



Mineralogical Association of Canada

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STUDENT TRAVEL AND RESEARCH GRANTS

The Mineralogical Association of Canada awarded ten travel and research grants to students in 2008. We present highlights of the reports submitted by these deserving students.



NATHAN BRIDGE (University of Western Ontario) received a research grant to perform analyses on the VESPERs beamline at the Canadian Light Source. Studies of the earliest history of life are plagued by problems of fossil preservation and poor and ambiguous evidence for fossil material. Titanite-mineralized microbial trace fossils in Archean volcanic rocks are potentially a more robust biomarker. This study builds upon

Nathan's honors thesis and attempts to unravel the chemical and structural changes in in situ titanite grains preserving such microfossils. He hopes to unravel the biological controls on titanite formation and improve our understanding of Archean subaqueous volcanic rocks as a habitat for early life on Earth and other bodies.



GABRIELA BUDULAN (Queen's University) presented a poster at Quebec 2008, Quebec City, May 25–30, on her undergraduate honors thesis project undertaken at the University of Ottawa. Her study characterized the Cu-PGE mineralization and host rocks of the Broken Hammer deposit and the geochemical signature of the deposit in till down-ice. She also attended a short course and field trip entitled "Submarine volcanism

and mineralization: Modern through ancient." The insights and knowledge she gained will be very beneficial in her MSc thesis project on the bedrock and till geochemistry and indicator mineral signature of the Halfmile Lake Zn-Pb-Cu VMS deposit. She also enjoyed partaking in talks by several geoscientists, which further encouraged her to continue her career in mineral deposit research and inspire future students with her research.



CHRIS COUËSLAN, a third-year PhD student at the University of Calgary, attended Quebec 2008 in Quebec City. Sessions on lithosphere dynamics, suture zones, migmatites, and magmatic nickel deposits were particularly relevant to his thesis topic on the regional metamorphism of the Thompson Nickel Belt, Manitoba. He also attended the preconference short course "Working with Migmatites." The short course exposed

current views and new research on migmatite formation and processes. He saw many similarities between the material being presented and

the outcrops and samples from his field area. After learning about interpreting migmatite microtextures, he got the sinking feeling that he was going to be reexamining many boxes of thin sections!



MALLORY DRYSDALE (Queen's University) gave a presentation in the Geology and Health special session of the 2008 GAC-MAC conference in Quebec City. The presentation included results from her MSc thesis on the respiratory bioaccessibility of nickel-bearing soils in Kalgoorlie, Western Australia. The results of the study quantify the risk associated with the inhalation of the fine-grained fraction of soils in the city of Kalgoorlie, and they also help to characterize the influence of the smelter on the nickel concentration and phases present. The respirable fraction of soils was analyzed using a simulated lung-fluid solution and sequential extraction to determine the reactivity of the soil in lung fluids. The travel grant allowed Mallory to present and discuss her methods and results with experts in the field of geology and health.



ANDREW FAGAN (University of Alberta) participated in the 9th International Kimberlite Conference, held in Frankfurt, Germany, where he presented the results of his Master of Science degree. His studies were conducted at the University of Alberta, within the C.M. Scarfe Laboratory for Experimental Petrology under the supervision of Dr. R. W. Luth. They involved the high-pressure high-temperature (HP-HT) synthesis of

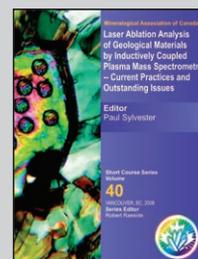
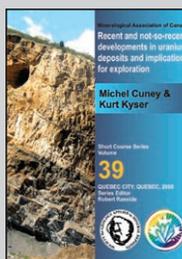
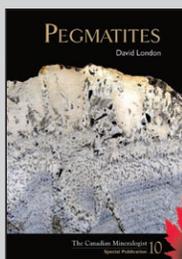
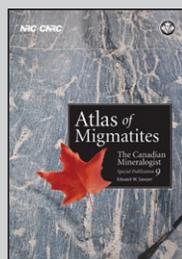
diamond in a simplified chemical system, with the basic aim to create diamond in a chemical, temperature and pressure environment similar to those recorded in the Earth's mantle. His presentation "Hydrous Silicate Melts: A New Growth Medium for Diamond?" generated interesting and informative discussion with numerous international experts conducting similar research but in different chemical systems.



HANNAH GRANT, an MSc student at Queen's University, travelled to Yellowknife in November 2008 to present her research at the Yellowknife Geoscience Forum. The conference included a session on research and exploration in the Canadian North. Hannah is studying the distribution and controls on silver mineralization in the 2.68 Ga Hackett River VMS deposit in Nunavut, which is one of the largest undeveloped silver-enriched

VMS deposits in the world. She is primarily using microprobe trace element data and petrography to subdivide the mineralization on the basis of mineralogy, mineral textures and relative stratigraphic position. The mineral abundances and compositions observed have been used to derive a quantitative silver budget and an emplacement paragenesis for the silver within a high-grade amphibolite metamorphic setting.

WE HAVE NEW PUBLICATIONS FOR YOU!



- SP 9 Atlas of Migmatites – EDWARD W. SAWYER (2008)
ISBN 978-0-66019-787-6, 386 pp
- SP 10 Pegmatites – DAVID LONDON (2008)
ISBN 978-0-921294-47-4, 368 pp
- SC 39 Recent and Not-So-Recent Developments in Uranium Deposits
– EDITORS: MICHEL CUNNEY AND KURT KYSER (2009)
ISBN 978-0-91294-48-1, 272 pages
- SC 40 Laser Ablation ICP-MS in the Earth Sciences
– EDITOR: PAUL SYLVESTER (2008)
ISBN 978-0-921294-49-8, 348 pages

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TANIA MARTINS (Porto University, Portugal) attended the GAC-MAC 2008 meeting in Quebec City. Her special interest was the special session "Challenges to a Genetic Model for Pegmatites," organized by David London and Dan Kontak. Although part of the session was dedicated to experimental work on the petrogenesis of pegmatites, an area not specifically in her field of research, she found the material on the subject to be very interesting. She also found the message of the keynote speaker, Federico Pezzotta, who talked about his new ideas on pegmatite characterization, to be very appealing. Attending this conference gave her the chance to interact with the international community working on pegmatites, hear about new research, interact with various students and professors and, most notably, receive feedback on her own research.



SEAN McCLENAGHAN (University of New Brunswick) traveled to Oslo, Norway, in August 2008 to attend the 33rd International Geological Congress. Financial assistance from MAC allowed him to present his PhD-related research on the petrology, geochemistry, and distribution of copper in the Brunswick No. 12 volcanogenic massive sulfide deposit, Bathurst Mining Camp, in the "Volcanic-hosted massive sulphide deposits:

controls on distribution and timing" special session, convened by Rodney Allen and Jan Peter. This well-attended session included topics covering broad aspects of VMS systems, as well as more detailed studies of specific deposits worldwide. Furthermore, IGC '08 provided an opportunity to explore a broad range of symposia outside his research focus.



CAROLINE RICHER (University of New Brunswick) took part in the Maine Pegmatite Workshop 2008 in Poland, Maine, USA. This educational workshop is open to those who are interested in geology or gemology. Her master's thesis is related to Bancroft-type uraniferous pegmatites in the Grenville Province. The workshop was the perfect occasion for her to learn about other pegmatite systems, their mineralization and degree of fractionation, and to discuss various problems related to their formation. A total of 32 participants from Australia, Spain, Portugal, Russia, Canada, and the United States had the privilege of visiting seven different pegmatite mines in Maine and New Hampshire.



KARA-LYNN SCALLION (Acadia University) presented a poster on her honors research entitled "Phosphate deposits in Avalonian Cambrian rocks in the Saint John area, New Brunswick" at Quebec 2008. She received many positive comments and was asked many questions about phosphorites. She also enjoyed attending the sessions on the Appalachians and eastern Canada, as that was the area of her honors thesis and now her master's thesis!

A SYMPOSIUM IN HONOR OF ROBERT F. MARTIN

On March 20, 2009, the Department of Earth and Planetary Sciences of McGill University (Montréal) held a day of talks to honor Bob Martin on the occasion of his retirement from the university. Colleagues and former students from near and far (as far as Austria) came to share this special day. John Hughes (University of Vermont) started the day with a talk on the crystal chemistry of apatite and demonstrated how it explains the rare earth distribution in the mantle. André Lalonde, a former student of Bob and Dean of Science at the University of Ottawa, told a spellbinding version of the chrysotile versus asbestos story. Frank Hawthorne and Elena Sokolova, professors at the University of Manitoba and long-time fans of *The Canadian Mineralogist*, spoke respectively about how short-range order links with phase transitions in scapolite-group minerals and about a topological algorithm that allows one to derive the structure of titanium silicates from their chemistry. Louise Corriveau (Natural Resources Canada), a former student of Bob, followed with a talk about zoning models as vectors to iron oxide-copper-gold deposits. Louis Cabri, former editor of *The Canadian Mineralogist* (1975-1982) partly responsible for bringing Bob on board with the journal, spoke about new mineral separation technologies and their impact on mineralogical characterization. The talks ended with the guest of honor presenting a pot-pourri of threads in his career (just after his three children and four grandchildren had walked into the room – one of several surprises his wife, Vicki, had in store for him). A reception and supper concluded the day.



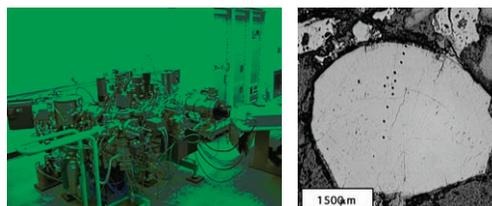
BOB AND SPEAKERS: FROM LEFT TO RIGHT, John Hughes, Louise Corriveau, Louis Cabri, Robert Martin, André Lalonde, Elena Sokolova, and Frank Hawthorne. PHOTO VICKI LOSCHIAVO

Secondary Ion Mass Spectrometry in the Earth and Planetary Sciences: Gleaning the Big Picture from a Small Spot

Toronto, May 22–23, 2009,
prior to the Joint Assembly 2009

ORGANIZER: Mostafa Fayek, University of Manitoba (fayek@cc.umanitoba.ca)

Obtaining a quantitative and predictive understanding of geological systems, including exploitable energy sources, requires knowledge of the age of origin and subsequent thermal history of the system over geological time. While analysis of milligram- and microgram-sized materials is routine, important geologic information preserved in features such as zoned minerals and cemented intergranular regions requires in situ measurements at the micron scale. An important breakthrough in this regard was the development of the secondary ion mass spectrometer (SIMS). SIMS is capable of performing precise and accurate (i.e. ‰ to sub-‰) in situ measurements of most elements and their isotopes with ca. 10 µm resolution.



This course will introduce SIMS analytical techniques and assess their applications in the Earth and planetary sciences, as well as in biogeochemistry. Topics include light stable and non-traditional isotope analysis, radiogenic isotope analysis and geochronology, and cosmochemistry.

- Registration fee: \$475 for professionals and \$295 for students (\$420/\$250 for MAC members)

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