 Ma) represents a critical transition in Earth's history between the Mesoproterozoic (1600 Ga to 1000 Ma) and the low latitude glaciations of the Cryogenian (720 to 635 Ma). The Tonian Mackenzie Mountain Supergroup hosts a diverse record of early eukaryotes, and molecular clocks indicate several key lineages evolved and diversified during this time. The extensive, well-preserved stratigraphy of the Wernecke Mountains provides an excellent opportunity to understand the oxygenation of shallow marine environments and its influence on the evolution and diversification of animals.

My geochemical analyses were completed with the Precambrian Research Office and Publication Society at

McGill University with the assistance of Dr. Thi Hao Bui and supervised by Dr. Galen Halverson. Organic-rich shales were collected from seven measured sections during July 2018. Samples without visible evidence of weathering were targeted, and exterior beds were removed before collection. The powered shales were analyzed through iron speciation and chromium chloride pyrite extractions. I also had an opportunity to spend time at Geotop at the University of Quebec in Montreal, where I completed the acid digestions to prepare the samples. The concentrations of major and minor elements in the digested shales were then quantified using an ICP-MS (Inductively coupled plasma mass spectrometry) and ICP-EOS (Inductively coupled plasma atomic emission spectroscopy). These geochemistry results are currently being processed and will be interpreted with respect to their stratigraphic position to understand the local oceanic and redox conditions. This data will provide evidence for the habitability of the Tonian Earth for early eukaryotes and aid in interpreting previously undocumented macroscopic fossils recovered from the Wernecke Mountains.

> Katie Maloney University of Toronto



ernecke Mountains, Yukon Territor<sub>y</sub> Photo credit: Katie Maloney

# Atlantic Geoscience Society (AGS) Annual Colloquium and Annual General Meeting 2020

The 2020 Colloquium and Annual General Meeting of the AGS was held at the Holiday Inn, Truro, Nova Scotia, on February 7 to 8, 2020, with over 205 registered participants who enjoyed a full and diverse program of wide-ranging topics. As usual, the event took advantage of the jamboree of geoscientists with several organized committee meetings and working groups. Even before the meeting started on the Friday, members of the Nova Scotia Geological Survey and New Brunswick Energy and Mines met to open dialogue on the planned new editions of the Geological Highway Maps of the Maritime provinces. At stake was the fate of PEI – which map should it be on? New Brunswick won.

The Colloquium kicked off on Friday morning with a short course by Cliff Stanley, Acadia University, on QAQC Methods in Geochemical Research and Mineral Exploration, with a Focus on Gold Assay Quality Control. Adverse weather conditions prevent some delegates from Maine, western New Brunswick and Newfoundland from attending in person, but 14 people survived the freezing rain to reach Truro and 6 more joined in by Skype.

For those not fortunate enough to attend the short course, the afternoon was filled with meetings pertaining to AGS business – a council meeting, a meeting of the Halifax 2022 LOC and a meeting of Atlantic Geology editors. The Society continues to enjoy a strong membership and is well-placed financially. Poster displays started Friday afternoon and remained available to view until late Saturday afternoon. Three concurrent sessions ran Friday evening: Advances in the Carboniferous in the Maritimes, Current Research in Hydrogeology and Environmental Geology in Atlantic Canada, and a general session focussing on mineralogy and igneous rocks, but with forays into geoparks and enigmatic offshore mounds.

Saturday's events started early with three concurrent sessions including: Paleontology and Sedimentology in Atlantic Canada, Structure, Tectonics and Magmatism of the Appalachian-Caledonides from lapetus to Pangea, Gold: An Atlantic Canada Perspective, Geoscience Education – Vision 2020, and a general session on sediments and geohazards. A particularly well attended plenary discussion on "Being a Woman in the Field" was organized by Lexie Arnott (Dalhousie University).

The Rob Raeside Award for best undergraduate student poster went to Nicole LeRoux (Dalhousie University) for her poster, co-authored with Joseph Tamborski and Barret L. Kurylyk, "Heat as a tracer in coastal settings: quantifying pore water fluxes using temperature, pressure, and conductivity". The Graham Williams Award for best graduate student poster went to Caitlin McCavour (Dalhousie University) and her coauthors Shannon Sterling, Kevin Keys, Edmund Halfyard and Lawrence Plug for their poster "The effects of dolomitic limestone application on forest soil and tree nutritional status on two acidic sites in Nova Scotia". The Rupert MacNeill Award for best undergraduate student oral presentation went to Olivia Rolfe (Dalhousie University) and co-author Djordje Grujic for their paper "Strength evolution of a crustal-scale shear zone on the example of the Himalayan Main Central



Graham Williams best graduate poster winner Caitlin McCavour received the award from AGS president Dave Lentz



Sandra Barr best graduate presentation winner Philip Sedore received the award from AGS president Dave Lentz

Thrust". The Sandra Barr Award for best graduate student oral presentation went to Philip Sedore (Dalhousie University) and his co-authors Vittorio Maselli, Alexandre Normandeau and Calvin Campbell for the paper on an "Investigation of submarine landslides and geological hazard assessment of Pangnirtung Fjord, eastern Baffin Island (Nunavut)". Noteworthy also were two high school student presentations - one a poster by Tara Gover, Bathurst High School, New Brunswick, on "PET (polyethylene terephthalate) rocks - a new lithology for the Anthropocene?", and one by Luke Allen and Robert Norrad from Citadel High in Halifax, co-authored by Matt Stimson, Olivia King, Steven Hinds, Adrian Park and John Calder on "The first discovery of an ichnofossil assemblage from the mid Pennsylvanian Minto Formation of central New Brunswick: implications for paleobiodiversity". All the high school students were awarded a choice of an AGS publication from our bookstore.

The Laing Ferguson -**Distinguished Service** Award, given in recognition of exceptional and altruistic contributions to the Atlantic Geoscience Society and/ or to foster public appreciation of Atlantic Geoscience over a long period of time went to Terry Hennigar of Wolfville, NS. In his nearly 60 years of work in hydrogeology, Terry has been at the forefront of research in groundwater in the Maritimes. He is widely respected in the geological and engineer-ng



Terry Hennigar was unable to be present, but provided a video message for the awards ceremony.

communities in Nova Scotia for his pioneering work in hydrogeology, not only in the traditional business are of ground water supply, but also most recently design of groundwater applications for heating and cooling of buildings. He has also given back much to the community, offering courses at the Technical University of Nova Scotia, and Dalhousie and Acadia Universities.

The **Distinguished Scientist Award - Gesner Medal**, given to a person who developed and promoted the advancement of geoscience in the Atlantic Region in



9

Ralph Stea (centre) receiving the Gesner Medal from AGS president Dave Lentz and citation reader Denise Brushett

any field of geology was awarded to Ralph Stea (retired from the Nova Scotia Department of Energy and Mines). Ralph pioneered the study of Quaternary geoscience in the region, and has been an advocate for the complex models of Holocene deglaciation.

After the awards, the guest speaker banquet and social was Dr. Danielle Serratos, recently arrived from Texas, Alaska and South Dakota as the director and curator of the Fundy Geological Museum. She addressed the members on the theme "Not all who wander are lost," giving us an at times humorous glimpse into the life of a paleontologist in the field. Following the formal events, members relaxed and enjoyed a Maritimes kitchen party with guitars and banjo adding to the camaraderie.

As usual the AGS colloquium was a great success keeping with the spirit of open communication and the exchange of ideas through both formal and informal group discussions. Particular thanks are due to the many sponsors who generously supported the Society through their donations. AGS acknowledges support from the corporate sponsors and partners of the meeting: Nova Scotia Department of Energy and Mines (Geological Survey and Petroleum Resources), New Brunswick Department Natural Resources and Energy Development, Association of Professional Geoscientists of Nova Scotia, Association of Professional Engineers and Geoscientists of New Brunswick, Mercator Geological Services, Northern Shield Resources, EXP Services Inc., St. Mary's University (Department of Geology), Stantec, Anaconda Mining, Xterra Resources, and Acadia University (Earth and Environmental Science).

> Submitted by Rob Raeside and Chris White Atlantic Geoscience Society



Geological Association of Canada Newfoundland and Labrador Section

## GAC<sup>®</sup> Newfoundland and Labrador Section Annual Technical Meeting 2020

The annual Spring Technical Meeting of the GAC® Newfoundland and Labrador Section was held on February 17th and 18th, 2020, at the Johnson GEO CENTRE on scenic Signal Hill in St. John's, Newfoundland and Labrador. Monday started with a special session entitled "Tectonics and mineral potential of Proterozoic belts" in recognition of the contributions of Charles Gower (Emeritus Researcher, Geological Survey of Newfoundland and Labrador) to our understanding of the Precambrian geology of Labrador. The session featured presentations from academia, government, and students and included a digital tribute to Charlie and appreciations of his work from colleagues across Canada and Scandinavia. A small poster session was also held on Monday. Toby Rivers (Professor Emeritus, Memorial University) presented a public geoscience lecture on Monday

evening in continuation of the special session entitled "Gravitationally-driven Extensional Collapse of a Proterozoic Large Hot Orogen: The Grenville Example". Tuesday's general session was filled with presentations from all geoscience disciplines ranging from geophysical, metamorphic and geochemical studies to geotourism, and included many presentations by students. We awarded two prizes for outstanding student presentations, in no particular order, to Gabriol Sindol and Michael King – Congratulations! All sessions and the public lecture were well attended and we ended the meeting with a small pub night at the "Underbelly" of the Yellowbelly brewery.

As always, this meeting is brought to you by volunteer efforts and would not be possible without the time and energy of the executive and other members of the section. We are also indebted to our partners in this venture, particularly the Alexander Murray Geology Club, the Johnson GEO CENTRE, the Geological Association of Canada, Department of Earth Sciences (Memorial University of Newfoundland), and the Geological Survey of Newfoundland and Labrador, Department of Natural Resources. We are equally pleased to see the abstracts published in Atlantic Geology. Our thanks are extended to all of the presenters and the editorial staff of the journal.

> Jared Butler, Anne Westhues, James Conliffe Technical Program Chairs



Gabriol Sindol (left) and Michal King (right) were awarded with prizes for outstanding student presentations by Jared Butler *Photo credit: Anne Westhues* 



Discussions during poster session Photo credit: Anne Westhues



Charlie Gower with former colleagues of the Geological Survey of Newfoundland Photo credit: Anne Westhues



Audience listening to presentation by M.Sc. candidate Kirsten Costello Photo credit: Anne Westhues

# **Announcements**

## **2020** Pikaia Award Nominations



## What is the 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 Geological Association of Canada's Paleontology Division. It is awarded to an early career researcher a) in recognition of

award

research on any aspect of Canadian palaeontology, or b) who is Canadian and has made outstanding contributions to the field of palaeontology. The 2020 Pikaia Award will be presented at the Canadian Palaeontology Conference (CPC) in August.

a recent exceptional contribution to

## Who can be nominated?

The Pikaia Award is presented to an individual who is no more than 15 years past their last degree.

## What should a nomination package include?

A complete nomination package should include the following:

1. Signatures of three people who support the nomination, one of whom is a Paleontology Division member. Digital files/images of separately signed nomination pages (e.g. in pdf format) are acceptable.

2. A 300-word citation.

3. An up-to-date version of the candidate's curriculum vitae (CV).

4. A brief biography describing the candidate's accomplishments in his/her field of paleontology.5. OPTIONAL: Additional documentation and/or letters of endorsement

Unsuccessful nominations remain in the pool for one additional selection process and may be updated by the nominators as required.

## Where should a nomination package be sent?

If you wish to submit a nomination, please send the above documentation in a digital format (Word or PDF) to Emily Bamforth at emily.bamforth@gov.sk.ca. The deadline for 2020 nominations is Friday, March 13.

## GAC<sup>®</sup>-PDAC Logan Student Prize Winners

Congratulations to the 22 recipients of the sixth annual GAC<sup>®</sup>-PDAC Logan Student Prize.

- Brad Parkinson, University of BC, Okanagan
- Liam Maw, University of Ottawa
- Laurence Guyot-Messier, Université du Québec à Montréal
- Sabrina Chan, Carleton University
- Claudia Perreault, Université Laval
- Rebecca Kupchinski, University of Saskatchewan
- Jugraj Singh Aulakh, Simon Fraser University
- Michael Tamosauskas, Acadia University
- Magdalena Kapron, Western University
- Daniel Ferguson, University of Regina
- Alex Bugden, Memorial University
- Dylan Spence, University of BC
- Joy Carter, University of Toronto
- Cole Narfason, University of Calgary
- Emily MacMillan, Mount Royal University
- Kaitlin Jaap, Thompson Rivers University
- Emily Browne, University of Windsor
- Knut Lokken, Vancouver Island University
- Brandi Kocay, University of Victoria
- Martin Levasseur, Laurentian University
- Jenna Randazzo, McGill University
- Bailey Milos, Dalhousie University

The prize is awarded annually to one undergraduate student at each CCCESD-member department. The award has a monetary prize component, a one year memberships to both GAC<sup>®</sup> and PDAC, and recognition in the form of a certificate.

The selected students are expected to be academically sound, have good leadership skills (e.g., as they pertain to organizing field trips, geology club geo-events, etc.), and have done well at field school or otherwise show proficiency in field techniques. The prize recognizes students who are leaders and participate in advancing the study and application of geoscience. Students are usually in their final (i.e., graduation) year.



## PALAEONTOGRAPHICA CANADIANA

PALAEONTOGRAPHICA CANADIANA is a monograph series of major contributions to Canadian paleontology that is dominantly, but not exclusively, systematic in content. The series began in 1983 and was sponsored jointly by the Geological Association of Canada (GAC<sup>®</sup>) and the Canadian Society of Petroleum Geologists (CSPG). It is administered by the Joint Committee on Paleontological Monographs (JCPM). GAC<sup>®</sup> is the sole distributor of these volumes. Contributions are issued as separate numbers with individual pagination. Our most recent monograph, No. 37, was published in 2018.

Our previous report summarizing this monograph series can be found in the Autumn issue of *GEOLOG* (2019, v. 48, no. 3 – free download available on GAC<sup>®</sup>'s website www.gac.ca). We are taking the opportunity to remind readers and potential authors that the series continues with three manuscripts under review, and with a fourth recently submitted.

Our sales are handled through the Geological Association of Canada. All volumes except the out-ofprint Morocco trilobite issue (No. 25) are available. Please note that the GAC<sup>®</sup> website bookstore does not list all the available volumes (presently, only Nos. 29-37



can be ordered through the on-line catalogue). A price list is available from GAC<sup>®</sup> and Sandy McCracken.

Sandy McCracken (Co-Business Manager and GAC<sup>®</sup> Paleontology Division Publications Coordinator) E-mail: sandy.mccracken@Canada.ca Keith Dewing (Co-Business Manager) E-mail: keith.dewing@Canada.ca (contact for a manuscript proposal form) Sofie Gouwy (Editor) E-mail: sofie.gouwy@Canada.ca

## RECENT PUBLICATIONS

No. 36 (2017) - UPPERMOST VISEAN AND SERPUKHOVIAN (MISSISSIPPIAN) RUGOSE CORALS AND BIOSTRATIGRAPHY, CANADIAN CORDILLERA, E.W. Bamber, S. Rodríguez, B.C. Richards and B.L. Mamet, 169 pp., 26 pls. ISBN 978-1-897095-80-5 \$64 GAC members, \$116 non-members

No. 37 (2018) - FASCIPHYLLID AND SPONGOPHYLLID RUGOSE CORALS FROM THE MIDDLE DEVONIAN OF WESTERN CANADA, Ross A. McLean 117 pp., 21 pls. ISBN 978-1-897095-85-0 \$41 GAC members, \$74 non-members

To order these latest volumes, please go to https://gac.ca/product-category/palaeontographicacanadiana/page/3/



## **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<sup>®</sup>'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<sup>®</sup> or one of its Divisions or Sections. Proposals that have a wide appeal or degree of accessibility to the GAC<sup>®</sup> 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



#### 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.