

GEOLOG

The Newsmagazine of the Geological Association of Canada

Geological Association
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GAC Presents Medals in Saskatoon



Photo credit: Photo Memories Saskatoon

(left to right) Roger Macqueen (GSC-Calgary), Bob Turner (GSC-Vancouver), Brian Pratt (U. Sask) and Jim Monger (GSC-Vancouver) flash smiles and silverware at the GAC Luncheon recently held at the GAC-MAC Annual Meeting in Saskatoon.



Winners at a Glance

GAC MEDALS

Logan Medal	James Monger
Past Presidents' Medal	Brian Pratt
Ambrose Medal	Roger Macqueen
E.R.Ward Neale Medal	Robert Turner

GAC AWARDS

50-Year Members	Gerald E. Merritt, Gordon A. Gross, Harold F. Morrow & Peter J. Savage
Distinguished Service Award	R. Frank Blackwood
Volunteer Award	Peter Mustard
Fortier Earth Science Journalism Award	Larry Pynn (Vancouver Sun)

GAC DIVISION AWARDS

Duncan R. Derry Medal	Alan Clark
William H. Gross Award	Jan Peter
Leopold Gelinus Medal	
Gold - Stefanie Schmidberger (McGill)	
Silver - Trevor MacHattie (MUN)	
Bronze - Michelle DeWolfe (St. Mary's)	
Pikia Award	Jisuo Jin (UWO)

BCGS Update

Hydrocarbons & Partnerships

The British Columbia Geological Survey Branch is undergoing continued attrition. Two long-time GSB geologists with expertise in mineral deposits and regional mapping are retiring - Tryge Höy and Gerry Ray (see more on page 31). Several geologists are transferring to the Energy Branch (Barry Ryan, Derek Brown, Fil Ferri, and Mike Fornier) as that Branch will likely suffer fewer job losses. That leaves approximately 28 positions and that number is expected to be reduced to 14 by November, 2002.

Obligations that the BCGS had with the federal government as participants on-going projects will now be met. The GSB will participate in the Geological Survey of Canada Targeted Geoscience Initiatives - specifically they will have personnel working on projects in the Atlin and Bella Coola areas.

The British Columbia Ministry of Energy and Mines has also entered into its first geoscience partnership agreement. Working with Eastfield Resources, provincial employees will study the regional geology surrounding the company's Lorraine copper-gold deposit northwest of Prince George. The ministry's geosciences staff are focusing on partnerships where industry and government can combine their geological knowledge and expertise with logistical and financial support. Additional information is on page 11.



geolog@gov.yk.ca

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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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the great grand niece of Sir William Logan

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

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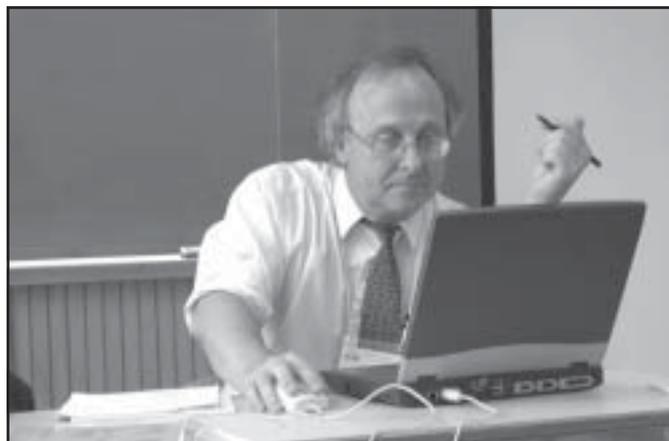
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Outgoing GAC Secretary/Treasurer Elliott Burden takes notes during GAC Business Meeting in Saskatoon

This Summer 2002 **GEOLOG** benefits from the contributions and assistance of Scott Swinden, Mel Stauffer, Michael Marchand, William Sarjeant, Eva Koppelhus, Philip Currie, Steve Morison, Karen Dawe, Sandy McCracken, Grant Lowey, Karen Johnston, Elliott Burden, Roger Macqueen, Eleanor Penney, Micheal Bidgood, John Clague, Godfrey Nowlan, Larry Lane, Phil Hill, Carl Verley, Nancy Chow, Brian Grant, Erica Williams, Alwynne Beaudoin, Lara Lewis, and Mike Melchin. 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 September 7th, 2002 — your contributions are welcome! CJRH

Préambule Presidential Preamble



A Year in Review

In deciding what would be appropriate for my final Presidential Preamble, I thought it might be useful to summarize the progress we have made on Council initiatives. Before I do this, I would like to say that it has been a great honour and privilege to serve as your President over the past year. This has truly been a highlight of my career. I am constantly amazed at the dedication of the volunteer base in GAC and the tremendous support our members show for GAC.

To date, this has been a productive and challenging year for the Geological Association of Canada. Thanks to the leadership and volunteer support of your Council and the hard work of headquarters staff, we are well on our way to achieving our goals this year. The following are some of our accomplishments that are worthy of note.

We are effectively in year 2 of the Publications Business Plan. As you know, a Publications Director (Karen Dawe) was hired last fall and she is providing professional support in managing our publications stream. The Publications Committee has also launched a series of initiatives to streamline and improve our publications such as the identification of Publication Champions to provide support and assistance for authors and editors in meeting their obligations. Our goal is to make GAC the publisher of choice for earth scientists in Canada and we are well on our way to realizing this goal.

The Communications Committee has worked diligently on outreach, advocacy and liaison with universities. Six university student chapters have been established and the Council's representative on the PAGSE (Partnership Group for Science and Engineering) advocacy program in Ottawa is playing an important role in ensuring earth sciences presentations are part of this important program. The Communications Committee has also prepared a GAC Outreach Strategy which can be found on the GAC web page. The GAC listserv is also functioning and there are roughly 200 members that have registered for this service. A total of 31 awards for undergraduates were awarded in 2001-2002, each consisting of complementary one-year membership plus a publication of their choice.

The Awards Committee has developed a series of draft web-based nomination forms for all medals to assist with the nomination process. There have also been some changes to the structure of how awards are handled within Council. An example is decision to place the Communications Committee in charge of the Fortier Award and the Neale Medal.

The Science Program Committee has had a very successful year in securing venues for future AGMs, notably Quebec City for the 2008 AGM. The Short Course Coordinator, Richard Wardle, has completed a Strategic Plan for short course delivery and Council is now implementing this Plan. GAC short courses will now be handled from a "national perspective" by GAC parent body. GAC's registration and abstract software was used for Saskatoon 2002 with a high degree of success. Manuals have also been prepared for both the registration and abstract software for future Organizing Committees (OCs). An application was forwarded this year to GSA for Allied Society Status. The Program Committee will also be meeting with the CSPG Program Committee to discuss the options and possibilities for future joint AGMs. Excellent progress is being made by the organizing committee toward a March 2003 Nuna Conference on geological timescales (www.nunatime.ca).

In terms of issues of the day, I have been working diligently on the future

of the British Columbia Geological Survey issue by writing letters to the Minister of Mines and the Premier of British Columbia. These letters and the responses from the Government of British Columbia have been published in *GEOLOG*. GAC has also been participating in a Vancouver-based group of local geoscientists, including the BC-Yukon Chamber of Mines to deal with this issue. An overall strategy has been prepared and a presentation will be made to senior officials in Victoria near the end of June 2002. GAC has been asked to participate in this presentation.

Effort has also been made to connect with GAC Sections and Divisions this year to improve overall communications and to make the entire organization aware of the issues that Council is addressing this year. This dialogue will continue.

GAC Executive has been active in working with the Canadian Geoscience Council on issues such as the future of the BCGS. Recently, I met with the Executive Director of the CGC to discuss a proposed Geoscience Summit at the end of August 2002 and the role of GAC at this meeting. It is understood that the purpose of this Summit is to discuss the collective future of Canadian Geoscience Societies.

In terms of GAC finances, Council is aggressively reviewing budget items through proforma projections and a pragmatic business plan that should result in a fiscally sound organization. At the present time, GAC is experiencing tough budget issues due to long-term investments such as the Publications Business Plan. GAC Council is actively investigating other methods of raising revenue for the organization and HQ is operating in an exceptionally cost-effective manner.

GAC Council has also adopted a business planning style for managing the priorities of the Association. These are on the GAC web site and Council is on track with the 2002 Business Priorities.

HQ staff have also re-organized themselves into a series of teams to better serve the needs of members. These teams include the Publications Team, the Membership Services Team, the Council Support Team and the Marketing Team. I would like to thank our HQ staff for their tremendous dedication and effort in managing a challenging and heavy workload.

At the Outgoing Council meeting in this year in Saskatoon, key individuals retired from Council. These included: Stephen Johnston (Chair, Program Committee); Nancy Chow (Chair, Communications Committee); Ed Debicki (fund raising and corporate membership drive); Elliot Burden (Secretary-Treasurer) and Scott Swinden (Past-President). All of these individuals have done a remarkable job in supporting this association through their many hours of volunteer effort and they will be missed. On behalf of Council I would like to sincerely thank each of these individuals for their hard work and dedication to GAC.

I welcome John Clague as the in-coming President, Harvey Thorliefson (a councilor in 1999-2002) as Vice-President, and the new Councillors Roger Mason (Secretary-Treasurer), Kevin Ansdell (Science Program Chair), Robert Marquis, Jeremy Richards, and Graham Young. And I look forward to continuing to serve GAC as the Past-President.

Have a great field season!


Steve Morison
GAC President

From the Geolog Editor



The New Diversity

It's no secret.

Fewer of us are pounding on rocks.

Oh sure, many geologists are getting older, and some are moving into management. But not many of us lick rocks anymore. Mostly, we're diversifying.

Although the word "geologist" may conjure up the heavily-booted rugged individual climbing mountains or busting through the bush to bash on the next outcrop - the reality is that more and more of us are modeling groundwater, interpreting remotely obtained data, mitigating environmental damage, evaluating hazards or sniffing for contaminants.

Increased evidence of diversification is everywhere.

One need only to have attended (or look at the program) from the recent GAC MAC meeting to see evidence of this diversity. Whole sessions dedicated to GIS technologies, "Living with Arsenic", geoarcheology, environmental geochemistry of smelters, and hydrogeology - topics that probably wouldn't have made the short-list 10 years ago.

One can also check out where geoscience research dollars are going (see pages 12-15) and note that studies of the earth interfaces (biological, hydrological, atmospheric) are taking a larger share of the funds.

As well, the Solid Earth Sciences proposal for NSERCs Reallocation research funds teamed up with Environmental Earth Sciences to submit a joint proposal that was heavily weighted towards a more holistic, earth systems approach.

Furthermore, the GSC is apparently re-focusing efforts away from rocks and towards groundwater, the offshore, methane hydrates, and hazards.

With approximately 10,000 geologists in Canada, I'm continually amazed that only one-quarter are GAC members - but I'd also guess that most of us members are of the rock-licking variety. Admittedly, the GAC has probably done a lousy job of appealing to the new diversity of Canadian geoscientists that populate the landscape. But I'd like to offer one small voice to encourage these non-rock-bashing geologists to join of the fold and set new courses and directions for Canadian geoscience.

Oscillations

Roger Walker has been awarded the Sorby Medal of the International Association of Sedimentologists. This is the only medal of the IAS, and is awarded once every four years. The medal was presented in Johannesburg at the IAS International Congress in July. • **John Percival** has been chosen as the winner of Robinson Lecture Tour for 2002-03 by the Precambrian Section executive and the HS Robinson Committee. • **Peter Bobrowsky** has been appointed Head of the Canada Landslide Loss Reduction Program, within the GSC in Ottawa. • **Robert Mummery** has been appointed the new CGC Executive Officer effective May 2002. Bob can be contacted at mummeryr@cadvision.com. • **Scott Jobin-Bevans** has been appointed Vice-President of Exploration for Pacific North West Capital Corp. Scott will be responsible for the acquisition and exploration of platinum group metal properties. • Special certificates for scientific achievement were awarded by the Ontario government to UWO Earth Sciences faculty members **Dave Eaton**, **Roberta Flemming**, **Alessandro Forte** and **Penny King**. • **Yves Fortier** Earth Science Journalism Award - **Larry Pynn** of the Vancouver Sun for his 5-part series on marine reserves. • **Aïcha Achab** will be on a sabbatical year in France in 2002. • **Stuart Sutherland** has joined the UBC Department of Earth and Ocean Sciences as a lecturer and with his background in paleontology and sedimentology will be partly covering for **Paul Smith** who is now Departmental Chair.

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 v.8 (*.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 1MB 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 this year's editions of GEOLOG are 06 September and 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 1 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.

James Monger Awarded GAC Logan Medal

The Logan Medal is the highest award that the Geological Association of Canada can bestow. It is awarded annually to an individual who has made an outstanding contribution to the development of the earth sciences in Canada.



Photo credit: Photo Memories Saskatoon

Jim Monger (right), Emeritus Scientist at the GAC-Vancouver, receives Logan Medal from outgoing GAC President Steve Morison.

Citation

James Monger is a world leader in the application of plate tectonics to the evolution of mountain belts. His careful and perceptive field studies and detailed geological mapping of upper and Paleozoic and lower Mesozoic volcanic and sedimentary sequences have demonstrated that the Canadian Cordillera is a collage of displaced terranes that have been accreted to the western margin of North America. His extensive and detailed knowledge of Cordilleran geology led to several collaborative pioneering syntheses: the first plate tectonic interpretations of the evolution of the Canadian Cordillera, its first metamorphic map, a classic, award-winning paper on suspect terranes that evolved into the first terrane map of the Cordillera, a proposal for the collisional origin for the two major plutonic belts, and the first trans-Cordilleran structure section that integrated geological, geophysical and geochemical data. This last led to this leadership of the Global Geoscience Transects Project and an important role in the Canadian LITHOPROBE Project. Although officially retired, Jim continues in his role as a leader in Cordilleran research. He is actively involved in teaching courses at several universities, has recently with Ray Price, completed a major trans-Cordilleran guidebook, and has two other books on Cordilleran geology in the works in addition to his unabated production of scientific articles on the Cordilleran. Finally he continues to unstintingly provide mentorship to students and young researchers, to lead field trips and actively participate at scientific meetings (usually at his own expense) and to generously assist another Cordilleran researchers whenever possible.

In sum, much of our current understanding of the evolution of the western Canadian Cordillera is due to Jim Monger's careful studies, imaginative insights, and capacity for synthesis. His outstanding accomplishments, leadership and stature make him a truly worthy recipient of the Logan Medal.

Response

President Morison, ladies and gentlemen:

It was an unexpected pleasure for me to learn that I was the 2003 Logan Medal recipient, although I'm not sure that I've really *earned* the medal. "Earning" for me, has the connotation of "daily grind". I've rarely felt that, having had a lot of fun in my career, and also a lot of good fortune.

I was accepted into university in England to study chemistry, but the thought of spending my working life in a laboratory caused me to change to geology, with the idea of going into the oil industry. In 1959, I was awarded an exchange scholarship that existed between the universities of Reading and Kansas. One major stroke of good fortune in Kansas was meeting my wife there. Another was reading a paper in the AAPG Bulletin on the Tectonics of British Columbia by the late Bill White of the University of British Columbia. It seemed like there was still a lot of geology to do in B.C. – and so we headed there in 1961.

In 1965, I was extremely fortunate to join what was then the Cordilleran Section, now the Vancouver Office, of the Geological Survey of Canada. The section was a small, enthusiastic and collegial group (with two previous Logan Medal winners) who over the previous 10–15 years had mapped a large part of the Canadian Cordillera. Two comments from that time have stayed with me. One from John Wheeler, who in many ways set the scientific tone of the office, was that its "mission" (in today's jargon) was to sort out the geological framework of the Cordillera. The second comment was from Stan Duffell, Assistant Chief of what then was called Crustal Geology Division in Ottawa, who told me that it was necessary to know a bit about just about every aspect of geology in order to work in the Cordillera.

In the mid-1960s, the plate tectonic hypothesis was emerging. The old geosynclinal concept had become essentially sterile, and the geology of the Canadian Cordillera, much of it newly mapped by my colleagues, was waiting to be re-interpreted in plate tectonic terms. To do this meant that several factors needed to be considered. First, most plates today are large, so that a large, plate-scale, region such as the Cordillera really needed to be examined in its entirety. Second, plate tectonic processes acting for a long time may create effective "geochaos". Third, the lithospheric mobility implicit in the concept leads to enormous paleogeographic uncertainty.

In trying to address these problems, I was aided and abetted by a Geological Survey that in those days encouraged and supported, within reason, work outside of one's official project. It also encouraged collaboration with others, such as Charles Ross, Ray Price, Ted Irving and Ron Clowes, who were working on different aspects of the Canadian Cordillera, and with geologists working in Alaska, the conterminous western United States, and the north Pacific margin.

Accordingly, I owe many people thanks, particularly my colleagues in the Vancouver Office of the Geological Survey of Canada, who over the years unselfishly contributed information, patiently listened to wild ideas, and were willing to argue about them. Like most scientists, I've stood on the shoulders of many others. The efforts of my wife, Jackie, enabled me to worry about geology while she looked after just about everything else. Finally, I would like to thank the Geological Association of Canada for the honour given to me by the award of the Logan Medal.

Brian Pratt Awarded 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.

Citation

A player on the national and international stage now for two decades, Brian Pratt's research career bloomed unusually early and shows no sign of fading. Brian has made remarkably numerous fundamental contributions in both sedimentology and paleontology. Yet by dint of insightful, imaginative, innovative, and controversial paper after paper, he still maintains a reputation as a "Young Turk".

Brian's youth beside the Niagara Escarpment and undergraduate years at McMaster University in the mid-1970s instilled a passion for sedimentary strata, fossils and travel. His MSc work with Noel James at Memorial University on Ordovician limestones of Newfoundland led to a string of ground-breaking papers on stromatolites, microbial reefs and carbonate facies in the early and mid-1980s. Two of the highlights from this phase were his tidal-flat island model for epeiric sea sedimentation and his novel explanation for deep-water reefal mud-mounds. After his MSc, Brian took time out to work in the petroleum industry in Calgary, which furthered his expertise and exposed him to the geology of the Rockies. In 1983 he went to University of Toronto to undertake his PhD with Rolf Ludvigsen on Cambrian trilobites of the Mackenzie Mountains. During this time Brian maintained his presence in carbonate sedimentology and reef paleoecology, and his newly acquired paleontological dimension led to a taxonomic monograph which set the biostratigraphic clock for half of the Upper Cambrian.

In 1989 Brian obtained a faculty position at University of Saskatchewan where he is now a full professor. During this time, Brian has expanded his paleontological expertise to embrace a variety of fossil groups, and has let his sedimentological interests roam up and down the stratigraphic column and focus on all sorts of subjects. In recent years he has single-handedly shown how earthquake deformation explains a range of puzzling sedimentary structures which have stumped geologists for over a century. An enthusiastic field geologist, Brian has worked in both the polar regions and in deserts and mountains all around the world, but the Rockies remain his main playground and source for discovery and inspiration.

Brian is a colourful and creative Canadian geoscientist, intellectually restless and wide-ranging, always questioning, always a rebel against received wisdom. The Geological Association of Canada is proud to count him as a member for over 25 year, and is proud to award him the Past-Presidents' Medal.

Response

Past-President Swinden, Executive, members and guests of the GAC, thank you for this recognition of my scientific achievements. As a kid, we had a mantra that went something like "what do you want, a medal or a chest to pin it on?" Well, I finally got the medal, so now I'm working on the other part. In fact, I've belonged to the GAC for 28 years, so it's good to know that we Peter Pans are not disqualified.

The geosciences are a very well kept secret in education. During my primary and secondary school years, rocks, fossils, evolution or anything to do with Earth History were never mentioned once. Even the tarnished Group of Seven reproductions on the walls, evocative



Photo credit: Photo Memories Saskatchewan

Brian Pratt (r) accepts Past-Presidents' Medal from outgoing GAC Past-President Scott Swinden.

of the Canadian wilderness and its bedrock, did not invite explanation. No-one specifically told us that there really was no grain of scientific truth to *The Flintstones*, or that there is no way *The Beverly Hillbillies* could have struck oil with a rifle shot. So it was a lucky visit to McMaster University's annual open house and a chance encounter with family acquaintance Denis Shaw that I wound up taking first-year geology as an elective, and that was when my geological passions were ignited. It was also the only undergrad course I ever managed to get an 'A' in.

"...even in this technological age the eyes and the imagination are still valid scientific instruments."

Actually, as I kid I was nuts about fossils, shells, bugs, flowers, tadpoles, pretty stones, explosive chemicals, dead bird bodies—thanks to growing up on the edge of town and my dad who took us on hikes and camping vacations. Gerald Durrell and Jacques Cousteau were heroes, but so was Sherlock Holmes. Before the birds and the bees took hold in the other sense, I had an affair with the chess-board. Besides being safe at last from poison ivy, chess turned out to be a metaphor for science yet to come: it revealed how my own personal brain works and that to advance you have to study hard and be a fighter. You also learn that part and parcel of the creative process is making mistakes and blunders so stupid you look like a total idiot.

Mac in the 1970s was a great place for geology, a vibrant department with many internationally achieved faculty. A dynamic duo of first-year professors, dedicated graduate students, helpful technicians, Jim Kramer and his lab taking me under their wing and getting me into the research enterprise—as a first-year student, no less—plus the caving club which was fathered by Derek Ford. Add a fair amount of beer and you had an enchanting elixir. One person stands out as a mentor, the late David Kobluk who was a grad

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Roger Macqueen Wins Ambrose Medal

Citation

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.

The story of Roger Macqueen's professional life is the very definition of sustained and distinguished service to the Earth Sciences in Canada. In his career he has worked in the mineral and petroleum industries, university research and teaching, and government service. In each sphere, he has made his mark. Since his graduation with a doctorate from Princeton in 1965 he has developed an enviable record of research in regional geology, petroleum geology, geochemistry, sedimentology, and mineral deposits, essentially dealing with all aspects of sedimentary basins and their mineral and energy resources. In addition to the conduct of research, he has managed several large research programs for the Geological Survey of Canada.

In the field of scientific publication, he has been on the editorial boards of the *Bulletin of Canadian Petroleum Geology* and the *Canadian Journal of Earth Sciences*. He has edited several significant volumes including an AAPG Memoir on foreland basins and an AGU Geophysical Monograph on sedimentary basins and their energy and mineral resources. Most recently he has been a distinguished editor of *Geoscience Canada*.

In the academic sphere, he was a dedicated and much-loved teacher for nine years at the University of Waterloo and a year at the University of Toronto. He is a gifted teacher and has inspired hundreds of students, many of whom are now distinguished researchers, accomplished petroleum geologists or respected economic geologists in their own right.

He has been President of the Geological Association of Canada and has served on the executive committees of the Canadian Society of Petroleum Geologists and the Rocky Mountain Section of the Geological Society of America. He has also been Chairman of the North American Committee on Stratigraphic Nomenclature.

In all facets of his career, from his youth through his retirement years, Roger Macqueen has displayed unwavering openness and integrity. These qualities have won him profound respect and, combined with his strong intelligence, have enabled him to make enormous contributions to many aspects of Canadian Earth Science. Roger Macqueen is a pre-eminent candidate for the Ambrose Medal.

Response

It's always nice to be recognized – many thanks to those who nominated me! I want to mention a few of the many people who have influenced my scientific career over the years. These include Frank Beales at the University of Toronto; Les Illing in England, for whom I worked in England and the Persian Gulf in the early 1960s; Al Fischer and Franklyn "Van" Van Houten at Princeton during the exciting Harry Hess years (the two best educational decisions I ever made were to apply to Princeton, and to accept their offer when I received it); Tuzo Wilson at Erindale College of the Uni-



Photo credit: Photo Memories Saskatoon

Roger Macqueen (r) accepts the Ambrose Medal from incoming GAC President, John Clague at the Saskatoon GAC-MAC Annual Meeting.

versity of Toronto (with whom I lectured for a year in the early 1970s - I will always remember his boundless enthusiasm and energy, and his child-like curiosity about our Earth); and Chris Barnes and Bob Farvolden at the University of Waterloo, where I was fortunate to teach in the 1970s and 80s. I also enjoyed my association with lots of great undergraduate and graduate students in all of these settings. Geological Survey of Canada mentors and colleagues over the years include Eric Mountjoy, Ray Price, John Wheeler, Bob Douglas, Digby McLaren, Jim Aitken, Don Cook, Bob Thompson, Walt Nassichuk, Grant Mossop, Dale Leckie, Gerry Ross, Mike Cecile, Martin Fowler and many more. I learned something from all of these people. Hopefully they learned something from me: I believe that we teach each other.

Thanks also to Mary Claire Ward who asked me to edit *Geoscience Canada*. I refused initially, but on reflection decided to take on the job, and have enjoyed this immensely. Thanks to all the good people at GSC Calgary who helped us make the journal the success that it is today. I will be continuing with *Geoscience Canada* as Geology and Wine Series Editor: Brock University Professor Simon Haynes, who started the series, died of cancer in April, 2002. Next time you drink a glass of wine, think of Simon, with his profound knowledge of *terroir* and its influence on wine.

In closing I particularly want to mention my loving and supportive wife Marjorie, who has helped enormously in making it all possible. Now I am patriarch of a cherished family of four children, three of them married, and five, soon to be six, charming grandchildren. Life is good for me now, and the award of the Ambrose Medal makes it even better.

Thank you, from the bottom of my heart.

Bob Turner Awarded Neale Medal

The E. R. Ward 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.

Citation

Bob Turner has made an outstanding contribution to public awareness of earth science both in Canada and abroad. He has been the driving force behind the innovative and successful *Geoscape Canada* project, which provides geoscience information in an understandable form to educators, students, and the general public. Turner began by producing posters and maps focused on the Vancouver area, and later broadened the Geoscape initiative to the national level. The *Geoscape Canada* project is endorsed and financially underwritten by the Geological Survey of Canada and has received widespread support within local earth science communities. Currently there are 14 Geoscape posters published or in production across Canada. Geoscape is one of the most important earth science public awareness initiatives to come out of Canada in many years.

Using Geoscape as a model, Turner also spearheaded the effort to produce climate change posters for six regions in Canada. The posters demonstrate the importance of earth sciences in the climate change debate and provide valuable information on climate change science and expected impacts in Canada. Turner was the senior author of the first of the posters, which focuses on southwestern British Columbia. This poster has been a huge success and has served as the template for the other five posters in the set. As a result of his efforts, Turner received a NRCan Sector Merit Award in 2001.

Turner's efforts go far beyond producing posters and maps and managing the *Geoscape Canada* project. He tirelessly promotes public awareness of geoscience by lecturing and running field trips for teachers and students. He has organized several geo-education symposia at national and regional meetings of the Geological Association of Canada and the Geological Society of America.



Photo credit: Photo Memories Saskatoon

Bob Turner (l) shows off his Neale Medal while accepting a congratulatory handshake from Ward Neale himself.

Response

This award is a real shot in the arm for our Geoscape project efforts and I am very thankful for that. I would like to say a few words about Geoscape, and then some words of thanks.

Dirk Tempelman-Kluit once said to me "What people really need to hear from us we learned in first year". I think he was reminding me that I didn't have to be "expert" to be knowledgeable. That with a little homework, and sticking to some plain English, I could speak usefully to the public on a range of geoscience issues. I think this is a message for all of us. In this light, Geoscape attempts to do the homework on specific geoscience issues for communities across Canada, so that many of us can speak with more knowledge.

The central goal of Geoscape has always been to promote wise use of the land. Getting people to listen to us, of course, is our biggest challenge. Our strategy has been three-fold.

- 1) Talk about the places people care most about. Where they live. Where they work. Where they play. That's why Geoscape focuses on communities.
- 2) Be relevant. People care most about their health, their safety, the well being of their communities. Is our water supply safe? Am I at risk from floods, landslides, radon, earthquakes? Are my actions damaging my environment? If you can get people to ask these questions and look for answers, it is a step toward wiser use of the land.
- 3) Speak in pictures. Because pictures speak to people. A combination of carefully designed illustrations and powerful photographs can be a very effective way to communicate important messages to a broad audience.

It is incredibly important that we are successful in this conversation with the public. We – human society – are living in an era of increasing scarcity – we are bumping up against the limits of the planet. Never has it been more important for society to be guided by a best understanding of how the planet works - what are the services of Nature that support life – and how can we protect them.

There are many people to thank. My first thanks are to the Geological Survey of Canada for supporting the Geoscape enterprise, and allowing me to work on the Geoscape effort full time. I particularly thank my managers, Cathie Hickson, Dirk Tempelman-Kluit, Charlie Jefferson, and Sandy Colvine, for supporting this effort from the beginning. I think it took some courage on their part to support our early work given that it meant diverting resources from research activities. I also thank GSC upper management who have supported the current cross-Canada Geoscape project. I am thankful they have made outreach a priority for the Geological Survey of Canada.

This award should have been shared with John Clague. Unfortunately, GAC rules preclude joint awards. John has been my partner on Geoscape from the very beginning and the successes of Geoscape all lean heavily on his remarkable abilities: He's incredibly organized. He gets things done - fast. He's generous. He seems to know everybody, and about everything. He has a great sense for what's important. He cares deeply about making things better. Thank you John. Working with you continues to be a great pleasure.

Geoscape is about great graphics and you can't do this stuff without inspired artists. John and I have been blessed to work with

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VIP WINNERS

Winners of the GAC Volcanology and Igneous Petrology Division's Leopold Gelinus Medals were announced at the recent GAC-MAC Meeting in Saskatoon.

Gold - Stefanie Schmidberger of McGill University for her PhD thesis entitled "Hf, Sr, Nd and Pb isotope systematics and major and trace element compositions of the Archean subcratonic lithosphere beneath Somerset Island, Arctic Canada"

Silver - Trevor MacHattie of Memorial University of Newfoundland for his MSc thesis entitled "Petrogenesis of the Wathaman Batholith and La Ronge Domain plutons in the Reindeer Lake Area, Trans-Hudson Orogen, Saskatchewan"

Bronze - Michelle DeWolfe of St. Mary's University in Nova Scotia for her BSc-Honours thesis entitled "Petrological evidence for pervasive silicate liquid immiscibility in the Jurassic North Mountain Basalt, Nova Scotia".

The VIP Career Achievement Award was not awarded this year.

Mineral Deposit Division Awards



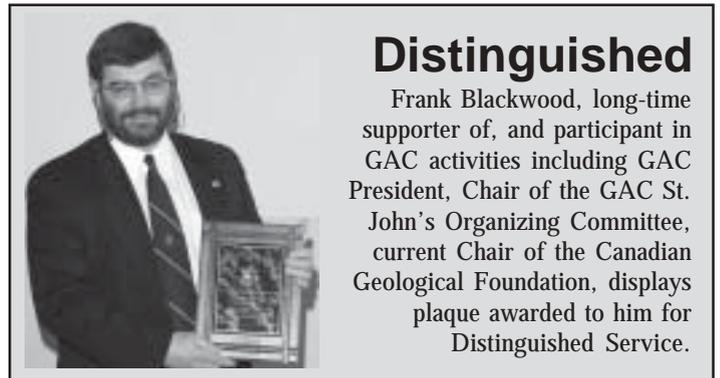
Alan Clark of Queen's University is this year's recipient of the Duncan Derry Award and Jan Peter of the GSC-Ottawa received the Howard Gross Award. The awards are sponsored by the Mineral Deposits Division.

Turner, from page 9

several - Bertrand Groulx, Richard Franklin and Nicky Hastings. David Lemieux in Ottawa keeps our web site alive. And Mike Sigouin in our cartographic group in Ottawa has been a pillar of support making sure these posters get into print.

The final acknowledgement is to the many folks out there, some in this room, that are making Geoscapes happen across Canada, creating local materials for your communities, and working with educators to deliver them. In Nunavut, Halifax, Quebec, Montreal, Ottawa, Toronto, Grand River watershed, Winnipeg, southern Saskatchewan, Calgary, Edmonton, Whitehorse, Fraser River watershed, Vancouver, Nanaimo, and Victoria. You are the ones that really make this enterprise work.

And a last thought. Geoscape can arm you, geoscientists, with stories and pictures that help you explain important stuff to Canadians across Canada. If you want to see what is available check the website - www.geoscape.org. Currently, Vancouver, Victoria, Quebec, Montreal, and Calgary posters are available. Whitehorse, Toronto, and Ottawa are coming soon. All will be available over the next two years. Geoscape materials need to be used by you. There is so much to be done to connect Canadians to the land they live on.



Distinguished

Frank Blackwood, long-time supporter of, and participant in GAC activities including GAC President, Chair of the GAC St. John's Organizing Committee, current Chair of the Canadian Geological Foundation, displays plaque awarded to him for Distinguished Service.

Pratt, from page 7

student there. He nurtured my fascination for sedimentary rocks and fossils, pushed me into the literature, showed me coral reefs, made me *observe*—a big difference from just looking—and forced me to always ask that interrogative trinity: what, how and why.

I did my MSc in sedimentology under Noel James, and after a break to try my hand as an oil magnate in Calgary, I metamorphosed into a paleontologist and did my PhD under Rolf Ludvigsen. Both these 'medaliferous' guys turned me loose on exciting rocks and let me have a great deal of intellectual freedom which in turn gave me the courage to think about big ideas. Even now I resist the seductive pressure to make my career flogging some minor niche. The ancient interface between sediments and organisms is a vast canvas which becomes more challenging and interesting the more you learn. This falls into the realm of traditional geology, seen by many as *passé*. This view is nonsense of course—not only is it the domain of that vital sedimentary substance, petroleum, you just have to ask the right questions. I enjoy pressing buttons on machines too, but I subscribe to what Dolf Seilacher has reminded me: even in this technological age the eyes and the imagination are still valid scientific instruments.

Today I can offer my appreciation to other friends, way too many to name individually, for being part of my scientific adventure—lots of you are here today. Ditto to my grad students, and even the undergrads who don't realize that they deeply stimulate that hard-ass who struts and frets his hour upon the stage each day. The University of Saskatchewan provides a fine cloister; thanks to NSERC for picking up most of the tab and for maintaining a system that permits me to ponder instead of rushing into print. I can express a special debt to the Geological Survey of Canada which has been a sanctuary for me for many years. And they still sometimes lend me the keys to the family helicopter...

John Horgan in his 1996 book "The End of Science" didn't reckon on the geosciences at all. If he had he would have opened his eyes to a wonderfully fertile, grand arena, at once multi-dimensional, integrative, unpredictable, delightfully fraught with pitfalls, unknowns and the unknowable. Geology breaks all the rules set by philosophers of science. My Argentine trilobite buddy, Osvaldo Bordonaro, worries that I should have a hobby; I retort that, my son, I don't need one! Geology has it all: in what other subject can you travel the world and clamber around mountains, make friends and hang out in bars, draw pictures and take photographs, bash things with a hammer and mess around with specimens, hide out in libraries and indulge in creative writing; hop from anal-retentive detail to sweeping generalities; get paid for telling stories and showing people cool stuff; be partly right and partly wrong and be admired for changing your mind. Rocks have been a bonanza for me, and the thrill and magic have never worn off. I thank you all for being part of the fun. Thank-you.

British Columbia Geoscience Partnership Program

The British Columbia Geological Survey (BCGS) seeks clients who wish to work as partners on projects that will lead to identification and development of the province's geology and mineral resources. The goal is to match our pool of talented geoscientists with your areas of interest and research needs and to maximize field surveys to improve British Columbia's geoscience exploration database.

The BCGS is starting a new partnership program to enhance field work in areas that match client interests. For each approved project, the BCGS will contribute staff and resources to complement your financial or in-kind support.

Project Eligibility

British Columbia Geoscience Partnership projects may be up to three years in duration. To be considered, projects must meet the following criteria:

- Fall within the mandate of the BCGS. The BCGS is charged with providing the geological inventory required to discover and develop British Columbia's mineral resources and to improve government's stewardship of our mineral endowment.
- Support current priorities in the joint federal-provincial Geoscience Plan for British Columbia
- Focus on British Columbia
- Complement, not compete with those of the geoscience consulting industry
- Partners can contribute funds, in-kind support and/or unpublished data.

Preference will be given to projects that:

- Provide benefits to multiple clients
- Address more regional aspects of geology, geochemistry and mineral deposit studies (examples would be bedrock or surficial mapping of areas at 1:50 000 scale, RGS surveys, mining camp scale studies)
- Encompass significant areas of Crown land
- Develop exploration concepts and models
- Are not limited to one company's mineral claim holdings.

Publication of Results - Benchmark Projects

Results of studies will be published annually and a final summary report completed. Generally, no period of confidentiality is available for data collected by Branch staff during a partnership project. Information from unstaked ground will be published in the normal manner. Information from a client's mineral claims will be shared with the claim holder before it is released in a standard BCGS publication.

Publication of Results - Unconventional (Capital Intensive) Projects

- A final summary report will be published annually and all data released upon completion of the partnership.
- Data from large projects involving a predominant financial commitment by the partner, such as an airborne multiparameter survey, may be held confidential for a predetermined period of time after which the data will be made available to the public.
- Information from unstaked ground will be published in the normal manner following completion of the confidentiality period.
- Information from a client's mineral claims will be shared with the claim holder before it is released in a standard BCGS publication.

Promotional Literature

Terms of Partnership Agreements may be disclosed by public and/or private partners provided the information is approved by the Ministry, it is in accordance with stock exchange rules, and that it is non-promotional in nature.

- Press releases by partners should be cleared by the Branch.
- The Branch will disclose plans for a partnership as soon as the partner gives permission, including the partner's name and geographic location and nature of the project.

Assessment Credit

- A partner's financial contribution to a geoscience partnership may be eligible for assessment credit and/or Portable Assessment Credit (PAC) subject to the Mineral Tenure Act Regulations.
- BCGS financial and staff contributions to a partnership are not eligible for assessment credit.

Procedure for Proposals

Step 1: Initial Contact Between BC Geological Survey and Potential Partner(s)

The BCGS welcomes expressions of interest from potential partners to any staff member. As well, BCGS geologists may approach clients concerning potential partnerships. As soon as a mutually interesting concept has been identified, it should be presented to Branch management for approval. This preliminary step is to avoid expending significant effort preparing proposals that will not meet criteria for approval or for which there are no available personnel.

Step 2: Project Proposals

All British Columbia Geoscience Partnership projects must present a concise management plan which outlines the objectives, deliverables, personnel, budget, schedule and publication requirements with deadlines. The principal contact for each partner must be clearly identified (name, title, full address, etc.). Project proposals, usually as a letter of agreement, are then signed off by all partners.

Summary: Program Administration

The following points outline the normal sequence of events in developing a project:

- BCGS geologist and potential partner(s) develop a project concept.
- Branch management evaluate the project and either approve preparation of a formal proposal or reject the concept.
- If the concept is approved, a project proposal is prepared. The proposal must have substantial input from all partners.
- The completed project proposal is evaluated by Branch management.
- Partnership projects are reviewed by the Minister's Technical Liaison Committee in the context of the branch program to ensure that the overall balance of the program is maintained.
- If approved, a letter of agreement will be drawn up and signed.
- For multi-year projects, progress reports are due annually before the end of the calendar year.
- All projects require a final report upon completion of the project.

Financial Administration

Partner's funding or "in kind" resources must be used only for the project for which it is designated. The partner's cash contributions will be deposited into a Government of British Columbia account. All expenditures for projects under the program will be tracked through a unique project account to create an audit trail. The projects will be run within the government fiscal year cycle.

Reprinted from Partnership Agreement Details, BCGS Website: <http://www.em.gov.bc.ca/Mining/Geosurv/GSBPartnership/>

NSERC Earth Science Research Grants

Announced May 24, 2002

Solid Earth Sciences

Name - Institution
Project Title, Term
\$ awarded

Solid Earth Sciences

Aldridge, Keith - York
Laboratory geophysical fluid dynamics, 4
\$27,000

Anderson, Alan - St. Francis Xavier
Spectroscopic investigations of crustal fluids, 4
\$41,560

Atkinson, Gail - Carleton
Canadian Ground Motion Research Program, 5
\$43,000

Beaumont, Christopher - Dalhousie
Geodynamical models of geological processes, 4
\$116,000

Begun, David - Toronto
Hominoid evolution, climate change and paleobiogeography in the Miocene of Turkey, 4
\$32,120

Benn, Keith - Ottawa
Tectonic evolution of Archean continental crust, 4
\$30,340

Boudreau, Bernard - Dalhousie
Modelling the growth and rise of bubbles in muddy sediments, 4
\$50,000

Brookfield, Michael - Guelph
Paleoenvironments of Ordovician carbonates in Ontario, 4
\$17,560

Brown, Alex - École Polytechnique
Metallogenic analyses of sediment-hosted and sedex/volcanic environments, 4
\$18,560

Bustin, Marc - British Columbia
Sedimentology, diagenesis, gas sorption characteristics and sequestration potential of organic rich rocks, 4
\$88,560

Butler, Samuel - Saskatchewan
High resolution numerical models of convection in the earth's mantle, 4
\$23,500

Chakhmouradian, Anton - Manitoba
Occurrence and alteration mechanisms of Ti, Nb and Zr minerals in carbonatites, 4
\$26,5600

Polarizing microscope equipped with a digital image-capture system for mineralogic and petrologic studies of synthesis, rietveld analysis, metasomatism, 1
\$29,1880

Chatterton, Brian - Alberta
Paleozoic life, biodiversity, evolution and systematics, with specialization in trilobites, 4
\$75,560

Chow, Nancy - Manitoba, with: George, Annette
Paleogeography, tectonic history and diagenesis of Devonian reef platforms, 4
\$17,560

Constantin, Marc - Laval
Pétrogenèse des magmas mafiques et métallogénie des minéralisations de Ni-Cu-ÉGP, 4
\$20,560

Currie, Philip - Calgary
Anatomy and interrelationships of theropod dinosaurs
\$22,780

Dix, George - Carleton
Stratigraphy and sedimentology of temperature and tropical carbonate platforms in foreland basins or areas of increasing tectonism through time, 4
\$29,340

Duckworth, Kenneth - Calgary
Development of an electromagnetic exploration system incorporating vertical gradiometry broad frequency band and real time presentation of data as maps and vertical sections, 4
\$17,000

Evans, Michael - Alberta
Magnetoclimatology and archaeomagnetism, 4
\$29,560

Ferguson, Ian - Manitoba
Electromagnetic imaging of the Earth's crust, 4
\$21,780

Fox, Richard - Alberta
Latest Cretaceous and Paleocene mammals from Western Canada, 4
\$30,780

Fralick, Philip - Lakehead
Depositional systems developed in the Mesoproterozoic terrains of western superior province, 4
\$16,560

Ghent, Edward - Calgary, with Hutcheon, Ian; Pattison, David; Krause, Federico; Gordon, Terence and Meyer, Rudolf
Application for a powder x-ray diffractometer, 1
\$99,900

Gibson, Harold - Laurentian
Volcanic processes, environments and controls on the formation and location of volcanic-associated massive sulphide deposits, 4
\$42,120

Gleeson, Sarah - Alberta, with Richards, Jeremy
Solute analysis of fluid inclusions by ion chromatography, 1
\$77,822

Tracing the origins of paleofluids in crustal rocks, 4
\$25,780

Greenough, John - Okanagan University College
Applications of geochemistry to igneous petrology, 4
\$20,780

Grieve, Richard - New Brunswick
Morphology and morphometry of martian impact craters: implications for cratering and for Mars, 2
\$28,000

Grimm, Kurt - British Columbia
Microstratigraphy of laminated diatomaceous sediments: sedimentary processes, paleoecology and biogeochemical cycling, 2
\$24,780

Hajnal, Zoltan - Saskatchewan
Seismic images of deep-seated structures, 4
\$42,000

Halden, Norman - Manitoba
Physical and chemical characterization of oscillatory zoning in earth materials, 4
\$33,780

Hall, Jeremy - Memorial Univ. of Nfld.
Seismological imaging and the evolution of young plate margins and associated basins. 4
\$50,780

Halls, Henry - Toronto
Paleomagnetism of proterozoic dyke swarms: continental configurations and evolution of the earth's core, 4
\$32,000

Hawthorne, Frank - Manitoba, with Cerny, Petr and Last, William
X-ray Generator for Powder Diffractometer, 1
\$50,783

Henderson, Charles - Calgary
Permian to lower Triassic sequence biostratigraphic events and conodont paleontology and evolution, 4
\$22,340

Higgins, Michael - Québec à Chicoutimi
Textural, petrological and geochemical studies of igneous rocks: elucidation of solidification processes, 4
\$23,560

Hillaire-Marcel, Claude - Québec à Montréal
Traceurs et chronomètres isotopiques en géodynamique externe, 5
\$90,560

Hurich, Charles - Memorial Univ. of Nfld.
Application of seismic techniques to advanced and nontraditional problems, 4
\$25,000

Hutcheon, Ian - Calgary
Water-rock-gas interactions in deep and shallow aquifers, 4
\$71,560

- Hyndman, Roy - Victoria
Geophysical studies in Western Canada, 4
\$20,780
- Indares, Aphrodite - Memorial Univ. of Nfld.,
with Rivers, Toby; Wilton, Derek; Dunning,
Gregory; Sylvester, Paul and Myers, John
Electron microprobe upgrade, 1
\$101,569
- Jenner, George - Memorial Univ. of Nfld.
Application of trace elements and isotopes:
volcanic stratigraphy, plate tectonic
reconstructions, petrology of primitive melts,
4
\$29,000
- Jolly, Wayne - Brock
Volcanism and tectonics of the Eastern greater
Antilles Island Arc platform, 3
\$11,000
- Jutras, Pierre - Saint Mary's
Geomorphologic, tectonic & sedimentologic
evolution of the Windsor sea margins from the
middle Viséan to the earliest Namurian (upper
Mississippian) in the Maritimes basin, 4
\$16,560
- Keating, Pierre - École Polytechnique
Improvement of interpretation methods for
potential field data, 2
\$17,000
- Kirkwood, Donna - Laval
Structural controls on fluid flow in fold and
thrust belts, 4
\$26,560
- Krause, Federico - Calgary, with Sayegh, Selim
Geological characterization of natural gas
hydrates, 4
\$28,120
- Krebes, Edward - Calgary
Seismic wave propagation in non-ideal media,
4
\$17,000
- Krogh, Thomas - Toronto
Precise U-Pb dating of the deep crustal
processes using multi-stage zircons, 4
\$81,000
- Lee, James - Queen's
Fundamental controls in U/Pb and $^{40}\text{Ar}/^{39}\text{Ar}$
geochronology and applications to the
metallogenetic evolution of the central Andes,
4
\$25,780
- Leshner, Carl Michael - Laurentian
Dynamic processes in magnetic Ni-Cu-(PGE)
deposits, 4
\$41,560
- Linnen, Robert - Waterloo
The behaviour of trace elements in magmatic
and orthomagmatic environments, 4
\$35,780
- Upgrade of redox control laboratory, 1
\$15,341
- MacEachern, James - Simon Fraser
Integrated ichnological-sedimentological
siliciclastic facies models in a sequence
stratigraphic framework, 4
\$24,560
- Machel, Hans - Alberta
Burial diagenesis of carbonate rocks, 4
\$45,780
- Malo, Michel - Institut national de recherche
scientifique
Tectonique des fronts orogéniques et ressources
naturelles, 4
\$22,340
- Martin, Robert Francois - McGill
Magmatic assemblages and metasomatic
overprints, 4
\$46,560
- McDonald, Andrew - Laurentian
Applied crystal chemistry, 4
\$27,000
- Milkereit, Bernd - Toronto
High resolution seismic imaging of crustal
exploration targets, 4
\$43,000
- Mitchell, Roger - Lakehead
Petrology of kimberlites and alkaline rocks, 5
\$87,560
- Mitchell, Roger - Lakehead
Top hat electric furnace for mineral synthesis, 1
\$16,105
- Mitrovica, Jerry - Toronto
3-D modelling of an ice age Earth, 2
\$65,514
- Mossman, David - Mount Allison
Geological processes involved in ore formation,
4
\$14,700
- Mountjoy, Eric - McGill
Neoproterozoic reefs with skeletal fossils, rocky
mountain structure, carbonate diagenesis, 4
\$30,780
- Pagiatakis, Spiros - York
The postglacial rebound signature from 50 years
of gravity observations in Canada, 4
\$25,000
- Palmer, Currie - Western Ontario
Magnetic studies applied to volcanology, 1
\$14,000
- Patterson, Tim - Carleton
Application of marsh foraminifera &
thecamoebians in paleoclimatic, paleolimnological
& seismic risk assessments, 4
\$35,780
- Pattison, David - Calgary
Pure and applied problems in metamorphic
petrology, 4
\$50,120
- Pearce, Thomas - Queen's
Laserlab imaging: dynamical and neural net
applications, 4
\$26,560
- Pedersen, Per Kent - Brandon
Sequence stratigraphy and paleogeography of
basal cretaceous transgressive strata, Northern
Western Canada sedimentary basin, 4
\$20,780
- Pemberton, George - Alberta
Integrated models for the recognition of
shoreface depositional systems, 4
\$47,340
- Pe-Piper, Georgia - Saint Mary's
1) magmatic processes and tectonism in large
igneous provinces and seamount chains; 2)
Regional variation in volcanic style as a
consequence of tectonic style, 4
\$31,560
- Piercey, Stephen - Laurentian
Petrology, Tectonic and metallogenic history of
paleozoic magmatic rocks in Yukon-Tanana
terrane, Yukon, 4
\$28,120
- with Leshner, Carl Michael; Thurston, Phillips;
Keays, Reid; Gibson, Harold & McDonald,
Andrew
Research microscopy & imaging equipment, 1
\$31,538
- Polat, Ali - Windsor
Investigation of the mantle-crust evolution in
the early Earth; reading the geochemical record
in Archean greenstone belts, 1
\$18,780
- Pratt, Gerhard - Queen's
Geophysical inverse methods for seismic
waveform data, 4
\$52,000
- Richards, Jeremy - Alberta
Tectonomagmatic controls on arc metallogeny,
4
\$33,120
- Roeder, Peter - Queen's
Spinel in basaltic lava, 3
\$13,566
- Roest, Walter - Ottawa
Regional tectonic studies of the Canadian
landmass and offshore, using geophysical data, 4
\$13,000
- Sacchi, Mauricio - Alberta
Pre-stack seismic data imaging and robust
estimation of rock properties, 4
\$39,000
- Sarjeant, William - Saskatchewan
Mesozoic dinoflagellate cysts and acritarchs: their
application in biostratigraphy & palaeoecology,
4
\$28,000
- Schwerdtner, Walfried - Toronto
Structural analysis at strained lithotectonic
boundaries in ancient orogens, 4
\$26,560
- Scoates, James - British Columbia
Geochemical Evolution of Platinum Group
Elements in Magmas and Ore Deposits, 1
\$18,780

- with Weis, Dominique
Research microscopes for sample characterization and preparation related to mineral deposit and geochemical studies, 1
\$30,422
- Shaw, Cliff - New Brunswick
Kinetics and mechanisms of mineral - melt interaction, 4
\$25,000
- Simony, Philip - Calgary
Tectonic evolution of the hinterland of the southern Canadian Rocky Mountains 4
\$30,340
- Slawinski, Michael - Memorial Univ. of Nfld
Traveltimes, amplitudes and phases of seismic signals in complex media: theoretical formulation of measurable attributes, 4
\$12,000
- Sneeuw, Nico - Calgary
Global Gravity Field Determination from Dedicated Satellite Missions, 4
\$25,000
- Southam, Gordon - Western Ontario
Bacterial mineral dissolution and responses to soluble metals, 4
\$35,560
- Spray, John - New Brunswick
Shock metamorphism and impact cratering, 4
\$60,780
- Stachel, Thomas - Alberta
Inclusions in diamonds, 4
\$35,780
- Tosdal, Richard - British Columbia
Magmatic to hydrothermal transition: a structural and tectonic perspective, 4
\$26,120
- Tremblay, Alain - Institut national de recherche scientifique
Caractérisation structurale et géochronologie de l'avant-pays appalachien et du système de rift St-Laurent, Québec, 4
\$37,340
- Tsujita, Cameron - Western Ontario
Paleoenvironmental history of the Middle Devonian Hamilton Group, southern Ontario, 3
\$15,000
- Vali, Hojatollah - McGill
Nucleation and growth of crystals in biological and non-biological systems, 4
\$36,000
- Van Wagoner, Nancy - Acadia, 4
Volcanism and petrogenesis of Paleozoic Appalachian, and Proterozoic volcanic belts: implications for tectonic setting, global geochemical cycles, and hazard prediction 4
\$20,340
- Veizer, Jan - Ottawa
Earth system evolution 4
\$55,780
- Voicu, Gabriel-Constan - Québec à Montréal
Isotope systematics and metallogenic constraints, 4
\$15,560
- Watkinson, David - Carleton
Igneous breccias and fluids: their significance in nickel, copper, platinum-group element concentration, 4
\$31,000
- Wicks, Frederick - Toronto
Application of mineral studies to geological problems 4
\$30,000
- Williams-Jones, Anthony - McGill
Crustal fluids and ore genesis, 4
\$77,740
- Zodrow, Erwin - Cape Breton
Marrattian *in situ* reproductive organs (Late Carboniferous): natural taxonomy, 4
\$7,000

Selected Environmental Earth Sciences

- Aksu, Ali - Memorial Univ. of Nfld., with Hiscott, Richard
Large piston corer, 1
\$79,368
- Al, Tom - New Brunswick
Geochemistry of mineral - water interactions in groundwater and surface water systems, 4
\$23,000
- Ashmore, Peter - Western Ontario
Bed material transfer in gravel-bed rivers, 4
\$29,920
- Barendregt, René - Lethbridge
Timing and extent of Cenozoic North American glaciations using magnetostratigraphy, 4
\$17,920
- Calvert, Stephen - British Columbia
Geochemistry of marine sediments, 5
\$46,977
- with Bustin, Marc and Pedersen, Thomas.
Glass bead fluxer, 1
\$31,154
- Cheng, Qiuming - York
New GIS technologies for spatial and information extraction and integration in mineral exploration and environmental assessments, 4
\$27,700
- Church, Michael - British Columbia, with Kostaschuk, Raymond
In situ aquatic suspended sediment grain size distribution analyzer, 1
\$61,338
- Studies of fluvial sediment transport and sedimentation, 5
\$76,92
- Fortin, Danielle - Ottawa
Investigation of the role of iron and sulfate reducing bacteria in metal cycling in acidic Cu-Zn mine tailings, 4
\$26,460
- Hickin, Edward - Simon Fraser
Geography Fluvial processes, geomorphology, and sedimentology of rivers in Western Canada, 4
\$30,620
- McCarthy, Francine - Brock
Palynological insights into Pacific paleoceanography and late Cenozoic climate change, 2
\$19,000
- Sauvé, Sébastien - Montréal
Linking chemical speciation of trace elements to their bioavailability in contaminated soils, 4
\$24,000
- Polarographic instrument for metal speciation 1
\$45,164
- Schincariol, Robert - Western Ontario
Characterization of geologic heterogeneity and its influence on variable density fluid flow and mass transport, 4
\$24,000
- Schweger, Charles - Alberta
Palaeoecology, stratigraphy and geochronology of Yukon interglacials 3
\$18,460
- Smart, Christopher - Western Ontario
Geography Environmental monitoring: Surface and karst waters, 1
\$39,460
- Sundby, Bjorn - Québec à Rimouski
Redox chemistry in marine sediments, 4
\$35,920
- Trenhaile, Alan - Windsor
The evolution of rocky coasts, 4
\$17,920
- Westgate, John - Toronto
Late Cenozoic tephrochronology of Eastern Beringia (Yukon and Alaska), 4
\$41,460
- Whiticar, Michael - Victoria
Geochemistry of critical trace gases and fluids at the coastal zone land-sea interface, 4
\$42,460
- Wolfe, Alexander - Alberta
A paleolimnology laboratory for the University of Alberta, 1
\$39,078



Selection Committee on Research Grants

Carr, Sharon, with Bell, Keith; Veizer, Jan; Blenkinsop, John; Hattori, Keiko; Cousens, Brian and Lundberg, Joyce
Thermal ionization mass spectrometer, Carleton University, 1
\$900,241

Major Facilities Access Grants

Frape, Shaun – Waterloo, with Power, Geoffrey; Warner, Barry; Coniglio, Mario; English, Michael; Schiff, Sherry; Chow, Nancy; Edwards, Thomas; Gibson, John; Wolfe, Brent; Aravena, Ramon and Linnen, Robert
The Environmental Isotope Laboratory - University of Waterloo, 3
\$65,000

Kennedy, Gregory - École Polytechnique, with Barnes, Sarah-Jane; Chaouki, Jamal and Zayed, Joseph
SLOWPOKE laboratory, 1
\$50,000

Kerrich, Robert – Saskatchewan, with Renaut, Robin; Pratt, Brian; Liber, Karsten; Hendry, James and Pan, Yuanming
Analytical geochemistry facility, 1
\$40,000

Mortensen, James - British Columbia, with Lavkulich, Leslie; Hall, Kenneth; Calvert, Stephen Pedersen, Thomas; Russell, James (Kelly); Orians, Kristin; Scoates, James; Rowins, Stephen; Allen, Diana; Thorkelson, Derek; Klein, Bernhard and Godin, Laurent
Pacific Centre for Isotopic and Geochemical Research, 2
\$50,000

Scott, Steven – Toronto, with Piper, David; Edwards, Nigel; Hillaire-Marcel, Claude; Scott, David; Pedersen, Thomas; Tunnicliffe, Verena; Mucci, Alfonso; Juniper, Kim; Hatcher, Bruce; De Vernal, Anne; Spence, George and Kenchington, Ellen
Access to the Canadian scientific submersible facility 2002-2005, 3
\$350,000

Recently Announced CFI Research Grants for Earth Sciences

Djordje Grujic - Dalhousie University
Tectonic exhumation and sedimentary basin modelling: Establishment and development of an analogue modelling laboratory. Earth's crust and mantle excluding sea-bed and studies of soils for agriculture. \$ 194,772

Andrew Pulham - Memorial University of Newfoundland
Facility for modelling, simulation and visualization for petroleum geoscience and engineering. Mineral, oil and natural gas prospecting. \$ 1,542,110

Norman Halden - University of Manitoba
Laser-ablation microprobe (LAM) for measuring micron-scale variations of trace elements in minerals. Exploration and exploitation of the earth. \$ 376,546

Ian Clark - University of Ottawa
High-resolution stable isotope analysis in Earth and environmental sciences. General and other research on the environment. \$ 825,220

Martyn Unsworth-University of Alberta
Electromagnetic Instrumentation for Studies of the Continents. Earth's crust and mantle excluding sea-bed and studies of soils for agriculture. \$ 118,423

Gordon Southam - University of Western Ontario
Facilities and equipment to establish a fundamental and applied geomicrobiology laboratory for astrobiology and mining related research. Mineral, oil and natural gas prospecting. \$ 168,000

David Blowes - University of Waterloo
Inductively-coupled plasma mass spectrometer for analysis of groundwater and sediments. Protection of soil and groundwater. \$ 250,000

Roberta Flemming - University of Western Ontario
X-ray diffraction and microdiffraction facility. Earth's crust and mantle excluding sea-bed and studies of soils for agriculture. \$ 160,000

Maria-Cioppa - University of Windsor
Rock Magnetism: field and laboratory data acquisition and analysis equipment. General and other research on the exploration and exploitation of the earth. \$ 184,664

Gregory Baiden - Laurentian University
Telemetry Research Laboratory (TRL) - to develop and use tele-operated and automated mining systems for mining underground, in open pits and in space. General and other research on the exploration and exploitation of the earth. \$ 125,000

Earth As An Evolving Complex System

An excerpt from 2002 NSERC Reallocations Competition Submission

Canadian Earth Science is on the threshold of a new renaissance. There are expanding opportunities for fundamental new insights on how the Earth System works, and on the interactions between humankind and the Earth System. These new opportunities include emerging new technologies for the acquisition, integration and interpretation of increasingly more precise and comprehensive observations on various aspects of the Earth System and at all scales of observation. They also include new technologies for more reliable numerical modeling of various aspects of the past and future evolution of the Earth System. The research opportunities also arise from a rapidly growing need for scientifically well informed social, economic and political decision making at all levels in our increasingly complex global social and economic system. This is particularly important for Canadians because of Canada's natural heritage as a vast territory, richly endowed with ecological, water, energy and mineral resources. To take advantage of these opportunities and to preserve its high international ranking, Canadian Earth Science must cope with the challenges of relative decreases in NSERC funding, and major new responsibilities arising from massive reductions in funding of Earth Science research within federal and provincial government departments. Our vision for Earth Science research in Canadian universities responds to these opportunities and challenges.



Commentary

The Too-Low Profile of Geoscience Education

The Summary results of the 2001 Canadian Geoscience Council Census of Canadian Geoscientists (*GEOLOG* v.31, pt. 1, p. 6-10) came as no surprise to me. As a Geology 12 educator in British Columbia, I am not only a minor player in the secondary science community, since many schools do not even offer the course, but I work in one of only two provinces in this country that consider geoscience education to be important enough to have Geology as a core science at the grade 12 level. In all the other provinces, any physical geology that is taught is considered to be a component of Geography 12. Furthermore, if the British Columbia Geography 12 curriculum and resources are any indication, the geology component of Geography 12, compared to Geology 12, is shallow and simplistic, and is certainly not science in any sense of the word.

It is already recognized that the geoscience community does a poor job of communicating to the people of Canada the interrelationships between our natural resources, natural hazards and our lifestyles (Nowlan, 2001). Certainly the poster projects developed in recent years, with the support of the Geological Survey of Canada, have been much needed resources to secondary geography and geology teachers and are a good start to a comprehensive outreach programme. However, I believe that if the geoscience community is truly interested in increasing public awareness of the importance of the geosciences to Canada's future, as well as ultimately increasing its professional membership, it needs to develop a higher profile in terms of elementary education, particularly science education. Less than one percent of the Census respondents indicated that they worked in the public school system, and with such low numbers we tend to be forgotten.

Five years ago I moved to a new high school and was asked to develop a Geology 12 programme from scratch. I recently completed my MA thesis on the pedagogical and geological research needed to develop the highly interactive hands-on course from which my students currently learn. The thesis title "Twelve Boxes of Gravel and Plastic Fossils: Creating a Geology 12 Course in a New High School" gives a strong indication of what I had in the way of initial resources. During the last four years I have traveled many thousands of kilometers collecting hand-size samples, and taking over 2500 slides and prints that have given me many resources, as well as stories, that bring my course to life. This is a course that thrives on context. Apart from the travel and film cost, I have spent thousands of my after tax dollars on books, posters and other such resources with not even a tax deduction. I have given many geoscience workshops to other teachers as well as local volunteer groups. I continue to donate all this time and money as I am passionate about what I do and firmly believe that a basic knowledge of our land by every citizen is necessary for our survival. However, I must acknowledge that many of my teacher and non-teacher friends think that I am out of my mind, and at times, I am inclined to believe them.

If we, as the geoscience community, are serious about increasing our public awareness and our professional intake then we have to develop some long-term action plans. I have some questions for the geoscience community of this country to help start this process, but no doubt others can think of different questions. Those questions that pertain in some way to elementary and secondary education must involve exemplary educators in the process, and the community must realize that it has to be in for the long term.

Why is geology not recognized in the majority of provinces as a valid senior science course and what are we doing about this deficiency? Have we been lobbying other provinces for the inclusion of a senior geoscience course?

When are we going to develop and then implement an action plan to increase elementary and secondary student learning about the geosciences, with the focus on the "science"? Part of this has to be the development of a variety of resources that focus on learning rather than teaching.

When are we going to develop and implement an action plan to develop in our teachers the necessary skills, knowledge and resources to improve geoscience education? Single workshops only work for the really dedicated. A long-term plan of regular workshops, follow up, feed back and supportive networking will be needed if there is to be any hope of change.

What do we have in the way of an action plan to increase public awareness of the geosciences through such actions as more outreach, more reader friendly travel guides when we live in such a geologically rich and diverse country? When I look at other countries we can be doing a lot more.

Erica Williams
ewilliams@sd43.bc.ca

Nowlan, G.S., 2001. The Earth and its people: Repairing broken connections. *Geoscience Canada*, v. 28, p.51-54.

Publish or Perish

GAC's Publications Imperative

One of the things that is very much on my mind as I complete my three years as a GAC Councillor is an uneasy consciousness of the fiscal fragility of our Association. Running an association like GAC for a diverse, widely-dispersed membership is a complex and costly task. Our members have rightly come to expect a level of service from the Association that is commensurate with the cost of belonging.

So where does our money come from?

GAC has essentially three significant sources of revenue: i) membership dues, ii) proceeds of annual meetings, and iii) publications sales. It is important for GAC members to realize that this year, and in the immediately past, this revenue has been insufficient to cover our expenses and that the Association has recorded a deficit in our budgeting in each of the past three years.

Obviously, this can't continue.

Where will the revenues come from in the future to allow GAC to provide the services that our members deserve have come to expect?

Of the three sources of revenue, membership dues is the largest, accounting for upwards of 40% of our annual revenue. However, our membership has declined by about 20% over the past decade and although it has been more or less stable for the past few years, it probably won't increase significantly in the near term. In fact, a continuing decline can be anticipated as the baby-boom bulge passes through the retirement age. Although there are opportunities for increased effectiveness in recruiting new members, it seems quite unlikely that membership dues will be a source of significantly increased revenues in the near future.

Annual meeting revenues tend to be a wildly unpredictable. Some meetings barely break even, resulting in little revenue to GAC. Others, like last year's St. John's meeting, return significant revenues to the Association. GAC will certainly expect LOCs in the future to pay significant attention to the bottom line but this revenue is very difficult to predict, or use for long term fiscal planning. Without significant increases in registration fees or dramatically increased success in fund raising, annual meetings are unlikely to be the association's fiscal saviour.

Publications probably represent our best hope for putting the association back on a stable fiscal footing in the near term. GAC publications have in the past provided a prestigious and variably profitable venture for the association. There was a time that many of us can remember when editing or contributing to a GAC publication was highly thought of in the geoscience community. However, in the decade just past, our publications production has become moribund. New publications have been few and far between, and those that were produced did not always sell well. Not surprisingly, this has had a significant negative impact on the Association's bottom line.

Council recognized some years ago that a revival of GAC publications represents an important opportunity for restoring fiscal stability to the Association and successive Councils have worked hard to make this happen. The Publications Business Plan, including the hiring of a Publications Director, has been well documented in *GEOLOG*, and should be at least passingly familiar to most readers. The pro forma shows that we need to publish and successfully market between 6 and 10 new publications a year to successfully implement the plan.

I emphasize again that the success of this publications venture is crucial to the continued fiscal health, and perhaps the very existence, of GAC. It goes without saying that the successful implementation of our Publications Business Plan is critically dependent on a steady stream of new publications being offered to the Association by authors and editors. As we all understand, one of the most fertile sources for new publications is the program at the annual general meeting. Papers presented at Symposia and Special Sessions have, in the past, provided GAC with publications of considerable scientific importance, that made us an internationally recognized publisher of high quality geoscience. Tapping this source on a regular basis can take us a long way towards success as a geoscience publisher.

This brings me to the recently-completed AGM in Saskatoon. It looks like there could be two or three new publications arising from sessions at the Saskatoon meeting.

Apparently, none of them are being offered to GAC.

Readers who have stayed with me this far will not be surprised at my intense disappointment at this turn of events. It is particularly disappointing that some of these sessions were sponsored by GAC Divisions, who have a significant personal stake in the continued health of the Association. As my colleague Elliot Burden, former Treasure of GAC, is fond of pointing out, each book that could have been published by GAC, but goes instead to another publisher, potentially represents a direct loss to GAC of significant amounts of money.

Now, I have heard all the arguments – I know that GAC has been slow in the past in getting its special publications out; I understand that authors get more academic credit for publishing in Holland than in Canada. However, I would suggest that with its new, professional organization, timeliness will no longer be the issue for GAC publications it once was. And session organizers need to weight these considerations carefully against the possibility that a decision to publish a volume elsewhere may contribute to ongoing fiscal instability of the association or worse. Do we value GAC sufficiently to make decisions that can help ensure its survival? If you doubt the seriousness of the situation, ask GAC Headquarters for a copy of the budget and look at the numbers for yourself.

In future (as in the recent past), session organizers will be approached directly by GAC Publications in an attempt to solicit publications. I hope and expect that the opportunities to produce a quality scientific product while contributing to the continued health of GAC will not be deliberately foregone by those who organize Symposia and Special Sessions at future meetings. I look forward to a time when session organizers recognize the opportunity for high-quality, timely publication that the GAC publications house now represents, and when GAC Publications is restored to its rightful place as the publisher of choice for geoscience in Canada.

Scott Swinden
Halifax NS



Association News

News from the Home Front - "firing on all cylinders"

I just returned from a great GAC-MAC meeting in Saskatoon (kudos to the Chair, Mel Stauffer). I'd like to pass along some of the highlights of the GAC Council meeting and my priorities as President for the next year.

- GAC's publication unit is now "hitting on all cylinders", thanks to the efforts of Sandy McCracken and other members of the Publications Committee. GAC has a full-time Publication Director, Karen Dawe, and we now have the ability to produce high-quality publications expeditiously, with a greatly reduced burden on editors and authors. I encourage you to contact Karen (karen@esd.mun.ca) if you are considering preparing a book or collection of papers – you'll be pleased at how much support we offer.

- Council discussed a strategic plan for short courses, which have languished in recent years, and directed its author, Dick Wardle, to prepare an implementation plan for the next Council meeting in Vancouver in October 2002. We anticipate offering short courses that better meet the needs of GAC and MAC members in the communities in which Annual General Meetings are held.

- One of my major priorities as President is to begin a process of reducing the fragmentation that currently exists among geoscience societies in Canada. Steve Morison (Past-President), Harvey Thorleifson (Vice-President), and I share the opinion that there are too many Canadian geoscience societies in this country and that we should strive to create a single society that represents all Canadian earth scientists. We should not, and cannot, in my opinion, continue to compete for membership, resources, and limited volunteer time, nor present a fragmented image to the public, policy makers, and granting agencies. Our profession deserves better than the fragmented state we find ourselves in today. To take a phrase from Godfrey Nowlan, the new Editor of *Geoscience Canada*, we need

to search for ways of "defragging" Canadian geoscience. Whether this can be achieved remains to be seen, but I wish to begin a discussion with other societies about how we can better cooperate and share resources. Joint meetings, co-publication of proceedings and monographs, wider dissemination of *Geoscience Canada* and *GEOLOG*, joint delivery of short courses and workshops are only some of the areas of cooperation that are possible. GAC will participate in a CGC-sponsored "geoscience summit" this summer to look for defragging opportunities.

- Council accepted a proposal to hold the 2008 GAC Annual General Meeting in Quebec City. Other upcoming AGMs include: Vancouver (2003), St. Catharines (2004), Halifax (2005), and Montreal (2006). The site of the 2007 meeting is being discussed; possibilities include Yellowknife (my favourite) and a location in the U.S. (a joint meeting with GSA).

- One of my passions is earth science education. GAC's Communication Committee is developing a comprehensive outreach strategy that includes support for EdGEO and Earth Net, and partnering with the Canadian Geoscience Education Network (CGEN) to support the Geoscape Canada project, "Wat on Earth" (a Canadian geoelectrical newsletter produced by Alan Morgan), and a "Careers in Earth Science" website (Clague et al., 2001). GAC is also investing resources into establishing student chapters in Canadian universities to increase the involvement of young people in our association.

- Executive and Council are committed to implementing GAC's Business Plan and to prudent fiscal management of the affairs of the association. We face major financial challenges over the next two years, including a considerable erosion of members' equity simply to maintain member services.



Left - Ed Debicki admires Nancy Chow's saintly glow during recent GAC Council meetings. Both Councillors are outgoing after a three-year term of service.

Top - Stephen Johnston reads out accomplishments of the GAC Program Committee during his tenure as Chair.

Facing Page - Finance Committee members rework GAC budgets during late-night session.

- Finally, let me introduce GAC Council for 2002-2003:

John Clague (President)
 Steve Morison (Past-President)
 Harvey Thorleifson (Vice-President)
 Roger Mason (Secretary-Treasurer)
 Steve McCutcheon (Finance Chair)
 Kevin Ansdell (Science Program Chair)
 Sandy McCracken (Publications Chair)
 Catherine Farrow (Communications Chair)

Councillors:

Danielle Giovenazzo, Fran Haidl, Phil Hill, Carmel Lowe, Mike Marchand, Roger Marquis, Mike Michaud, Jeremy Richards, Richard Wardle, and Graham Young,

I, of course, welcome your comments and suggestions as to how GAC can better serve its members.

John J. Clague
Incoming GAC President

References

Clague, J.J., Turner, R.J.W., Bates, J., Haidl, F., Morgan, A.V., and Vodden, C., 2001: Earth Science Education 4. Geoliteracy Canada, a national geoscience education initiative. Geoscience Canada, 28: 143-149.



John Clague

Your NEW GAC President



John Clague is Shrum Professor of Science at Simon Fraser University and an Emeritus Scientist with the Geological Survey of Canada. He has an AB from Occidental College, a MA (Geology) from the University of California, Berkeley, and a PhD (Geology) from the University of British Columbia.

John is a Quaternary geologist with interests in geomorphology, stratigraphy, sedimentology, natural hazards, paleoclimatology, and public awareness of science. After graduating from the University of British Columbia in 1973, John joined the staff of the Geological Survey of Canada as a Research Scientist. He left the GSC in 1998 for a research chair in the newly established Department of Earth Sciences at Simon Fraser University. At SFU, John has developed a strong research program focusing on natural hazards and climate change that involves numerous graduate students and postdoctoral fellows.

John is a Fellow of the Royal Society of Canada, President of the Canadian Geoscience Education Network, Vice President of the International Union for Quaternary Research, and recipient of the Bancroft Medal of the Royal Society of Canada.

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 publications, symposia and conferences.

Proposals for special projects on Precambrian Geology or Metal Mining should be submitted to the Robinson Fund Committee. Projects should be sponsored or organized through the GAC 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
dube@gsc.nrcan.gc.ca





Publication Corner

EARTH EXPRESS A New Way to Publish in Geoscience Canada

How many times have you read articles in specialist journals, outside your discipline, that you intuitively felt had relevance to your work, but you could not understand well enough to be sure?

Most papers in specialist journals demand a specialist knowledge in order to be comprehensible. This is not an ideal situation, especially at a time when the need to communicate science clearly to a much broader spectrum of peers is assuming greater importance.

Over the years *Geoscience Canada* has published hundreds of articles written for a broad audience, especially through its special series like *Facies Models*. We have no intention of abandoning this form of publication because these papers have provided for comprehensive education of a wide audience. However, we would like to introduce a new form of paper that embraces the same standards of comprehensibility, but is much shorter.

Geoscience Canada is inviting authors to contribute to **Earth Express**, a new type of contribution. The articles will be short (no longer than four printed pages). They will highlight new developments in a field and permit access to the background literature through provision of only key references. The banner of **Earth Express** is intended to incorporate the themes of rapid delivery and free expression.

We are particularly interested in articles on ideas or techniques developed in one area of the Earth Sciences that may have application in a broader context. Authors should regard the article as a kind of advertisement for their idea or technique and should write it so that the article is readily understood by a broad audience. The papers will be peer reviewed and produced at the same high standard that readers have come to expect from *Geoscience Canada*. If you are interested in contributing this type of article, please submit it to the Editor, Godfrey Nowlan or contact him for further clarification at gnowlan@nrcan.gc.ca.

Order all GAC publications from:
Geological Association of Canada,
Department of Earth Sciences, Memorial University of Newfoundland, St. John's, NF A1B 3X5
Canada. Tel. (709) 737-7660; Fax: (709) 737-2532; E-mail: gac@esd.mun.ca; Web:
www.gac.ca

GEOLOG CANADA FOR DEVELOPING COUNTRIES

For a number of years, GAC has been sending, free-of-charge, copies of *Geoscience Canada* to selected libraries in developing countries. The libraries that receive this benefit are required to respond annually to a questionnaire in order to ensure that the donation continues to serve a purpose and that the journal is used by the institution's clientele. Over the years, we have developed a stable group of approximately 75 recipients who benefit from this gift. The content of *Geoscience Canada*, with its review articles and series on topical geoscientific advances makes it particularly useful to geoscientists and students who have limited access to expensive scientific journals. Of course, this noble gesture to our colleagues in developing countries has a cost to GAC members. While hidden in the overall production costs, the extra print run costs GAC an estimated \$2000 per year. As Council continuously looks for cost-savings in GAC operation, the question of sustaining this donation has come up more than once, and the continuation of this donation is, quite frankly, in doubt.

At the last Council meeting, there was a discussion about how to make this donation sustainable and the idea came up that someone out there might be interested in sponsoring it through an endowment. Given the demographics of our society, it is likely that many members are concerned with estate-planning and retirement tax shelters. We would like to hear from any members who would have an interest in helping sustain this donation through a gift, either now or at a future date. If we receive enough interest, we would be able to establish a small endowment fund dedicated to providing *Geoscience Canada* to our colleagues in the developing world. Please contact GAC Headquarters at gac@esd.mun.ca.

GEOLOG needs you!

We're looking for a few associates
to play a role in making *GEOLOG* a
vital part of the Canadian
geoscientific landscape.

(no experience necessary)

geolog@gov.yk.ca

Sino-Canadian Dinosaur Project

The third collection of papers documenting the results of the Dinosaur Project (China – Canada – Alberta – Ex Terra), a multinational, multidisciplinary series of expeditions to central Asia, Alberta, and the Canadian Arctic islands, has recently been published in *Canadian Journal of Earth Sciences* (2001, v. 38, No. 12). The first two collections also appeared in the *CJES* (1993, v. 30, Nos. 10 & 11; 1996 v. 33, No. 4, 1996). The expeditions began 15 years ago, when China was a very different country than it is today. The Institute of Vertebrate Paleontology and Paleoanthropology (IVPP) has been rebuilt and modernized, and the city it resides in (Beijing) is barely recognizable from the city the organizers (Dong Zhiming, Brian Noble, Dale Russell, and myself) of the Dinosaur Project visited in 1986. Synchronous with the beginning of the Dinosaur Project was the formation of the National Natural Science Foundation of China. That organization recently (October 10–12, 2001) celebrated its fifteenth anniversary by hosting an international symposium on palaeontological development in China, and the Dinosaur Project was given prominent attention at the meetings.

Since the last volume was published, incredible discoveries have been made in China. Twenty percent of the new dinosaurs described worldwide in the past fifteen years are Chinese, and the level of activity is so intense that even scientific journals like *Science* (January 12, 2001) have featured articles on this phenomenon. The most spectacular revelations are the “feathered” dinosaurs from the northeastern province of Liaoning. As a direct consequence of the successes of the Sino-Canadian expeditions, Chinese colleagues have continued to work with their Canadian counterparts on research projects, including papers in this volume based on newly discovered specimens (e.g., the “feathered” dinosaurs *Sinosauropteryx* and *Sinornithosaurus*). Other projects focus on fossils collected by the Dinosaur Project (e.g., *Sinornithoides*), or are collaborations (e.g., *Gobisaurus*, *Shanshanosaurus*) that started while the expeditions were still in progress (1986–1990).

Since the termination of the Dinosaur Project expeditions, many of the researchers have changed their positions. Dong Zhiming and Zhao Xijin have officially retired, but continue to work in field and laboratory under the banner of the IVPP. Dale Russell now hangs his hat in North Carolina State University, and the position he left vacant at the Canadian Museum of Nature was ultimately filled by Wu Xiaochun, a long-time associate of the Dinosaur Project. New blood has been introduced by students (e.g., Vickaryous, Xu) of the original participants of the Dinosaur Project. These young researchers represent the future of

vertebrate palaeontology and will be involved in further publications as specimens collected by the expeditions continue to be prepared and studied. It is too early to know if there will be further volumes in this series, although additional papers derived from specimens and data collected by the Sino-Canadian expeditions are already underway. Regardless of what happens, all of us who were involved in the expeditions regard the collaborations as high

points in our careers. And we feel highly gratified by the tangible results of the expeditions, including this latest collection of papers.

P.J. Currie
Royal Tyrell Museum of Palaeontology
Drumheller AB

Reprinted with permission; from *Canadian Journal of Earth Sciences*, 2001, v. 38, p. vii–viii.

Canadian Journal of Earth Sciences

March 2002 Volume 39, Number 3

Introduction to special issue of *Canadian Journal of Earth Sciences: the Alberta Basement Transect of Lithoprobe*
Gerald M. Ross

Crustal structure beneath the Western Canada Sedimentary Basin: constraints from gravity and magnetic modeling
Jacqueline Hope and David Eaton

Proterozoic tectonic accretion and growth of western Laurentia: results from Lithoprobe studies in northern Alberta
Gerald M. Ross and David W. Eaton

Depth migration of deep seismic reflection profiles: crustal thickness variations in Alberta
Youcef Bouzidi, Douglas R. Schmitt, Ronald A. Burwash, and Ernest R. Kanasewich

Crustal velocity structure from SAREX, the Southern Alberta Refraction Experiment
Ron M. Clowes, Michael J.A. Burianyk, Andrew R. Gorman, and Ernest R. Kanasewich

Deep Probe: imaging the roots of western North America
Andrew R. Gorman, Ron M. Clowes, Robert M. Ellis, Timothy J. Henstock, George D. Spence, G. Randy Keller, Alan Levander, Catherine M. Snelson, Michael J.A. Burianyk, Ernest R. Kanasewich, Isa Asudeh, Zoltan Hajnal, and Kate C. Miller

Integrated teleseismic studies of the southern Alberta upper mantle
J. Shragge, M.G. Bostock, C.G. Bank, and R.M. Ellis

Evolution of Precambrian continental lithosphere in Western Canada: results from Lithoprobe studies in Alberta and beyond
Gerald M. Ross

April 2002 Volume 39, Number 4

A peculiar new fossil shrew (Lipotyphla, Soricidae) from the High Arctic of Canada
J. Howard Hutchison and C.R. Harington

Late Ordovician brachiopod communities of southeast China
Ren-bin Zhan, Jia-yu Rong, Jisuo Jin, and L.R.M. Cocks

A gravity profile across southern Saganash Lake fault: implications for the origin of the Kapuskasing Structural Zone
B. Nitescu and H.C. Halls

The lower Proterozoic Fern Creek Formation, northern Michigan: mineral and bulk geochemical evidence for its glaciogenic origin
Anne Argast

Step-pool and cascade morphology, Mosquito Creek, British Columbia: a test of four analytical techniques
C.L. Wooldridge and E.J. Hickin

Holocene deltaic sedimentation along an emerging coast: Nastapoka River delta, eastern Hudson Bay, Quebec
Caroline Lavoie, Michel Allard, and Philip R. Hill

Evidence for reversal of basin polarity during carbonate ramp development in the Mesoproterozoic Borden Basin, Baffin Island
Anne G. Sherman, Noel P. James, and Guy M. Narbonne

Magnetostratigraphic and biostratigraphic correlation of late Campanian and Maastrichtian marine and continental strata from the Red Deer Valley to the Cypress Hills, Alberta, Canada
J.F. Lerbekmo and D.R. Braman



Division/Section Updates

Cordilleran Section Keeps on Moving

The Cordilleran Section's main focus at the present is publications. Specifically, the Section intends to co-publish a new book dealing with geological issues and processes affecting the Vancouver area. Tentatively the book is to be titled "Vancouver Underfoot: The Story of Vancouver's Geology and Landscape", and authored by J.J. Clague and R.W. Turner. This book has arisen from, and is an elaboration of, the highly acclaimed Vancouver Geoscape series of posters. The target audience is those with a high school to first year university education or those with a general interest in recent geology, natural hazard issues and processes. This publication will probably make its debut at the joint GAC-MAC-SEG AGM in Vancouver in 2003. In addition, the Section will sponsor a publication of the "Geology of the Canadian Cordillera". Jim Monger, Ray Price and Peter Mustard will author this proposed publication, which will be a "must-have" for any one working in the Cordillera. The publication date is slated for some time in 2004.



The Section is involved with the LOC (Local Organizing Committee) for Publications for the upcoming GAC-MAC-SEG conference to be held in Vancouver in 2003. A flyer has been produced to outline this event. The Section will also be involved in publishing the field trip guides for this conference. These guides are often well-received in the after-conference-market and will be a great supplement to the Section's publication portfolio.

The Section was also fortunate to be invited to sponsor, along with MRDU, MDD and GSC, several distinguished speakers that came through Vancouver, namely: Dr. Larry

Hulbert the MDD 2002 Howard Street Robinson speaker presented "Magmatic platinum group element environments in Canada: Present and future exploration target areas": Dr. Steve Walter, SEG International Exchange Lecturer presented "Geology and Exploration Criteria for World-class Broken Hill type Pb-Zn-Ag Deposits - New ideas from old orebodies". Both talks were very informative and thought-provoking - inspiring a number of those from the local exploration community who attended.

The Section's popular "Brown Bag" discussion group wrapped up with a GSC co-sponsored presentation by Dr. Steve Piercey entitled "Recent advances in litho geochemistry of volcanic belts: implications for massive sulphide exploration". A great presentation that brought into focus new tools and technique for tracking down an important deposit type - more of which are undoubtedly hiding out there in the Cordillera.

Lastly, the Section is facing significant challenges in attracting new councillors - particularly in-light of the departure of Heather Sparks our Secretary, Jane Howe the treasurer, Mark Mauthner our publication sales manager, and Fionnuala Devine who was the UBC student representative. Both Jane and Mark have served tirelessly on council for a number of years, however their careers are taking them to distant places. Heather and Fionnuala are pursuing educational opportunities in far off places. Their efforts while on Council were very much appreciated. The Cordillera Section offers those who take the time to become involved a great opportunity to make acquaintance with variety geoscience professionals, take part in number of exciting projects or develop one's own geoscience initiative.

*Carl Verley
Vancouver BC*

Structural Geology and Tectonics Division

The following Symposia/Special Sessions have been approved by the SGTD for the Vancouver 2003 GAC-MAC-SEG Meeting: (a) "Beaufort-Mackenzie region: Niger of the North? Unlocking the resource potential of the Northern Edge of the Canadian Cordillera."

Convenors: Larry S. Lane and Dennis H. Johnston.

(b) "Reactivation tectonics in the Cordilleran Foothills: Glimpses of the past, Significance for the future" Co-Sponsored by the SGTD and the Central Foreland NATMAP Project.

Convenors: Larry S. Lane and Glen S. Stockmal.

(c) Special Session "Orogenic Hinterlands: Windows into Mid Crustal Tectonic Processes: A Special Session to Honour the Career of Richard Brown".

Convenors: Don C. Murphy, Sharon D. Carr and Larry S. Lane.

(d) "Paleogeography of the North American Cordillera: Evidence for and against large scale displacements". Co-Sponsored by: Paleontology Division, Geophysics Division, and SGTD. Convenors: Jim Haggart, Randy Enkin, and Jim Monger.

The Division is soliciting submissions for sponsored symposia, special sessions, short courses, and field trips for St. Catherines 2004, and Halifax 2005. Send submissions to the SGTD Chairman (Larry Lane, llane@nrcan.gc.ca).

We are patiently awaiting submissions for the Division's Annual Best Thesis prizes for 2002. As you may recall we did not receive enough submissions last year for a competition, so the Executive expects a flood of theses this year..... the sooner the better. Send submissions to the SGTD Chairman (Larry Lane, llane@nrcan.gc.ca).

*Larry Lane
GSC-Calgary
Calgary AB*



Student News

GAC Helps Fund Student Trip to Portuguese Rocks

In late April, the GAC Student Chapters Program at Memorial University of Newfoundland received a rousing start with a jointly sponsored student-industry field trip to Portugal. With 23 participants (including 7 from EnCana Corporation), there was plenty of opportunity for student and industry interaction.

The Lower Jurassic through Lower Cretaceous strata in the Lusitanian Basin near Lisbon, and in the Algarve Basin on Portugal's southern shore, provides excellent outcrop analogs for the petroliferous strata of the Grand Banks and Scotian Shelf. With MUN professors Rick Hiscott and Elliott Burden acting as our able guides to spectacular outcrops and coastal sections, this 10 day trip covered the entire range of successions from Triassic red beds through mid-Cretaceous shelf deposits. Each of the many outcrops provided superb opportunities to examine facies and depositional settings for mixed carbonate and clastic depositional systems. Sea cliffs and quarries illustrated in our field guides and posters come to life when walking in the tracks of dinosaurs that wandered early Cretaceous coastal plains. For many, this trip provided a unique opportunity to visualize Jurassic and Cretaceous carbonate reefs, their fauna, and their associated facies.

A pleasant change from academic styled trips, the EnCana scientists took time to roll out their seismic lines, well logs, and fossil distribution charts of Scotian Shelf plays. This gave all of us first



EnCana geologist Richard Wierzbicki, assisted by EnCana geologists Garth Slyhonyk and Gela Crane, outlining faunal successions in Jurassic reefs.



Tammy Perry (L), Carolyn Burridge, and Jonathon Winsor (R) waiting for that next dinosaur to pass.

hand insights into the commercial importance of Portuguese outcrops for better understanding the geometry of source and reservoir rocks on our Canadian shores. So too, and in the field, the EnCana group focussed on the role of biostratigraphy and facies models in understanding the architecture of carbonate and fluvial depositional systems, and sequence stratigraphy.

Beyond geology, the trip also provided a chance for everyone to learn and to enjoy something of Portugal's colourful history culture, and cuisine. Ancient castles and cathedrals dot the landscape, and Rick and Elliott took some time to see that we sampled that other part of the Portuguese environment.

The trip was indeed a resounding success. It was obvious that everyone departed Portugal with a better understanding of the stratigraphy and the environments of Portugal and on how this rock contributes to our understanding the Grand Banks and Scotian Shelf.

Once again, on behalf of the geoscience community at Memorial, a sincere thank- you to EnCana and to the GAC Student Chapters program for your financial support.

*Michael Bidgood and Elliott Burden
St. John's NF*

GAC Salutes Top Students

2001-2002 Student Prize Winners

University	Nominated Student	Program
Acadia	Amy Tizzard	Geology
Alberta	Lynn Theresa Reich	Geology
Alberta	Kevin Hayley	Geophysics
Brandon	Chris Coueslan	Geology
British Columbia	Jamin Cristall	Geological Engineering
Brock	Andrea Krueger	Earth Sciences
Calgary	Garnet Jon Knopp	Geology-Geophysics
Carleton	Michele Burkholder	Geology
Dalhousie	Camilla Melrose	Geology
Lakehead	Riku Metsaranta	Geology
Laurentian	Mark Jeffries	Geology
Laval	Olivier Côté-Mantha	Géologie
Manitoba	Aaron Lussier	Geology
McGill	Marc-Antoine Longpré	Earth & Planetary Sciences
McMaster	Jason Brodeur	Earth & Environmental Sciences
Memorial	Crystal Hoffe	Geology
New Brunswick	Sheila Levesque	Geological Engineering
Ottawa	Karine Bédard	Geology
Québec à Chicoutimi	Philippe Tremblay	Génie géologique
Québec à Montréal	Jean-François Larivière	Géologie des ressources
Queen's	Grant Bishop	Geological Engineering
Regina	Kimberley Bailey	Geology
Saskatchewan	Jo-Anna Neilson	Geology
Simon Fraser	Tania Jurca	Earth Sciences
St. Francis Xavier	Jamie Braid	Earth Sciences
Saint Mary's	Karen Maillet	Geology
Toronto	Leonie Soltay	Chemistry and Geology
Victoria	Morgan Soley	Geography, Earth & Ocean Sciences
Waterloo	Chad Pearson	Hydrogeology/Environmental Geology
Western Ontario	Ronnie Therriault	Geology
Windsor	Adrian Forsyth	Geology

GAC Student Chapters

GAC supports the career and academic advancement of geoscience students through its Student Chapter Program. A grant program, the GAC Logan Student Chapter Grants, was initiated in 2001 to provide financial assistance to Student Chapters for professional activities such as field trips, industry speakers, outreach and attendance at the GAC-MAC Joint Annual Meetings. The first round of grants for \$500 each were awarded in Winter 2002 to six Student Chapters for activities that included field trips and attendance at conferences.

Memorial University of Newfoundland

- Grant awarded: Field trip to Portugal to study rift sequences
- Representative: Victoria Hardy
- Faculty Advisor: Derek Wilton
- Community Advisor: Frank Blackwood, Geological Survey of Newfoundland and Labrador

Acadia University, Fletcher Geology Club

- Grant awarded: Attendance at Atlantic Geoscience Society Meeting
- Representative: Peter Budgell
- Faculty Advisor: Sandra Barr
- Community Advisor: Chris White, Nova Scotia Dept. of Natural Resources

University of Windsor, Jull Earth Science Club

- Grant awarded: Field trip to Mammoth Cave National Park, Kentucky
- Representative: Adrian Forsyth
- Faculty Advisor: Ihsan Al-Aasm
- Community Advisor: Julie Clarke, Union Gas Ltd.

University of Toronto

- Grant awarded: Field trip to Timmins area
- Representative: Dermot Antoniades
- Faculty Advisor: Steve Scott
- Community Advisor: Glenn Brown, Haywood Securities

University of Regina, Geology Student Society

- Grant awarded: Attendance at Western Inter-University Geological Conference
- Representative: Cameron Demmans
- Faculty Advisor: Kathryn Bethune
- Community Advisor: Fran Haidl, Saskatchewan Energy & Mines

University of British Columbia

- Grant awarded: Field trip to Rocky Mountains, USA
- Representative: Fionnuala Devine
- Faculty Advisor: Greg Dipple
- Community Advisor: Jim Ryan, Geological Survey of Canada

GAC Logan Student Chapter Grants will be offered again for 2002. Applications for this year's grants are due in by October 15, 2002. Details are available at www.gac.ca.

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<http://www.gac.ca/PUBLICAT/geolog.html>

... or email us at

geolog@gov.yk.ca

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)

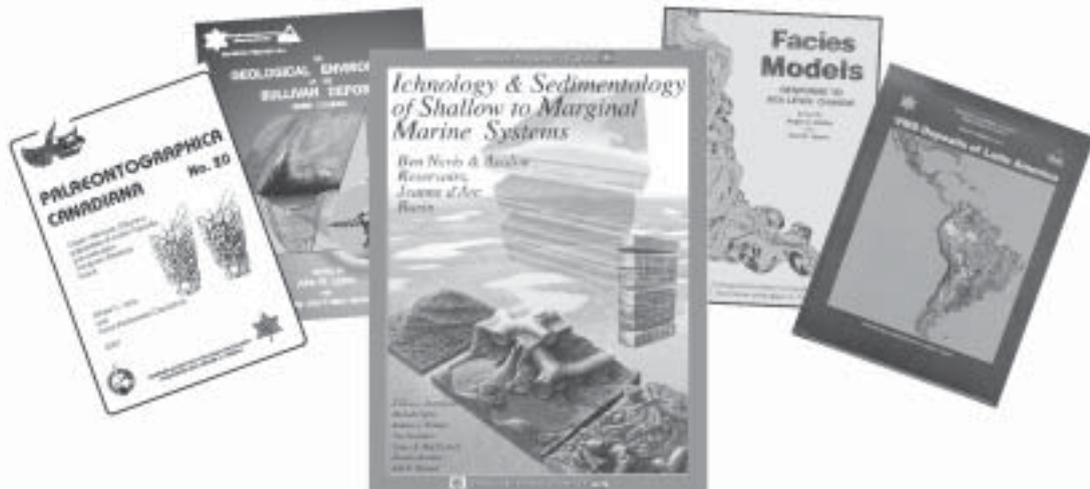
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Reading on the Rocks

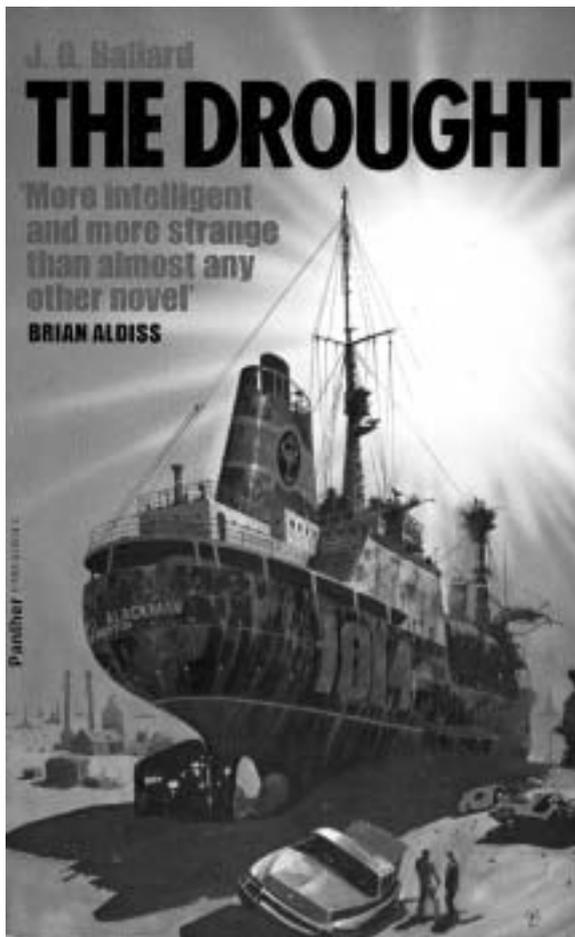
The Drought

J.G. Ballard (1978). Triad Panther Books, UK. ISBN 0-586-04504-X. Originally published 1965. 188 pages.

The sun beats down mercilessly as Dr Charles Ransom steers his houseboat to a mooring for the last time. Rivers shrink from their banks, reduced to thin slimy ribbons, glistening with oil. Lakes vanish, leaving extensive mud flats covered with driftwood, shells, dead shorebirds, and rotting fish. Boats lie stranded, listing. Garbage emerges from the mud, the debris of a consumer society, junked cars, old tyres, metal cans. Vegetation shrivels, farm animals die, crops wither. Food is scarce, fresh greens a memory, only canned goods are left. Sunlight shimmers on bare soil. Dust and sand drift into the streets, piling along fence lines, clogging roads. Drought imposes a new landscape.

People anxiously scan the skies, looking for rain. But there is no rain, perhaps there never will be rain again. For decades, industrial, agricultural, nuclear, and municipal contaminants have poured into the rivers and flowed out to sea. Now, a thin coating appears on the ocean, spreading out from the coasts. A tough, resilient polymer is generated by chemical reactions among the pollutants, like an absurd mockery of an industrial process. It blankets the sea surface, preventing evaporation of sea water, and interrupting the hydrologic cycle. Attempts to remove it or break it down are unavailing. At first, the government warns people not to panic and to stay put — the emergency is only temporary. But as the drought continues, deserts expand, and surface water dwindles, civil order breaks down. Then pamphlets are found, exhorting people to leave their homes and head for the coast. Rumours circulate that desalination plants are going to be set up there. A mass migration begins as, lemming-like, people trek instinctively to the only place where water still exists in quantity, though unreachable and undrinkable. Behind them, as they flee, cities burn, filling the sun-baked air with acrid fumes. Smoke clouds parody thunderclouds.

Water, once taken so much for granted and used profligately, now becomes the most precious commodity. It is a resource so vital



that people will kill to get it or to protect it. Home-made distillation units, crazy metal contraptions devised from car parts, are fuelled by diminishing reserves of petrol. Refinement, culture, and the arts are irrelevant. Scavenging and recycling become essential skills. Social graces are cast off. Non-vital water uses - washing, personal hygiene, laundry - are soon discontinued. Water is only for drinking or, as a last resort, for barter.

Ransom joins the passage coastward, leaving his once comfortable home and stable life as a hospital doctor. Thousands of refugees, at first in their cars, then on foot, carry their possessions to the shore. Shanty towns and tent cities spring up. Ransom survives in a world where personal relationships are increasingly meaningless and success is measured simply by existing through another day. The touchstone of dysfunction is a willingness to kill. As years go by with no rain, despair becomes a way of life. In a series of progressively surreal vignettes, he observes community breakdown and the emergence of a new social order, based on strength, imposition of hierarchy, and control of the one resource that

matters. Sick, detached, hallucinatory, he has increasing difficulty relating to his surroundings or summoning up the determination to continue.

Hieronymus Bosch meets Mervyn Peake and William Golding in Ballard's richly arid vision of a possible future. Elliptical, allusive, and disjointed, like flashes of sunlight through cloud, Ballard chronicles the disintegration of our familiar world, in prose filled with earth science imagery. Though his hydrologic cycle is incomplete (the ground water system is missing), his depiction of drought is powerful and compelling. This is speculative fiction - thought-provoking and jolting - of a high order.

*Alwynne B. Beaudoin
Edmonton AB*



Mélange

POLARIS DATA CENTRE OPENS

On Thursday, March 14, there was a ribbon-cutting ceremony at the University of Western Ontario by Fred Longstaffe, Dean of Science. Champagne bottles were popped on the occasion of the official opening and an open house for the POLARIS facility was held before, during and after the ceremony. An announcement concerning Ontario Government funding for the project "Ontario Research Centres for Earthquake Hazards and Continental Dynamics" was made. The University's new Ontario Research Centre in Earthquake Hazards and Continental Dynamics will receive the \$2.1-million investment from the ORDCF and additional private-sector funding of \$1.7 million from Ontario Power Generation. The Centre will advance research into early earthquake warning systems and forge technological advancements in precious mineral exploration in Ontario and Canada.

CGU Adds a New Section

The Canadian Geophysical Union (CGU) established a new Geodesy Section at its recent meeting in Banff. Geodesy is the science concerned with the determination of the size, shape, physical surface and gravity field of the Earth, in three-dimensional, time-varying space. The aims of the new section will be to: 1) promote cooperative research and development of Geodesy in Canada in support of scientific, environmental, economic and social activities; 2) strengthen and expand links with other national and international societies, such as the Canadian Institute of Geomatics (CIG) and the international Association of Geodesy (IAG); 3) disseminate results of geodetic research and products to the wider geophysical and other communities; and 4) encourage timely communication and dissemination of geodetic results and related information through conferences, workshops and special lectures. The election of executive officers and the inaugural annual meeting was held in Banff, May 21, 2002.

The driving force behind the creation of this new section is Spiros Pagiatakis, who has worked tirelessly behind-the-scenes to draft by-laws, circulate materials and collect nominations for officers of the section. The Geodesy Section joins the Hydrology Section to form the CGU's second section.

NSERC Research Grants Become NSERC Discovery Grants

The Natural Sciences and Engineering Research Council has completed the renaming of its largest grant program from Research Grants to Discovery Grants. This name will from now on appear in all NSERC publications, applications and correspondence, and will be applied to current NSERC awards and also to those made in previous competitions. NSERC Equipment Grants, Major Equipment Grants and Major Installation Grants programs have also been renamed. They become Research Tools and Instruments, Categories 1, 2 and 3, respectively.

ASSOCIATE DEAN OF ENVIRONMENTAL SCIENCES

The University of Guelph seeks applications or nominations for the Associate Dean of Environmental Sciences. The Associate Dean of Environmental Sciences is the chief academic administrator for an interdisciplinary Faculty that spans five colleges. Reporting to the designated dean, the Associate Dean is responsible for management and academic leadership of the Bachelor of Science in Environmental Sciences program, which currently has an enrolment of over 400 students. He or she will be a respected scholar in an area of environmental sciences, and is expected to play a leadership role in fostering scholarship in environmental research and teaching across the university. The Associate Dean is responsible for advocacy of environmental sciences both within the university at large and to the public. The position normally includes a tenured faculty appointment in one of the participating departments at the rank of Associate or Full Professor.

Information concerning the Faculty of Environmental Sciences, the participating departments and the university is available at <http://ozone.crie.uoguelph.ca/fes/>. Applications or nominations should include a curriculum vitae, a statement of interest, and the names of five references. They should be addressed to the Chair of the Search Committee:

Dr. Peter Tremaine, Dean, College of Physical and Engineering Science, University of Guelph, Guelph, ON Canada N1G 2W1. Fax: (519) 823-2808.

Evaluation of applicants will begin on **August 15, 2002.**

**UNIVERSITY
of GUELPH**

The University of Guelph is committed to an employment equity program that includes special measures to achieve diversity among its faculty and staff. We therefore particularly encourage applications from qualified aboriginal Canadians, persons with disabilities, members of visible minorities, and women.



GAC/MAC 2004 May 12 - 15
St. Catharines, Brock University



GEOLOGICAL HOWLERS

A SECOND COLLECTION

William A.S. Sarjeant

In 1989, I published a selection of students' original thoughts, culled from twenty-five years of examination papers and essays and illuminated by certain observations by distinguished geologists. The collection that follows is largely a product of the fertile minds of University of Saskatchewan students during the ensuing thirteen years, but it includes contributions from Dr. Endre Dudich (Hungary) and Mr. Florin Neumann (Romania). I trust you'll find these as refreshing as I did!

General Geology

- Earthquakes destroy great sections of rock formations: the flooding of environments containing fossils may be a result.
- There are two kinds of rivers: rivers that flow and rivers that do not flow.
- Mountain glaciers are called thus because they are so big and shaped like mountains. They are generated by oceans of the mountain districts, where the climate is very cold.
- The [Canadian] Provinces spill into the flat Atlantic plain before reaching the ocean.
- The rocks sit in a miogeosyncline.

Stratigraphy

- "I'm going up in stratigraphic order from the bottom to the base."
- There are no known PreCambrian rocks in existence.
- The PreCambrian was a relatively short span before the Cambrian.
- The transition to the overlying zone is made by a hiatus.
- During the Silurian, stromatolites began to creep up marine estuaries.
- The Mississippian was part of the Carnivorous Period.
- The Triassic/Cretaceous boundary was based on an iridium anomaly.
- Should the Berriasian stage represent the beginning of the Cretaceous or is it the base of the Jurassic?
- Defining the end of the Cretaceous is the extinction of the rudistid ammonites and the foraminifera.
- At the Cretaceous-Tertiary boundary, all living organisms were wiped out, with the exception of those that survived.
- Marsupials were isolated in Australia when the Panama land bridge disappeared.
- In the Cainozoic, life was closer to today's standards than it was at any period before then.

Little-Known Geological Units

- The Tectonic Orogeny.
- The Archiepelligo Orogeny.
- The Tourismian Stage.

Events

- Pompeii, Herculaneum, Naples (A.D. 79) destroyed the entire civilization of the Minoans on the island of Crete, but preserved it well enough for archaeologists to determine very specific habits of the Minoans.
- The dinosaurs were deposited at a time of reverse polarity.

Micropalaeontology

- The best chance of preservation goes to organisms with a hard skeleton and to parts made of extremely hard material, like teeth and dinoflagellate.
- A thecate dinoflagellate in the motile stage has a wall composed of cavities.
- Zooanthellae also help to keep dead plant/animal remains in place, to be broken down *in situ* instead of the remains being transported to other localities where the molecules stay in suspension, instead of forming marine sediment.
- The operculum ("escape hatch") can be seen on the dinoflagellate cyst, if it has not been entirely removed.
- Acritarchs were very abundant at the turn of the Cambrian-Precambrian boundary, then declined, becoming abundant again in the Permian.
- In contrast to dinoflagellates, acritarchs prefer the open ocean.
- Their size may vary from a few microns to several microns.
- The naming of sclerites and spicules is hard because all sclerites have spicules. [Since] there may be two or more that belong to different genera it makes it almost impossible.
- All the Ostracodes are jawless, with a dorsal fin, anal fin and tail but no paired fins.
- The first plants were unicellular plants, i.e. Algae and Batraciae.
- Spores and pollen were the bridge that helped plants to move from the marine environment onto the land.
- Since the big stratigraphical gap makes it improbable, [this species] was named suspiciously.

Palaeoichnology

- In the process of trace-fossil production, only the life processes remain.
- These trace fossils were moving into relatively deep water.
- Stromatolites are the only marine trace fossils. They are known as trace fossils because they can bore into shells, leaves, plant walls and vertebrates.
- Predator burrows [are formed] where an organism actively chased some sort of prey.

Invertebrate Palaeontology

- For fossilization of carbonates, you want warm water, so the shell won't dissolve.
- An individual from one species cannot resemble another individual of another species, even if they have common parents.
- If an organism is to be fossilized, it has to get out of decay and being scavenged.
- A shelly organism may be emptied and filled with sediment, which helps it to be preserved.
- Pyritization is the formation of pyrite which an organism's shell occupies.
- Brachiopods attach themselves to the sea floor via their long tails.
- A brachiopod is attached to a rock by the foreman.
—and moreover—

- The valves [of brachiopods] are often shared by the foreman.
- With insects (especially *Drosophila*), there is no breeding occurring to maintain the species.
- As time progressed, trilobites moved up to the upper sea floor or plankton.
- Some of the earliest trilobites were blind; the reason for later trilobites to have eyes is unknown.
- Trilobites had many-faceted eyes, which enabled better food-gathering abilities.
- Graptolites are an organism from the chordates.
- Dendroid graptolites were attached to the sea-floor and hung upside down.
- Gastropods are a form of mollusc. The snail climbed into the shell and used it for shelter and protection.
- Gastropods are not attached to the ground, but float around.
- Snails find travelling very difficult, because they have only a single leg, but they lead happy lives inside their shells.
- Because sponges change shape according to the environment they are in, very few forms fossilize.
- The octopus lives in the oceans and on mountain rocks. It is related to the sperm whale. The sperm whale is a fish 15 cm long.
- The octopus has a very big mouth, placed between its legs.

Vertebrate-Palaeontology: Primitive Chordates to Dinosaurs

- [In ascidians] Food is processed in the mid-gut and intestine and then released through the anus.
- Cephalochordates feed by siphoning water and food particles into their pharynx through the aural opening. [Eating by ear!]
- In the arthropods, the thorax extends to the back of the abdomen.
- Coelolepids were slightly fattened for bottom dwelling.
- The horizontal fins of rhipistidean fishes were encased in bone.
- Two [reptile] groups were developing, based on skull aperture. One aperture became the mammals.
- The Triassic started off as a moist, swampy period when, slowly, the amphibians came back (turtles, ichthyosaurs and mesosaurs).
- The ichthyosaurs were the only pteraspid-skulled reptiles.
- The pterodons, saurians and omnians all evolved in the Early Triassic.
- Bipedal ornithomimids included the *Diplodocus*, which was herbivorous and had hundreds of teeth.
- *Supersaurus* reached a length of 130 meters and *Seismosaurus* reached a length of 150 meters.
- Philip Currie has found that hadrosaurs migrated by following their footprints.
- Stegosaurs are herbaceous dinosaurs.
- Dinosaurs are not present in Australia until after the Oligocene.
- Pterodactyls have been discovered in deposits that date to the Tertiary period.

Vertebrate Palaeontology: Mammals

- Some mammals lay eggs e.g.: the ornithomimid
- The marsupials of Australia were developed due to the large amount of water that surrounded the land area at that time.
- An extinct carnivorous kangaroo paralleled the later placental kangaroos.
- Mammals in the early Cretaceous were very small and not brave; but with time they grew to be the strong animals of today.
- The narwhal.
- Manatees have highly adapted teeth (horizontally placed) for the consumption of hard planktonic food.
- The Viverrids have the mongoose and civet as their living ancestors.
- The hyaenas are hopping carnivores with reduced claws and feet.
- Terrestrial Carnivora tend to be, on any terms, the most advanced of all mammals due to the evolutionary standpoint given to them.
- Vampire bats eat the blood of other bats.
- The sea mink is a North Atlantic breed.
- African rhinoceroses had two nasal horns, one on top of the other.
- Some species of animals will have fewer teeth in warm tropical locations. But the same animals living in colder environments will have much more teeth.
- Chalicotheres had hyena-shaped bodies.
- The skull of *Plihippus* had almost reached the desired length.
- The change to horses' teeth meant they can gallop while they are browsing for their food.
- Rodents have a cheek-pouch for grinding food.
- Early squirrels gave rise to chipmunks.
- Bats sleep in trees.
- The next group of Primates to evolve were the arthropods.

If readers of *GEOLOG* care to send me further "howlers", I shall assemble them for a possible third collection. William Sarjeant, Department of Geological Sciences, University of Saskatchewan, 114 Science Place, Saskatoon, SK, Canada S7N 5E2

Reference

Sarjeant, W.A.S., 1989. Geological howlers: a collection. *Geolog*, vol. 18, pt. 2, pp. 37-40. (Republ., with some omissions, 1994, *The Australian Geologist*, no. 93, pp. 65-66).

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Stephen Jay Gould

Tributes continue throughout the scientific community for Stephen Jay Gould, paleontologist, evolutionary biologist and professor at Harvard University, who died May 20 2002 of cancer. Described as one of the best known and most decorated scientists of our age, he has written 300 consecutive essays in Natural History (his column was "This View Of Life") and numerous books popularizing and defending science without 'dumbing it down'. The following tribute is from a CD by Richard Milner from his show "Charles Darwin: Live and in Concert" (the CD includes The Anthropologist Song, Let Him Be First, Why Didn't I Think Of That, When You Were A Tadpole And I Was A Fish, and other songs). (submitted by Grant Lowey, Whitehorse YK)

STEPHEN JAY GOULD IS MY NAME

By Richard Milner Copyright R. Milner, 2000

Based on "My Name is John Wellington Wells" from "The Sorcerer" (With apologies to Gilbert & Sullivan)

Oh! Stephen Jay Gould is my name
And fossils and shells are my game
Canadian shales
And Bahamian snails
Have brought me a measure of fame.

If Darwin is your cup of tea
But you don't have a lot of time free
You don't have to look
Through his wearisome book
You can learn evolution from me.

I can tell you a tale of a trial
Where Bryan and Darrow once tangled
A courtroom so laden with bile
That truth got distorted and mangled.
Fundamentalists shouted defiance,
"Darwinian textbooks must go,
The Bible contains all the science
A biology class needs to know!"

I write of cladistics
And baseball statistics
From dodos and mandrills
To friezes and spandrels
With answers provisional
Branches divisional
Watching them practically
Bifurcate fractally, bifurcate fractally

I write
Essays thematical
Always grammatical
Asteroids, sesamoids,
Pestilence tragical
Ratites, stalactites
And home runs DiMaggical

Oh!
If my essays anyone lacks
I've got the back issues in stacks
You can get them from me
For a nominal fee
Just drop me a line or a fax!

I can find
no cosmic mind behind
Life's eternal mystery
If an ape
replayed the tape
He'd see only contingent history.
A plan
to make a man
Was not evolution's objective
To believe all the fuss
was all about us
Is an anthropocentric perspective!

I write of
Cranial capacity
Owen's mendacity
Huxley's audacity
Galton's urbanity
FitzRoy's insanity
How Ernest Haeckel, without an apology
Faked illustrations about embryology

Marsh's collecting
Butler's objecting
Paley's theology
And teleology
Cope's osteology
And eschatology

But I confess to a preference
For Wallace's deference —
for Alfred Wallace's deference!

Yes!

My name is Stephen Jay Gould
In science I'm very well schooled
So beware adaptationists!
Look out, Creationists!
I am not easily fooled.

If my essays anyone lacks
I've got those back issues in stacks
You can get them from me
For a nominal fee
If you drop me a line or a fax!

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PICKLES



Pickles cartoon submitted by Tomas Feininger, Québec QC

GSB pays tribute to Trygve Høy and Gerry Ray

On Saturday April 27th, staff and friends of the B.C. Geological Survey Branch gathered at the University Club, University of Victoria, to celebrate the retirement of Trygve Høy and Gerry Ray. They have been an important part of the GSB for the last two decades, not only as colleagues and friends, but also mentors and leaders. The truest measure of their success is the high level of esteem given them by the international geological community. Industry geologists, university professors, prospectors, government geologists, promoters and students - all have come to expect only the best work, highest integrity and brightest ideas from these two men.

Gerry Ray

Gerry Ray came to the Geological Survey Branch by a circuitous route. He was born and raised in Britain where he learned an umbrella is a critical piece of field gear for a geologist. However, Gerry sought work in more exotic places like Africa and Saskatchewan before ending up in beautiful B.C. The travel bug persisted with holidays in Chile, Vietnam or Pender Island.

During his career in British Columbia, Gerry mapped several mining camps and carried out thematic studies on a number of deposit types. His initial work focused on gold veins in the Coquihalla Gold Belt and Harrison Lake areas. He subsequently went on to study skarns, massive sulphides and iron oxide copper-gold deposits. Based on this work, Gerry has become a regular contributor to "Economic Geology", the most prestigious journal for mineral deposits geologists. However, his true "love" is skarn deposits. Initial work on the famous Hedley gold skarn developed into a study of all types of skarns throughout the province. With his work over the last 15 years, Gerry has become one of only a handful of world experts for this type of deposit. In fact, he is such an expert that almost every deposit he sees seems to be a skarn.

Trygve Høy

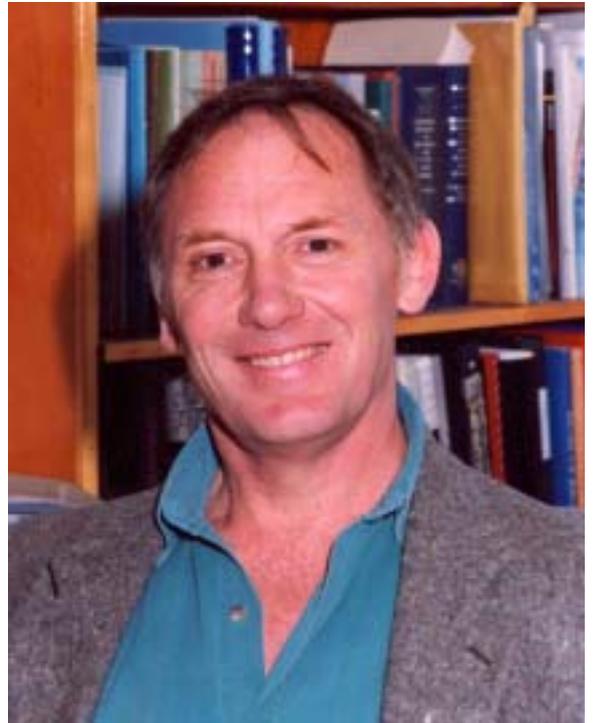
Trygve Høy emigrated with his family to British Columbia in 1953 from the rocky southern coast of Norway. His elementary schooling was in the Blubber Bay mining community on Texada Island. This may have been what led Tryg to complete a BSc in geology at UBC, followed by graduate degrees at Carleton and Queens. At Queens University his PhD focused on highly deformed and metamorphosed metasedimentary rocks in the Kootenay Arc in southeastern British Columbia. Upon graduation this led directly to work with the Geological Survey Branch in 1974. He went on to spend virtually his entire career in the southeast. Indeed geologists and prospectors have come to expect that if there was a geological question about this area, Tryg could answer it. The Purcell Supergroup, Kootenay Arc, Rossland Group and Goldstream region were just some of the areas he studied in detail.

Tryg pioneered the recognition of the fundamental tectonic, geologic and temporal controls of sulphide deposition in the Middle Proterozoic of southeastern B.C., including those for the giant Sullivan mine. His work on volcanogenic massive sulphide deposits led to the first comprehensive compilation and classification of these deposits in British Columbia. He is currently involved in continental-scale tectonic and metallogenic studies, such as the Kootenay Project for the NATMAP program.

The support that both Gerry and Tryg have received from their families has been crucial. Their passion for field geology led to them being away from home for extended periods of time which is not easy for any family. A very positive aspect of both Tryg and Gerry's characters has been their desire to stay in contact with friends and colleagues whether it be a shared coffee, open door to their office or timely advice. This has in no small way helped build on the B.C. Geological Survey Branch tradition of being a close-knit team.

The staff of the British Columbia Geological Survey wish both Gerry and Trygve the best in all their new endeavours. It appears that although the GSB is losing two good friends and professional colleagues, the world should prepare itself for two enthusiastic geo-tourists!

Brian Grant
British Columbia Geological Survey
Victoria BC



Following a long battle with cancer, Professor Simon Haynes of Brock University Department of Earth Sciences passed away peacefully at home on April 6, 2002, surrounded by his loving family. Born in wartime England on January 1, 1944, Simon completed an Honours BSc in Geology at Manchester University, then emigrated to Canada, becoming a Canadian citizen and practicing geology in many parts of the world from his new home country of Canada. Field work with a number of Canadian mining companies and consultants honed his early interest in ore deposits, leading to Master's studies at Carleton (MSc 1969, on tin-bearing sills from Tasmania), then doctoral studies under the legendary Alan Clark at Queen's (PhD 1975, on metallogeny and plate tectonics, Atacama, Chile). Professor Clark remembers Simon's enthusiastic sampling techniques involving mas-

sive geological hammer attacks on Chilean granitoid outcrops, seemingly reducing entire batholiths to rubble!

Although only 58 years of age at his death, Simon packed a lot of geological living into his life: he taught at Brock for 28 years from 1974, and carried out geological field studies and consulting in China, Cuba, Chile, Iran and Japan as well as in Canada. He also worked for/consulted to a number of government agencies including the Geological Survey of Canada, Nova Scotia Department of Mines and Energy, and Ontario Hydro. Before completion of his PhD in 1975, Simon served as Assistant Professor at Pahlavi University in Iran, 1972-1974. Although his particular interest was in gold deposits in various settings, he had a working and teaching knowledge of a broad spectrum of metallic deposit-types, sand and gravel, gypsum, even water in recent years. Membership in the International Gold Liaison Group testifies to his major commitment to economic geology. Looking over his CV, one is impressed with how broadly-based his interests were: in this age of specialization, Simon was a kind of renaissance geological man who was able to apply his talent for explanation and prediction to any geological setting, often leading to new and novel levels of insight and understanding. As Professor of Economic Geology at Brock, Simon taught many students who, along with colleagues, will remember him fondly, partly because of his sometimes argumentative yet very effective strategy in

Simon John Haynes, 1944-2002



Simon Haynes inspecting vines at a Niagara vineyard for possible winter damage.

getting at geological truth. At Brock he also served on a large number of committees including the University Senate and the Faculty Board: he was president of the Faculty and Staff Club for a year.

Of recent years Simon developed competence in new areas, including land-use and environmental geology assessments of residential/industrial real estate, especially in the Niagara region. He acted as a consultant to various agencies and companies on gypsum, salt, dolostone and crushed stone of southern Ontario. Always a wine enthusiast, particularly from his time in Iran in 1974-75, perhaps Simon's most satisfying pre-occupation of recent years was the marriage of geology and wine. He had an extensive knowledge of the concept of *terroir*, the French term to express the relationship between wine and the setting in which it is produced including climate, soil and bedrock geology. Travels in France and elsewhere enabled Simon to learn much about *terroir*: at the time of his death Simon was actively publicizing the importance of *terroir* to the geological community and others by serving as Editor of the *Geoscience Canada* series, *Geology and Wine*. He wrote the series' first full article on *terroirs* of the Niagara region, of which Peter Gamble, former Executive Director of the Ontario Vintner's Quality Alliance (VQA), stated in an e-mail message to Simon: "Just a short note to thank you for the tremendously important work you've done in identifying the

different grape-growing areas in Niagara....I wanted you to know how valuable your work will be in moving forward quality wine-making in Ontario. Such seminal work is crucial to those of us choosing to make fine winemaking our future." (e-mail to Simon Haynes, December 21, 2001). Simon will be fondly remembered for his leadership of many outstanding *terroir* field trips in the Niagara region, locale of the production of about 85% of Canada's wine production. Professor Larry Meinert of Washington State University, Pullman, Washington, who is organizing a symposium on *terroir* for the annual Geological Society of America meeting in Seattle, Washington, November 2-5, 2003, is seeking GSA approval to name the symposium in honour of Simon Haynes, a further measure of the esteem with which Simon is held in this field.

Some people have knowledge, experience and an infectious enthusiasm that are not easily acquired by others: certainly in terms of geology and wine, and very probably in all of his geological work, Simon Haynes was such a person. As *Geoscience Canada* Editor 1996-2001 it was a pleasure for me to work with Simon. His influence on the many students he taught at Brock, and his published work in many fields, will form a lasting legacy. Perhaps his most important legacy, however, will be the influence he had as a family man - husband to Valerie, and father to their four sons and spouses. In many ways this is our most important work, something that we only realize later in life. Simon Haynes was a family man, fine scientist and teacher, and enthusiastic practitioner of life. The Department of Earth Sciences at Brock are planning an award in Simon's name: the precise nature of the award is under discussion at present. Individuals who are interested in making a contribution/donation can contact the Department of Earth Sciences, Brock University, St. Catharines, Ontario, L2S 3A1 or by email to earth@craton.geol.brocku.ca. Further details on this award should appear in *GEOLOG* as soon as more information is available.

Roger Macqueen
Calgary AB

First Pikaia Award



The GAC Paleontology Division has awarded the first Pikaia Award to Jisuo Jin, of the University of Western Ontario in recognition of his outstanding contributions to the greater understanding of Ordovician-Silurian brachiopods.



CIMM Awards Best Thesis

Steve Piercy was awarded first place in the geology category for best thesis by the Canadian Institute of Mining, Metallurgy and Petroleum. Steve defended his Ph.D. thesis at UBC in June 2001. It was entitled, "Petrology and Tectonic Setting of Felsic and Mafic Volcanic and Intrusive Rocks in the Finlayson Lake Volcanic-Hosted Massive Sulphide Deposit District, Yukon, Canada: A Record of Mid-Paleozoic Arc and Back-Arc Magmatism and Metallogeny", and was supervised by Jim Mortensen.

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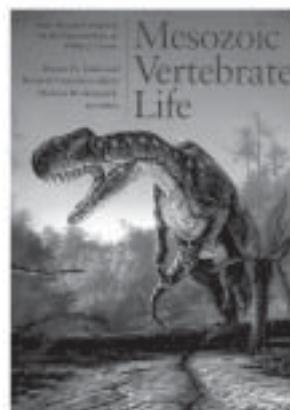
NEW CGC Standing Committees

CGC approved two new Standing Committees. The committee on Sustainable Mineral Resources Development is building a broad approach to the incorporation of geoscience into various aspects of 'sustainable mining', from exploration, to production, contamination and remediation of mine sites. This broad approach will link geosciences with many other disciplines of physical, medical and social science, and technology. The committee on the International Continental Drilling Program is exploring continuing Canadian participation in ICDP, following on the very successful collaboration on the Mallik gas hydrate drilling project recently completed on the Mackenzie delta.

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PACROFI VIII. Halifax, NS

Web: <http://www.gov.ns.ca/natr/meb/pacrofi8/index.htm>

July 22-27

11th IAGOD Symposium Geocongress 2002, Windhoek, Namibia

Conference Link, P.O.Box 9870, Windhoek, Namibia, Tel. +264-61-251014; Fax: +264-61-272032 E-mail: alice@conferencelink.com.na; Web: <http://www.geoconference2002.com>

Aug. 8-11

American Quaternary Association (AMQUA) 17th Biennial Meeting, Anchorage, AK

Tel: 907 786-6845. Fax: 907 986-6850; E-mail: afdry@uaa.alaska.edu

Aug 18-23

Goldschmidt 2002 Conference. Davos, Switzerland

Web: <http://www.goldschmidt-conference.com/2002/gold2002/>

Aug. 25-30

Gondwana 11 - Correlations and Connections, Gateway Antarctica, Christchurch, New Zealand

Tel: 64 3 364-2136; Fax: 64 3 364-2197; E-mail: s.hawtin@anta.canterbury.ac.nz; Web: www.anta.canterbury.ac.nz

Aug. 27-Sept. 3

Int'l Geochemical Exploration Symposium, Dublin, Ireland

Association of Exploration Geochemists. Web: www.aeg.org

Aug. 31- Sept. 4

Emerging Concepts in Organic Petrology and Organic Geochemistry, Banff, AB

Canadian Society for Coal Science and Organic Petrology (CSCOP)/The Society for Organic Petrology (TSOP). Tel: 403 292-7038. Fax: 403 292-7159. E-mail: Mfowler@nrcan.gc.ca; Web: www.cscop-tso2002.com

Sept. 1-4

AusIMM 2002, Auckland, New Zealand.

Australasia Institute of Metallurgy
Tel: +64 9 373 5917. Fax: +64 9 307 3025. E-mail: conference2002@ausimm.co.nz

Sept 1-6

IMA 2002: Mineralogy for the New Millennium. Edinburgh, Scotland

Web: <http://www.minersoc.org/IMA2002>

Sept 3-5

Modelling Magma Chambers & Evolution of the Continental Crust, Liège, Belgium

E-mail: jvdauwera@ulg.ac.be; Fax 32-4-366 22 53

Sept 4-6

Calculating metamorphic phase equilibria using THERMOCALC, Barcelona, Spain

Web: <http://www.ub.es/thermocalc/Index.html>

Sept. 9-11

Natural and Cultural Landscapes: The Geological Foundation, Dublin, Ireland

E-mail: landscapes@ria.ie

Sept 15-21

Eurogranites'2002, Perugia, Italy

Tel: +39 075 585 2607; Fax: +39 075 585 2603; Web: <http://www.unipg.it/~petropg/eurogranites2002.htm>

Sept. 22-25

Applied Structural Geology for Mineral Exploration and Mining, Kalgoorlie, Australia

Julian Vearncombe. E-mail: vearncom@inet.net.au

Sept 26-30

Melt Inclusions: Methods, Applications and Problems, Napoli, Italy

E-mail: info@ersambiente.com; Web: http://www.dgv.unina.it/convegni/workshop_de_vivo.htm

Oct 1-5

Planet Earth: Past, Evolution, and Future, Wuerzburg, Germany

Web: <http://www.geo2002.de>

Oct. 27-30

GSA's 114th Annual Meeting, Denver, CO

Geological Society of America. Tel: 303 357-1038. Fax: 303 357-1072; Web: www.geosociety.org/meetings/index.htm; E-mail: bmartinez@geosociety.org.

Nov. 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.

Dec. 7-18

Modular Course in Exploration Geochemistry, Sudbury, ON

Mineral Exploration Research Centre, Laurentian University. Tel: 705 675-1151 x2364; Fax: 705 675-4898, E-mail: spiercey@laurentian.ca; Web: <http://earthsciences.laurentian.ca>

2003

Jan 27-30

Cordilleran Exploration Roundup 2003. 20th Anniversary, Vancouver, BC

Web: www.chamberofmines.bc.ca

Feb. 23-25

SME — Society for Mining, Metallurgy and Exploration Annual Meeting, 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 29 - April 2

International Limnogeology Congress, Tucson, AZ

International Association of Limnogeologists, Tuscan, AZ
Tel: 520 621-4691; Fax: 520 621-2672; E-mail: acohen@geo.arizona.edu

Apr 7-11

EGS, AGU, and EUG Joint Assembly, Nice, France
Web: <http://www.copernicus.org/egsagueug/>

May 4-7

CIM 2003 Conference & Exhibition, Montreal, QC
Canadian Institute of Mining Metallurgy and Petroleum. Tel: 514 939-2710; Fax: 514 939-2714.

May 25-29

Joint GAC-MAC-SEG Annual Meeting, Vancouver, BC

Tel: 604 681-5226; E-mail:

Vancouver2003@nrcan.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>

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>

Aug 27 - Sept. 3

Int'l Geochemical Exploration Symposium, Dublin, Ireland

Association of Exploration Geochemists. Web: www.aeg.org.

Sept. 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

6th International Symposium on Environmental Geochemistry, Edinburgh, Scotland

Web: www.iseg2003.com

Sept. 10-12

Debris-Flow Hazards Mitigation: Mechanics, Prediction & Assessment, Davos, Switzerland

Web: www.wsl.ch/3rdDFHM

Nov. 2-5

GSA's 115th Annual, Seattle, WA

Geological Society of America. Tel: 303 357-1038; Fax: 303 357-1072; Web: www.geosociety.org/meetings/index.htm; E-mail: bmartinez@geosociety.org.

2004

May 15-17

GAC/MAC 2004, Brock University, St. Catharines, ON

Aug. 20-28

International Union of Geological Sciences Meeting, Florence, Italy

Web: <http://www.iugs.org/>

Nothing but Net



The **Mineral Deposit Research Unit** at the University of British Columbia has a new website address:

<http://www.mdru.ubc.ca/>

The **Northern Miner**

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

A **New and Improved Atlas of Canada**

<http://atlas.gc.ca/site/english/newintheatlas/newsite>

The **GISDataDepot** - The largest geo-spatial data repository on the web!

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

Calculating magnetic declination from maps may not be off by up to 5 degrees, particularly in northern regions. Try this **declination calculator** from NRCAN.

http://www.geolab.nrcan.gc.ca/geomag/e_cgrf.html

International Year of the Mountains

<http://www.mountains2002.org/>

Geochemistry Web-Links

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

High-Tech Metals in British Columbia

A great starting place for those interested in REEs

<http://www.em.gov.bc.ca/DL/GSBPubs/InfoCirc/IC90-19/lc90-19.pdf>

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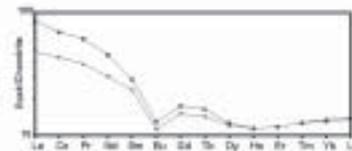
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