



Mineralogical Association of Canada

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2012 MAC FOUNDATION SCHOLARSHIPS

We congratulate Olivier Gagné and Mitchell Kerr, recipients of the 2012 MAC Foundation scholarships.



Olivier Gagné graduated with a BSc in chemistry from the University of Ottawa in 2009 with high honours. He moved to Winnipeg to start an MSc in geological sciences with Frank Hawthorne and transferred to the PhD program in September 2010. He has developed a 4-step approach that showcases the usefulness of the bond length-to-bond strength correlation of bond valence theory in addressing mineralogical and crystallographic concepts revolving around the stability of crystal structures. The key concept of the approach

lies in the calculated set of ideal bond valences. Subtle variations in the parameters (e.g. connectivity) of a crystal structure yield different sets of ideal bond valences, some more stable than others. By varying the appropriate parameters, one can study solid solution, symmetry, order/disorder, etc., while the inexistence of minerals or the plausibility of yet-to-be-observed minerals can be predicted.



Mitchell Kerr completed his HBSc degree (honours) in chemistry at the University of Toronto in 2010, graduating with high distinction and on the Dean's Honour List. Although Mitchell's HBSc degree was chemistry focused, he also studied geology intensively and completed an undergraduate geology thesis with Dr. Daniel Schulze. He investigated the mineral chemistry of clinopyroxene in kimberlite in order to determine whether this factor could be used as a potential geochemical tool in diamond

exploration. He began work on his MSc at Saint Mary's University in Halifax, Nova Scotia, with Dr. Jacob Hanley, employing novel in-line rock-crushing gas chromatographic techniques to investigate the volatile chemistry and mechanisms of formation of reduced carbonic fluids (i.e. hydrocarbons) associated with various geological environments, including ore-bearing environments. He is working towards developing an improved set of exploration criteria for metal sulfide ore bodies (particularly ore bodies associated with the Sudbury Igneous Complex) by investigating how the speciation and abundance of various hydrocarbons present in these carbonic fluids differ between barren and mineralized environments.

GAC-MAC
WINNIPEG
2013



AT THE
CENTRE OF
THE CONTINENT

May 22–24, 2013

2012 TRAVEL AND RESEARCH GRANTS

The Mineralogical Association of Canada has awarded 101 travel/research grants since 2005. We are delighted that two previous winners of these awards are coauthors of an article in this issue of *Elements*. Indeed, **Ian Power** received travel grants in 2005 and 2007 and **Sasha Wilson** received a travel grant in 2006 and was also the Foundation Scholarship winner that same year.



Kevin Canon, a BSc student at Queen's University, attended the 43rd Lunar and Planetary Science Conference at The Woodlands, Texas, on March 19–23, 2012. He presented a portion of his undergraduate thesis in a poster titled "Spotted Lake: Mineralogical clues for the formation of authigenic sulfates in ancient lakes on Mars." The project was based on field research completed at Spotted Lake in British Columbia. Kevin also gave an oral presentation on the possible interaction between perchlorate salts and carbonate minerals in the Mars Phoenix Lander, based on research completed at the NASA Johnson Space Center in Houston, Texas.



Martin Clark, an MSc student at McMaster University, presented a talk at GAC-MAC 2012 entitled "Upper-crustal, basement-involved folding in the East Range of the Sudbury Basin, Ontario, inferred from paleomagnetic data and spatial analysis of mafic dykes." He provided rotation magnitudes for folding in the Northeast Lobe and East Range of the Sudbury Basin and better constraints on the location of the East Range anticline. As a

2012 graduate, this experience helped him prepare for the diverse careers available in the Canadian geoscience industry.



Dustin Dahn is an MSc student at St. Francis Xavier University. The objective of his research is to characterize the Peramora Mélange, a mafic mélange in the Pangean suture zone exposed in southern Spain. He gave a talk titled "The tectonic significance of a mafic mélange in the Pangean Suture Zone" at the Atlantic Geoscience Conference in Moncton, New Brunswick, and at the Geological Society of America Cordilleran Section meeting in

Querétaro, Mexico. He reported field observations, structural data, whole-rock and REE geochemistry, and U–Pb detrital zircon data. Attending these conferences provided an excellent opportunity to meet local and international geologists.



Nicolle Dupuis studies Earth sciences at St. Francis Xavier University. She travelled to southern Spain to complete field work for her undergraduate thesis, which is titled "Tectonic evolution of post-collisional mafic dykes, Southern Spain: Implication for the formation of Pangea." She mapped and sampled mafic dykes that crosscut the suture zone. Her experience greatly improved her field-geology skills.



Yonggang Feng attended Goldschmidt 2012 in Montreal, which offered him a great opportunity to present his research, communicate with geologists with different backgrounds, and learn up-to-date techniques applicable to his own research. His poster presentation, entitled "Zircons in the T-Zone, Thor Lake rare element deposit: implications for deposit genesis," attracted both a general audience and experts specialized in his own field.



Olivier Gagné gave a talk entitled “Insights into the stability of crystal structures” at the 2012 GAC-MAC annual meeting in St. John’s, NL. He presented a new approach that scrutinizes the atomic factors affecting the stability of crystals and how these factors can be turned into predictive tools that give insight into the atomic-scale reasons for structure stability or instability. Presenting at conferences allows him to summarize his work, pinpoint vague concepts, and identify new and interesting ventures to embark on.



Rebecca Mowblow, a PhD student at McMaster University, presented a poster in the “Tectonic Evolution of Deeply Exhumed Orogens” session at the St. John’s GAC-MAC conference. Her PhD project involves Nd isotope mapping of crustal sutures between accreted terranes of different ages within the deeply exhumed core of the Grenville orogen in Labrador. By attending the conference, she was able to discuss her results with other members of the research community working in the Grenville Province. She was able to connect with leading experts in her field who provided new insight into her research that may lead to new directions of study.

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Eric Thiessen is doing an MSc at the University of Alberta under the supervision of Sarah Gleeson. He presented some results of his research at the GAC-MAC conference in St. John’s. His presentation dealt with the timing and origin of sulfide-hosted gold mineralization in the Tiger Zone. The Tiger Zone is a gold-rich carbonate-hosted disseminated gold deposit in central Yukon. He was grateful for the opportunity to present the state of his current research and appreciated the feedback he received from delegates.



David Turner, a PhD student at the University of British Columbia and the University of Alberta, attended the 34th IGC in Brisbane, Australia, in August, where both his supervisors (Lee Groat and Benoit Rivard) were giving keynote talks in their respective fields. It was a wonderful opportunity to meet the many Australian researchers in the field of hyperspectral remote sensing, attend their talks, visit their posters, and attend two workshops. David presented a poster on the preliminary results of his

research on the hyperspectral reflectance spectroscopy of rare earth element-bearing minerals.



Deanne van Rooyen attended GAC-MAC 2012 in St. John’s to present work from her PhD thesis at Carleton University in Ottawa. Her talk was entitled “New interpretations of the age and provenance of metasedimentary rocks overlying the Thor-Odin dome in SE British Columbia: Detrital zircon U-Pb data support tectonic models of allochthonous deposition.” She also attended the MAC-sponsored short course Quantitative Mineralogy and

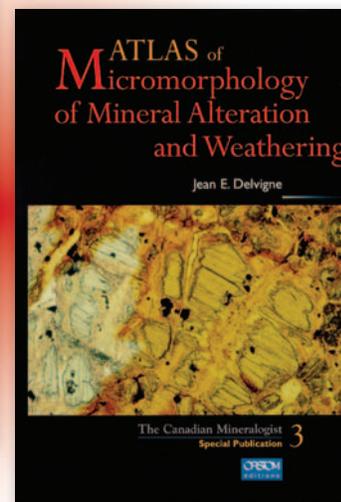
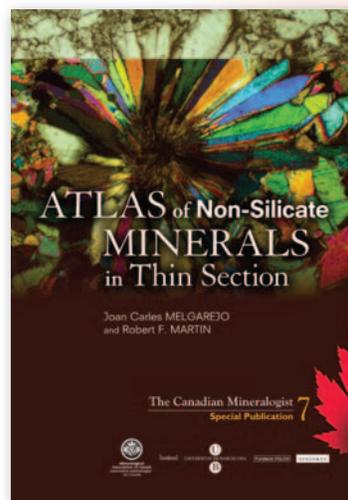
Microanalysis of Sediments and Sedimentary Rocks a fascinating overview of new and innovative analytical techniques, methods, and applications in geology. A highlight of the conference was the field trip “Stratigraphy, Tectonics, and Petroleum Potential of the Deformed Laurentian Margin and Foreland Basin in Western Newfoundland”; since Deanne’s thesis work is all based in BC, this was a great opportunity to see Newfoundland geology with the experts!

UNDERGRADUATE AWARDS 2011–2012

MAC undergraduate student awards are given annually to undergraduate students (2nd year of study or higher) at a recognized Canadian university or institute of higher education for excellence in one of the specialties supported by the Mineralogical Association of Canada (mineralogy, crystallography, geochemistry, petrology, and mineral deposits). The recipients receive a one-year membership in the Association (including electronic access to *The Canadian Mineralogist*, a subscription to *Elements*, a 20% discount on MAC publications, a discounted registration fee at our annual meeting) and a \$100 gift certificate redeemable on any MAC publication. Congratulations to the following students who received awards in 2011–2012.

- Philippe Belley, University of Ottawa
- Jason Bot, University of Regina
- Colin Brisco, Memorial University of Newfoundland
- Shannon G. Broughm, Dalhousie University
- Philippe Drouin, Université Laval
- Lindsay Fenwick, Queen’s University
- Prateek Gupta, McMaster University
- Danielle Kondla, University of Calgary
- Rebekka Lee, Brock University
- A. Rebecca Lynn MacDonald, St. Francis Xavier University
- Sarah L. McArthur, University of Victoria
- Sarah Muir, Mount Royal University
- Lisa J. Mundry, Acadia University
- Emily M. Palmer, University of New Brunswick
- Julia M. Scott, University of British Columbia
- Kasparas Spokas, McGill University
- Cassie M. Stuurman, The University of Western Ontario
- Jonathan Tremblay, Université du Québec à Chicoutimi
- Philip Ralph Van-Lane, University of Waterloo

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