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Mineralogical Association of Canada

FROM THE PRESIDENT

Parting Words: Get Involved!

I distinctly remember, almost four years ago, Brian Foyer—at the time outgoing president of the Mineralogical Association of Canada—saying convincingly that presidential duties were not too taxing, although they were perhaps more cumbersome around the spring and fall executive meeting times. We did not discuss the many benefits or perks that come with the presidential chair. Brian was partly correct, and he said what I will probably say in the near future, when I pass the torch to new members of the MAC executive. I have enjoyed this tenure tremendously and I am thankful for having been considered worthy of the task. So what has made the past four years so memorable and worthy of the mantra “Please get involved”?

My first duty as vice president was to participate in the annual awards luncheon of the Association, when I became aware of the contributions that many have made to the organization. In presenting the Berry Medal for 2002 to Robert Downs, I learned of his efforts to guarantee the integrity of the crystallographic data in *The Canadian Mineralogist* and in other society journals. A year later I awarded the Berry Medal to a most deserving Gina LeCheminant and, in doing so, I listened to her tell of the birth of the MAC Foundation, which today grants scholarships and travel and research grants to talented students. Executive responsibilities also provided the opportunity to review annually the applications for these awards and see the abundance of talented, young scientists out there—all eager to pursue a career in the Earth sciences.

The subsequent move to the presidential office allowed me to present the Hawley Medal and Young Scientist Award and announce the winner of the Past Presidents’ Medal. Thus, as an economic geologist, it was immensely gratifying for me to publicly acknowledge the significant contributions of several people, including Mike Fleet, Anthony Williams-Jones, and James Mungall.

A highlight as president was overseeing MAC’s 50th birthday celebrations at last spring’s GAC-MAC meeting, attended by many past members of executive and council—those responsible for the success and health of MAC today. It was acknowledged by all that indeed, from a humble beginning and kindled by the energy of youth, MAC has grown into something significant. Following this meeting I was fortunate to spend some time in warm Vancouver sunshine listening to one of these erstwhile energetic youths, Dr. Ed Nuffield, who, with several others in the early 1950s, bucked the establishment and wisdom of some prominent Canadian geoscientists and charted a course for the Canadian mineralogical community.

However, MAC stewardship is not just about ceremonies—it is also about interacting continuously with many other organizations. For example, the planning of an annual GAC-MAC meeting begins several years earlier and reaches a feverish level in the final months, as I witnessed outside my office this past spring as Halifax 2005 approached (great job guys!). Site visits and flurries of e-mails ensure a successful final program. Last November, preparation for Montreal 2006 involved long hours of meetings and a site tour (a lovely venue), and—oh, the



Dan Kontak with first MAC president, Edward W. Nuffield

perks again—delicious meals in trendy Montreal bistros. Spring and fall are now synonymous with trips to Calgary and Ottawa for Canadian Geoscience Council (CGC) meetings. These meetings bring together representatives of many geoscience organizations from across Canada and have shown me the commonality of all—the concern for Earth sciences and the role they play in the future wealth of the nation (i.e. natural resource management) and the welfare of its environment (lithosphere, atmosphere, and hydrosphere). It is apparent a united front is necessary to address these concerns that affect us all.

A personal memory is witnessing the birth of *Elements Magazine* and seeing it resonate within the mineral science community so quickly! The popular embracing of this venture is, to me, a clear signal of both the benefits of collaboration among societies and the willingness on their part for this to happen. Is it any surprise, therefore, that I was talking with Michael Carpenter, past president of MSA, about the program planning for the Frontiers meeting in Cambridge, 2007, only last week. I look forward to being part of this unique joint meeting of several national societies.

Finally, I have had the opportunity to interact with many varied and interesting people within and outside of MAC and I look forward to meeting many more as past president. I welcome the new duties that come with this title. As I end my term, others also finish their duties, and a new executive and council take up their positions. I thank Andy McDonald, Norm Halden, and Mati Raudsepp, who have served so well and for so long, and I welcome aboard those willing to get involved and encourage others to similarly pick up the cause. The pay isn’t great, but there are many perks along the way.

Daniel J. Kontak
President

\$10 000

Scholarship

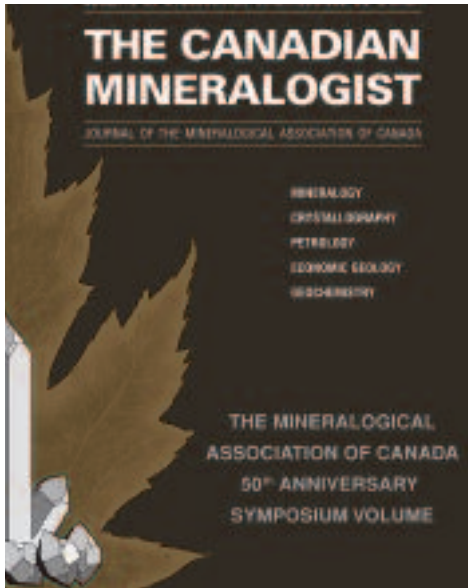
The Mineralogical Association of Canada Foundation

annual scholarship for graduate students involved in an M.Sc. or Ph.D. thesis program in the fields of:

- Mineralogy
- Crystallography
- Geochemistry
- Mineral Deposits
- Petrology

Deadline to apply: May 1st, 2006

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THE MINERALOGICAL ASSOCIATION OF CANADA 50th ANNIVERSARY SYMPOSIUM VOLUME OF *THE CANADIAN MINERALOGIST*

comprised of a collection of papers in metamorphic petrology—a tribute to Dugald Carmichael—our thickest issue ever (see *Elements*, volume 1, issue 3, page 168). The August issue contained a collection of papers on metals in the environment and mine wastes, under the guest editorship of Dogan Paktunc. This issue was followed by the Fleet issue in October and the 50th Anniversary issue in December.

The 50th Anniversary issue contains ten invited papers forming the core of the MAC 50th Anniversary Symposium (see *Elements*, volume 1, issue 4, page 230), held at Halifax 2005 last May. Convenor Frank Hawthorne chose topics spanning the range of disciplines covered by the Association and its journal. Here are some highlights.

In his paper “XANES Spectroscopy of Sulfur in Earth Materials,” Mike Fleet shows how the oxidation state of sulfur in both inorganic and organic species (from S²⁻ to S⁶⁺) can be deduced from the shift in energy of the absorption-edge feature of the S K- and L-edge features in XANES (X-ray absorption near-edge structure) spectra. This work has a wide variety of applications, for example, the identification of the speciation of sulfur in basaltic glasses and minerals such as lazurite and haiyūne; the identification of the organic functional groups of sulfur in coals, kerogens,

and humic substances; and the characterization of the association of sulfated sugars with calcification of coral aragonite skeletons.

The crystal structures of uranyl minerals and inorganic uranyl compounds are important for understanding the genesis of uranium deposits, the interaction of uranium mine tailings with the environment, the transport of actinides in soils and the vadose zone, and the performance of geological repositories for nuclear waste; they are also important for the development of advanced materials with novel applications. In his paper, Peter Burns expands upon his earlier structural hierarchy of U⁶⁺ minerals and inorganic compounds, arranging 350 of them into five classes on the basis of the topological details of their structural units, and emphasizes the importance of this structural hierarchy in understanding the behavior of U⁶⁺ under surface and near-surface conditions.

Ian Parsons and Martin Lee, in their paper “Minerals Are Not Just Chemical Compounds,” contrast the properties of crystallographically near-perfect, “gem-quality” alkali feldspar, like orthoclase from Madagascar, with those of “garden-quality” specimens, like perthite from the Shap Granite. They show that microtextures are of critical importance in understanding the interaction of feldspar with aqueous fluids.

Nuclear power provides approximately 17% of the world’s electricity. This is equivalent to a reduction in carbon emissions of 0.5 gigatonnes of carbon per year. Global emissions of carbon stand at 7 Gt C/year. In order to have a significant impact on carbon emissions, the total production of carbon-free sources, such as nuclear power, would have to expand by a factor of three to ten by 2050. Utilizing present nuclear technologies, this increase would result in 25,000 metric tonnes of spent nuclear fuel containing over 200 t of plutonium. In his paper “The Nuclear Fuel Cycle versus the Carbon Cycle,” Rod Ewing contrasts the production of excess carbon in the form of CO₂ from fossil fuel with the production of plutonium in a uranium-based nuclear fuel cycle, with emphasis on the “mineralogical solution” for the “sequestration” of Pu into pyrochlore structure-types.

Tony Naldrett reviews the history of our understanding of magmatic Ni–Cu deposits and identifies five distinct themes that have emerged from research over the last 40 years. Progress has been stimulated by new thinking about the Sudbury Igneous Complex and by work on the very different contexts of ore deposition observed at Noril’sk and Kambalda. Observations at Voisey’s Bay in the last ten years have confirmed the relevance of these themes.

Check these and remaining papers in this issue at www.mineralogicalassociation.ca

The year 2005, with its many firsts, will stand as a memorable year for *The Canadian Mineralogist*. Long-time editor Robert F. Martin published 2140 pages—several hundred more than the previous record—in spite (or because?) of being on sabbatical leave in Barcelona, Spain. As Council, at its last meeting, approved a limit of 1600 pages (±10%) for the journal, starting in 2006, this record is likely to stand for a long time.

What also sets 2005 apart is the number of thematic issues. We started 2005 with an issue

MELT INCLUSIONS IN PLUTONIC ROCKS

Mineralogical Association of Canada Short Course

13–14 May 2006
prior to the GAC–MAC Joint Annual Meeting, Montreal, QC, Canada

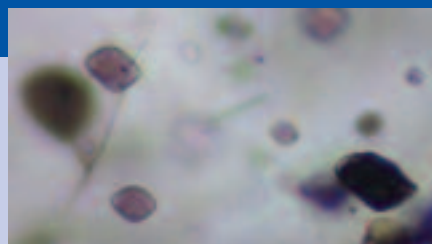
CONVENOR: James D. Webster

Overview

Much of the research on melt inclusions has focused on volcanic systems. Yet, pluton-forming magmas are equally if not more important for mountain building and continental crust formation, and they are genetically related to a wide variety of metallic mineral deposits.

Investigation of the geochemistry and petrology of plutons in convergent margins can provide information crucial to our understanding of the generation, evolution, ascent, and emplacement of subduction-related magmas. The analysis of melt and fluid inclusions in these plutonic rocks is an indispensable research tool for understanding the recycling of crustal components into and through the mantle.

Studies on inclusions from plutonic systems are increasingly common. The studied systems are diverse and include mafic, ultramafic, and granitic rocks, and evolved felsic pegmatites. The inclusions trapped in these magmas range in composition from aqueous to sulfide-, carbonate-, silicate-, or halogen-enriched.



Current growing interest in the geochemistry of plutonic systems occurs at a time when advances in micro-analytical methods facilitate the analysis of fully crystallized melt inclusions (without prior reheating); the study of stable isotopes of D/H, Li, C, S, and Cl in melt inclusions; and the determination of the partitioning of ore metals and volatiles among melts, minerals, and fluid phases in coexisting and coeval inclusions.

A two-day symposium at Montreal 2006 entitled “Alkaline Igneous Systems: Dissecting Magmatic to Hydrothermal Mineralizing Processes” will complement the short course.

Registration fees: CDNS400 (professionals) and CDNS200 (students)
For more information, e-mail Jim Webster at jdw@amnh.org or visit the conference website www.gacmac2006.ca