

GEOLOG

The Newsmagazine of the Geological Association of Canada

Earth Sciences Fail in NSERC Reallocation ... again!

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of Canada

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Research dollars for the Earth Sciences have been knocked back again. The joint application by the Solid and Environmental Earth Sciences sectors for increased research funding through the NSERC (National Science and Engineering Research Council) Reallocation Exercise (2003-2006) resulted in a net loss of 37% of the \$2.07M reallocation. Perhaps more important, this is the third time that the Earth Sciences research budget has been cut back by this exercise and highlights a perilous and continuing downward trend of real-dollars research funding. The Solid Earth Sciences and Environmental Earth Sciences submitted a joint submission with three proposals — two of the proposals were partially funded.

The NSERC Reallocations Committee's response to the submission is reproduced below. The full report is available at: http://www.nserc.ca/programs/real2000/feedback/gsc08_09_e.htm#toc

The Reallocations Committee felt that the Canadian Earth Sciences community is one that excels at the international level. It is important that this discipline adopt strategies to ensure its continued excellence in the future. This is particularly important in light of Canada's fundamental obligations in this area, given its vast landmass, lakes and rivers, as well as the oceans surrounding a very large portion of the country. As stated by one of the external referees, the performance of Canadian scientists is impressive and significant achievements with worldwide recognition have been made.

Despite the quality of the Canadian community, the Reallocations Committee considered that the submission did not convey a sense of where the discipline is currently heading. The vision for the discipline presented Earth Sciences as an old discipline taking on new technologies to be applied to new areas. The Committee agreed that the three areas presented in the submission (Global Environmental Change and the Challenge of Greenhouse Warming; Earth Resources: Environmental Stewardship and Sustainable Development; and Earth System Evolution and Dynamics) contain very important sub-areas, but they were presented very broadly without a clear sense of where the priorities and Canadian strengths are. Overall, the impact of Canadian researchers on the field at large was not well articulated in the submission. Furthermore, the submission did not demonstrate a clear connection between the vision, the strategy for the discipline and the specific

cont. page 6

The Exercise

The NSERC Reallocation Exercise requires that 10% of the research budget of each discipline is set aside and these funds are made available to those disciplines who Steering Committees best respond to the question: "Why is it important for Canada that your research community receive some of the reallocated funds?" Canadian university researchers prepared nineteen discipline-based submissions, five joint submissions and one brief. These documents were reviewed by 125 experts from the international research community and the Canadian user sector and by the Reallocations Committee, an NSERC-appointed group of distinguished researchers and experts in science and engineering. The Reallocations Committee was faced with 90 proposals requesting more than \$120M from an available pool of \$27M.

Specific initiatives to be supported include:

- synthesis of novel materials
- three international subatomic physics projects
- proposals from three mathematics institutes and an astronomy institute
- research on infrastructure for sustainable development
- fundamental research in alternative energy systems
- support for a national program on complex data structures, and

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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 Geological Association of Canada is 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.

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GEOLOG (ISSN 0227-3713) est le bulletin trimestriel de l'Association Géologique du Canada, à St. Jean, Terre-Neuve-et-Labrador. *GEOLOG* s'adresse aux membres 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 gouvernementaux 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.

RECEVEUR DES POSTES: Veuillez faire parvenir les changements d'adresse à l'Association Géologique du Canada, dont l'adresse est indiquée ci bas.

ABONNEMENT: L'abonnement à *GEOLOG* est un des privilèges dont bénéficient les membres de l'AGC. On peut se procurer un formulaire d'adhésion par courrier ou par fax en communiquant avec l'Association Géologique du Canada. Une copie de ce formulaire peut aussi être imprimée à partir de notre site Internet. Le coût de l'abonnement pour non-membres.

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This Autumn 2002 *GEOLOG* benefits from the contributions and assistance of Adrian Forsyth, Al Gorman, Alwynne Beadoin, Dave Evans, Eleanor Penny, Elliott Burden, Grant Abbott, Jean-Francois Couture, John Clague, Karen Dawe, Karen Johnston, Matthew Dalzell, Maurice Colpron, Sandy McCracken, Mike Cherry, Richard Wardle, William Boyce, Susan Warren, Kevin Ansdell, Jon Dudley, Dave Evans, Mike Marchand, Ward Neale and Robbie Cashin.

Thanks to all, and regrets to anyone that I missed. Also, thanks to webmasters and webmistresses that have allowed me to use bits and pieces, logos and text from their websites. Karen Dawe and Sandy McCracken undertook the job of proofreading, although any faults remain the accepted responsibility of the Editor. This *GEOLOG* was produced with support from the Yukon Geology Program, Whitehorse, Yukon. Next Deadline is November 22nd, 2002 — your contributions are welcome! CJRH

Préambule Presidential Preamble



GAC President Clague's Goals and Ambitions

I joined GAC in the early 1970s, while a graduate student at the University of British Columbia, and have been a proud member ever since. Following my graduation from UBC in 1973, I developed a special attachment to both GAC and its members, many of whom are close friends. Now I find myself President of GAC, which is both a great honour and a considerable challenge. Given my attachment to the organization, I intend to strive mightily to serve you as best I can. The task is daunting, given the considerable challenges that both our profession and GAC faces. I won't dwell on these challenges; past GAC Presidents have eloquently summarized them previously in *Geolog*. Instead, I'd like to focus on the positive by briefly outlining my goals as GAC President.

Let me say at the outset that I have no illusions about what I can accomplish during my brief tenure as President. One year is far too short a time to put a lasting stamp on any organization. Typically, GAC moves incrementally and cautiously, building on the hard work of several Executives and Councils. Executive and Council operate on the basis of consensus, which takes time to develop but ensures that decisions are sound. Thus, my goals build on those of Past-President Steve Morison and, hopefully, will be shared by Harvey Thorleifson, next year's President. They are also goals of many on GAC Council, as well as Headquarters staff in St. John's, the real work horses and "corporate memory" of GAC.

So, what are the main items on my GAC "wish list?" First, I intend to work with Council to maintain and improve member benefits. Elsewhere in this issue of *Geolog*, I summarize member benefits. Improving, or even maintaining, member benefits is a challenge because GAC membership has slowly declined over the last decade and because a growing proportion of our members are retirees or students, groups that GAC subsidizes. We, nevertheless, have opportunities to increase revenues through corporate and member donations to a GAC fund, which I'd like to create, and through our publications' program, which has been revitalized through the hard work of Karen Dawe and Arlene Powerat Headquarters and Sandy McCracken, Chair of the Publications Committee.

My second goal may sound rather mundane, but is important. I will build on the hard work done by Council and Executive over recent years to make GAC function as an efficient business. We have a business plan, which is periodically updated, and we are working towards adopting a structure in which key committees (Program, Publications, Communication, and Finance) operate as independent business units. This approach ensures sound fiscal management.

My third goal is to improve GAC Annual Meetings, to make them "must attends" for professional geoscientists. Kevin Ansdell, new Chair of the Program Committee, is exploring ways of accomplishing this. Among other things, we are seeking partnerships with other geoscience organizations, including but not limited to AEG, CGU, CIM, CSPG, GSA, and IAH. We would like to sponsor more thematic conferences and workshops of the Nuna type that address topical scientific problems

and issues, and we would like to hold an annual meeting in the north, perhaps Yellowknife.

My fourth goal is to strengthen GAC's already important outreach and advocacy program. GAC supports students through cash prizes, grants, and student chapter awards. We are a member of the Canadian Geoscience Council and support the Canadian Geological Foundation and the national education programs of the Canadian Geoscience Education Network (e.g., EdGEO, EarthNet, Geoscape Canada). GAC is an important player in the Partnership Group for Science and Engineering (PAGSE). However, much more can be done. I dream of GAC scholarships for undergraduate and graduate students, a well promoted and financed annual GAC lecture tour by our best scientists, and increased involvement of secondary-school earth science teachers in our meetings.

My final goal, perhaps the most important in my view, is to begin a process of defragmenting earth science in Canada. I think there are too many professional geoscience organizations in this country, all competing for members, limited resources, and a small number of volunteers. The trend towards increased splintering of earth science into specialist groups with limited viewpoints must be changed if our profession is to achieve its rightful place in the public and political arenas. A disturbing sign that we do not "have our act together" is the failure, for the third straight time, of the solid and environmental earth sciences in the NSERC reallocation exercise earlier this year. We suffered a reduction of \$700,000 in our total NSERC university funding allocation of about \$20 million due to our collective failure to articulate an exciting and innovative program of earth science research. I argue that we are more than Quaternary geologists, petrologists, and paleontologists – we are earth scientists. Why not strive for a single professional society in Canada that represents ALL earth scientists? The defragmentation process is likely to be a long one, but any journey is taken one step at a time. There are actions that can bear fruit more quickly than others – more jointly sponsored meetings; an expanded *Geoscience Canada* that would reach members of all Canadian earth science organizations, its content decided by a Board of Directors comprising members of these organizations; and a GAC publication unit whose services would be available to other groups beside GAC. Finally, I support, as I hope you will, the preparation of a document that articulates the contribution of earth science to the health and welfare of Canadians over the next decade. In my view, the earth science community must focus on what Canadians need, not what we as scientists need – science for science's sake may not be dead, but it is not going to be supported by the government or the public. The document will be written over the next two years under the stewardship of the Canadian Geoscience Council with broad community input. I'm confident it will map a way forward that will allow us to work together to strengthen earth sciences and reverse the decline in our profession.

John J. Clague
GAC President

From the Geolog Editor



It's About Time

My kingdom for an age date.

It is amazing how an exploration model or map pattern or geological relationship or stratigraphic section, with all their insipient interpretations and propagating ramifications can change with the benefit of a well-constrained age date. Knowledge of time is quite simply among the greatest of advances in the understanding of geology and geological processes.

In Canada, we're very good at this and have a number of cutting edge geochronology labs that supply age determinations as well as push the boundaries of the science by developing new methods and better precision. As well, Canadian paleontologists have for over a century, advanced, nay built the foundation of Phanerozoic geology in Canada. It's astonishing that a few randomly selected pieces of limestone can yield conodonts that define stratigraphy to the sub-stage level or that a few ammonites can discern intervals to within a million years or less.

It is on this foundation that two events have developed – one positive, one negative. The first is the upcoming Nuna Conference in March 2003 on timescales, which will wholeheartedly embrace and integrate absolute and relative time. This event will mark an apex of understanding in geological time. The second isn't so much an event as it is a tragedy – that being the ongoing decline of paleontology in Canada. Universities are not replacing retiring paleontologists and the GSC has established a pattern of allowing its paleontology subdivisions to wither away through neglect. If it weren't for the continued enthusiasm of those currently working, or the yeoman efforts of the recently retired emeritus scientists, the situation would be much worse.

The GSC has recently (again) changed the way it decides where project dollars go, and again the paleontologists find themselves outside of the mandated direction of the program. Age dates are important to Canada, and although some determinations come via radiogenic isotopes, the importance of paleontological contributions to time, geology, knowledge and Canada needs to be recognized, supported and encouraged.

Oscillations

Ron Smyth has been appointed Chief Science Officer of the newly created Offshore Oil and Gas Branch of the British Columbia Ministry of Energy and Mines. Ron began his British Columbia public service career in 1982 as a Senior Geologist with the British Columbia Geological Branch. He was appointed Chief Geologist in 1984, and was the Director of the Ministry's Geological Survey Branch. **Dave Lefebure** has been appointed Acting Director of the BC Geological Survey Branch. **François Robert** of Barrick Gold Corporation has moved to Perth, Australia. **Derek Thorkelson** of Simon Fraser University is on sabbatical at the Yukon Geology Program in Whitehorse. **Bruce Hart** of McGill was honoured with the 2002 Distinguished Educator Award by the Southwest Section AAPG, presumably for his 5 years of activities while an employee of the New Mexico Bureau of Mines. **Nancy Chow** of University of Manitoba is on sabbatical at the University of Western Australia. **Andrew J. Pulham** of Memorial University has been awarded a new Canada Research Chair in petroleum geoscience. At UBC, **Marc Bustin** has been awarded the 2002 Reinhardt Thiessen Medal by the Council of the ICCP. **Kim Welford** was awarded the Chevron Canada Outstanding Student Paper in Seismology award at the recent meeting of the Canadian Geophysical Union for her presentation entitle "Imaging Precambrian reflectors in southwestern Alberta using an industry-acquired deep 3-D seismic reflection dataset". At the University of Alberta, **John England** has been appointed a NSERC Northern Research Chair: and **Kurt Konhauser** and **George Pemberton** are Canada Research Chairs. George was also awarded the Raymond C. Moore Medal for Paleontology. **Octavian Catuneanu** won the 2002 Best Paper Award by the Structural Geology and Tectonics Division of the Geological Society of America. The University of Calgary welcomes **Larry Lines** as incoming Department Head for the Department of Geology and Geophysics. Larry replaces **Don Lawton**. **Philip Simony** has retired after 39 years of dedicated and enthusiastic teaching and research. The GAC regrets to announce the passing of two long-standing members. **J.E.L. Evans** was 88 years old and has been a member since 1947. He also served as GAC President from 1967-1968. **William (Bill) Sarjeant**, age 66, was a GAC member since 1976. Details of Bill's life are on page 31.

OOPS ... **Alan Clark**, winner of the GAC Derry Medal and of Queens University, shown on was misidentified as being of McGill University (Geolog v.31.2).

Oscillate recently? Tell geolog@gov.yk.ca

Information for Contributors/Directives aux Auteurs

Submissions are preferred as digital files sent as e-mail attachments to geolog@gov.yk.ca or on a disc via the post to the Editor. Discs will be returned if sent with self-addressed mailer. Documents should be sent as unformatted text (*.doc, *.txt or *.rtf) files. Graphics should be as CorelDraw (*.cdr), Windows metafiles (*.wmf) or Acrobat (*.pdf) file types, and images should be at 300 dpi, greyscale without internal compression (preferably *.tif). Files greater than 2MB should be compressed or zipped before sending via e-mail. Additional information on other file formats can be obtained from the Editor. Hard copy text, graphics and photo images are also welcome. All contributions may be edited for clarity or brevity.

The DEADLINES/ÉCHÉANCIERS for submissions and advertising for the next edition of GEOLOG is 22 November, 2002.

Nous préférons que les articles nous soient soumis sous forme de fichiers numériques, annexés à un courriel, ou sur disquette, par courrier conventionnel adressé au Rédacteur en Chef. Les disquettes seront retournées si elles sont accompagnées d'une enveloppe affranchie avec adresse de retour. Les documents doivent nous parvenir en version texte non formaté (*.doc, *.txt ou *.rtf). Les graphiques doivent avoir un format CorelDraw (*.cdr), Acrobat (*.pdf) ou Windows metafiles (*.wmf), et les images doivent avoir une résolution de 300 dpi dans un format non comprimé (préférentiellement *.tif). Les fichiers de dimensions supérieures à 2 Mo doivent être comprimés avant envoi par courriel. Veuillez communiquer avec le Rédacteur en chef en ce qui concerne la possibilité d'utiliser d'autres formats. Nous acceptons aussi une copie imprimée sur papier du texte, graphiques et images. Le Rédacteur en chef se réserve le droit de modifier l'article à des fins de clarification ou de brièveté.

funding proposals to allow the Committee to clearly see where the funding priorities are. Unfortunately, the submission contained little evidence about exciting and innovative contributions made by Canadian researchers in the past, nor did it specify those that could be expected in the future. There may have been an over-emphasis on trying to find a theme that was all encompassing.

The submission emphasized the interdisciplinary nature of the discipline but did not discuss interdisciplinary research opportunities with areas such as Ecology or other Life Sciences disciplines.

Despite the above comments, the Committee strongly believed in the quality of the Earth Sciences community and in the importance of the discipline for Canada. Canada's contributions to research in the areas of priority mentioned in the submission are likely to be high. For this reason, funding of two of the specific proposals was recommended.

Specific Proposals

Proposal 1: Funds to support and strengthen research capacity and expand research capability in targeted areas significant for Canada

As mentioned above, the areas of research were presented very broadly in the submission and there was no sense of where the discipline is going. However, these areas contain very important sub-areas in which there is no doubt that Canadian researchers can make significant contributions. Given the high potential for specific Canadian contributions, partial funding was recommended.

Proposal 2: Funds to develop a concept and proposal for the establishment of a Canadian Earth Institute

The Committee considered that the model of an institute could work well for Earth Sciences. However, the proposal was not well articulated and it did not clearly convey the need for, and the objectives of, the institute. The Committee concluded that this idea needed to be thought through more before it could be submitted in the context of the Reallocations Exercise. The case was not compelling enough to justify a positive funding recommendation.

Proposal 3: Targeted funding for field research

Although this proposal would have been strengthened by a better definition of the specific needs of the discipline, the Committee realized the importance of field research as well as its increasing costs. Therefore, partial funding was recommended.

Budget 2002-2003	\$20,711,732
Reallocations	\$2,071,173
Proposal 1	\$700,000
Proposal 2	\$0
Proposal 3	\$600,000
Total	\$1,300,000
Net Loss (37%)	\$771,173

- field research in northern, alpine and marine ecosystems

A common theme in many successful proposals involved support for new faculty, as well as for students and other research personnel trained in university laboratories. The Committee noted that many areas of the natural sciences are either growing or in renewal, which translates into increasing demand for well-trained students and research personnel. Also favoured were interdisciplinary research, high-risk research and high-cost research methodologies that offer significant opportunities for new discoveries and benefits to Canada.

The full report can be viewed at: http://www.nserc.ca/programs/real2000/report_final_e.htm

NSERC Research Grants

NSERC Research Awards published in the last issue of *GEOLOG* (v31.2) seem to have caused a bit of a flap. *GEOLOG* received a number of calls and emails about various aspects of the information, and if the societal dogma about one person writing for every 100 people who want to write is correct, than a more than a few were at least slightly stressed. Although the information is publicly accessible from the NSERC website and was published pretty much as presented on that site, it has been suggested that supporting information would be appropriate as those outside of academe may not be "in the know" about the NSERC process.

Each year thousands of professors from postsecondary institutions across Canada apply to NSERC for research and equipment grants. These funds provide the core support for research in dozens of fields, which for geoscience are divided into GSC08 and 09 (Grant Selection Committee), which are the Solid Earth and Environmental Earth Sciences. The professors typically dedicate a large portion of their grant funds to training the next generation of Canadian undergraduate, postgraduate and postdoctoral researchers. The research grants are typically made annually over a three or four year period. That is why not all current NSERC recipients are listed. All recipients within the Solid Earth Science were listed. Within the realm of Environmental Earth Sciences numerous projects are contemporary or biologically based so only those projects considered germane to a geoscience audience were published. Some selections may not have been perfect and some projects that should have been listed were omitted. One such project is listed below:

Last, William; University of Manitoba.

Sedimentology & paleolimnology of salt lakes \$35,220/yr, 4 years

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Canadian Geological Foundation Grants for 2002

The Canadian Geological Foundation was established in 1968 as a non-profit, charitable organization dedicated to assist in the development of the geological sciences across Canada. Since then, the Foundation has awarded over \$1,000,000 in support of a wide variety of geoscience projects. The Foundation disburses between \$25,000 and \$50,000 annually from income derived from two funds - the Foundation Trust Fund and the Jérôme H. Remick III Endowment Trust Fund.

Seventeen new grants with a total value of \$40,200 were approved this year at the Foundation's 38th annual meeting, held on May 26, 2002 in Saskatoon in conjunction with the GAC-MAC joint annual meeting.

Grants from the Foundation Trust Fund

The Halifax Harbour Story (video), \$8,000

Ken Adams and Gordon Fader, Atlantic Geoscience Society

The Great Landslide at Frank, Alberta (publication), \$1,800

Willem Langenberg, Edmonton Geological Society

Housing for the Cranberry Arms Cretaceous Palm Fossil (exhibit), \$2,000

Maggie McColl, Malaspina University-College

Mining Matters II: The Earth's Crust (educational materials), \$2,000

Andrea Waldie, PDAC Mining Matters

The Ed Leith Cretaceous Menagerie (exhibit), \$2,000

Norman Halden, University of Manitoba

Living on the Edge: The Story of Vancouver's Geological Landscape (publication), \$2,000

John Clague and Robert Turner

GIS Applications in the Earth Sciences (publication and CD-ROM), \$3,000

Publications Committee, Geological Association of Canada

Modern and Ancient Sedimentary Facies (CD-ROM), \$1,500

Publications Committee, Geological Association of Canada

Petroleum Resources and Reservoirs of the Grand Banks, Eastern Canadian Margin (publication), \$2,500

Publications Committee, Geological Association of Canada



Grants from the Jérôme H. Remick III Endowment Trust Fund

The Fundy Basin Story (poster), \$3,000
Ken Adams and Rob Fensome, Atlantic Geoscience Society

Fourth International Geoscience Education Organization Conference (conference), \$4,000
Alan Morgan, Canadian Geoscience Education Network

Career Achievement Award, Volcanology and Igneous Petrology Division, Geological Association of Canada (medal), \$1,400

John Stix, Volcanology and Igneous Petrology Division

Written in Stone (artwork), \$1,000

Regina Coupar

Posters and Video Equipment, Canmore Museum and Geoscience Centre (posters), \$1,500

Richard Green, The Centennial Museum Society of Canmore

Western Inter-University Geological Conference (conference), \$1,000

Danielle Boivin and Kim Bailey, University of Regina

Careers in Geoscience (website), \$2,500

John Clague, Canadian Geoscience Education Network

Fossils and Building Stones of Montreal (booklet), \$2,000

Ingrid Birker, Redpath Museum, McGill University

A call for applications for grants to be awarded in May 2003 will be made later this year. Interested parties should look for this information in the next issue of *GEOLOG*, and on the Foundation's page on the GAC's website (<http://www.gac.ca>). Additional information about the Foundation is also available from the Secretary at the following address:

Mike Cherry
Secretary, Canadian Geological Foundation
c/o Minerals and Energy Branch, Nova Scotia Department of
Natural Resources, PO Box 698, Halifax, NS B3J 2T9
E-mail: cherry@ns.ca; Tel: 902-424-8135

GEOLOG
on-line

www.gac.ca/PUBLICAT/geolog.html

go there

Jérôme H. Remick III Poster Awards

The Jérôme H. Remick III Trust fund of the GAC was established in 1994 with monies donated by Jérôme H. Remick III, a long-time member and former Chairman of the GAC Membership Committee. The purpose of the fund is to sponsor awards for meritorious posters at the GAC-MAC Annual Meetings. These awards recognize that posters are a legitimate presentation medium at conferences, and encourage higher standards by recognizing the best posters in terms of scientific content, organization and presentation of data, and overall aesthetics.

There were approximately 180 posters presented at the Saskatoon GAC-MAC conference, many of which were superb. The best three posters, which were awarded the Gold (\$1000), Silver (\$900), and Bronze (\$800) prizes, were:

Gold (photo lower left)

Ryan DeChaine, S. Hamilton, D. Wiseman, and G. Running IV

Constructing bison-eye view-sheds: Using GIS to test an archaeological hypothesis at the Hokanson site, Tiger Hills, South Central Manitoba

Silver (photo not available)

Cindy Riediger, B.K. Manzano-Kareah, and M. Fowler

Evidence bearing on our understanding of the timing of uplift of the Bow Island arch from petroleum geochemistry

Bronze (photo lower right)

Shannon Johns, K. Ansdell, D. Corrigan, M. St-Onge, and D. Scott

Constraints on the provenance and tectonic evolution of the Piling Group, Baffin Island, Nunavut

The six runners-up should also be mentioned as their posters were also superb:

Runners-Up (in alphabetical order)

N.J. Austin and L. Kennedy

Low temperature deformation of dolomite: The role of pore fluid pressure

C. Begin, M. Savard, M. Parent, J. Marion, and A. Smirnov

A dendrochronological and dendrogeochemical investigation on impacts of smelter emissions in the Rouyn-Noranda region

J. Campbell and C. Harper

Surficial till, till geochemistry and drift prospecting in the Bonokoski Lake area (NTS 64M-11, 12, 13 and 14), northeastern Saskatchewan

F. Leclerc, N. Goulet, A. Berclaz, and C. Maurice

Évolution Tectonostratigraphique de la ceinture volcano-sédimentaire de Qalluviartuuq-payne, ne de la Province du Supérieur, Quebec

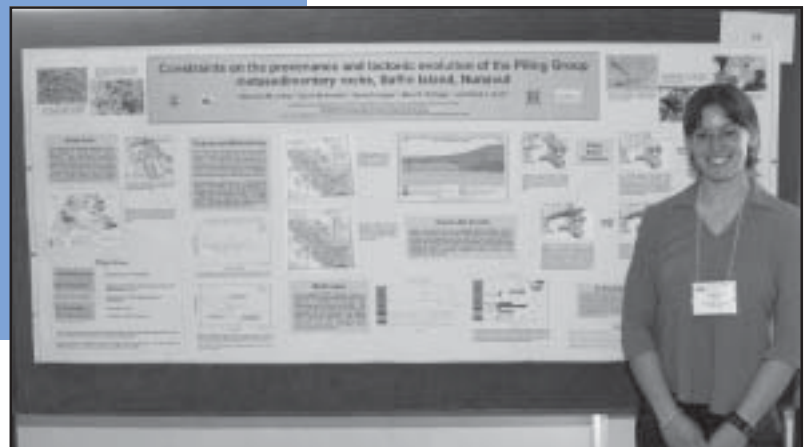
T. Shei and T.H. Brikowski

Application of surface resistivity surveys for optimal design of water supply wellfields, Great Plains, USA

D.A. Vallini, N.J McNaughton, B.

Rasmussen, I. Fletcher, B.J. Griffin, and G. Dawson

Xenotime: the "fossil" for Precambrian basin analysis



Earth Science for the Global Community

GeoSciEd IV

A meeting of the International Geoscience Education Organization

August 10 – 14, 2003

The GAC membership is very aware of the need for reaching out to the public to help develop an appreciation of the earth and how its study relates to our lives. As an example, the GAC awards the E.R. Ward Neale Medal to recognize and encourage significant contributions to the public awareness of geoscience.

It is especially important to communicate with our youth, and professional educators who are the most effective conduit to this audience. Many members may feel that there is little they can do in this cause, but here is an opportunity for every GAC member to help.

An exciting conference, "Earth Science for the Global Community", is coming up in 2003 in Calgary, Alberta, Canada. This is the fourth International Geoscience Education Organization (IGEO) Geoscied conference and is designed for earth science teachers from elementary to university level to meet earth scientists who deliver educational outreach programs through their communities, museums or science centres. The purpose is to share ideas and concepts in earth science education and in the development of programs that lead to an integrated understanding of the Earth. The innovative technical program will include keynote addresses, workshops, oral and poster sessions. Field trips will visit many world-renowned sites of interest including the Rocky Mountains, the Burgess Shale, the Royal Tyrrell Museum of Palaeontology, the Frank Slide and the Athabasca Glacier.



A number of GAC members are part of the organizing committee for this conference including among others, Alan Morgan (Honorary Life Member), Godfrey Nowlan (Past-President, Editor Geoscience Canada) and E.R. Ward Neale (the namesake of the GAC Award) who is the honorary chair of the conference.

Every Member Can Help

A huge part of the success of this conference depends on getting the word out to both earth scientists and educators around the world. YOU can help! Take a moment to visit the conference web site (<http://www.geoscied.org>) and find a PDF version of a flyer / poster for the conference. It has been designed to be legible in b&w as well as colour. Please print off some copies and give them to any teachers or geologists you know; e-mail them the website address. Have your children take them to their science teachers.

You know that we must talk to our youth about the Earth and our appreciation of it; our profession and life depends on it. YOU can make a critical contribution. Please help by passing on the word of this great chance for geologists and educators to meet!

Jon S. Dudley
GeoSciEd IV Publicity Chair
Calgary, AB



GEOLOGICAL ASSOCIATION OF CANADA
ASSOCIATION GÉOLOGIQUE DU CANADA

Now Available

ICHTNOLOGY & SEDIMENTOLOGY OF SHALLOW TO MARGINAL MARINE SYSTEMS

By S. George Pemberton, Michelle Spila, Andrew J. Pulham, Tom Saunders, James A. MacEachern, Demian Robbins, Iain K. Sinclair



Landmark volume developed for a Short Course held at GAC-MAC 2001.

This volume serves to enhance the understanding and utility of ichnological research in shallow marine systems using the core from the Ben Nevis-Avalon reservoirs in the Jeanne d'Arc Basin.

Priced From: **\$63***

Check out this and other great books online at:

www.gac.ca

* Price for shipments to Canadian postal codes: \$90 (GAC Members \$63).
 Price for shipments to United States zip codes: \$65US (GAC Members \$47US).
 Price for shipment to International postal codes: \$67US (GAC Members \$49US).
 Prices subject to change without notice. All prices include taxes and shipping via surface mail.

QUALITY GEOSCIENCE...FROM CANADA TO THE WORLD
GÉOSCIENCES DE QUALITÉ...DU CANADA POUR LE MONDE



Association News

The Benefits of Membership in GAC

What are the benefits of membership in the Geological Association of Canada? Tangible benefits include publications, conferences and workshops, organizational support of national earth science education and outreach initiatives, and advocacy.

Publications

Members of GAC receive *Geolog* and *Geoscience Canada* as part of their membership package. *Geolog*, which is published four times each year, is Canada's premiere national earth science newsletter. It is interesting, informative, and provocative, and it keeps members abreast of what is happening in earth sciences in Canada. GAC now offers *Geolog* on the web in downloadable pdf format. *Geoscience Canada* contains a wide variety of general interest science articles, topical series, and book reviews. Like *Geolog*, it is published four times each year.

Members are eligible for reduced prices on books, guidebooks, and short course notes published by the Geological Association of Canada. In 2001, GAC invested heavily in an in-house publications unit staffed by a full-time Publications Director and Publications Manager. It now can produce high-quality books economically and expeditiously. Time-consuming tasks were formerly required of authors and editors are now done by the Publications team.

Conferences & Workshops

GAC holds an Annual General Meeting (AGM) every year in May. The conference commonly attracts 600-1200 earth scientists, equivalent to 30-60% of GAC's membership. Members receive a considerable discount on registration. In addition to a varied and rich technical program, members can take part in field trips, short courses, and social activities. Perhaps the main benefit of the AGM, however, is meeting and socializing with colleagues from different parts of the country.

GAC also offers Nuna Conferences on a variety of earth science topics. Nuna Conferences are modeled after GSA's Penrose Conferences, but deal with topics of particular interest to Canadian earth scientists.

Support for National Earth Science Education

GAC partners with the Canadian Geoscience Education Network (CGEN) to deliver earth science information to the public, educators, and students. Programs supported by GAC include EdGEO and EarthNet. GAC also provides monetary prizes of \$1000, \$500, and \$250 to deserving students at the Canada Science Fair and grants of \$500 to GAC student chapters. The benefits of these activities to GAC members are a higher profile for geology and geophysics outside the pro-

fessional geoscience community and encouragement of youth to pursue careers in earth science.

Advocacy

GAC is an advocate on important Canadian geoscience issues. Two recent examples are the Mount Logan issue and downsizing of the British Columbia Geological Survey. GAC lobbied the Federal Government to reverse its decision to change the name of Mount Logan. It is presently working with the B.C.-Yukon Chamber of Mines, the Mineralogical Association of B.C., and the Canadian Geoscience Council to advise the British Columbia government on the value of the Geological Survey Branch.

Intangibles

A GAC member is part of a "family" with a long and proud tradition of service to Canadian earth science. GAC is Canada's national geoscience association, and every member can take pride in belonging to it. These benefits are less tangible than publications, meetings, and workshops, but they are, nevertheless, real.



Tribute to GAC Past-President: Steve Morison



Past-President Steve Morison provided sound, forward-looking leadership during his term as President of the Geological Association of Canada. Steve was GAC's steward in turbulent times. GAC, like many geoscience organizations, faces static or declining membership and the challenge of maintaining or increasing service with fewer resources. Steve nevertheless positioned GAC well to deal with

change, challenges, and opportunities by delivering on the 2002 Business Plan. He helped GAC adopt a more business-like approach, for example in helping make the Publications Unit a revitalized, self-supporting part of the organization. He effectively chaired GAC Council and Executive meetings, ensuring that critical issues were openly discussed and debated, and he made a spe-

cial effort to ensure that action items were completed between meetings. Steve's leadership was particularly evident in the proactive role that GAC took over the decision by the British Columbia Government to reduce the size and possibly eliminate the Geological Survey Branch. He responded to this decision quickly on behalf of GAC and has been active ever since in ensuring that the B.C. Government is aware of the economic contribution that the Geological Survey Branch makes to the province.

Steve's Presidential address, "The Extraordinary Life of a Geologist" was a thoughtful and timely reminder of why we chose our profession – the opportunities it permits for us to travel and work in the most beautiful places on Earth; the challenge of reconstructing past geologic events; the camaraderie; and the contributions that geoscientists make to society (see *Geoscience Canada*, v. 29, n. 3).

On behalf of GAC members, we thank Steve for the time and effort he has put into making GAC a better and stronger organization. We look forward to Steve's continued contributions to GAC.

Retired Councillors – a few words of thanks

Our Councillors donate much time and energy to the good of GAC and our profession. The following Councillors recently completed their three-year terms, and their service is gratefully acknowledged.

Elliott Burden – Elliott has been the heart and soul of GAC Council for as long as anyone can remember. He served as Secretary-Treasurer and put in countless hours on our behalf. Elliott was rarely shy about expressing his opinion at Executive and Council meetings, and he had a unique way of guiding us in the right direction when we deliberated contentious issues. Without Elliott's wise counsel, GAC would not have been able to make the progress that it has in recent years.

Nancy Chow – Nancy was chair of the Communications Committee. She took a number of initiatives to improve the awareness of GAC within the earth science community. Perhaps her biggest contribution was to establish the Student Chapters program, which has resulted in the infusion of much new blood into GAC.

Ed Debicki had responsibility for Corporate Membership, a demanding task. He served GAC admirably in this capacity and provided invaluable advice and direction on how to increase corporate membership. Ed's judgment is impeccable and we could always depend on his advice in all areas of GAC governance.

Stephen Johnston – When Steve became chair of the Program Committee, GAC was facing a crisis in finding venues for its annual meetings. He successfully turned this situation around; through his efforts, we now have an excellent line-up of AGMs through 2008. Steve also produced an excellent meeting planning document, which is being enacted by the Program Committee and should improve the quality and breadth of our annual meetings. Many a Council meeting was livened up when Steve's wonderful sense of humour collided with Elliott Burden's sparring.

Scott Swinden – Scott Swinden served GAC first as Vice-President, later as President, and finally, in 2001-2002, as Past-President. In these capacities, Scott provided pragmatic and visionary leadership, which have positioned GAC to deal with the challenges that it faces in coming years. He transformed GAC into a more business-like operation by spearheading the efforts to create a Business Plan and he helped revitalize GAC's publication program. Scott continues to serve GAC – he is the Chair of the 2005 Joint GAC-MAC meeting in Halifax.

Call For Short Courses

GAC invites submissions from anyone interested in organizing a short course for the GAC annual meeting scheduled for Brock University (St. Catherines, Ontario) 2004. Suggestions are also welcome for other venues, post-2003.

Interested persons should contact the GAC short course coordinator, Dick Wardle, at 709-729-2107 or rjw@zeppo.geosurv.gov.nf.ca for further information.

Short Courses and Professional Development

What should GAC be doing?

GAC Council recently undertook an analysis of its programs and policies with respect to short courses and the broader issue of professional development. Both topics form part of GAC's core commitment to the promotion of life-long-learning opportunities for members. To date this has been accomplished through its annual meetings, the associated short courses and its publication activities. Short courses, however, are in trouble and the Association has yet to come fully to grips with professional development. This article outlines the results of Council's deliberations in this area.

Short courses in crisis

Short courses have long been a staple feature of the GAC annual meeting and have been one of the prime vehicles for delivery of continuing professional development. However, in recent years there has been a noticeable decline in both the number of people attending short courses and those willing to present them. This is illustrated in the graph below, which shows attendance at GAC short courses between 1997 and 2002. GAC is not alone in this plight; other societies have experienced similar declines. Reasons are varied but some of the chief culprits are: fewer graduate students, an aging membership less interested in short courses than in the past, and structural changes in industry that have reduced the funding available to attend meetings and short courses. The latter problem is probably the most significant factor for industry geoscientists, many of whom are now self-employed or work for small companies.

Council is concerned about this trend and is anxious to develop courses that are both affordable and attractive. To this end, it has taken a number of decisions to expedite short course delivery.

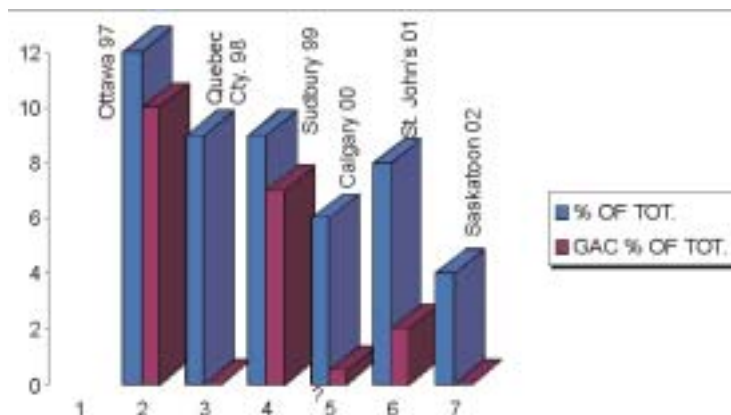
1. The responsibility for securing short courses will now reside with GAC National Body, rather than with the organizers of the annual meeting. Hopefully this will provide a more strategic approach to course planning and allow GAC to match courses to localities where there is likely to be the most local interest. Courses may also be delivered at more than one site.

2. In order to attract course presenters, honoraria will now be considered and the publication requirements will be revised. In recent years, many potential presenters have been put off by the requirement of having to prepare a "book" of course notes. Whilst this is still the preferred method, GAC is now willing to consider "Power Point - style" presentations distributed on CD. Those wishing to publish their course notes will also be eligible for royalties.

3. GAC will attempt to provide more courses that deliver skills in a hands-on fashion rather than the mini-symposium, lecture style that has become a fixture of recent meetings.

4. GAC will experiment with delivery of field-based short courses that combine the virtues of a field trip and a traditional short course.

It is not expected that these changes will take full effect until 2004. In the meantime, in order to plan future delivery, GAC needs to know what members (and non-members) want in the way of short course topics. This is discussed further below.



Graph of GAC/MAC short course registrations at recent annual meetings. Left columns = total short course registration; right columns = GAC short course registration, both as % of overall meeting registration.

Professional Development - real or phantom need?

A related issue is that of professional development, defined here as anything that helps an individual to enhance an existing career or to develop a new one. This has been given added impetus by the increasing requirement by professional geoscience bodies that members engage in continuous education within their professional discipline. The annual meeting and the associated short courses are of course a vital component of GAC's delivery of professional development. What is less clear is what other measures the Association should be considering in order to improve its capacity in this area, particularly with respect to the needs imposed by professional registration.

A brief survey of other geoscience societies reveals a diversity of approaches and success. The petroleum world, as represented by CSPG and AAPG, is the most organized in this respect, having a year-round slate of courses that provide training and career enhancement opportunities in a wide range of topics. CSPG, in partnership with other societies, has also established a Professional Development Centre at the University of Calgary that will be dedicated to training needs.

A different approach has been taken by the Canadian Institute of Mining and Metallurgy, which has developed an internet approach to professional development. This has been done in partnership with EduMine, a division of Vancouver-based Info-Mine.

Other societies, such as GSA, have elected to maintain their traditional approach to training through technical meetings and associated short courses. Accreditation is an option with some societies, for example, through the International Association for Continuous Education and Training (IACET).

What then, if anything, should GAC be doing in this area? The answer to this question really depends on the extent to which members feel that they need professional upgrading or training and in which areas. Is the demand limited to geoscience skills or is there a need for broader-based training? Is there a need for accreditation with respect to such courses? In order to answer

these questions, and those posed above with respect to short courses, the answer is yes, regretfully, another survey. Our apologies, but this seems to be the only way that the association can get the information that it needs in this area. So, a brief and hopefully painless questionnaire will be mailed with the membership dues in November. In the meantime, if you have ideas on any of the following:

- Ideas for future short courses (including a suitable presenter)
- Comments on the type of short courses that GAC should be providing
- The need for GAC to provide professional development training over and above its present level?

Or on other related topics, feel free to fire them off to the GAC short course/professional development committee at the address below. We would love to hear from you!

Richard Wardle
Councillor & Chair of Short Course/ Professional Development Committee
c/o Dept. Mines and Energy, Government of Newfoundland and Labrador,
P.O. Box 8700,
St. John's, NL, A1B 4J6
Tel 709 729-2107; Fax 709 729-2871
rjw@zeppo.geosurv.gov.nf.ca



First Joint Meeting of NORTHEASTERN GSA and ATLANTIC GEOSCIENCE SOCIETY

38th Annual Meeting of NEGSA, 29th Annual Meeting of AGS.
Halifax, Nova Scotia, Canada, March 27-29, 2003

REGISTRATION & CALL FOR PAPERS

Preregistration deadline: February 15, 2003

Abstract deadline: December 18, 2002

Abstracts for all sessions must be submitted online at the GSA Web site, www.geosociety.org. If you have questions, contact technical program committee chairs, Sandra Barr (sandra.barr@acadiau.ca), and David Piper (piper@agc.bio.ns.ca).

DETAILED INFORMATION

For further information, see www.geosociety.org, contact the General Co-Chairs Marcos Zentilli (marcos.zentilli@dal.ca) and David B. Scott (david.scott@dal.ca) at the Department of Earth Sciences, Dalhousie University, Halifax, Nova Scotia, Canada, B3H 3J5. Telephone: (902) 494-2358, Fax: (902) 494-6889. Web: <http://www.dal.ca/~es/2003GSA/2003-NEGSA.htm>

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

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:

Benoit Dubé, Chairman, Robinson Fund
Geological Survey of Canada
2535 Laurier, CP 7500
Ste-Foy, QC, G1V 4V7
(418) 654-2669





Student News

WIUGC@Regina

The 39th annual Western Inter-University Geology Conference (WIUGC) will be hosted by the University of Regina from January 9 through 11, 2003. The conference will offer students from Western Canada to present their research through technical presentations as well as a poster competition.

Dr. John Clague, President of the Geological Association of Canada will join us from Simon Fraser University. He will speak at the conference banquet about his adventures as a geologist in the many wonderful places he has visited.

A career/industry fair will be held on January 10. All interested parties are welcome to enter a corporate booth/display. Industry technical sessions will be held as well, however, corporate sponsors of WIUGC 2003 will receive preferential scheduling. If you are interested in the career/industry fair or being a corporate sponsor, please contact the Organizing Committee (information below).

The conference will take place at the Delta Hotel in downtown Regina, Saskatchewan. If you have questions about attending the conference or WIUGC in general, please contact the WIUGC Organizing Committee at wiugc.2003@uregina.ca or by mail c/o the Department of Geology at the University of Regina, 3737 Wascana Parkway; Regina, Saskatchewan; S4S 0A4. The conference web site is located at <http://ursu.uregina.ca/~geol/wiugc.2003> and offers the latest information on the conference.

U of Windsor Speelunks

With special thanks to the GAC Logan Fund, students of the University of Windsor Jull Earth Sciences GAC Student Chapter were able to explore the wonders of karst formations in infamous Cave Country Kentucky. The students drove down to Mammoth Caves, KY during the 2002 spring break. A large “waterfall” of flowstone on the Frozen Niagara Tour at Mammoth Caves National Park was the starting point of the discovery. The next stop Diamond Caverns, just outside of Mammoth Caves National Park, displays some stunning stalactites and stalagmites as well as some very beautiful draperies. Since they were so close, the students had to take a slight detour to visit the southern extension of the Appalachians, the Smoky Mountains in Tennessee. A labyrinth of levels and passages in the glistening Crystal Onyx Caves and the cathedral-like caverns of Hidden River Cave finished off their adventures in central Cave Country.

A magnificently mammoth trip! Thanks again for making it possible.

*Jull Earth Sciences Club
University of Windsor*

WIUGC 2003: The Geo-Frontier
January 9-11, 2003



Survey Update

Yukon Geology Program Celebrates 10th Anniversary

The following tribute was paid to the Yukon Geology Program in the Yukon Legislative Assembly, 23 May 2002, by the Honourable Scott Kent, Yukon Minister of Energy, Mines and Resources.

I rise on behalf of the House today to pay tribute and give recognition to the Yukon Geology Program and its staff. Ten years ago yesterday, the Canada/Yukon Geoscience Office was established in Whitehorse. The objective was to bring the federal and territorial geologists and geology program together under one roof.

Today, the Yukon Geology Program exemplifies one of best models of cooperation between governments. In this case, the Exploration and Geological Services Division of the Department of Indian and Northern Affairs, the Mineral Resources Branch of the Yukon government and Natural Resources Canada.

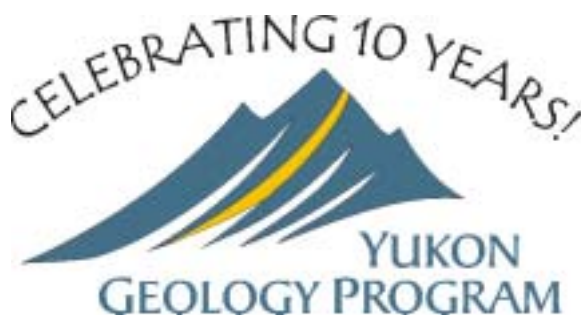
The success of the geology program results from a decade of hard work by many scientists studying the land on which we live and unearthing the clues to the geology of the Yukon and the formation of its mineral deposits.

Geoscience knowledge is the lifeblood of mineral exploration; as such, the value and importance of the geological mapping and research the geologists undertake cannot be overstated.

Its key objective is to assist and encourage hard-rock and placer exploration by developing a comprehensive database on Yukon's geology and mineral deposits. Another is to conduct mineral potential assessments in areas proposed as Special Management Areas and Protected Areas.

As devolution approaches, the anniversary of this program offers an ideal occasion to celebrate some of the successes of the Yukon Geology Program:

- Staff have produced, updated and contributed to hundreds of geological maps and databases. They include Yukon Bedrock Geology; Glacial Limits, paleontology, geochronology, bibliographies, and the MINFILE — a comprehensive database of all known mineral occurrences in Yukon.
- The Geology Program is a Canadian leader in the delivery of digital information and the use of the Internet. Its website receives hits from 80 countries. As a result, Yukon geology is easily acces-



sible to the public and industry worldwide.

- At least \$50 million in exploration and development spending by industry can be directly attributed to the Yukon Geology Program. Their geological, geochemical and geophysical surveys have led mining companies stake claims in Finlayson and the Wernecke Mountains, for instance.
- The Geology Program staff have authored and co-authored at least 150 articles and reports on various aspects of Yukon geology. Fifty are in peer-reviewed scientific journals and the remainder in government publications.
- Geologists have given hundreds of talks and presented posters at the Geoscience Forum, Cordilleran Roundup, Dawson City Gold Show, Geological Association of Canada, Geological Society of America, Society of Economic Geologists, Canadian Institute of Mining and Metallurgy, Yukon Science Institute and other scientific meetings.
- The YGP office is a favorite destination of school children. The public education programs have left lasting impressions on the students.
- The Yukon Geology Program is a destination for professors on sabbatical, and has connections with universities throughout Canada, as well as the US and Australia.
- Their work is not only of interest to the mining industry. It is also employed by specialists in the areas of archeology, climate change, groundwater, the environment, land use and resource planning, and land claims.

I'd like at this time to pay tribute and give recognition to the staff of the Yukon Geology Program by introducing them to members of the House:

(YGP staff were introduced by name)

The Yukon Geology Program has been recognized for its exemplary work many times over the years, an achievement of which Yukoners can be proud.

Thank you, Mr. Speaker.

Departmental Diary

UNIVERSITY OF SASKATCHEWAN Department of Geological Sciences

The Department of Geological Sciences (www.usask.ca/geology/) at the University of Saskatchewan hosted the GAC-MAC annual meeting in May, which was its second since the opening of the Geology Building in 1987. On behalf of the Department, the Local Organizing Committee of Mel Stauffer (Chair), Yuanming Pan, Robin Renaut, Kevin Ansdell, Micheal Cuggy, Chris Holmden, Don Gendzwill, Les Coleman, and Karen McMullan hope that everybody who attended had an enjoyable and stimulating meeting. We were very pleased that the meeting and associated field trips went smoothly.

Since the GAC-MAC meeting the Department has sadly lost a highly respected faculty member. **Bill Sarjeant** (FRSC) passed away in July after a brief battle with cancer. A wonderful obituary in the *Globe and Mail* (August 17th) emphasized the breadth of his interests, which reached beyond geology to encompass local history, music, and literature. In the geology community he was well known for his work on microfossils and trace fossils, as well as his incredible interest in the history of geology, culminating in the production of the ten-volume "Geologists and the History of Geology: An International Bibliography", the final volume of which was published in 1996. His contributions to *Geolog* (see last issue) and his many book reviews for *Geoscience Canada* will also be sorely missed.



On a happier note, the last two years have marked a period of renewal and growth in the Department. Our three newest faculty members are **Sam Butler** (PhD Toronto), **Igor Morozov** (PhD Moscow State), and **Bill Patterson** (PhD Michigan). Sam spent most of last year as a Visiting Scholar at Cambridge University working on modelling convection in reactive porous media, which builds on his previous work on convection in the mantle. Igor has spent the last few years with the University of Wyoming seismology group where he has been involved in developing new methods for the processing of voluminous seismic data sets, particularly with respect to the analysis of seismic data from nuclear explosions. Sam and Igor replace recent retirees, **Don Gendzwill** and **Zoli Hajnal**, and will play active roles in the Geophysics program.



Tyrannosaurus rex, triceratops and Tyndall Limestone in the atrium of the University of Saskatchewan Geology Building.

Prior to coming here, Bill Patterson developed a vigorous research program in biogeochemistry and Quaternary environments through the use of stable isotopes at Syracuse University. He was attracted to the University of Saskatchewan by our commitment to the growth of the Isotope Laboratory through the recent acquisition of Finnigan-MAT thermal ionization, multicollector ICP-MS, and continuous flow and dual inlet gas isotope ratio mass spectrometers using significant grants from the Canadian Foundation of Innovation and the Province of Saskatchewan to a team of applicants led by **Chris Holmden**. The Isotope Laboratory will soon be welcoming a new laboratory manager, **Bruce Eglington**, who will be bringing many years of experience in managing the South African government isotope laboratory.

The Department has made an active decision to build expertise in the Environmental Earth Sciences by hiring Bill Patterson, and we have another opening for a faculty member in Biogeochemistry in the area of metals in the environment and who will also contribute to the university's Toxicology program. In addition, an exciting possibility in the next few months will be the hiring of a synchrotron expert in the field of Environmental Earth Science as a Canada Research Chair.

We are happy that **Jim Basinger** has agreed to a second-term as Department Head as he has played a significant role in the recent



Christian Miller (MSc student) operating the Finnigan MAT 261 in the Saskatchewan Isotope Laboratory.

renewal of the Department, and he continues his research into the paleoenvironmental evolution of the Canadian Arctic through the study of plant fossils. **Brian Pratt** was the recipient of the 2002 GAC Past Presidents Medal for his contributions to sedimentology and paleontology, especially in Lower Paleozoic and Precambrian rocks of Canada. **Jim Hendry**, the NSERC-Cameco Research Chair in Aqueous Geochemistry, was the Darcy Distinguished Lecturer in Groundwater Science in 2000, and has an active research program unravelling fluid and solute flow through aquitards, and understanding biogeochemical reactions and the fate of gases, fluids, and heavy metals in soils, tailings and waste rock piles. **Rob Kerrich**, the George McLeod Research Chair in Geochemistry, has expanded the analytical capability within the ICP-MS lab with the recent acquisition of a hexapole ICP-MS, and continues his wide-ranging research into the genesis of gold deposits, Precambrian crust-mantle geodynamics, and the fate of toxic metals in the environment. **Yuanming Pan** was promoted to Professor this year, and spent most of his first sabbatical in early 2001 in China as well as developing his experimental mineralogy research using micro-XRF and EPR techniques. **Kevin Ansdell** also went overseas for his first sabbatical, spending 4 months at the University of Western Australia and initiating research projects into the evolution of the Proterozoic of Western Australia with geologists from Geological Survey of Western Australia and Curtin University. He has also taken over as Chair of the Science Program Committee of the GAC from 2002 to 2005. **Jim Merriam** is the Principal Investigator with the Canadian Superconducting Gravimeter

Installation, which can measure extremely small variation in gravity and thus aids our understanding of fluid movement in the core. **Robin Renaut** has published extensively on his research in the East Africa Rift and on the sedimentology and geochemistry of hot-spring deposits, including editorial responsibility for a new SEPM Special Publication on sedimentation in continental rifts.

There is an active student population within the Department. The Department has about 40 graduate students, 25% of which are PhD students, who are working in subject areas as diverse as the oil sands of northeast Alberta, Devonian limestones of Alberta, the isotope geochemistry of Ordovician conodonts, the sedimentology and geochemistry of Proterozoic rocks in the Rockies, the genesis of the Kumtor gold deposit in Central Asia, electrical anisotropy in tills, and the taphonomy of vertebrate footprints. In addition, undergraduate student enrolment in Geology has remained high over the last few years, and the oldest student society on campus, the Ore Gangee, as well as the Geophysics and Paleobiology student societies, keep busy organizing social events, lectures, field trips, and mentoring programs with local geoscientists. Two of the graduating class in 2002, **Shannon Johns** and **Margaret Harder**, were winners of NSERC graduate scholarships, and Shannon also won the Remick Bronze Medal for her poster at the GAC-MAC meeting in Saskatoon. The development of a GAC Student Chapter is also in the works.

*Kevin Ansdell
Saskatoon, SK*

GAC *What's in it for you?*

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- ✓ *Publishing opportunity with your own professional publishing house*
- ✓ *Opportunity to participate in GAC's national term-life and family insurance plan at group rates*

Read about your new membership benefits on page 6



GAC MEDALS & AWARDS

CALL FOR NOMINATIONS



Requirements for all Award Nominations: All nominations of individuals for the various awards are invited from the membership of the Association. Individual nominations are valid for a period of three years.

Each nomination should include a cover letter of up to 2 pages from the principal sponsor, a one-sentence citation, a 200-word citation, and should be supported by a curriculum vitae and one-page letters of endorsement from all co-sponsors. Nomination forms for the Logan, Past-Presidents', Ambrose and Neale Medals are now located on the GAC website: www.gac.ca under "Awards".

LOGAN MEDAL

The Logan Medal is the highest award bestowed by the Geological Association of Canada. It is awarded to an individual who has made outstanding contributions to geoscientific knowledge in Canada.

Nomination papers for the Logan Medal should be signed by at least 3 sponsors and be submitted before **30 December 2002**, to the GAC President: **John Clague, Dept. of Earth Sciences, Simon Fraser University, 8888 University Drive, Burnaby, BC V5A 1S6; Tel: (604) 291-4924; FAX: (604) 291-4198; E-mail: jclague@sfu.ca**

PAST PRESIDENTS' MEDAL

The Past Presidents' Medal of the Geological Association of Canada is awarded to a geoscientist who during the first decade or so of her/his career is judged to have made an outstanding accomplishment in research, development, or applications in their particular field.

Nomination papers for the Past Presidents' Medal should be signed by at least 3 sponsors and be submitted before **30 December 2002**, to the GAC Past President: **Stephen Morison, Gartner Lee Limited, 1170-840, 7th Avenue SW, Calgary, AB T2P 3G2; Tel: (403) 262-4299, Ext. 120; FAX: (403) 250-5330; E-mail: smorison@gartnerlee.com**

AMBROSE MEDAL

The Ambrose Medal of the Geological Association of Canada is awarded to an individual who has rendered sustained distinguished service to the earth sciences in Canada, through outstanding accomplishments in one or more of the following realms: education; research; management and administration; promotion; and institutional, professional or society affairs. This medal is awarded annually unless no suitable candidate is identified.

Nominations for the Ambrose Medal should be signed by at least 3 sponsors and be submitted before **30 December 2002**, to the GAC Vice-President: **Harvey Thorleifson, Geological Survey of Canada, 601 Booth Street, Ottawa, ON K1A 0E8; Tel: (613) 992-3643; FAX: (613) 992-0190; E-mail: thorleifson@gsc.nrcan.gc.ca**

E.R. WARD NEALE MEDAL

The Neale Medal of the Geological Association of Canada is awarded to an individual who has made, or is making, significant contributions to the public awareness of geoscience. The award recognizes outstanding efforts to communicate and explain geoscience to the public through one or more of the following vehicles: public lectures, print or electronic media articles, school visits, elementary and secondary school educational materials, field trips, science fairs, and other public communications. The medal will be awarded annually unless no suitable candidate is nominated.

Nomination papers for the Neale Medal should be signed by at least 3 sponsors and submitted before **30 December 2002** to the Communications Committee Representative: **Fran Haidl, Saskatchewan Energy and Mines, 201 Dewdney Avenue East, Regina, SK S4N 4G3; Tel: (306) 787-6116; FAX: (306) 787-4608; E-mail: fran.haidl@sem.gov.sk.ca**

DUNCAN R. DERRY MEDAL

The Duncan R. Derry Medal is the highest award bestowed by the Mineral Deposits Division (MDD) of the Geological Association of Canada. It is awarded annually to the outstanding economic geologist who has made significant contributions to the science of economic geology in Canada. Candidates should be recognized for their skill and stature as professional economic geologists, and also by their public contributions to the science. It is acknowledged that publication is the prime, but not the only method, of disseminating scientific information in any discipline. Candidates should be members of the GAC, and preferably, but not necessarily, MDD members.

Nominations for the Duncan R. Derry Medal are to be made by 3 members of the MDD, jointly or by independent submissions. Nominations should be submitted in triplicate to the Chairman of the MDD Medals Committee by **30 December 2002**: **Dan Marshall, Awards Co-ordinator, Mineral Deposits Division of the Geological Association of Canada, Dept. of Earth Sciences, Simon Fraser University, 8888 University Drive, Burnaby, BC V5A 1S6; Tel: (604) 291-5474; FAX: (604) 291-4198; E-mail: marshall@sfu.ca**

WILLIAM HARVEY GROSS AWARD

The William Harvey Gross Award is bestowed annually by the Mineral Deposits Division (MDD) to a geoscientist less than 40 years of age (as of December 31, 2002) who has made a significant contribution to the field of economic geology in a Canadian context. The recipient may be either a Canadian or non-Canadian, who has made a contribution in Canada, or one within a Canadian context. The contribution on which the award is based may relate to studies that include all aspects of what is generally referred to as economic geology, and which represents the broad spectrum of fields to which Bill Gross contributed. These include mineral exploration and development, scientific research either applied or fundamental, and field based studies. The award consists of a medal and two cash supplements. The first is a cash award drawn from an endowed fund provided by Corona Corp. The second is a contribution toward the travel expenses for the recipient and spouse to attend the annual luncheon of MDD to receive the award. This comes from the interest accumulated from donations by the friends and family of Bill Gross.

Nominations for the William Harvey Gross Award must be made by a member of MDD and supported by 3 additional member signatures and letters of support. Nominations should be submitted in triplicate to the Chairman of the MDD Medals Committee before **30 December 2002**: **Dan Marshall, address as listed above.**

LÉOPOLD GÉLINAS MEDAL

The Volcanology and Igneous Petrology Division of the Geological Association of Canada annually presents three medals for the most outstanding theses, written by Canadians or submitted to Canadian universities, which comprise material at least 50% related to volcanology and igneous petrology. A gold (plated) medal is awarded

for the best Ph.D. thesis, a silver medal for the best MSc thesis and an antique copper medal for the best BSc thesis. Nominated theses are evaluated on the basis or originality, validity of concepts, organization and presentation of data, understanding of volcanology, and depth of research. Awards are not made if the panel of judges considers that there are no worthy nominations.

A copy of any thesis to be nominated for the Léopold Gélinas Gold Medal should be submitted before **28 February 2003** to the Chair of the Volcanology and Igneous Petrology Division: **John Stix, Dept. of Earth and Planetary Sciences, McGill University, 3450 University Street, Montreal, QC H3A 2A7; Tel: (514) 398-5391; FAX: (514) 398-4680; E-mail: stix@eps.mcgill.ca**

A copy of any thesis to be nominated for the Léopold Gélinas Silver Medal should be submitted before **28 February 2003** to the Secretary-Treasurer of the Division: **Brian Cousens, Dept. of Earth Sciences, Carleton University, 1125 Colonel By Drive, Ottawa, ON K1S 5B6; Tel: (613) 520-2600 Ext. 4436; FAX: (613) 520-2569; E-mail: brian_cousens@carleton.ca**

A copy of any thesis to be nominated for the Léopold Gélinas Bronze Medal should be submitted before **15 April 2003** to the Vice-Chair of the Division: **Wulf Mueller, Dept. of Earth Sciences, Université du Québec à Chicoutimi, 555 Boul. de L'Université, Chicoutimi, QC G7H 2B1; Tel: (418) 545-5013; FAX: (418) 545-5012; E-mail: wmueller@uqac.quebec.ca**

CAREER ACHIEVEMENT AWARD

The Career Achievement Award is made by the Volcanology and Igneous Petrology Division of the Geological Association of Canada in recognition of career achievements in the field of volcanology and/or igneous petrology. Candidates will be judged on their lifetime scientific contribution. The award will be made only when a suitable candidate is found who is judged to have made significant contributions to basic knowledge or clear and significant breakthroughs in volcanology or igneous petrology.

Nominations for the Career Achievement Award should include the nominee's *curriculum vitae* and a clear statement from the nominator describing the candidate's significant contribution to the field. Nominations should be submitted by **31 January 2003** to the Chair of the Volcanology and Igneous Petrology Division: **John Stix, address as listed above.**

MICHAEL J. KEEN MEDAL

The Michael J. Keen Medal is normally awarded annually by the Marine Geosciences Division of the Geological Association of Canada to a scientist who has made a significant contribution to the field of marine or lacustrine geoscience. Recipients may be a Canadian or a non-Canadian who has made a contribution in Canada or with a distinctively Canadian flavor. The medal will be awarded to a male or female scientist, but in the spirit of equity, will give special, but not exclusive, consideration to the achievements by distinguished or outstanding female scientist. Nominations for the Michael J. Keen Medal must be made by at least 5 sponsors, 3 of whom must be members of the Marine Geosciences Divisions. Nominations must be submitted before **30 December 2002**, to: **Vaughn Barrie, Geological Survey of Canada (Pacific), 9860 West Saanich Road, Box 6000, Sidney, BC V8L 4B2; Tel: (250) 363-6424; FAX: (250) 363-6565; E-mail: barrie@pgc.nrcan.gc.ca**

BILLINGS MEDAL

The Billings Medal is a biennial award honoring Elkanah Billings (1820-1876), the first Canadian paleontologist and is made by the

Paleontology Division of the Geological Association of Canada to recognize distinction in research and publication in Canadian Paleontology.

Nomination papers should be signed by at least 2 scientists and should describe succinctly the achievement for which the nomination is being made. It should be accompanied by the relevant data on the scientific career of the nominee, and be submitted before **30 December 2002** to: **Paul Johnston, Royal Tyrrell Museum of Palaeontology, P.O. Box 7500, Drumheller, AB T0J 0Y0; Tel: (403) 823-7707; FAX: (403) 823-7131; E-mail: paul.johnston@gov.ab.ca**

DISTINGUISHED FELLOW

The honor of Distinguished Fellow is intended for the Fellows of the Association who fit any or all of the

following categories: 1. significant contributions to geoscientific knowledge in terms of research, development or applications of geosciences; 2. significant contributions to geoscience education; 3. significant contributions to institutional, professional or society affairs in terms of administration, management and/or promotion of geosciences.

Nomination papers for each candidate should consist of a 100-word citation, a *curriculum vitae* and biography that describe the candidate's accomplishments, a summary sheet containing the signatures of 5 sponsors who shall be Fellows or Distinguished Fellows of the Association, and a statement of the origin of the nomination (*e.g., Section, Division, membership-at-large*). Six copies of each set of nomination papers should be sent to the GAC President by **30 December 2002**. **John Clague, address as listed above.**

SERVICE AWARDS

The GAC has established a series of service awards to recognize outstanding volunteer efforts:

Honorary Life Membership. This is the highest award, made to an individual who has contributed long-term distinguished service to the Geological Association of Canada. There is no age limit. Recommendations of persons for honorary membership may be made at any time to the Council. The recipient shall not be required to pay dues. The award will include a framed certificate and a GAC publication of the recipient's choice. Nominations, including supporting credentials, for the award should be signed by at least 3 sponsors and be submitted before **30 December 2002**, to: **John Clague, address as listed above.**

Distinguished Service Award. This award is made to those people who have made an outstanding contribution to the GAC through volunteer work. There is no limit on the number of awards that can be given, but this is an award of distinction and should be given only for specific exemplary service. The award will consist of a plaque bearing the GAC logo, the name of the winner and the particular contribution being recognized. Nominations, with brief supporting statements, should be submitted by **30 December 2002** to: **Graham Young, Manitoba Museum of Man and Nature, 190 Rupert Avenue, Winnipeg, MB R3B 0N2; Tel: (204) 988-0648; FAX: (204) 942-3679; E-mail: gyoung@cc.umanitoba.ca**

Volunteer Award. The objective of this award is to recognize those members and non-members who have made a significant singular contribution through voluntary service to the Association. There is no limit on the number of awards that can be given. The award will consist of an unframed certificate of achievement. Nominations, with brief supporting statements, should be submitted before **30 December 2002** to: **Graham Young, address as listed above.**



Book Reviews

Barren Lands

An Epic Search for Diamonds in the North American Arctic

Kevin Krajick (2002) Hardcover: Henry Holt & Co., ISBN 0-7167-4026-5, 464 pages (notes, maps) \$26. Paperback: Owl Books, ISBN 0-8050-7185-7, \$16/\$23.95 Canada.

For those of you who just want the answer, it's a great engaging book, buy or borrow it and read it, the paperback comes out in October 2002!

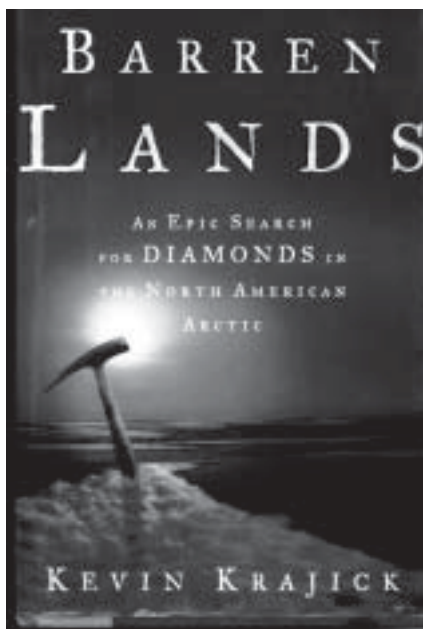
The geo-community will delight in the reading of this story because of background work that went on with personal interviews with many of the principle players in the Great Canadian Diamond Rush supplemented by voluminous amounts of library research. The process is not unlike that of preparing a scientific paper for publication or an explorationist preparing a new exploration play. For those of you in the (exploration) business, you will know or be acquainted with many of the persons identified in the book. This was true for the reviewer and made this dynamic story tremendously interesting at all times. There were no obvious errors identified in the names or details of the subjects in this book, as was not the case of another recent book on the history of diamonds and the Canadian diamond play.

The only real disappointment in the very poor quality maps used (Montreal is indicated as Capital of Canada!?) The geo-community has many map-lovers who would appreciate that an enlarged series of maps would be appropriate and enhance a book like this. There are no photographs in this book and these also would have been nice. Perhaps in a 2nd edition?

One of the best facets of the book is the 'human interest' component that brings the story alive and makes it more interesting than if it was a 'text book' history. There are portions of great interest to the explorationist, the geologist, the geochemist and the outdoorsman. The book shows interplay of science, economics, adventure, skill, luck, stock market, and human nature.

The book starts off with the time of Jacques Cartier 450 years ago and the development of the French phrase "Voila un Diamant de Canada!" which meant at the time "Fake as a Canadian Diamond". How times have changed! It then proceeds through some of the natural history of the Coppermine area and Hearn's exploits.

One of the intriguing aspects of this book is the melding of real life situations, which make the story exciting and intriguing, with the essence of the applied science used that lends detail and credibility to the story. It shows that the situation is not hard or beyond



the capabilities of many in the geo-community but it needed the belief and perseverance of the individuals involved. The big lesson illustrated, time and again, which may be obvious to many in the 'business', but probably not to those in the educational and governmental sectors, and certainly not to the upcoming and recent graduates, is that (a lot of) money is required for all this 'exploration' and how do you get that money and persist in your quest while doing everything on a shoestring. This is certainly not a mindset most salary-based persons are capable of easily comprehending but must be appreciated and understood for looking at the great economic and social benefits created in this case.

A wonderful nugget (gem) is the story vignette in Chapter 4 of Professor Follinsbee, who tied together his earlier work and a published paper on beach minerals (garnets) from Lac de Gras with a newspaper article on the

just announced 'diamond' find in the NWT by Fipke. He went and bought stock and the rest is history.

Chapter 5 goes through a short history of worldwide diamond exploration placing the Canadian scene in context. It illustrates the use of garnets as indicators for diamonds goes back to the beginnings of diamond exploration.

Chapter 6 deals with the history of early diamond exploration in Africa and the great Diamond Hoax of 1872 in the SW USA. The chapter also contains mention of numerous, though minor diamond scams. It is certainly an eye-opener to the large number of hoaxes in the early days of diamond exploration and illustrates the endemic nature of exploration scams. The chapter gives a quick ramble through numerous discoveries of 'single' US diamonds, the most surprising fact being the large number of them! A good short summary of the glacial diamond found in the Northern states and attributed to Canadian origins.

Chapter 7: Here we have interesting commentary on the history of some early Canadian explorers, mostly from McGill, who De Beers considered their best 'scientific' prospectors. One was John Williamson, who after leaving DeBeers struck out on his own in inimitable gruff prospector style and found a world class diamond mine in Tanzania in 1940 (Does this sound like Fipke in 1990?) and

held off DeBeers until 1952 when he sold out at enormous profit. The use of the kimberlite indicator minerals was even in use at that time though only from a complete visual perspective.

Chapter 8: DeBeers in America: The history of the more modern period of Arnold Waters and Mousseau Tremblay with a short review of the discovery of the Ile Bizard pipe in Montreal, a time fondly remembered by your reviewer as his MSc thesis was on the ultramafic nodules of the pipe, the first electron probe thesis from McGill. Ile Bizard was the first *in-situ* discovery of diamonds in Canada! The chapter concludes with the introduction of the key people in today's diamond exploration world, Jennings, Dummett and Gurney with the beginning of the Falconbridge/Superior Oil diamond exploration campaigns.

Chapter 9 to 11: Stu Blusson's and Chuck Fipke's early days. This part has more items of human interest and actually exciting as it goes through the many trials and tribulations of the start of what ultimately lead to the discovery of Canada's first diamond mine. It becomes all the more exciting because many of us (geologists) either know some of the participants personally or by some indirect association and reputation. History seems all the more interesting when it is recent. Chapter 11 closes with the discovery of the key importance of the G-10 garnet, a result of exhaustive research and microprobing of many minerals by John Gurney in South Africa and delivered to the Superior Oil group under the late Hugo Dummett.

Chapter 12: Discovery of the pipes in the Canadian Rockies by Superior Oil and Fipke.

Chapter 13 : The beginnings of the NWT work and the pull-out by Superior Oil. The early days of kimberlite indicator minerals sleuthing and applied science.

Chapter 14 : Raising money was difficult and quite happenstance; much the same today but an education and relevance to those who have little appreciation or understanding of the junior mining company business.

Chapter 15-16: The first staking and first discovery of diamondiferous kimberlite in the NWT.

Chapter 17: The Great Staking Rush was the greatest staking rush Canada has ever seen. The current move to 'paper staking' in many jurisdictions means it will likely keep its record place in history in terms of field operations.

Chapter 18: The early days with the discovery of many pipes and the evaluation of them; with some exciting stories of the vagaries of the weather and what happens in exploration camps.

Chapter 19: Application to mine and Chapter 20: the opening of the Ekati mine.

Hopefully some of the actors in from this episode will write their own books because as we see herein, the work of exploration is exciting and thrilling to many readers.

While many of the basic facts have been well known, much of the their context enhance and bring a vivid life to the facts.

There is an excellent section called 'notes' which is a list of references and notes referenced to page number. This is excellent

and very useful to the researcher; the only problem was that either your reviewer missed it or there was no reference to this section at the beginning of the book. It is well worthwhile to review these 'notes' on a chapter by chapter basis while reading the book. And there is an index!

In this book Chuck and Stu are shown to be the epitome of the world-class Canadian prospector when successful creates real substantial wealth for not only themselves but the country as a whole. This during the time of the dot.coms devastated many investors and ordinary folk by becoming dot.bombs while at least 2 diamond mines (for now) will generate many jobs for at least 20 years.

This is a book you won't want to put down once you get reading it. Recommended reading especially for all accountants involved in the mineral exploration business!

There is also a current book called *Diamond: A Journey to the Heart of an Obsession* by Matthew Hart, which was read just prior to Barren Lands but it deals with more world wide diamond exploration and business, has some overlap in topics but is not nearly as exciting and as directly Canadian. However, if you want to learn a bit more about the workings of the diamond business, it also is a very worthwhile read.

A slightly older book, *Fire Into Ice: Charles Fipke & the Great Diamond Hunt* by Vernon Frolick, is somewhat summarized in Barren Lands, it is an fundamental look into the detailed history of Chuck Fipke and is, in itself, a very readable and illuminating hagiography! If you like Barren Lands, then read *Fire into Ice* as it will give you insight into the psyche of Fipke. Recommended reading for all spouses of geologists!

Check out www.amazon.com for all three books as there are extensive reader reviews there and discounts on listed prices. There are no reviews on www.chapters.indigo.ca but check for prices.

Mike Marchand
Calgary, AB

Diamond: A Journey to the Heart of an Obsession
Matthew Hart (2001)

Hardcover: Walker & Co; ISBN: 0802713688; 276 pages

Fire Into Ice: Charles Fipke & the Great Diamond Hunt
Vernon Frolick (1999)

Raincoast Books Hardcover ISBN: 1551922320, 354 pages, 25 b&w photographs

Paperback ISBN: 1551923343, 376 pages

Industry in Transition: A Profile of the North American Mining Sector

Alistair MacDonald (2002) International Institute for Sustainable Development, ISBN 1-895546-52-9, 146 pages.

The origin of this document rests with a 1999 decision by some of the world's leading mining companies to try and improve the increasingly confrontational relationship between mining/minerals-related practices and the values expressed by today's society. The *Global Mining Initiative* was created to address the issues with the *Mining, Minerals and Sustainable Development* (MMSD) project serving as a research and policy making body. Major international mining companies provided study funding.

Industry in Transition (IIT) grew from the author's academic research that reviewed the Vancouver-based mining sector movement to Latin America. For IIT he conducted a series of interviews with mining executives and practitioners, reviewed annual reports and other industry records and materials with a focus on business change and sustainability issues. Exploration practices, mining economics, political issues, corporate culture, historical and geographic information and socioeconomic concerns are profiled or examined.

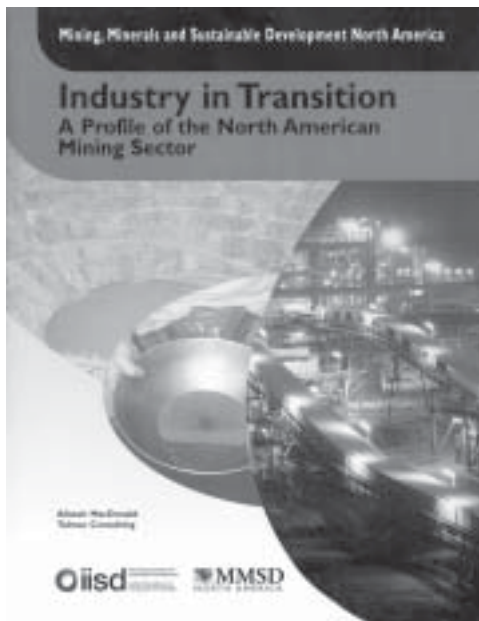
MacDonald uses the term "Mineral Production System" to categorize North American (NA) mining and describe the research, exploration, development, production and closure processes. He assesses these processes with current social, environmental and economic climates and uncertainties impacting NA mining.

The Canadian Mineral Production System (CMPS) is profiled around the roles of the "Junior Explorer" and the "Senior Producer" to show the similarities, the differences, integration points and synergies. The findings and implications are that the Canadian Junior Explorers and, to a lesser extent, the Senior Producers, are faced with uncommon challenges in adapting to global change and uncertainty around land tenure, financing capability, operational practices and answering to the socioeconomic expectations of stakeholders, primarily communities and special interest groups.

The United States Mineral Production System (USMPS) is somewhat different from CMPS and yet, like Canada, there is a declining national economic importance of mining along with increasing environmental and social concerns.

In Chapter 7 "*Dealing with "Sustainability: Promise and Peril for the North American Mining Sector"*" the author measures the state of progress and identifies gaps with mining processes and the sustainable development movement in North America. A key finding is that NA mining interests are more comfortable in dealing with environmental issues than with social and community issues. Social issues, community relations and, most importantly, the continuing perception that the mining industry is not accountable to changing expectations constrain the promise of sustainable mining. Social and community impacts stemming from short mining life cycles and post closure socioeconomic impacts are highly contentious issues.

Industry in Transition summarizes the issues, trends, challenges



and prospects with a list of the author's findings and observations for the "sustainable mining business case."

These include:

- Globalization and sustainable development issues for the NA mining industry, its governance, and the impacted communities and interest groups must be voiced and heard by all stakeholders.
- The uncertainties of the minerals marketplace require NA mining interests to integrate their goals and targets to achieve sustainable economic performance.
- The process of change for the North American mining industry must be based on a willingness to educate and, to be educated through a climate of trust and respect. The NA Mining System needs to not only reinforce and rebuild its reputation on social and environmental accountability, but also as a reliable supplier of mining products.
- The NA Mining System must address internal human resources needs, technological change, adopt ongoing strategic planning and enhance capacity to secure financing in order to achieve the sustainable business case.

MacDonald provides comment on "disconcerting fundamental disconnects". Disconnects are understandings or perceptions that have governed past and present mining practices. These understandings and perceptions require reframing, reassessment or revalidation in moving forward and fulfilling the promise of sustainable mining. The author concludes that although NA mining has made some progress, the future for social inclusivity and sustainable development remains highly uncertain and is in need of a lot of work. He finishes with some broad-based guidelines for the Junior Explorers, Mid-Size Firms and Senior Producers on gaining buy-in for sustainable development, industry support for mutual and special interests, and applying sustainable development for competitive advantage and enhancing corporate reputation.

Overall, the book is a very readable text that is well laid-out and referenced. Particularly interesting are the "side bar quotations" that highlight problems and concerns, show valuable insights, amplify on the changing NA mining landscape and highlight the frustrations that accompany a changing expectations and new directions environment.

Industry in Transition: A profile of the North American Mining Sector is a companion document to, and published in conjunction with *Learning from the Future*.

*D. S. Evans, P. Geol.
CSC Project Management Services
Calgary AB*

Learning from the Future: Alternative Scenarios for the North American Mining and Minerals Industry

Scenarios Work Group MMSD North America (2002) International Institute for Sustainable Development, ISBN 1-895536-50-2, 28 pages.

The origin of this document rests with a 1999 decision by some of the world's leading mining companies to try and improve the increasingly confrontational relationship between mining/minerals-related practices and the values expressed by today's society. The *Global Mining Initiative* was created to address the issues with the *Mining, Minerals and Sustainable Development* (MMSD) project serving as a research and policy making body. Major international mining companies provided study funding.

Under the auspices of the International Institute of Environment and Development (IIED), MMSD was commissioned to develop industry profiles, test sustainable development principles, create an agenda for change and identify and value scenarios for the North American mining industry. *Learning from the Future* is the output of the MMSD "Scenarios Work Group" workshops in Winnipeg and Reno in 2001 to develop "scenarios that bracket the likely futures to be faced by the North American mining and minerals industry and the related communities of interest."

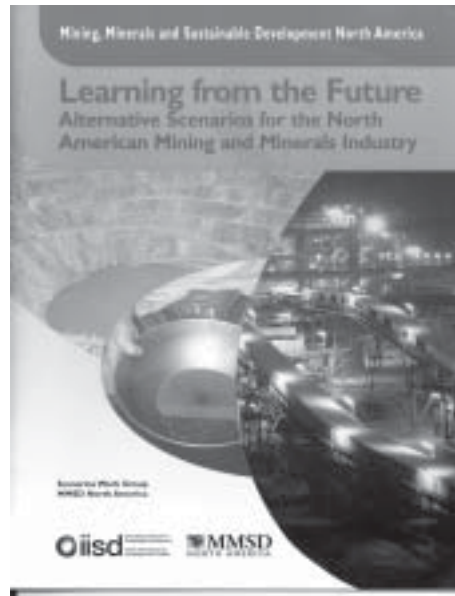
MMSD North America asked the Scenarios Work Group to identify and discuss potential development scenarios for North American mining around:

- Risks and Opportunities facing the mining industry,
- Issues, challenges and areas of consensus and agreement and disagreement on understanding and resolving mining development constraints; and
- Potential prescriptions for the North American mining industry.

The scenario building process centered on the identifying of key issues that will drive the development of the North American mining industry. The issues were refined into two major uncertainty groupings: societal values and economic performance. The range of social values and economic performance are used to fashion a framework to define four scenarios, or potential future socioeconomic outcomes for North American mining. The scenarios serve as an initiation for the reader to engage in the discussion about the future of North American mining and minerals. The four Scenarios are:

- 1. New Horizons** (High growth, productivity; Open inclusive trusting society)
- 2. Phoenix Rising** (Low growth, productivity; Open inclusive trusting society)
- 3. Money Divides** (High growth, productivity; Closed, divisive distrusting society)
- 4. Perfect Storm** (Low growth, productivity; Closed, divisive, distrusting society)

Learning From the Future proceeds to overview the social and economic forces and changes that would likely develop under each Scenario. Story telling is used to forecast industry conditions and rela-



tionships through to 2015 for each Scenario.

In chapters 5 and 6 the Work Group compares and contrasts the economic, social and environmental indicators and performance measures likely to occur under each Scenario and speculates on likely trends and impacts. Poor social, environmental or economic performances will result in loss of sustainable value.

Chapter 7, "Toward an Agenda for Change", is output from the Work Group to a key points list where changes can lead to enhancements in future value. Addressing the Legacy (Closed Mines) Issue, Impact on (Mining) Practices and Enhancing (Social) Capacity are the three key issues where the North American mining industry should focus and direct effort for change.

Chapter 8 captures the "overall reflections" of the Work Group with key insights, challenges and future actions for a sustainable future for North American mining. The implications for failing to follow through on actions and changes will lead to a marginalized mining industry, a greater disconnect amongst the communities of interest and a tendency towards a Perfect Storm rather than towards a New Horizons.

Energy Scenarios for the 21st Century (2002) published by the Canadian Energy Research Institute used a similar approach to the MMSD Scenarios Work Group in assessing future conventional energy development. Three scenarios have been framed, forecast and described in the CERI report. The Scenario descriptors indicate similar outlooks in both energy and mining. The energy Scenario descriptors compared with the mining Scenario descriptors are:

- Material World (Money Divides)
- Nasty, Brutish & Short (Perfect Storm)
- Utopia (New Horizons)

Learning from the Future has framed and forecast four outcomes using social values environment and economic performance climate forecasts for the North American mining industry. Each Scenario has been "tested" in terms of the parameters and characteristics attributable to a changing global mining industry. The MMSD Scenario Work Group participants conclude that the exercise was a "good first step", but a process of continuous improvement through reframing and reassessment is needed to move forward to capture the New Horizons target. A commitment to a longer, more profound exercise is needed.

Learning from the Future is a companion document to, and published in conjunction with, *Industry in Transition: A profile of the North American Mining Sector*.

D. S. Evans, P. Geol.
CSC Project Management Services
Calgary AB

Conference Reports

2002 NW Ontario Mines & Minerals Symposium

April 9 & 10, 2002
Thunder Bay, Ontario

Attendance was down a bit from the last couple of years with the recent OPSEU strike being the main contributing reason. Although there was a noticeable decrease in the number of 'Prospector' tables, the quality of properties available for Option etc. was still of the highest caliber. The Government and Industry displays were once again top notch, with the various booth representatives ready willing and quite able to fill us in with any details concerning their projects/programs.

The Technical Talks and information sessions were well received by all who attended. Some of the first-rate talks presented were: John Mason & Bernie Schnieders, MNDM - Mining and Exploration in Northwestern Ontario; Andreas Lichtblau, MNDM - Gold Renaissance in Red Lake-Kenora; Brian Atkinson, MNDM - Exploration Activities in Northeastern Ontario, and all of these talks gave highlights of the past exploration year. Other first-rate talks included: Mary Sanborn-Barrie, Geological Survey of Canada - Evidence of Plate Interaction in the Evolution of the Western Superior Province: A Synthesis of New NATMAP Results from the Savant-Sturgeon and Red Lake Camps; Iain Allen, Geoscience Information Services - GIS for Prospectors.

The Keynote Speaker for the evening was Michael Dehn, Senior Geologist with Goldcorp Inc. - Ontario: Still yielding high grade results. The Thunder Bay Branch CIM in conjunction with NWOPA hosted the Luncheon. The guest speaker was Bob Middleton, East West Resources Inc. His talk was on The Nipigon Basin - An Update. He presented to a full house and introduced the Ontario Prospectors Association's Lake Nipigon Geoscience Initiative.

Northwestern Ontario Prospectors Association Awards Ceremony

Deputy Minister (MNDM) Cam Clark assisted in the presentation of the following awards during the NW Symposium.

The **Lifetime Achievement Award** was presented to: (long time partners) Nolan Cox and Dave Thorsteinson (posthumous). In summary comment, MC John Mason (Regional Resident Geologist, MNDM) spoke the following words during the presentation: "Dave and Nolan proved time and time again the value of sound research and excellent field work. Their exploration library is larger than the Thunder Bay assessment files. Meticulous diaries, generated daily by both men are works of art, illustrating in vivid detail their prospecting work on any given property. It gives me great pleasure to announce that Dave Thorsteinson and Nolan Cox are the Lifetime Achievement Award winners. I would ask that Nolan and Norma Cox come forward to accept both awards."

Recipient(s) of the **Discovery of the Year Award** were:

[First Candidate]: Joe Hackl, Ken Fenwick and Don Leishman for

their combined efforts pertaining to the initial development of what's now known as the Avalon, Legris Lake Venture.

[Second Candidate]: Bob Middleton. "Bob Middleton is one of the most energetic and imaginative explorers in the mining business...". The diamond drilling of the Seagull Intrusion in the spring of 2000 hit Norilsk Sulphides in hole 98-5. Bob is involved with 30 projects and \$20M in JV's and Exploration, in the Nipigon Plate." "Bob is a credit to the Canadian exploration community and highly deserving of the NW Ontario Discovery of the Year Award", so said John Mason in his introduction.

The **Developer of the Year Award** recognizes an outstanding local development during the previous year. Claude Lemasson, General Manager and Bruce Humphrey, Vice President Operations, accepted the **Award for Developer of the Year Award**, Goldcorp Inc. (Red Lake).

*Susan Warren
Thunder Bay, ON*



L to R: Joe Hackl, Don Leishman, Nolan Cox, Ken Fenwick, Bob Middleton



L to R: Dave Christianson (NWOPA Past President), Cam Clark (Deputy Minister, MNDM), Bruce Humphrey (VP Operations, Goldcorp Inc.), Ian Campbell (NWOPA Awards Committee Member), Dan Calvert (NWOPA President)

SEG Global Exploration 2002

The Society of Economic Geologists held its second stand alone conference entitled "Global Exploration 2002: Integrated Methods for Discovery" in its hometown of Denver Colorado from April 14 to April 16, 2002. The conference was co-sponsored with the Society for the Geology Applied to Mineral Deposit, the Society of Exploration Geochemists and the Society of Exploration Geophysicists.



The conference brought together 754 "economic geologists" from 33 different countries from academia, government and industry to examine recent advances in integrated approach to mineral exploration. A further 331 people participated in 5 workshops and 6 fieldtrips held in conjunction with the conference.

I had the pleasure of attending the first "Integrated Methods for Discovery" conference also held in Denver in 1993. This second meeting maintained the same format consisting of just one oral presentation session with adjoining trade show and poster displays. All speakers were invited and oral presentations were organized around three Keynotes addresses: Discovery and Geology of the Cannington Ag-Pg-Zn Deposit, the Platinum Quest and Exploration Geology – Business and Leadership Challenges for the Future. This type of format puts pressure on the organizing committee to deliver a strong program to keep the audience alive. In this respect, the program was well balanced and covered a variety of subjects mostly fitting to the common theme of integrated approach to mineral exploration. The program was also global in scope as nearly equal weighting was given to North America (5), South America (4), Africa (3), Eurasia (4), and Oceania (4).

Oral presentations were divided into five sessions: 1) Four-Dimensional Portraits of Giants; 2) Case Studies of Regional Exploration; 3) In the Shadows of Headframes-Exploration in Old Districts; 4) Dollars and Sense of Exploration; and 5) Exploration for Hidden Deposits. A total of 90 posters and 50 exhibits were presented in a common area. Exhibitors covered a wide spectrum of interest, including junior exploration companies and global mining corporations, geochemical laboratories, geophysical and geological consultants, academia, publishing houses, governments and other commercial retailers.

Upon registration each registrant received a proceedings volume containing 16 papers presented during the conference. This 382-page volume is indexed in the Special Publication Series as Number 9 and is entitled "Integrate Methods for Discovery: Global Exploration in the Twenty-First Century". Considering all the challenges involved with the edition and production of any scientific publication nowadays (not the least of which is the management of authors and reviewers deadlines), the ability to deliver a remarkable volume in time for the conference represents quite an accomplishment. The quality of the volume has not been

compromised. It follows the high quality editing standards known to the SEG and includes several colour illustrations and photographs. By itself this special publication represents a significant value. It was very useful to be able to glance at a paper before, during and after the oral presentation.

The conference and proceedings volume were dedicated to Bruce A. Bouley who architected the Global Exploration 2002 conference and acted as its General Chairman until its death in August 2001.

The only cloud over the conference was perhaps the choice of venue. The conference was held near the Denver airport in a cluster of hotels/motels built in hayfields alongside highways and quite distant from downtown Denver and any significant nightlife or casual networking opportunities.

Overall the conference was very well organized. Organizers selected relevant economic geology topics and invited speakers were carefully selected not only for the quality of their paper, but also and perhaps more importantly, for their ability to deliver good visual and oral presentations (well, at least for most). This type of format with only one conference session is perfect for this type of focussed technical meeting as it eliminates runaway races between conferences halls and keep attendants together at all times. Let's hope that the SEG keeps alive this tradition. I look forward for the next Integrated Methods for Discovery meeting convened for 2004 down under in Perth Australia.

*Jean-Francois Couture
SRK Consulting
Toronto, ON*

WANTED DEAD OR ALIVE * MARKETING PERSON

Get in on the ground floor to help the GAC structure a permanent Revenue Generating Team. The GAC is looking to improve its fiscal regime, for the benefit of all members, by establishing a revenue generating committee with a mandate that extends beyond the normal three-year term of GAC councillors.

We seek one or more volunteers with **marketing, investor relations** or some similar experience to plan a comprehensive revenue generating campaign and help implement it on an ongoing basis. Persons with extensive contacts within the geo-community, and with our more experienced members, may find this of interest. You need to be internet connected and familiar with email technologies. However, you do not have to be a current GAC member to apply.

If interested, contact Steve McCutcheon, Finance Committee Chair, (Steve.McCutcheon@gnb.ca) (Tel: 506 547-2070) with your particulars or queries.

*This is marketing! We really need you alive.

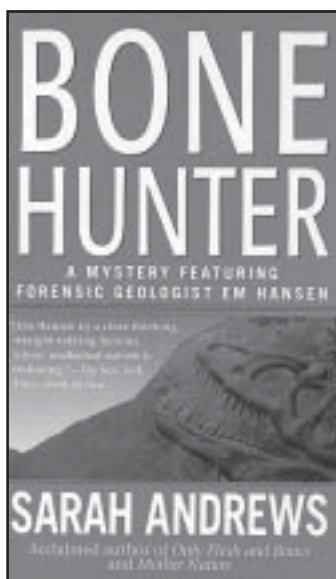


Reading on the Rocks

Bone Hunter

Sarah Andrews (1999). St. Martin's Paperbacks, New York. ISBN 0-312-97317-9, 353 pages, \$8.50

Em Hansen is having a *really* bad day. She was immensely flattered when the famous (or at least notorious) Dr. George Dishey, a dinosaur paleontologist with a flair for the dramatic, invited her to attend the Society of Vertebrate Paleontology conference in Snowbird, Utah. He asks her to participate in a symposium he is arranging and give a presentation on her specialty, forensic geology. She would describe how she uses her geology training and knowledge of geologists to help the police solve crimes. But, on the morning before her presentation, her host leaves the house early and later turns up murdered. Most inconsiderate! As his house-guest and an outsider, she is naturally suspect number one to the local police in Salt Lake City. Her credibility is further diminished when, to cap it all, no one at the meeting has heard of her or an invitation to speak, there is no symposium, and her name appears nowhere on the program. Now Em's skills are really going to be put to the test as she attempts to find out who killed Dishey and clear her own name.



So Em hangs around the conference, attends paper sessions, hears lots about dinosaurs, inspects posters, and goes on the field-trip, all the while trying to learn more about Dishey and discover who might have wanted to kill him. As a stratigrapher, she is an outsider in this group too. She hears plenty of unsavoury gossip about academic rivalry, disciplinary infighting, divergent opinions, and departmental politics. She learns much about the symbiotic and sometimes parasitic relationships between supervisor and graduate student, and between professor and lab tech. Dishey, it turns out, was liked and respected by no one. A flamboyant personality, he delighted in needling his colleagues, a trait that had kept him from ever obtaining a stable academic position. Moreover, scholarly palaeontologists despised him as a publicity hound, always in the media spotlight flaunting his latest dinosaur discovery, without ever publishing anything of substance. Once the floodgates open, Em is forced to listen to a good deal of vituperation and sour grapes.

This closed community of strong personalities trading in esoteric knowledge is now under intense scrutiny by the police. They have little knowledge of or empathy for the realm of academic endeavour. Em's minder from the local force, Officer Raymond, is a fer-

vent Mormon, and the whole world of dinosaur paleontology and evolution is quite alien to his beliefs and thought processes. This collision between entirely different world views forces Em to examine her own belief system more carefully. Put on the defensive, she has to justify her devotion to science in general and geology in particular. What is the difference between religious belief and scientific enquiry? And how might these world views intersect and result in a murder?

Without being preachy, Andrews weaves some difficult ideas into this deceptively straightforward story. Even the exchanges among the geologists occasionally rise above the flippant as they discuss, in an accessible form, some reasons why they do what they do. Their abhorrence of Dishey has at least as much to do with his abandonment of professionalism and his cavalier approach to truth

as it does with jealousy. Through Em, Andrews presents a spirited defence of science as a way of explanation. Em, prickly, articulate, and intelligent, is an appealing character. She sees the terrain with a geologist's eyes, and so Andrews passes along observations on the Utah landscape, from Lake Bonneville shorelines to the Morrison Formation, giving the narrative a strong sense of place. Fieldwork is a constant thread running through this story. Paleontologists undertake the painstaking work of excavation, dusty, dirty, out in the hot sun, struggling to maintain high standards and meticulous records. All this in the search for a clearer glimpse of the past and a deeper understanding of the natural world. Yes, they are subject to normal human frailties, but Andrews makes it clear that most earth scientists have a bedrock core of integrity and try to do good work.

So grab your work boots and day pack, and follow Em out into the field. Oh, and the moral of the story? Don't accept invitations to conferences from maverick paleontologists!

*Alwynne B. Beaudoin
Edmonton, Alberta*



GAC/MAC 2004 May 12 - 14
St. Catharines, Brock University
gacmac04@brocku.ca



BONES TO PICK

Suzanne North (2002), McLelland & Stewart Ltd., ISBN: S8577.068B66, \$22.99 (soft), \$35.00 (hardcover)

Despite its title, this is not a treatise on paleontology. Nonetheless, it is recommended reading for all geoscientists and their friends and their families, and mandatory for readers of all stripes who enjoy a fast-paced, sophisticated “whodunit” with much comic relief.

“Bones to Pick” is Suzanne North’s third successful mystery novel and her best yet. Her amateur sleuth, Phoebe Fairfax, photographer for a Calgary T.V. station’s program “A Day in the Lifestyle”, is fast gaining a reputation among readers equivalent to Agatha Christie’s “Miss Marples”.

The victim in this tale is Graham Maxwell - a world-renowned paleoanthropologist. A geology graduate from the University of Alberta (class of '55), he has returned from Africa to his native province to announce his greatest discovery: 3.5 m.y. old hominids. He has unearthed three almost complete skeletons of these earliest known ancestors of humankind. In addition, he interprets a gazelle bone fragment found nearby as a flute-like instrument and so considers his hominids as Earth’s earliest musicians. He and his two assistants are guest scientists at the Royal Tyrrell Museum in Drumheller, Alberta, where they occupy the office and lab of a Museum paleontologist who is presently off in China collecting dinosaur eggs (any guesses who?). They have been preparing an exhibit of their fossil hominids for an opening display at the Tyrrell preparatory to a world tour.

Phoebe and her T.V. teammates, Candi - the beautiful blonde interviewer, and Ella - the caustic but capable producer, arrive in Drumheller for opening night to build “A Day in the Lifestyle” show around Dr. Maxwell and his fossils. Following speeches, a champagne reception, public viewing of the fossil display and a dinner, Phoebe leaves her camera in the visiting scientists’ laboratory - planning to finish filming in the morning. When she returns, she discovers Maxwell’s body - his head smashed in with a dinosaur egg and his fossil flute jammed down his throat!

Who could have done it? Well, it turns out that there are lots of motives and many possible suspects. Our eloquent, charming Dr. Maxwell may have built his reputation on the unacknowledged scientific endeavours of others (sound familiar?). He is also a lecher - as one character puts it “a walking testimonial to the power of Viagra.”

Among the obvious suspects is the University of Calgary’s kindly, colourful, micropaleontologist Professor Woodward. Nearing retirement, he now devotes his field seasons to “de-evolution” - living off the land under increasingly more primitive conditions, he has worked his way back to Paleolithic time by dressing in animal skins, blowing his nose on dried grass, etc... His goal is to show that we can live with Mother Earth instead of against her. Weird - but we all know eccentric geology profs like him - even at U. of C. Mrs. Woodward, in contrast, is an elegant lady for whom “a primitive society is one in which they don’t chill the Martini glasses”. Then there is Stan Darling, wealthy and recently retired oilman who has founded a fundamentalist group “Geologists for Jesus” who protest against evolution in any or all of its manifestations. A very unlikely trio to be invited to the black-tie event

except that all three interacted with Maxwell in the geology class of '55 at good old U. of A. There are also Maxwell’s long suffering helpers: pleasant, bright, heavy-drinking Simon who has worked with him for many years but is still treated like a servant; and attractive young Gillian, a Cambridge PhD, who sleeps with the master but is concerned about his still roving eye. Old faithfuls from the earlier books who are not suspects include Phoebe’s wise, delightful, gay uncle-in-law, Cyrrie, and her precocious German shepherd, Bertie. But enough or I’ll give away the storyline.

As the plot unfolds, the reader is exposed to painless background information, e.g. the protocol in properly naming fossils and some fascinating descriptions of the preparatory labs and storage spaces in the Tyrrell Museum. Also, some interesting insight is provided into the nature of science and scientists - reminiscent of the analyses of the late, great C.P. Snow.

The dialogue is refreshingly, unabashedly Canadian throughout. Thus: Ella says: “The premier’s in Calgary on Monday, spouting off about something or the other.” And Candi continues: “Probably going to announce that he’s privatizing the weather”.

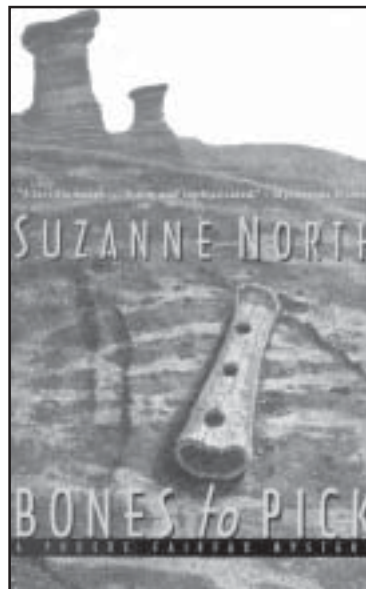
At the opening of the exhibit, elected representatives of both levels of government droned on “each claiming responsibility for the accomplishments of the Royal Tyrrell, conveniently forgetting the brutal budget cutbacks they and their colleagues had imposed on every research institution in the country”.

After a wild shooting spree at the Tyrrell, a commissioner shouts at the instigator: “You can’t go around blasting guns off anywhere you feel like. This is Canada. We got laws here. Even in Alberta.”

Uncle Cyrrie regarded the tabloid headlines about the shooting at the Tyrrell with scepticism. His dictum is “trust nothing until you hear it on the (CBC) World at Six”. Typically Canadian, eh?

The author acknowledges the help of many Tyrrell staff. She was a good learner for the reader feels completely at home in the Museum by book’s end. There are also GAC connections. Thus, the idea for the locale came several years ago when she was introduced to the backstage of the Tyrrell by Jisuo Jin who once worked there. Jisuo was this year’s winner of the GAC Paleontology Division’s newly instigated *Pikaia* Award. Also, GAC stalwart (and her brother-in-law) Glen Caldwell is thanked for “geological details”. We in the profession owe Suzanne North thanks for bringing geology and geologists into the public eye in this suspenseful, provocative, outrageously funny novel. This is a book you won’t put aside until you’ve finished reading and laughing.

**Ward Neale
Calgary AB**



Geological Association of Canada Announces a Nuna Conference

New Frontiers in the 4th Dimension: Generation, Calibration and Application of Geological Timescales



Mt. Tremblant, Québec, Canada, March 15-18, 2003

For additional information, contact a member of the Organizing Committee: Mike Villeneuve (mvillene@nrcan.gc.ca), John Westgate (westgate@geology.utoronto.ca), Andrew Okulitch (aokulitc@nrcan.gc.ca) or Godfrey Nowlan (gnowlan@nrcan.gc.ca)

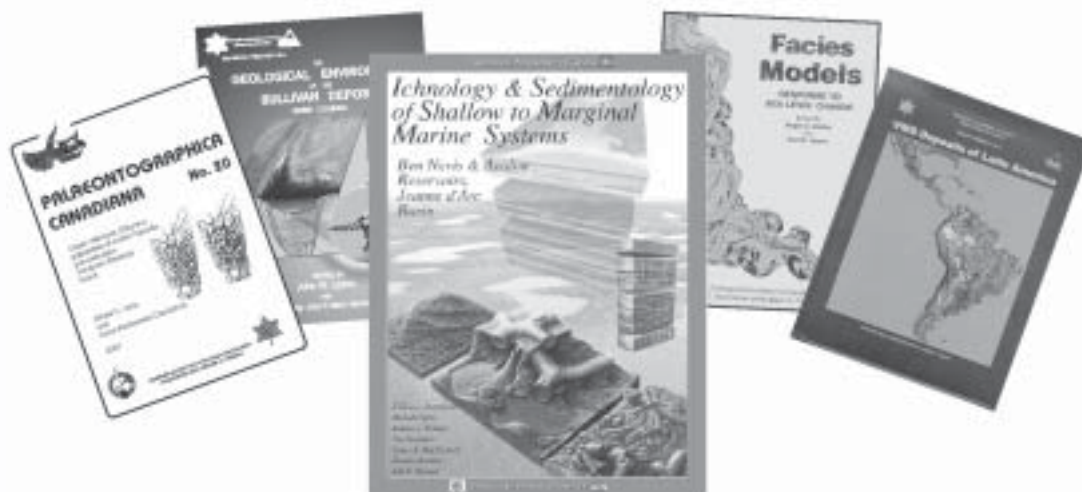
Web: www.nunatime.ca: Email: info@nunatime.ca

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Mélange

Temporary suspension of NSERC funding for major equipment and installations

NSERC has placed a one-year moratorium on Categories 2 and 3 of Research Tools and Instruments (formerly known as Major Equipment and Major Installation) applications. These categories cover equipment costing more than \$150,000. Please note that only applications for Category 1 – equipment costing less than \$150,000 - will be accepted for the fall competition. NSERC cites budgetary restraints, a priority decision to fund new applicants, and the fact that the Canada Foundation for Innovation has invested heavily in university infrastructure over the past few years and will continue to do so, as the explanation for the moratorium. Even though applications will be accepted for Category 1 Research Tools and Instruments, NSERC cannot guarantee the availability of funds. Applications will be reviewed and prioritized to address the most urgent needs. The objectives of the Categories 2 and 3 programs will be re-examined in the coming year. For further information, contact grants co-ordinator, Office of Research, 737-4745 or 4076.

MUN gets New Research Chair in Petroleum Geoscience

Andrew J. Pulham, Associate Professor at Memorial University has been awarded a new Canada Research Chair in petroleum geoscience. Dr. Pulham, a contributor to the GAC Publication on the Ichnology & Sedimentology of Shallow to Marginal Marine Systems, examines the principle controls affecting fluid flow in oil and gas sandstone reservoirs, particularly those having relevance to Atlantic Canada. More specifically, his research aims to decipher the depositional history and paleobiology of reservoirs and to quantify what physical and biological structures and fabrics are most important to the recovery and injection of fluids. Dr. Pulham's research also supports Memorial's goal of becoming a world-class centre of research in oil and gas development.

The Canada Research Chairs program was established by the Government of Canada and has provided \$900 million to support the establishment of 2000 Canada Research Chairs in universities across the country by 2003-4.

UVIC Discovers Massive Hydrates

University of Victoria geophysicist Ross Chapman and colleagues revealed that they have found the largest deposit of methane hydrates ever discovered on the sea floor in Canada. "We knew the methane hydrates existed because of seismic investigations offshore," says Chapman. "But when we sent our remotely operated submersible down 850 metres to the sea floor we found masses of methane hydrates mounds. Most of them were three or four metres high and 10 metres wide." The field study was carried out this summer in Barclay Canyon using the ROPOS submersible.

Golden Geochemist

The Canadian Institute of Mining, Metallurgy and Petroleum (CIM) awarded its Distinguished Service Medal to Robert W. Boyle for his accomplishments and contributions in exploration geochemistry, particularly gold. He helped develop geochemical methods specifically suited to the Canadian environment and, through experience gained in the field, made them truly practical tools in mineral exploration. Dr. Boyle has received many honours and awards throughout his career, starting with his election as a Fellow of the Royal Society of Canada in 1957 through to his induction into the Canadian Mining Hall of Fame in 1996.

International Year of Mountains Stamps

Canada Post also was offering the three sets of stamps issued by United Nations Postal Administration for the International Year of Mountains, but these are no longer available from Canada Post. The Vienna set (Euro denomination) illustrates four mountains - Mt. Robson, B.C. (upper left), Mt. Cook, New Zealand, Rakaposhi, Pakistan, and Sagarmata, Nepal. These are shown at right, or in colour on the UN website at <http://www.un.org/Depts/UNPA/additional/mount/index.htm>.

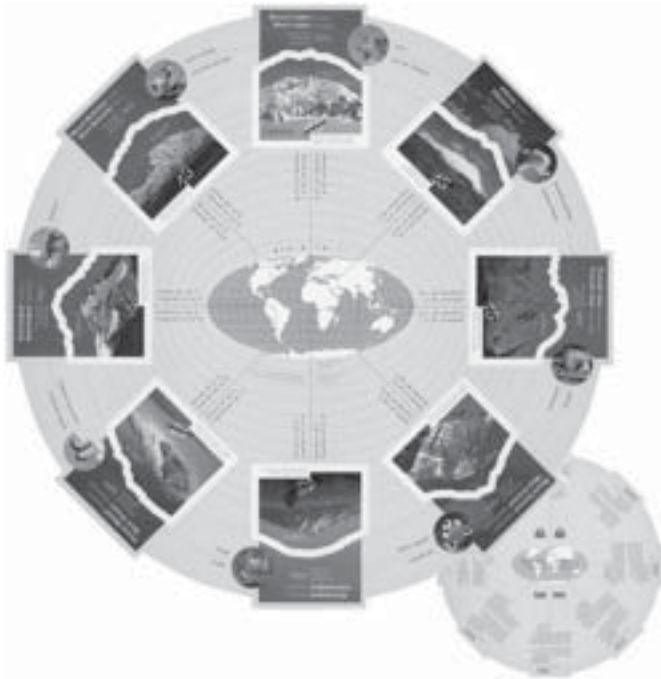
The UN sets comprise 12 different stamps, appearing on three mini-sheets of 12 stamps (to collect all 12 you have to get all three sheets). The website also shows that the stamps are available as three sets of two se-tenant pairs (4 stamps).



Geostamps

International Year of Mountains

On October 1st, Canada Post released a set of stamps that recognize the International Year of Mountains, as proclaimed by the United Nations General Assembly. This declaration was made with the hope that countries would promote the conservation and sustainable development of mountain regions (for more information on the "IYM", see Canada's website www.yearofmountains.ca and the United Nations site www.mountains2002.org).



Canada Post's circular sheet of eight self-adhesive stamps are The highest peaks on the seven continents and Mount Logan. This is a curious set; Canadian geologists should be honoured that Mount Logan is included, because it isn't the highest on this continent. I wouldn't expect Canada Post would mention the controversial attempt to rename Mount Logan (*Geolog*, v. 29, pt. 4, 2000), but there is no mention made at all about Sir William Logan and his accomplishments. Instead, the "special issue celebrates the International Year of Mountains and the end of explorer Bernard Voyer's adventure on those seven summits and Mount Logan".

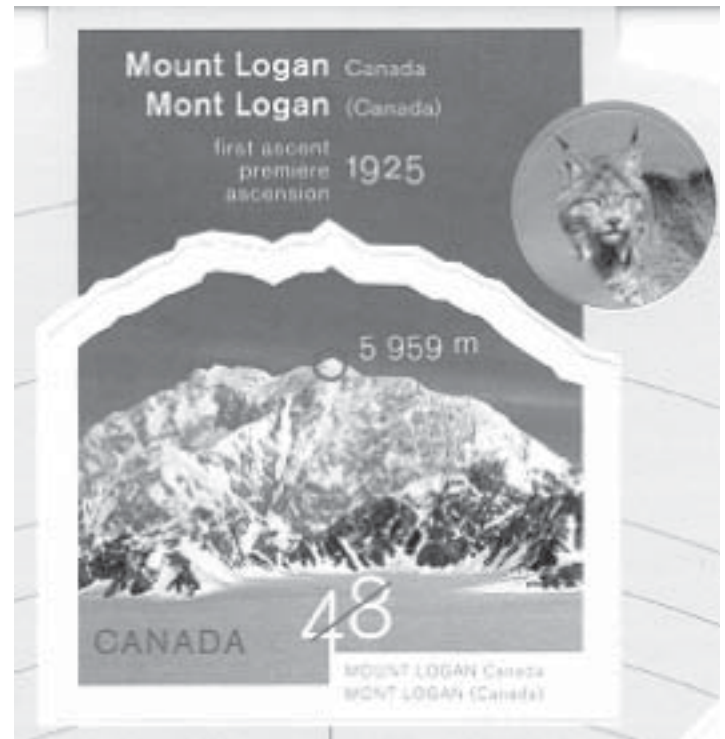
Also present on the sheet are small die-cut circles showing mammals and birds. The Mount Logan stamp, for example, has the lynx, the stamp for Vinson Massif in Antarctica has a pair of penguins. There is no text to imply that these animals inhabit the mountains depicted, but... On the back of the sheet are interesting bits of trivia. For example, Mount Logan is "The Canadian mountain synonymous with winter", and that the altitude of Mount McKinley "is worthy of the continent on which it sits".

The text below is directly from the Canada Post website, but details of all but the two North American mountains has been deleted (please see www.canadapost.ca for the details on the other mountains).

Article published in Canada's Stamp Details (v. XI, n. 4, 2002)

Mountains have served as a source of spiritual inspiration, a gathering place for cultural and recreational activities, and a means by which climbers can challenge their own physical limits. In celebration of these grand geological wonders and their surrounding eco-

systems, the year 2002 has been named the International Year of Mountains as proclaimed by the United Nations General Assembly. Canada Post commemorates the event with the issue of eight self adhesive domestic rate (\$0.48) stamps featuring summits located around the world: 1) Mount Logan in Canada; 2) Mount Elbrus in Europe; 3) Puncak Jaya in Oceania; 4) Mount Everest in Asia; 5) Kilimanjaro in Africa; 6) Vinson Massif in Antarctica; 7) Aconcagua in South America; 8) Mount McKinley in North America. This special stamp set also pays tribute to two accomplished Canadians; explorer Bernard Voyer, who has been sponsored by Canada Post to undertake expeditions to Vinson Massif, Mount McKinley and Mount Logan, and explorer, climber and photographer Pat Morrow, who was the first man to climb all of the Seven Summits. This feat made it into the Guinness Book of World Records.



Mount Logan

Located in Kluane National Park in southwest Yukon, Mount Logan is Canada's tallest peak, reaching a height of 5,959 m. This majestic peak is part of the Saint Elias Mountain Range, which straddles the Yukon/Alaska border. Mount Logan is mostly snow covered and physically very similar to the Himalayan Mountains.

Mount McKinley

At a height of 6,194 m, Mount McKinley is North America's highest summit. It lies in the heart of the Alaska Range, and is flanked by five massive glaciers and numerous ice cascades. Mount McKinley towers above the horizon and is famous for its ever changing and unpredictable weather conditions.

The stamps are available from your local post office, or from the National Philatelic Centre, 75 St. Ninian St., Antigonish NS B2G 2R8. From Canada and the USA: 1 800 565 4362, by fax 902 863 6796

*Sandy McCracken
Calgary AB*

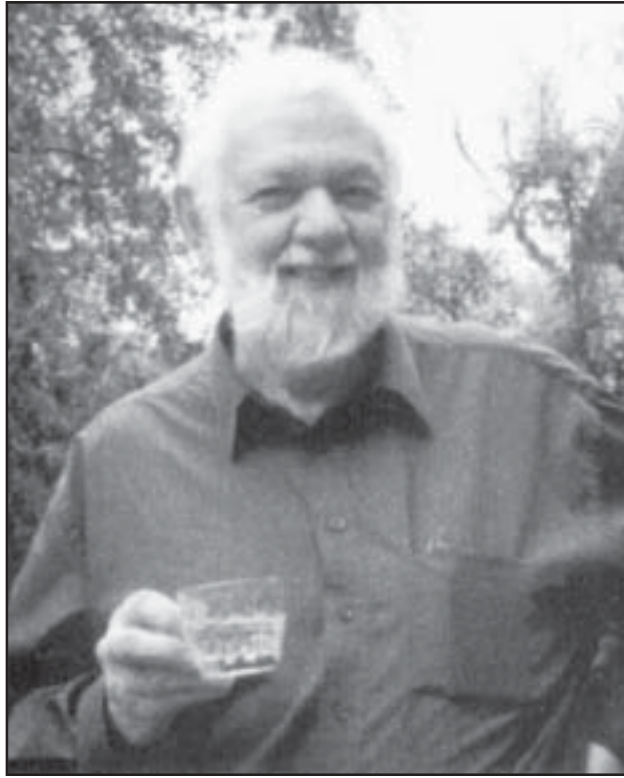
William Antony Swithin SARJEANT - D.Sc., F.R.S.C.

Family and friends mourn the passing on 8th July 2002 of William "Bill" Antony Swithin Sarjeant, geologist, palaeontologist, avid book collector, fantasy writer, folksinger, Sherlockian scholar, and heritage advocate.

Bill is survived by his loving wife, Margaret "Peggy"; his devoted daughters, Nicola (Peter Ryan), Rachel (Neil Sarjeant-Jenkins) and Juliet (Michael McKague); his grandsons Tristan and Rowan Sarjeant-Jenkins; his aunt, Winifred Llewellyn, and cousins, Cynthia and Trevor, of England; and long-time friend David Spalding of Pender Island. He was predeceased by his parents, Harold and Margaret (née Cantrell) Sarjeant, and his uncle, Reginald Llewellyn.

Bill was born on 15th July 1935 in Sheffield, England and married Peggy in April 1966. Following a career as an academic geologist at Nottingham University, he and his family immigrated to Canada in April 1972, where he took up a position as Professor of Geology at the University of Saskatchewan, a position he held until his passing. His research work focused on the study of marine microfossils and on the history of the earth sciences, fields in which he was widely published and professionally recognized. In later years he expanded his field of studies to include that of fossil footprints. In 1995 he was proud to be elected to the Fellowship of the Royal Society of Canada. Bill was devoted to his students and supported them at every opportunity.

Non-academic writing was also a big part of Bill's life. His interest in detective fiction and Sherlockian studies led to the publication of numerous articles in that field and to the co-authorship with Alan Bradley of *Ms Holmes of Baker Street*. Under the name



of Antony Swithin, he wrote a fantasy quartet entitled *The Perilous Quest for Lyonesse*; he continued to write other novels in the series up to the time of his death.

Traditional folk music was a passion. Bill performed with the local folk group, "The Prairie Higglers", and sang from his repertoire of British folk songs with great gusto.

Bill will be remembered in the larger Saskatoon community for his work in heritage preservation. Through his tireless advocacy the City set up its Special Committee for the Identification and Listing of Historic Buildings in 1974, which he chaired from 1974-1979. He co-authored, with Bill Delainey and John Duerkop, *Saskatoon: a Century in Pictures* in 1982. His major contribution to the preservation of Saskatoon's history, however, has been in the editorship of the Saskatoon Heritage Society's annual journal, *Saskatoon History Review*, from 1989 to 2002.

His other contributions to the community include serving on the boards of the Saskatoon Environmental Society, the Saskatoon Nature Society, Nature Saskatchewan, the Saskatchewan Archives Board, SaskCulture, the Saskatchewan Heritage Advisory Board and the Canadian Folk Music Society.

The family would like to thank Bill's physicians, the Palliative Care Team and the nursing staff at the 5000 ward at the Royal University Hospital for their compassionate care.

The funeral service was held at St. John's Anglican Cathedral in Saskatoon on July 15th. Charitable donations may be made to the William A.S. Sarjeant Memorial Fund, University Advancement, 223 - 117 Science Place, University of Saskatchewan, Saskatoon, SK, S7N 5C8.

Ministère des Ressources Séminaire d'information sur la Recherche Géologique

The Ministère des Ressources naturelles du Québec will be hosting the 23rd edition of the Geological Research Information Seminar with the theme "Our knowledge, your discoveries" on November 27-28 in Québec City.

Nearly thirty conferences will be offered to participants with simultaneous translation. These will namely deal with topics such as:

- Québec's Far North;
- developing knowledge bases in the Abitibi, James Bay and Near North regions;
- technological breakthroughs offered to the mining industry;
- acquisition of geological data in the Gaspésie and Appalachians.

As well, the Ministère des Ressources naturelles will unveil the results of its geological research conducted during the summer 2002. Over 90 poster presentations will be on display. Several training sessions are offered free of charge to participants of the 2002 Seminar, including a few sessions in English.

- New features in Gestim
- Diamond exploration techniques in Québec
- Maximizing the use of geoscience databases (SIGÉOM, SIGÉOM à la carte)
- SPCPM mineral potential maps

Consult the website and register online! www.mrn.gouv.qc.ca/mines/seminaire

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- ✓ *awards grants to 3 annual student conferences*
- ✓ *awards student chapter grants to participating universities/colleges*
- ✓ *appoints a GAC "campus representative" in each of 32 Canadian universities*

GAC Promotes Life-Long Learning

- ✓ *publishes books and journals*
- ✓ *provides continuing education opportunities at GAC-MAC conferences and at other GAC-sponsored activities*
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- ✓ *sponsors the annual national Howard Street Robinson Lecture Tour - go to www.gac.ca for Dr. John Percival's lecture tour schedule in 2003*

GAC Maintains relationships

- ✓ *through memberships in the Canadian Geoscience Council (CGC), the World Petroleum Congress (WPC) and the Youth Science Foundation (YSF)*
- ✓ *by supporting the Canadian Geological Foundation (CGF)*
- ✓ *by supporting the Canadian Geoscience Education Network (CGEN)*
- ✓ *by appointing a representative to the Partnership Group for Science & Engineering (PAGSE)*
- ✓ *by appointing a representative to the North American Commission on Stratigraphic Nomenclature*

Read about your new membership benefits on page 6

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As of October 21st, Canada Post has changed its code for Newfoundland from NF to NL. So far, there's no word on what the Netherlands thinks of this.

Stones in your shoes?

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Geos

(to a RAP beat...)

I talked to a Geo,
Last week.
I noticed his feet,
Did reek.
Why I asked?
And he gave me a reason.
His socks had to last,
For the whole field season.
Ohh <pause> my god.
I gave him a smile,
And gave him a nod.
I took a step back,
And almost fell.
I faded to black,
And then I inhaled.
The colours that came
Were dancing around.
I breathed once more
And hit the ground.

Geos
They'd crawl to the top.
Just to get a look,
At the next outcrop.

Digging them holes,
And cracking those rocks.
Ripping their pants,
And stinking up their socks.

Geos
They're pretty laid back.
Just give them a cobble,
Or something to crack.

They're big rock talkers.
They whack through the bush.
Extreme back-packers.
The limit, they push.

Geos
They study rocks,
And crash through the bush,
Like a hound on a fox.

Geos
Sometimes out to lunch.
But all in all,
They're a wonderful bunch.

Robbie Cashin
Carmacks, YT

*Robbie worked with a joint Yukon Geology
Program/Geological Survey of Canada
field crew this past summer*

GeoCrossWord

1	2	3	4			5	6	7	8
9						10			
11				12	13		14		
15			16			17		18	
		19				20	21		
		22				23			
24	25		26	27	28			29	
30		31		32			33		
34			35			36			
37									

ACROSS

- High-grade metased
- Hydrated Al-silicate or flocculent type
- Type of crystal cell
- Residual concentrate or sediment
- Na sub in plag
- Nb mining area or Canadian cheese area
- Element, Asian-sounding
- Bonanza element
- British upper house
- African reef ore element
- Shorter than 1 m
- Element common near Yellowknife
- Army punishment duty
- Enough money in the bank
- Surface under thrust sheet
- Alien visitor
- Embattled deciduous
- Center of the universe, city
- ___gonal, as in tourmaline
- Tabular concordant rock body
- Castle defence feature
- Across strike, or Ranges in S. California

DOWN

- Relict structure
- GAC 2002 Derry Award Winner
- Hairpiece (coll)
- Morning
- Element, a sub-continent
- Chain prefix
- Hindu group
- Travertine icicle
- Element, Ontario mining town
- Si sub in plag
- Weathered granite
- Tabular discordant rock body
- Checks company's books
- Refugee-type
- Chopper heat spotter
- Beyond normal time
- ___ and behold
- Geological time division
- Prov. politician (except in PQ)
- Castle-like outcrop remnant
- Base of natural logs
- New England state

This GeoCrossWord was developed by Alan Gorman of Queen's University. Answers on page 35. HINT: many two and three letter answers may be abbreviations.



Calendar

2002

- November 13 - 14
Nova Scotia Mining Matters and Geoforum, Halifax NS
E-mail: mamacdon@gov.ns.ca; Web: www.gov.ns.ca/natr/eb/oh/oh25home.htm
- November 14 - 16
Manitoba Mining & Minerals Convention 2002, Winnipeg, MB
Manitoba Industry, Trade and Mines. Tel: 204 945-8093; Fax: 204 945-8427; E-mail: convention@gov.mb.ca; Web: www.mineralsconvention.com
- November 16 - 19
30th Yukon Geoscience Forum, Whitehorse, YT
Tel: 867 667-2090; E-mail: info@ycmines.ca; Web: <http://www.ycmines.ca/forum.html>
- November 20 - 22
NWT Annual Geoscience Forum, Yellowknife, NWT
Tel: 867 873 5281; E-mail: nwtmines@ssimicro.com
- November 27 - 28
23rd Geological Research Information Seminar, Québec City, QC
Tel: 418 627 8609; E-mail: Alain.simard@mrn.gov.qc.ca; Web: www.mrn.gouv.qc.ca/mines/seminaire
- December 2 - 4
Ontario Mines & Minerals Symposium, Toronto, ON
Tel: 416 314 3781; E-mail: oegs@ontariopropectors.com; Web: www.ontariopropectors.com
- December 2 - 6
Northwest Mining Association (NWMA) 108th Annual Meeting, Spokane, WA
E-mail: nwma@nwma.org
- December 7 - 18
Modular Course in Exploration Geochemistry, Sudbury, ON
Laurentian University. Tel: 705 675-1151 x2364, E-mail: spiercey@laurentian.ca; Web: <http://earthsciences.laurentian.ca>

2003

- Jan 26 - 30
Cordilleran Exploration Roundup 2003, 20th Anniversary, Vancouver, BC
Web: www.chamberofmines.bc.ca

- February 23 - 25
Society for Mining, Metallurgy and Exploration Annual Meeting and Exhibit, Cincinnati, OH
Tel: 303 973-9550. Fax: 303 979-3461; E-mail: sme@smenet.org
- March 9 - 12
PDAC — Prospectors & Developers Association of Canada Annual Convention, Toronto, ON
Tel 416 362-1969; Fax: 416 362-0101; E-mail: hsklarz@pdac.ca
- March 27 - 29
Joint Meeting of Northeastern GSA & Atlantic Geoscience Society, Halifax, NS
Web: www.dal.ca/~es/2003GSA/2003-NEGSA.htm
- March 29 - April 2
3rd International Limnogeology Congress, Tucson, AZ
Tel: 520 621-4691; Fax: 520 621-2672; E-mail: acohen@geo.arizona.edu
- April 7 - 11
EGS, AGU, and EUG Joint Assembly, Nice, France
Web: www.copernicus.org/egsagueug/
- April 8 - 9
Northwestern Ontario Mines & Minerals Symposium, Thunder Bay, ON
Email: mwopa@tbaytel.net
- April 15 - 16
Northeastern Ontario Mines and Minerals Symposium, Cobalt, ON
Tel: 705 567-4377
- April 16 - 17
12th Calgary Mining Forum, Calgary, AB
Tel: 403 242-7745; Web: www.meg.calgary.ab.ca
- May 4 - 7
CIM 2003 Conference, Montreal, QC
Canadian Institute of Mining Metallurgy and Petroleum. Tel: 514 939-2710; Fax: 514 939-2714
- May 25 - 28
11th Symposium on Deformation Measurements, Santorini, Greece
Contact: www.heliotopos.net/conf/11fig
- May 25 - 29
Joint GAC-MAC-SEG Annual Meeting, Vancouver, BC
Tel: 604 681-5226; E-mail: Vancouver2003@nrca.gc.ca; Web: www.Vancouver2003.com

- May 26 - 28
2nd Int'l Symposium on Contaminated Sediments, Quebec City, QC
Web: <http://www.scs2003.ggl.ulaval.ca>
- June 4 - 6
ECROFI XVII, Budapest, Hungary
Web: <http://ecrofi17.geology.elte.hu>
- June 8 - 10
3rd Canadian Conference on Geotechnique & Natural Hazards, Edmonton, AB
Web: <http://www.geohazards2003.eba.ca>
- June 30 - July 11
International Union of Geodesy and Geophysics (IUGG2003), Sapporo, Japan
- Aug. 10 - 14
Geoscied IV: Earth Science for the Global Community, Calgary, AB
Web: www.geoscied.org
- Aug. 10 - 16
XV International Congress on Carboniferous & Permian Stratigraphy, Utrecht, The Netherlands
- Aug. 18 - 21
9th International Symposium on the Ordovician System & 7th International Graptolite Conference, San Juan City, Argentina
E-mail: galbanesi@arnet.com.ar; Web: <http://ceor.seos.uvic.ca/ordovician> or <http://iago.stfx.ca/people/mmelchin/silurian9.htm>
- August 27 - September 3
Int'l Geochemical Exploration Symposium, Dublin, Ireland
Association of Exploration Geochemists.
Web: www.aeg.org.
- August 31 - September 3
North Atlantic Minerals Symposium (NAMS), Dublin, Ireland
Tel: 709-729-5946; Web: www.gov.nf.ca/nams/; E-mail: bfk@zeppo.geosurv.gov.nf.ca
- September 2 - 6
Fifth Hutton Symposium on the Origin of Granites, Toyohashi, Japan
E-mail: Hutton-V@m.aist.go.jp; Web: www.gsj.jp/Info/event/hutton
- September 7 - 11
ISEG 2003: 6th International Symposium on Environmental Geochemistry, Edinburgh, Scotland
Web: www.iseg2003.com
- September 10 - 12
Debris-Flow Hazards Mitigation: Mechanics, Prediction, and Assessment, Davos, Switzerland
Web: www.wsl.ch/3rdDFHM

Nothing but Net

Several Magnetic Declination Calculators available here:

<http://www.usbr.gov/geo/magdec.htm>

Check out the GSC's paleoGallery and see the history of Canadian paleontology:

<http://www.nrcan.gc.ca/gsc/calgary/paleogallery> or <http://iago.sfx.ca/people/paleodiv/Gallery/Gallery.htm>

Bob Butler's Paleomagnetic textbook, free on the web:

<http://www.geo.arizona.edu/Paleomag/book/>

National Earthquake Hazards Program, check out what's shaking:

<http://www.seismo.nrcan.gc.ca/>

The Northern Miner, always fresh content:

<http://www.northernminer.com/>

Geochemistry Web-Links:

<http://www.geo.cornell.edu/geology/classes/Geochemweblinks.HTML>

Fundamentals of Remote Sensing, a tutorial:

http://www.ccrs.nrcan.gc.ca/ccrs/learn/tutorials/fundam/fundam_e.html

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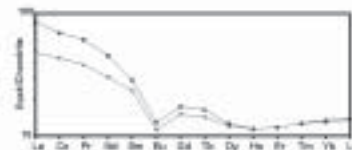
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1P	2A	3R	4A	G	N	5E	6I	7S	8S
9A	L	U	M			10U	N	I	T
11L	A	G		12C	13A		14O	K	A
15I	N		16G	O	L	17D		18H	L
M		19C	R			20Y	21D		A
P		22A	U			23K	P		C
24S	25F		26S	27O	28L	E		29E	T
30E	L	31M		32T	O		33T	R	I
34S	I	L	35L			36M	O	A	T
37T	R	A	N	S	V	E	R	S	E

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