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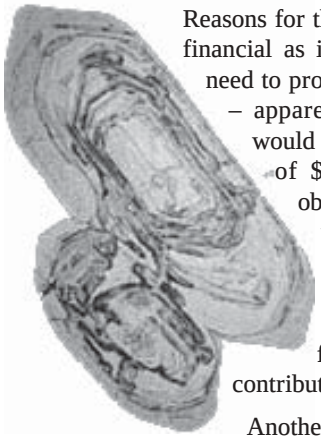
ROM to Axe Geochron Lab

Renaissance has no room for zircons

Employees of the Jack Satterly Geochronology Lab at the Royal Ontario Museum were recently informed that despite their successes and a public investment of millions of dollars, the lab will be closed. This lab has made significant contributions to geology, having published 360 refereed papers in 20 years, many of them on aspects of Canadian geology, as well as playing a huge role in the development of the high precision U-Pb method. Additionally, this lab has been a proving ground and generating some of Canada's top geochronologists. Students educated under the tutelage of Tom Krogh and Don Davis have since gone on to set up, at least, eight other leading geochronology labs. However, after 25 years of successful operation, ROM administrators appear to have made a snap decision to close the lab with only four months notice.



Reasons for the lab's closure seemed to have been financial as it was suggested that the lab would need to procure a $15M endowment to continue – apparently this amount was chosen as it would provide a guaranteed annual income of $500K for lab operations. Since obtaining $15M on short notice is highly unlikely, terminations will begin as soon as possible, and by April the lab may not exist. Financial excuses seem unfounded as the lab is financially self-sustaining, and even contributes $50K per year to the Museum.

Another reason given for the closure is that the lab does not fall within the ROM's mandate, a strange suggestion given that the ROM's mandate has not changed since the inception of the lab. In fact, a large engraving beside the ROM's front entrance cites: "the record of nature through countless ages" as a feature of the Museum. ROM administrators were supportive a few years ago when Tom Krogh was inducted as a Fellow of the Royal Society (one of only two at the museum) and they indicated that "The Museum's Earth Sciences department is particularly proud of Tom, and pleased to have the excellence of our Geochronology Lab further recognized in this way."

The real story behind the decision to close down the lab may be that its space is required to accommodate the ROM's aggressive $200M expansion plans called Renaissance ROM. Renovations and expansion, which include 220,000 square feet of new and redeveloped space, will start as early as May 2003. William Thorsell, the newly appointed ROM President and CEO, and the ROM's

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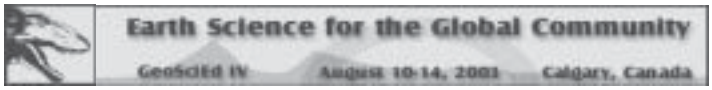

G.G. Awards J.O. Massey Medal

John Oliver Wheeler has been awarded The Royal Canadian Geographical Society's 2002 Massey Medal by the Governor General of Canada. He was awarded the medal for "his contributions to the understanding of the earth sciences for outstanding achievement in the field of Canadian geography".

John, known to most as J.O., has a passion for mountains and geology that has been his spirit and soul for most of his life. Now 77 years old, J.O. was a research scientist with the Geological Survey of Canada for 39 years, but apparently "retired" in 1990. John Wheeler has mountains in his genes. His father participated in the first topographical survey of Mount Everest in 1921, and his grandfather, who was a founder and first president of the Alpine Club of Canada, mapped British Columbia's Selkirk Mountains and the B.C.-Alberta border during the early 1900s.

J.O.'s work has been the foundation of all subsequent Cordilleran mapping studies and set the standard for geological mapping in Canada. Wheeler is internationally recognized for his extensive knowledge of Canada's geology. He has been a member of the GAC since 1957, a GAC Councillor from 1968-1972, GAC President in 1970-71, and Logan Medalist in 1983.

J.O. Wheeler is synonymous with geology maps and the Cordillera. He has mapped the geology of 100,000 square kilometres of western Canada, including several regions of the Yukon, including the St. Elias Mountains, as well as a large portion of the Selkirk Mountains in British Columbia. Among his greatest

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INSIDE

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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GEOLOG (ISSN 0227-3713) is the quarterly newsmagazine of the *Geological Association of Canada*, St. John's, Newfoundland and Labrador. GEOLOG is published for the benefit of GAC members and its content reflects the diversity of the organization. News items and short articles on topics of potential interest to the membership including public geoscience awareness are encouraged. Also encouraged are communications promoting interaction among academic, industry and government sectors. GEOLOG accepts and publishes contributions in both of Canada's official languages. Opinions expressed herein are those of the writers and do not necessarily represent the official positions of the GAC. GEOLOG is one of several forums provided by the GAC for scientists worldwide.

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GEOLOG (ISSN 0227-3713) est le bulletin trimestriel de l'*Association Géologique du Canada*, à St. Jean, Terre-Neuve-et-Labrador. GEOLOG s'adresse aux members de l'AGC et son contenu reflète le caractère polyvalent de cette organisation. Nous invitons la soumission de nouvelles et articles courts pouvant intéresser les membres, incluant les thèmes de sensibilisation du public aux sciences de la Terre. Les articles suscitant des échanges d'opinions et d'informations entre les secteurs académique, industriel et gouvernementaux sont également la bienvenue. GEOLOG accepte et publie les articles dans les deux langues officielles du Canada. Les idées sont celles des auteurs et ne représentent pas nécessairement la position officielle de l'AGC. GEOLOG n'est qu'un des nombreux forums offerts par l'AGC aux scientifiques à travers le monde.

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

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FEATURES

DEPARTMENTS

Happy New Year! This Winter 2002 *GEOLOG* benefits from the contributions and assistance of Al Gorman, Alwynne Beaudoin, John Clague, Al Donaldson, Bruce Hart, Chris Burn, Eleanor Penney, Richard Grieve, Karen Dawe, Sandy McCracken, Mike Cherry, Liz Crompton, Donald James, Richard Wardle, Bill Poole, Bert Struik, Mike Marchand, Steve McCutcheon, and Sandra Kamo. 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. Richard Hartmier's photos of Mt. Logan adorn the Mastheads. This *GEOLOG* was produced with support from the Yukon Geology Program, Whitehorse, Yukon. The next deadline for GEOLOG is March 7th, 2003 — your contributions are welcome! CJRH

Call For Short Courses

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

Interested persons should contact the GAC Short Course Coordinator, Dick Wardle, at 709 729-2107 or rjw@zeppo.geosurv.gov.nf.ca

Préambule Presidential Preamble

What's in a Word?

When I was a graduate student, back in the age of the dinosaurs, most geoscience departments in North America carried the moniker "Department of Geology." Then came plate tectonics, earth system science, and other unifying theories and concepts, which made it clear that **geology** is only a part, albeit an important part, of **geoscience**. Faced with flat enrollments and driven by the desire to be more inclusive, many university geology departments in the 1980s and 1990s changed their names to "Department of Earth Sciences," "Department of Geosciences," "Department of Geology and Geophysics," and so forth. Some people view such name changes as trivial and unimportant, but others argue that a name is very important because it can capture the core values of a group or organization. A university department whose mission is to teach students about the complexity of the Earth system and the interactions of lithosphere, soils, atmosphere, biosphere, and hydrosphere might not be happy labeling itself "Department of Geology," feeling instead that "geoscience" or "earth science" better captures its essence.

Which brings me to the point of this preamble. Is it time to rename the "Geological Association of Canada" the "Geoscience Association of Canada"? You might response to this with another question: "What's in a word, anyway?" I would argue that the word "geoscience" sends a signal to earth scientists who are not geologists (for example, geophysicists, physical geographers, soil scientists, engineering geologists) that they are welcome in GAC. I suspect that many of these scientists, in fact, do not feel welcome in our organization. Further, it indicates that GAC's world does not end at the lithosphere and that we recognize the Earth as much more than the solid earth. It signals that we have come of age and are beginning the process of what *Geoscience Canada* Godfrey Nowlan has termed "defragmentation" of our profession. Geologists, geophysicists, geographers, and others need to look outside their narrow disciplinary "boxes" and value their membership in a larger family, the community of geoscientists. Just as residents of Alberta, Ontario, and other provinces and territories should consider themselves first-and-foremost Canadians, geologists should consider themselves geoscientists.

So, what's in a word? A lot, I believe. What do you think?

John Clague
President, GAC

From the Geolog Editor

The Breadth of Geoscience

Ah, the irony.

In the months leading up to the federal government's ratification of the Kyoto Accord, many Canadians, businesses and provinces were asking for answers, details, specifics, particulars and facts about the Earth's response to changing atmospheric compositions (climate change) ... and all they got was motherhood and rhetoric. At about the same time, the NSERC Reallocation Committee rejected[1] an application for increasing research funding to, among other things, develop a better understanding of "the past and future evolution of the Earth System".

This joint submission of the Solid Earth Sciences and Environmental Earth Sciences included three proposals: 1) Global Environmental Change; 2) Earth Resources and Sustainable Development; and 3) Earth System Evolution and Dynamics. The proposals clearly emphasized an integrated vision between the Solid and Environmental Earth Sciences. As well, the proposals clearly recognized the importance of such research for making scientifically well-informed social, economic and political decisions. Although many Canadians see the need for the answers from such research, regretfully, the chemists, physicists and biologists that largely comprise the Reallocation Committee and who likely still see Earth Science as a marginal discipline, did not. They thought the proposals too broad in scope.

Well guess what? "Broad" is what geoscientists do best. Interdisciplinary is our middle name, and no scale is too small, or large. Who else better, or indeed capable?

Regretfully, even the Governor General of Canada thinks that geologists are too specialized (see page 7). And although she gives the GSC some high praise (which it deserves), she is probably ignorant of the breadth of geoscientific endeavours currently undertaken by them.

Evidently, we are doing a lousy job at educating the public, politicians and our scientific colleagues that the Earth Sciences and geologists are more relevant than ever before - particularly with an ever evolving Earth. Suggestions?

[1]*Despite the headline in Geolog v.31, pt. 3, Earth Sciences did not fail, but the NSERC Reallocations Committee rejected.*

Oscillations

Dennis Shaw, Professor Emeritus of McMaster University, was awarded the inaugural Geochemical Society Distinguished Service Award by the Geochemical Society at the Goldschmidt Conference in Davos, Switzerland in August. Dr. Shaw was honoured for his years of service as editor of *Geochimica et Cosmochimica Acta*. • GAC member Dr. **György Ozoray** of London, ON passed away on September 22. Dr. Ozoray was born in 1932 and was a GAC member since 1974. • **Ron Clowes** of UBC was presented with The Queen's Golden Jubilee Medal for his significant contribution to Canada, in particular for his leadership role with LITHOPROBE. • Congratulations to University of Toronto's **Dan Layton-Matthews** who is this year's winner of the Mineralogical Association of Canada Scholarship. An MAC committee picked Dan's research proposal on selenium in volcanogenic massive sulfide deposits to be the best of the submissions for this $10,000 award. • **Michael Dorland** of UWO has been selected as the 2002 Ontario Petroleum Institute Bachelor Thesis Award recipient for his thesis entitled "Petrography and Diagenesis of Cambro-Ordovician Reservoir Rock from the Innerkip Gas Pool and Gobles Oil Pool, Southwestern Ontario". • Dr. **Ed. Pye**, past Director of the OGS, recently passed away. Ed retired in the mid-'80s and soon after he retired suffered a stroke that confined him to a wheelchair for the rest of his life. He taught himself to type and use a computer (not available to him when he was at OGS!). He revised one of the Ontario Geology Guide Books and even wrote a history of the OGS while he was retired. • **Octavian Catuneanu** of University of Alberta won the 2002 Best Paper Award by the Structural Geology and Tectonics Division of the Geological Society of America.

Oscillate recently? Tell geolog@gov.yk.ca

Information for Contributors/Directives aux Auteurs

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

The **DEADLINES/ÉCHÉANCIERS** for submissions and advertising for Volume 32 of GEOLOG is 07 March, 30 May, 12 September and 05 December, 2003.

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 ne résolution de 300 dpi dans un format non comprimé (préférablement *.tif). Les fichiers de dimensions supérieures à 2 Mo doivent être comprimés avant envoi par courriel. Veuillez communiquer avec le Rédacteur en chef en ce qui concerne la possibilité d'utiliser d'autres formats. Nous acceptons aussi une **copie imprimée sur papier** du texte, graphiques et images. Le Rédacteur en chef se réserve le droit de modifier l'article à des fins de clarification ou de brièveté.

ROM Geochron ... from page 1

board of trustees, appointed by the Mike Harris government, are made up largely of people with corporate backgrounds who have taken pride in running the scientific institute in a more "business-like" fashion. Mr. Thorsell has indicated that he has difficulty understanding how a geochronology lab fits into the ROM's agenda.

However, there may be a future.

The lab may be able to continue its operations in another venue – most likely, and appropriately, at the Department of Geology of the University of Toronto. U of T has a $2M stake in the lab's infrastructure and receives a $200,000 NSERC grant on its behalf. Whether or not this move can happen within the available time frame will depend upon numerous factors, but it certainly requires sufficient support within the faculty and university administration.

It seems unlikely that the ROM administration would respond to pressure from the geoscience community, however, letters of support sent to the U of T might be productive. Employees of the lab are encouraging their colleagues to direct supporting letters to the President of the University of Toronto.

More on this story ...

Zircons and the zeitgeist
Northern Miner, Dec. 2, 2002, p. 4

ROM gold-digging miffs scientists
The Eye Weekly
http://www.eye.net/eye/issue/issue_08.23.01/news/rom.html

The ghost of Thatcherism?
The Art Newspaper
http://www.theartnewspaper.com/news/article.asp?idart = 7291

Selected Recent Publications of the Jack Satterlay Lab

Davis, D.W. and Lin, S. Unravelling the geologic history of the Hemlo Archean gold deposit, Superior Province, Canada: a U-Pb geochronological study. Economic Geology, in press.

Ayer, J., Amelin, Y., Corfu, F., Kamo, S., Ketchum, J., Kwok, K., and Trowell, N., 2002. Evolution of the Abitibi greenstone belt: early interaction between plume- and subduction-related volcanism followed by sedimentation, folding and plutonism associated with accretion to the Superior Province craton, Precambrian Res. 115, 63-95.

Barrie, C. T., Amelin, Y., and Pascual, E., 2002. U Pb geochronology of VMS mineralization in the Iberian Pyrite Belt: Mineralium Deposita, 37: 684 703.

Davis, D.W. 2002. U-Pb geochronology of Archean metasediments in the Pontiac and Abitibi subprovinces, Quebec, constraints on timing, provenance and regional tectonics. Precambrian Research, 115: 97-117.

Fralick, P., Davis, D.W. and Kissin, S.A. 2002. The age of the Gunflint Formation, Ontario, Canada: U-Pb single zircon determinations from reworked volcanic ash. Canadian Journal of Earth Sciences, 39: 1085-1091.

Gower, C.F. and Krogh, T.E., 2002. A U-Pb geochronological review of the Proterozoic history of the eastern Grenville Province. Canadian Journal of Earth Sciences 39: 795-829.

Ketchum, J.W.K., Culshaw, N.G., and Barr, S.M., 2002. Anatomy and orogenic history of a Paleoproterozoic accretionary belt: the Makkovik Province, Labrador, Canada. Canadian Journal of Earth Sciences 39: 711-730.

Krogh, T.E., Kamo, S.L., Gower, C. and Owen, J.V., 2002. Augmented and reassessed U-Pb geochronological data from the Labradorian-Grenvillian front in the Smokey archipelago, eastern Labrador. Canadian Journal of Earth Sciences 39: 831-843.

James, D.T., Kamo, S.L., Krogh, T.E., 2002. Evolution of 3.1 and 3.0 Ga volcanic belts and a new thermotectonic model for the Hopedale Block, North Atlantic craton (Canada), Canadian Journal of Earth Sciences 39: 687-710.

Lin S. and Corfu F. 2002. Structural setting and geochronology of auriferous quartz veins at the High Rock Island gold deposit, northwestern Superior Province, Manitoba, Canada. Economic Geology 97, 43-57.

J.O. Wheeler ... from page 1

accomplishments was a compilation of the geology of the Cordillera from northern Washington State to eastern Alaska.

He joined the Geological Survey in the early fifties at the start of the golden age of bedrock mapping. John's contributions to early mapping were remarkable achievements. Throughout his 20 years of mapping in the Cordillera, he thoroughly enjoyed and relished the physical challenge of the mountains as well as their beauty, and later, the intellectual challenges of understanding their geology. Thus, the geological architecture of the Cordilleran Ranges was pieced together by Wheeler and a band of talented and enthusiastic colleagues in a climate of great excitement and synergy.

His highlight of his 39 years with the GSC was his earlier "heroic days" of surveying in the Yukon's Selwyn Mountains. It was the early 1950s and Wheeler and his colleagues studied the rugged terrain by foot and pack horse, relying on a rough collage of aerial photos as topographical maps were not yet available.

"Something hidden. Go and find it. Go, and look behind the Ranges."

R. Kipling

J.O. Wheeler was appointed as head of the GSC's Cordilleran Section in 1968 but his tenure lasted only two years before he was persuaded, with mixed feelings, to move to Ottawa to become a manager. There he became Chief Geologist responsible for the scientific program – a program that had become much more diversified. This was a huge challenge that catalyzed his growth as a scientist and as a person. J.O.'s willingness to learn new things, listen and provide good advice and judgement were attributes that made him a good and appreciated manager. He also refused to be marooned behind a desk, and made the effort to get to the field to interact with Survey geologists across Canada. John is recognized as having played a key role in directing geoscience research in Canada having built strong relationships with provincial surveys and industry.

Among his key (non-mapping) achievements was his role in lobbying for establishment of the Lithoprobe project thathas since undertaken numerous deep seismic transects of Canada's crust and supporting geoscientific studies. John served as chairman of Lithoprobe's steering committee for two years. Additionally, John helped to initiate the first Geological Atlas of the Western Canada Sedimentary Basin, is an initiator and supporter of the Canadian Geological Foundation, and was awarded an Honourary Doctorate of Science (*honoris causa*) at the University of British Columbia.

Wheeler was a coordinator, and the GSC's General Editor, of the eight volume Decade of North American Geology series, *The Geology of Canada*, which is clearly the definitive guide to this country's geological foundations. Wheeler personally authored several chapters of the Cordilleran volume in addition to compiling the Lithotectonic Map of the Canadian Cordillera, the Terrane Map of the Canadian Cordillera, and the award winning Geological Map of Canada.

Throughout J.O.'s retirement, he's continued to work as an emeritus research scientist at the GSC. Wheeler's extensive expertise served him well while compiling the Geological Map of Canada and most recently as the Canadian contributor to the Geological Map of the World. He and is now putting the finishing touches on the Geological Map of North America.

Excepts of a Speech given on by the Governor General on the Occasion of the Presentation of the 2002 Massey Medal to John O. Wheeler

By Her Excellency the Right Honourable Adrienne Clarkson

Rideau Hall, Friday, December 6, 2002

"The Geological Survey of Canada really should be better known to all Canadians and not just to specialists, because so much of our history is tied up with the surveys of our country. It is hard to think of Canada becoming a country united in national vision and purpose without any conception of its physical make-up. Thanks to the Geological Survey of Canada, which predated Confederation by twenty-five years in 1842, the huge territory of this northern land was brought bit-by-bit onto paper and into the minds and imagination of the early political architects of Canada.

And it is, of course, the organization with which our honouree today spent thirty-nine years, first in Vancouver, then in Ottawa. Indeed, we are fortunate that we still have among us people like John Wheeler and Graham Rowley, just to name two, who physically mapped the country. They are a link back to the early explorers of Canada – a different age, perhaps, but the purpose was the same. Of course, the geography of Canada presented unusual challenges of terrain and climate. Yet that's what gives their stories the romance and excitement that we've all felt in reading them. The science they practiced was hard and difficult, but what great adventures!

"The Geological Survey of Canada really should be better known to all Canadians..."

It's interesting to note that, when the Geological Survey was started, geologists were not narrow specialists in the way that we would use the term today. One of the organizations of which I'm the patron – the Ottawa Field Naturalists Club – had very prominent members who were also members of the Survey. And of course, George Mercer Dawson, a most illustrious geologist and Director of the Geological Survey, has been described, in a great understatement, as being "extremely versatile", despite serious physical challenges. I recently had the opportunity to look at his collection of native artifacts in the reserves of the McCord Museum in Montreal and it brought out to great advantage the lively mind, the polymath that he was. According to Morris Zaslow, Dawson sketched, did passable water-colours and wrote decent poetry, as well as compiling handbooks on Canada of an encyclopedic nature and being a diplomat in various missions relating to the Alaska boundary and the Bering Sea."

"I'm particularly delighted that this year's winner of the Massey Medal – Dr. John Wheeler – has such a long acquaintance with two features of our landscape that are so intrinsic to us: our mountains and the north. His work over fifty years makes him truly "King of the Canadian Cordillera". Another geologist, C.J. Yorath, wrote poetically and humorously about men like Dr. Wheeler:

"The people of the Cordillera are my heroes. Collectively they form a cult. Their language is expressed in contractions, is often metaphoric, and, to the uninitiated, utterly unintelligible. Their altars are rocks, their season is summer, and their children tend to have birthdays in June. What distinguishes them from most others is their consuming passion for what they do. They long for summer when the mountains will ring with the blows of their hammers, when helicopters will carry them through the sky. They will gaze from windswept peaks and see continents in collision, entire oceans created and destroyed. They will lose themselves in time."

It is a pleasure to award the Massey Medal today to Dr. John O. Wheeler, who has given Canadians the chance to know our land and, by this knowledge, to make it truly ours."

The Massey Medal

The award, established by the Massey Foundation in 1959, is administered by The Royal Canadian Geographical Society. The Massey Medal is awarded annually by the Society. Its purpose is to recognize outstanding personal achievement in the exploration, development or description of the geography of Canada. The medal is named in honour of Vincent Massey, the first Canadian Governor General. He had a deep understanding of what geography meant to Canadians and is quoted as saying that "every man should be his own geographer … We must all be geographers if we are to live intelligently in this world, just as we must all be historians if we are to live acceptably in society. Geography and history are universal arts. When they cease to be so, civilization decays."

Shifting Gears at the GSC

Building effective and relevant science and technology programs in the Geological Survey of Canada, Earth Sciences Sector, Natural Resources Canada

To remain responsive to the crucial, yet constantly evolving societal needs for knowledge about how to manage the surface on which we live, the Earth Sciences Sector (ESS*) of Natural Resources Canada (NRCan) is currently transforming itself to embody the belief that its strength lies in the direct application of Science & Technology to improve the quality of life. The goal of this transformation is to select and support those activities that clearly contribute to resolving the concerns of Canadian society and the resulting actions are being taken in the light of the current global and Canadian context. There is risk in change but there is potentially greater risk in not responding effectively to the challenges of ecosystem protection, natural hazard risk reduction and sustainable development faced by our society.

ESS recognizes the primordial role of Earth sciences in the sustenance and health of society, and is positioning itself to maximize its relevance and clearly define its role in the application of Earth science S&T for Canadians. To be both responsive and relevant, ESS has established a structure of time-limited, targeted programs. ESS has approved national programs addressing issues centred on a clean environment, strong and safe communities, sustainable development of natural resources, support of Aboriginal peoples, connecting Canadians, creating and sharing opportunities globally and in developing the north. To obtain further details about the programs please visit the ESS website at http://www.nrcan.gc.ca/ess. The programs represent a strategic balance between research and development (R&D) and related scientific activities (RSA, activities that complement and extend R&D by contributing to the generation, dissemination and application of S&T such as data collection, monitoring and curation).

These changes establish a results-based, decision-making framework for selecting S&T activities. The framework is predicated on addressing the issues affecting Canadians, as prioritized by the federal government and follows recommendations in a series of reports by the Council of Science and Technology Advisors (CSTA http://csta-cest.gc.ca). The S&T within the federal government must also continue to be excellent, partnered with others in the innovation system and reviewed regularly, to ensure continuing quality and relevance.

The ESS vision is to be, and to be recognised to be, a leader in the development, deployment and integration of science and technology into policy and decision-making by NRCan, the federal and provincial governments, industry and other stakeholders. To achieve this vision, ESS, amongst other things, will be a high performance, issues-driven, results-based organization. It will be aligned with government priorities and it will be appropriately linked with other parts of Canada's innovation system–industry, universities and other government agencies. ESS will endeavour to ensure that the S&T needed by the government of Canada to accomplish its stated goals will be available when required. This is not to say ESS will perform all the required S&T. It will do so in areas of clear federal responsibility but will influence and facilitate others in Canada's innovation system to deliver what Canada requires as a federation.

ESS will operate on a program structure, where each program is designed to address a fundamental issue identified by the government of Canada (issues-driven). Programs are approved initially for a maximum of 5 years and reviewed annually. They deliver through a series of projects, selected to generate specific products (targeted outputs) that have impact on the receptor community. Achieving the impact (desired outcomes) will require close work with the community. This focus on influencing others to use ESS products is the basis for program selection and must be concomitant with the Government of Canada's investment. A program management team is being created to operate the programs and is distinct from the ESS management team of Director Generals and Directors, which will provide the organization's long-term leadership.

ESS has initiated ongoing consultations with various stakeholders on the development of its programs and to assist in formulating projects, within each program. Project suites in all programs will be approved for implementation on April 1, 2003. Current and past science and technology commitments that go beyond March 31, 2003 will be honoured to their completion. Cooperation agreements will be respected and will govern operational activities (e.g., Intergovernmental Geoscience and Geomatics Accords).

Impacts from these changes will include an effort to engage provincial and territorial governments, academia, industry and non-government organizations in developing a consistent national perspective on what is needed for Canada in terms of earth science knowledge. There will be an emphasis on focused or targeted research. ESS programs will involve the social and environmental component of earth science, integrating and supporting national initiatives in sustainability. Joint S&T with others will receive greater emphasis. In a general sense, ESS will devote its resources to delivering, or influencing others to deliver, high quality earth science information needed by Canadians through the most appropriate means. The earth science community can also expect to be asked to participate more in the evaluation of ESS's work, its directions and its processes. Throughout all this, ESS is committed to develop and maintain strong partnerships. Partnerships are needed to advance the needs, but share the risk, of all participants in order to effectively deliver the earth science information required for Canada.

*ESS consists of three organisational units; two S&T organizations, the Geological Survey of Canada and Geomatics Canada, and a largely logistical unit, Polar Continental Shelf Project, and various corporate units. It has an appropriation budget of almost $180M and staff complement of approximately 1,400 full time employees.

Richard Grieve
Chief Scientist, Earth Sciences Sector

David Boerner
Executive Director, Geological Survey of Canada
Earth Sciences Sector

Bert Struik
Program Manager, Natural Hazards and Emergency Response,
Earth Sciences Sector

Three Northern Research Chairs to Geoscience

Three of the six new NSERC Northern Research Chairs have been appointed to geoscientists! The five year, $6.1 million program has directed its efforts towards the stability of permafrost, the changing climate in the Arctic, as well as northern diets, forest fires and the future of fish resources.

Each program is led by a researcher who will provide leadership to stimulate a new generation of university students to pursue careers in northern science. The new Chair proposals were made with the support of northern communities. The selection followed a national competition organized by NSERC to solicit outstanding proposals and partnership for the chairs.

In September 2000, a task force organized by NSERC and the Social Sciences and Humanities Research Council (SSHRC) issued a report on the state of research in the North. The report, From Crisis to Opportunity: Rebuilding Canada's Role in Northern Research, proposed a five-point program: establish university research Chairs, create scholarships and fellowships, support strategic research projects, build new partnerships between universities and northern communities, and provide funding for equipment and infrastructure.

NSERC Northern Chair in the study of permafrost in the Yukon and Northwest Territories

Christopher Burn of Carleton University was awarded $1.15M and will focus on the stability of the permafrost regions of northwest Canada. Permafrost terrain is extremely sensitive to warming and to the disturbances that might accompany renewed oil and gas activity in the Mackenzie Delta and the development of the new diamond mining industry north of Yellowknife. This study will look at, among other things, effects of variable winter weather in valleys, forest fires, as well as the re-freezing of ground in the vicinity of tailing ponds. Training will be sponsored by Yukon College, both for registered northern students and for the local population who want to take advantage of opportunities for professional development. Supporters and Partners: Village of Mayo and First Nation of Na Cho Nyak Dun, Yukon Parks and the Water Resources Division, Indian and Northern Affairs Canada, Aurora Research Institute, Yukon College.

NSERC Northern Chair in environmental change in Arctic Canada: Ice Age to present

International attention is focused on high latitude environments as they are most sensitive to global climate change. Canada has stewardship over the largest area of tundra in the world and any significant change in this environment will have important social, economic and geopolitical consequences for northern and southern Canada. John England of the University of Alberta will use his $1.17M award to evaluate the natural "archives" found in glacier tracks, lake sediments, etc. to understand climate change at the beginning and end of the so-called Little Ice Age that occurred from 1600 to 1900 A.D. This interval, the coldest in the last one thousand years and marked by conditions reminiscent of full-fledged glaciation, may provide a unique insight into the mechanisms triggering environmental change at high latitudes. Supporters and Partners: Canada-Nunavut Geoscience Office, Canadian Circumpolar Institute, Nunavut Research Institute, Aurora Research Institute, Campbell Scientific Corp.

NSERC Northern Chair in the paleohydrological and paleoecological reconstruction of the Mackenzie Basin Deltas

Brent Wolfe, of Wilfrid Laurier University/University of Waterloo, will use his $0.7M award to provide a comprehensive history of the frequency and magnitude of floods and droughts in the deltas of the Peace-Athabasca, Slave and Mackenzie rivers over the past one thousand years. These river systems, which are of both great ecological and cultural importance to Northerners, are extremely sensitive to climate change. Supporters and Partners: BC Hydro, Wood Buffalo National Park, Indian and Northern Affairs Canada, Environment Canada, Aurora College.

Staff Changes at the BCGS

The British Columbia Geological Survey Branch has endured considerable staffing cuts and changes, as well as changes in mandate as a result of new government policies. Although initial indications were quite dire, the government has endured considerable pressure from the BC exploration and mining fraternity and cuts may not be as deep as first indicated. However, considerable staffing changes have been made. In the most recent round of modifications:

• 7 staff positions were affected.

• Two positions have been transferred – 1) Vic Levson to New Ventures Branch in the near future, and 2) Ron Smyth already gone to Offshore Oil and Gas Branch.

• One early retirement at end of March 2003 (Don MacIntyre)

• Four administrative support positions have been declared redundant and they will be placed elsewhere in government over the next number of months or be laid off at the end of March 2003. One of the four positions is the secretary in the Vancouver branch office.

• The position of Information Geologist for the Vancouver office will soon be filed.

This leaves the Branch with 21 staff positions focusing on collecting new field data, maintaining databases, and the MapPlace.

The British Columbia Ministry of Energy and Mines has increased funding and staffing resources into energy geoscience during the last couple of years, partly in response to increased oil and gas production in the province. The New Ventures Branch (formerly the Oil and Gas Initiatives Branch) is the group that is spearheading this and other energy-related initiatives. Last year four Geological Survey Branch staff moved to this group and later this year another staff member will join them. The chief geoscience contacts for the New Ventures Branch are:

Energy Development Enquiries or Oil and Gas Initiatives: **Steve Roberts**, Executive Director (Steve.Roberts@gems4.gov.bc.ca)
Coalbed Methane questions and New Energy Ventures Enquiries: **Derek Brown**, Director (Derek.Brown@gems6.gov.bc.ca)
Petroleum & Resource Geology Enquiries: **Mark Hayes**, Manager (Mark.Hayes@gems3.gov.bc.ca)

Ministry of Energy and Mines
PO Box 9323, Stn. Prov. Gov't.,
Victoria, BC V8W 9N3
Phone: 250 952-0204
Fax: 250 952-0922

2002 Survey of the Canadian Sedimentology/Stratigraphy Community

The GAC's Canadian Sedimentology Research Group (CSRG) was founded in May 1987 with an inaugural meeting at the University of Western Ontario. Loosely modeled after the British Sedimentology Research Group (BSRG), the primary objective of the CSRG was to promote the informal exchange of ideas amongst practitioners of sedimentary geology. Graduate students, professors and others were encouraged to present "works in progress" CSRG members organized several successful "regional meetings" (the holding of regular national meetings was deemed to be economically/logistically difficult) in the late 1980s and early 1990s. However, interest in the CSRG waned in the following years to the point where, in the Fall of 2001, a Regional Meeting was cancelled because of lack of interest.

In early 2002 the CSRG Executive began looking for ways of determining how the group might better serve the interests of the Canadian sedimentary geology community. Had the face of that community changed since the late 1980s? Are there things we could/should be doing? Are we still a useful organization? To answer these and other questions the executive decided to poll potentially interested parties.

The survey was conducted early in 2002. Questionnaires were sent via e-mail to current CSRG members (including representatives from Academia, Industry, Government Surveys and elsewhere), as well as other professors teaching "sedimentary geology" across the country who are not members of the CSRG (unfortunately we undoubtedly missed some potential respondents). Over 150 questionnaires were sent, and 40 responses were received via e-mail, fax and regular "snail mail". This would appear to be the first such polling of the Canadian sed/strat community.

Results

Sedimentary Geology in Canada

Respondents generally have a fairly high impression of the health of sedimentary geology as a discipline (Fig. 1). Respondents have high level of enthusiasm for their research activities, and those who teach generally have a high level of enthusiasm for that activity as well (Fig. 2). On average, funding levels are seen as being neither exceptionally good nor exceptionally bad (Fig. 3).

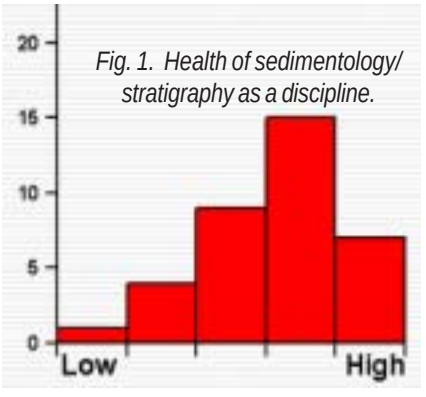
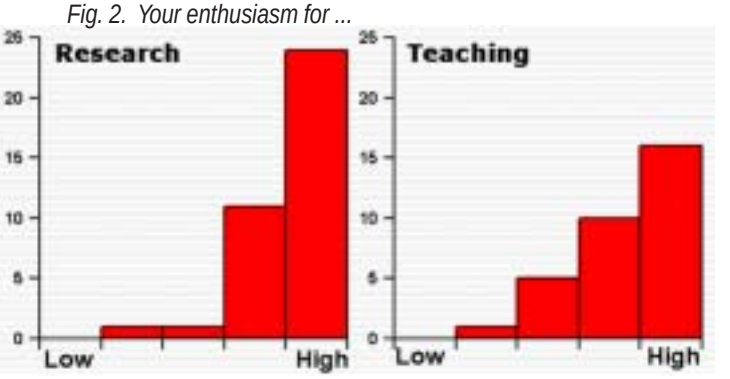


Fig. 1. Health of sedimentology/ stratigraphy as a discipline.

Unfortunately the perceived health of the discipline is not reflected in the number of graduate students in the field. Seventeen academic respondents cumulatively had 239 graduate students with a sed/strat focus in their departments 10 years ago (average of 14/department), compared to the 26 respondents who indicated 211 sed/strat grad students (average of 8/department). Only 15 respondents listed both the number of sed/strat grad students now and 10 years ago (the rest were apparently either not in their departments 10 years ago or couldn't retrieve that information). Of that number, twice as many respondents (8) reported decreases in the number of sed/strat grad students as respondents (4) who reported increases. (Three respondents reported no change.) In fact, there are currently fewer graduate students in the earth sciences in general: 10 out of 17 respondents noted fewer earth science graduates now than 10 years ago. On the positive side, only 4 of 15 respondents reported decreases in undergraduate enrollment in the past 10 years, and 6 of the respondents noted increases.

Fig. 2. Your enthusiasm for ...



The average respondent conducts "generic" research in the stratigraphy of clastic rocks (Fig. 4). Petroleum geology or environmental geology are not major research topics for respondents, even though those two disciplines hire a sizable number of students with sedimentary geology interests. Carbonate researchers and geochemists are in the minority within the CSRG.

Approximately 80% of respondents belong to GAC. Slightly over half of the respondents belong to SEPM, half the respondents belong to IAS, about a third belong to AAPG and 18% belong to GSA.

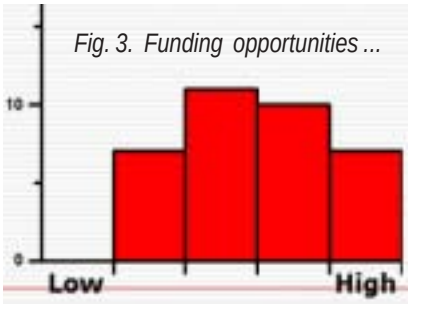
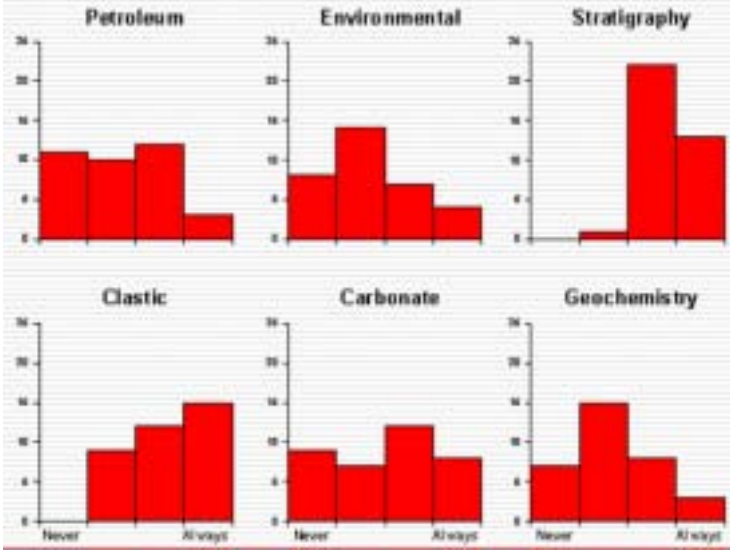


Fig. 3. Funding opportunities ...

Twenty-nine percent of the respondents noted membership in the CSPG, although the actual proportion is thought to be higher. A survey design flaw did not list that society on the checklist of societies and \ respondents needed to write in the name of that society. Several respondents who are known to be CSPG members did not mention their membership in the society, suggesting that an unknown number of CSPG members also may have missed this "write in" opportunity.

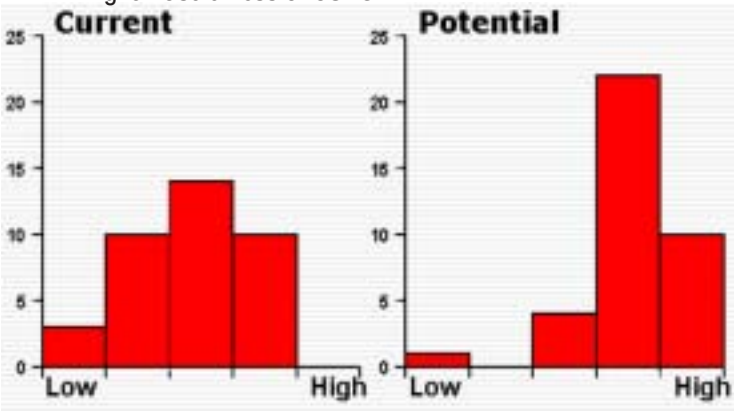
Fig. 4. Your research/employment ...



CSRG - The Community Speaks

Survey respondents have a fairly ambivalent perspective of the CSRG's current usefulness (Fig. 5). This contrasts with the optimistic perspective respondents have of the group's potential usefulness (Fig. 5). Obviously, the CSRG is not living up to its potential, and needs to identify means of becoming more useful.

Fig. 5. Usefulness of CSRG ...



Some activities or products that were not seen as useful, or for which no consensus emerged, include (Fig. 6):

- **CSRG Conferences**

These were originally the primary function of the CSRG, but self-organized conferences are generally now not seen as a desirable activity/product. Increasing demands on time (including other "formal" conferences, teaching, etc.) and budgets are probably responsible for the lack of interest in this activity.

- **CSRG Publications**

Most respondents apparently feel that the CSRG should not be generating its own publications. Perhaps demands on peoples' time are leaving them with less time for reading? The existing proliferation of publications from multiple sources (societies, publishers, etc.) also seems to make it hard for people to keep up.

- **Online Databases**

Some research groups/societies provide online databases for their members through websites. This is apparently not a sought-after service.

Fig. 6. Selected produucts we could offer (1) ...

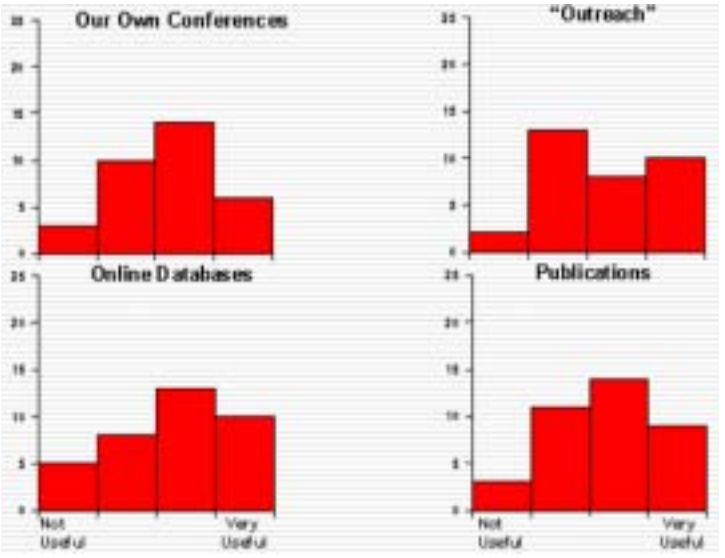
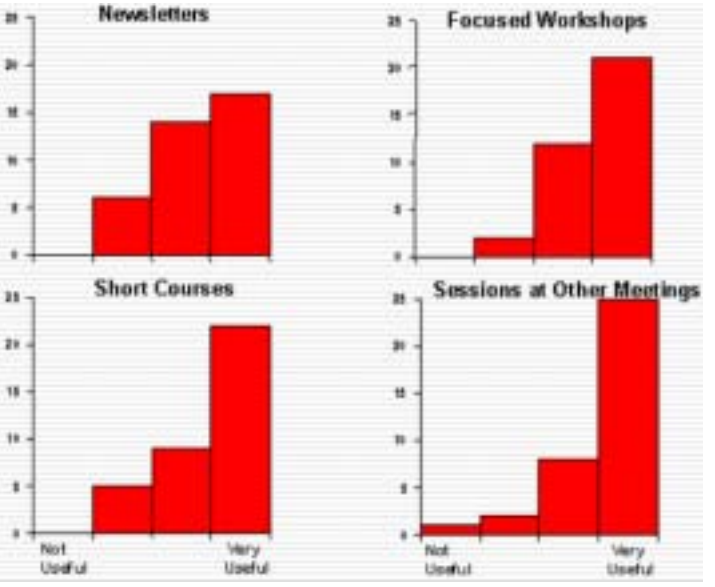


Fig. 7. Selected produucts we could offer (2) ...



- **Public Outreach**

Given the perception of declining enrollment in geoscience departments on a national level (but see above) and/or the closing of geoscience departments, public outreach might be viewed as a means of emphasizing the social relevance of geology in general or the career opportunities in sedimentology/stratigraphy in particular. In this light, the apparent lack of interest in this activity is difficult to understand. Could it be because most respondents see sedimentary geology as a healthy discipline, because they do not have time for these types of activities themselves (see below), or some other reason?

The survey results identified several activities or products the CSRG could organize or provide in order to be a more useful society. These include (Fig. 7):

- **Short Courses**

Survey respondents would like to keep themselves, and hopefully their students, abreast of new developments in the field of sedimentology/stratigraphy. There is apparently a gap in professional training that has not been addressed by other societies/groups.

- **Sessions at Other Conferences**

Instead of dedicated CSRG meetings, survey respondents suggested that they would like to see the CSRG organize special sessions at other meetings. Two such sessions (Williston Basin, Precambrian basins) were held in May 2002 at the Saskatoon GAC-MAC meeting, and another session (sequence stratigraphy) is planned for 2003 in Vancouver.

- **Focused Workshops**

Respondents suggested that these types of meetings, perhaps organized as NUNA meetings, would be interesting. Ideally these meetings would focus on "hot topics" and attract leading researchers in a particular field. The CSRG executive will need to work with members to identify topics that could be of interest.

- **Newsletters**

Newsletters could/should help to promote the informal exchange of ideas/news amongst the Canadian sed/strat community. Unfortunately the CSRG has not published newsletters recently. In the future, the CSRG Executive needs to do a better job of communicating with members. For financial, time and other reasons, future newsletters will only be distributed electronically, via e-mail. Electronic newsletters can be archived and retrieved from websites. The most recent newsletter is available at: http://eps.mcgill.ca/ ~ hart/ csrg_newsletter.html

The Road Ahead

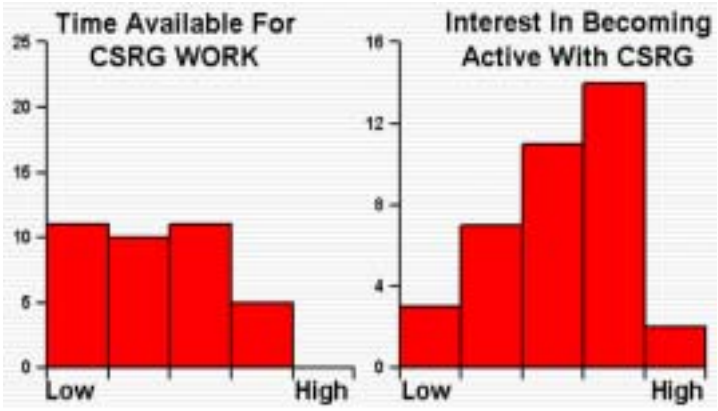
The survey results raise questions about the primary functions of a Division like the CSRG. Are we to provide leadership or to serve our members' wishes? For example, in light of departmental closings, declining enrolment and other problems, one might be tempted to conclude that a fundamental change is needed in terms of how sedimentary geologists view their profession. A switch to "earth system science", or more of an environmental focus, might be obvious ways of attracting new blood into the sed/strat community. Interestingly, survey respondents showed no consensus that we should be proactive in promoting an "earth systems science" research or teaching curriculum, or even that we should spend significant amounts of time on public outreach. One factor that clearly limits what the CSRG can achieve is the amount of time people have for volunteer work. Although most respondents suggested they would like to become active in the CSRG, most admitted that they have little time for CSRG work (Fig. 8).

Given the lack of consensus on many issues, and realistic appraisals of the amount of time people have for volunteer work, the current Executive has decided to focus on addressing a limited number of issues for which there is a clear consensus. We will seek to:

- Present more short courses and special sessions at national meetings.

CSRG members will need to be proactive in terms of suggesting topics that they would like to see covered. If/when appropriate, it may be possible to work with other societies (e.g., CANQUA, CSPG) to organize sessions at meetings other than GAC-MAC. Two short courses ("3-D Seismic Interpretation" and "Sequence Stratigraphy of Clastic Systems") and a CSRG-sponsored poster session ("Sequence stratigraphy: on the edge of academic and industry research") are planned for the 2003 GAC-MAC meeting in Vancouver.

Fig. 8. Availability and interest ...



- Organize focused workshops on topics identified by CSRG members.

The NUNA format could be a very useful format for these meetings.

- Regularly (bi-annually?) prepare and distribute newsletters.

The CSRG website could be a repository for past newsletters. Newsletters will provide members with means of communicating amongst themselves.

Maintaining enthusiasm and momentum for these activities will be difficult, and so we hope to develop a greater role for student involvement in CSRG functions. Graduate students: a) typically have more time available for "volunteer work" than their supervisors or other professional geoscientists, and b) are typically looking to develop contacts through networking with future colleagues. As such, we hope to increase graduate student interest in our society (effective immediately, student membership in the CSRG will be free). Ultimately though, the Canadian sedimentary geology community must recognize the "grass roots" nature of the CSRG. The CSRG should be perceived as a group that can facilitate member-sponsored activities and products, rather than a group that is responsible for proactively organizing such events.

Bruce Hart
McGill University

GAC AGC

Letters to GEOLOG

"The Earth is old, churches must be told" (Round Two)

In his commentary entitled "It's About Time", (*GEOLOG*, v. 31, pt. 3, p. 5), our editor wrote "Knowlege of time is quite simply among the greatest advances in the understanding of geology and geological processes". James Hutton made the first significant statement about a great age for earth over 200 years ago, in his book, "*Theory of the Earth*" - "no vestige of a beginning — no prospect of an end". He was followed by Lyell, Sedgwick, Murchison, Hall, Logan and others. The present methodogy includes superposition, continuous section thickness including drill holes, sequence stratigraphy, fossil succession and evolution, radiogenic dating, etc. which provide the conclusion that the EARTH IS OLD!

Geoscientists are THE experts, in fact they hold, exclusively, this profound determinations. All publications by federal and provincial surveys, professional societies, and teaching at universities and colleges adhere to the EARTH IS OLD scenario. Therefore, I would opine that geoscientists have the obligation, and should be more aggressive, to inform and persuade the general public. The GAC mission statement - see *GEOLOG* masthead - infers the association has this determination as part of its mandate, and I would suggest "It's About Time" that something specific is done.

Polling reveals that 40% of the public are convinced that the earth is very young, less than 20,000 years. The advocates are members of conservative churches, adhering to a literal reading of scripture, and most lacking any professional experience in the geosciences. Professional geoscientists have been frustrated.

Previously, I proposed (*GEOLOG*,v. 30, pt. 2, p. 12) the GAC invite the Presbyterian Church in Canada to appoint representatives to meet with expert GAC members to discuss this 'age of earth' question. I was advised, "informally", that GAC financial resources must be reserved for publishing research results.

OKAY!! But the obligation for the GAC remains. So I make another suggestion! Admittedly, targeting a single denomination is just too parochial!! Instead, send a letter to the Canadian Council of Churches; national headquarters of Canadian churches, and their periodicals; theological colleges; possibly selected congregations; and prominent ecclesiastical leaders. Addresses are available. The following is suggested content —

1. The GAC is a corporate scientific organization; summarize the qualifications of the members, their places of employment, and the pertinent parts of the Mission Statement.

2. The type and results of research done by geoscientists relative to the 'age of the earth', including, in brief, the historical development, in language which is comprehensive to lay persons. The OLD AGE basis for research and the publication by geological surveys and professional geoscience societies, and the teaching at universities and colleges.

3. Locations where experts, who can explain comprehensively the methodology, may be contacted in Canada - universities, colleges, federal and provincial geological surveys, industries, and consultants.

4. Request their support by whatever means, to inform their constituents, and the public at large, that the EARTH IS, INDEED, VERY OLD!

Will such a communication achieve the objective? The only way to determine is to send out letters. But the potential for achieving can be enhanced by the following. Send a copy of the letter across Canada, with an introductory explanation, to major newspapers, MACLEANS magazine, and the television networks - CBC, CTV and Global, maybe even the provincial secondary school teachers' associations. Such an initiative will do something else for the GAC, and the geosciences, generally. Need I spell it out??

And YES!! — such an initiative has a cost!! Therefore, prepare a expenditure statement, including the cost for letterhead and envelopes, postage, administration time for typing, collating, folding, stuffing, licking, and delivery to the mail box, etc… Send this bill to C. Gordon Winder, and he will return a cheque for the full amount!!!!

Geoscience advances, as does all science, by designing an 'experiment', and then trying it!! Herewith is my suggestion. Does any GAC member have another, a better, 'experiment' for solving this problem? EH???

C. Gordon Winder
UWO Earth Sciences, London, Canada
cwinder@uwo.ca
http://myprofile.cos.com/winderc67

Stones in your shoes?

Let's hear your views, opinions & comments …

- **geology vs geoscience**
- **Kyoto and geology**
- **new logo for GAC**
- **Earth is Old**

geolog@gov.yk.ca or the GAC e-list server

Association News

The Real Value of a GAC Membership

Canada is one of the world's greatest nations, and in the field of geology, a world leader. Geologists in Canada are proud of their history and achievements, and many are members of the Geological Association of Canada (GAC). The GAC has recognized, and continues to recognize, these achievements with medals and awards. The Logan Medal, the Ambrose Medal, the Past-Presidents Medal, the E.R. Ward Neale Medal, the Leopold Gelinas Medal, the Duncan R. Derry Medal and the William H. Gross Award, along with other GAC awards, are proud symbols of high achievement in Canadian geology.

The GAC represents a broad spectrum of geoscience through its twelve Divisions and five Sections – everything from mineral deposits to marine geoscience, and geographically from coast to coast, i.e., Newfoundland Section to Pacific Section. The six groups associated with the GAC, such as the Atlantic Geoscience Society and the Canadian Society of Petroleum Geologists, strengthen this representation. No other association or society in Canada effectively represents such a broad spectrum of geoscientists. This close cooperation with other geoscience societies helps make GAC a highly respected voice for Canadian geoscientists.

The meetings and field trips sponsored by GAC, including its Divisions and Sections, provide opportunities for networking with geoscientists from across the country and elsewhere in the world. They also provide professional development opportunities, something that is in greater demand now that professional registration of geoscientists exists in most provinces. One of the significant benefits of GAC membership is a reduction in the registration fees for these meetings and field trips, many of which would not take place without the GAC.

The GAC is very active in geoscience publishing and the annual fee includes subscriptions to our high quality quarterlies: ***Geoscience Canada*** and ***Geolog***. Members may purchase monographs published by GAC and its associated societies at significantly reduced prices. They may also take advantage of a reduced subscription rate for the Canadian Journal of Earth Sciences and the Canadian Geotechnical Journal.

The GAC maintains an active Communications Committee to share information and to enhance the standing of the profession. For example, GAC is active in promoting geology on Parliament Hill, and our Outreach Program is designed to increase the geological knowledge of Canadians, thereby raising their appreciation of the natural world, and assisting them in making wise decisions regarding resource management and environmental stewardship. Outreach also promotes the importance of the geoscience professions, and attracts capable people to careers in these fields. These efforts help to ensure that the geological profession is respected and recognized, and that society benefits from use of geological knowledge at all levels of education and decision-making.

"GAC is facing deficit budgets this year and next"

As with any organization, a balance must be struck between the desire to maintain and extend services and between cutting expenses and raising revenue. In the December 2000 issue of ***Geolog*** (vol. 29, pt. 4), there was an article explaining the need for an increase in membership fees. At the time, the Association's principal revenue sources (membership fees, publication sales, the annual GAC-MAC meeting and grants/donations) were not generating enough cash to meet operating expenses, which were scrutinized by Council and deemed to be acceptable (in fact, a bargain) so fees regrettably had to increase.

During the same year, Council looked critically at each revenue stream and decided that publications offered the best cash-generating potential for the Association in the long term. Consequently, Council implemented a new business plan for publications, which called for the hiring of a full-time Publications Director to build GAC Publications into a profitable business. Ultimately this will be a principal cash engine that will help sustain the Association's operations. Council anticipated that this would take about three years to achieve and would require a significant investment from member's equity over this period, i.e., short-term pain for long-term gain.

The Publications Director was hired in the last quarter of 2001, and together with her Publications Team and the Publications Committee, is working hard to make the GAC publishing process painless for authors and to increase the number of books in the publishing mill. They need to continue their efforts over the next couple of years in order to ascertain if an expanded publishing house will provide the expected revenue stream to the Association. The problem is that member's equity will be depleted to a dangerously low level by then.

Compounding this problem is the increasing number of retired, unemployed and student members who pay reduced membership fees but still receive full benefits, including both ***Geolog*** and ***Geoscience Canada***. Currently these two publications cost $35 to produce and distribute to members in printed form. The student fee ($25) does not cover the cost and the retired and unemployed fee ($45) barely does. Council considered digital distribution of these publications to cut costs but many members prefer to receive hard-copy versions instead of downloading digital files from the web.

The bottom line is that GAC is facing deficit budgets this year and next. As a result, Council voted at the May meeting to increase fees for the 2003 calendar year, with the hope that a rollback will be possible when publications and other revenue increase. Next year the fees for individual membership will be $120 for Fellows and Associates, $90 for Retired and Unemployed, $35 for Students and Spouses, and no fee for Honourary and Life. The fees for corporate membership will be $1500 for Tier 1, $750 for Tier 2, and $250 for Tier 3.

As you may imagine, this item was discussed extensively at the May 2002 meeting in Saskatoon and the increases in fees were approved only with reluctance and with the future interests of the GAC membership firmly in mind. In conclusion, we hope that you see the value of being a GAC member and continue to support your Association by renewing for 2003.

Publication Corner

Two Decades of Delivering Canadian Paleontology to the World

Palaeontographica Canadiana - 1983-2003

"For a number of years the idea of a Canadian Paleontological Monograph Series has been but a gleam in the eye of the nation's paleontologists. The subject has long been debated and in recent years several possible avenues have been seriously explored. The birth of such a series is now one very large step closer to becoming reality by virtue of an agreement reached between the Executive Committees of the Geological Association of Canada and the Canadian Society of Petroleum Geologists." These words were in Godfrey Nowlan's announcement in *Geolog* (1981 10/1, p. 74) of a new monograph series. The title of the new series, *Palaeontographica Canadiana*, was later announced in *Geolog* (10/3, p. 27). This series is administered by the Joint Committee on Paleontological Monographs (JCPM), its members appointed by the Executive Committees of both GAC and CSPG.

Why a jointly produced publication? The CSPG Paleontology Division's Subcommittee on Canadian Paleontology Monograph Series (B.G. van Helden, K.T. LaBorde, R. Hall, J. Jansonius, P. Sherrington, J. Wall) wrote on November 21, 1979 to the CSPG Executive this rationale:

1) co-sponsorship would ensure the involvement of the great majority of active paleontologists in Canada.

2) sponsorship by both national geological societies would promote the involvement of industry, universities and museums.

3) the project would be a bridge between the CSPG and the GAC, which could be of mutual benefit.

4) as most of the projected monographs would be sold outside of Canada, sponsorship would enhance the international reputation of the sponsoring societies.

As Chair of the JCPM, I inherited a number of files that give insight into the evolution of this series, an idea which had begun by 1976. Looking through the correspondence, I see familiar names: W.G.E. Caldwell, D.J. McLaren, E.R.W. Neale, B.S. Norford, R. Ludvgisen, B.D.E. Chatterton, L. Hills, D. Skevington, G. Williams, G.S. Nowlan.

After much work, including fund raising and trust fund ideas, the joint agreement was signed in December 1980 by Presidents W.G.E. Caldwell (for GAC) and R.D. Orr (for CSPG). It wasn't until 1983 that the first monograph by Brian Chatterton and David Perry was published. With the publication of No. 21, ironically also with Brian Chatterton as one of the co-authors, I came to realize the significance of this event. Twenty-one monographs in twenty years - 2745 pages, 627 plates - not an insignificant output.

A common misconception is that since *Palaeontographica Canadiana* (or Pal Can, as it is colloquially known) is a CSPG-GAC production, it must be either a major tax on the organizations (if it doesn't sell), or a huge credit (if the monographs are best sellers). A GAC comment back in 1977 explained that if GAC published paleontological monographs, members had to be assured that the volumes were published without drain on GAC's financial resources. Thus the funding is independent of both societies and is held by the JCPM. The Chair's records don't contain too much financial details, but it does seem that each society loaned the JCPM $1550 to help finance the first monograph. I have no record of any other loan since then. There are two reasons for Pal Can surviving - many early editions were well funded before printing and thus are highly profitable. Since No. 12, we have relied less on external funding (not our choice - sources have dried up), and more on reprint sales to authors, and, of course, regular sales. These days the earlier issues typically sell only a few copies per year, but with a cumulative output of 20 issues, these periodic purchases add up (for example, in 2001, GAC sold 131 copies of No. 1-18). Unlike many scientific books, these have staying power - they will be in demand long after they are out of print.

There is a cost to the societies though. As per the Terms of Reference, both handle sales (and the accompanying bookkeeping and paperwork), inventory, and advertising in their publications (which now includes the web!). Most other advertising, editing, typesetting, printer liaison, cover design, and book reviews, are still handled by the JCPM. In fact, the Chair and Editor probably have the largest inventory of books, since taking over much of the CSPG inventory when the CSPG office moved to its present location.

The records show that the print run of No. 1 was 1000 copies. We still have over 400 left, which tells us that 1000 copies is too many. Certainly the first members of the JCPM were optimistic, and in hindsight overestimated the world market. But looking at the records, the same old hook we still see today was used. An estimate for No. 1 comparing 500 copies vs. 1000 copies showed that the additional 500 would cost only $578 more - who wouldn't take another 500 copies for just over a dollar a copy? Nevertheless, print runs quickly dropped to 500, and now is 300, typically with 100 or so "overs" bought at reduced cost.

The first Joint Committee, in 1981, was composed of B.D.E. Chatterton (Chair), G.S. Nowlan (Secretary), P.-A. Bourque, all for GAC, P. Currie (Treasurer), L.V. Hills (Business Manager), J. Jansonius, all for CSPG, with Ex-Officio members R. Ludvigsen (Series Editor), J.W. Kramers (GAC Editor) and P. Sherrington (CSPG Editor). Associate editors were chosen in 1981 as well: B. Mamet, J. Utting, B.S. Norford, D.H. McNeil, E.T. Tozer, M.V.H. Wilson, and J.B. Doran.

Pal Can Trivia

• dinosaur logo designed by Rolf Ludvigsen, but a vertebrate monograph (excluding conodonts), has yet to be published, although one is under review. No dinosaur manuscripts in, though.

• only three printers: University of Toronto Press (No. 1-11), Love Printing (Ottawa, No. 12), McAra Printing (Calgary, No. 13 to present).

• four Editors - Rolf Ludvigsen (No. 1-5), Peter von Bitter (No. 5-12), Sandy McCracken (No. 12-20), Keith Dewing (No. 20 - present); Technical Editor - Joan Burke (No. 5-12).

• significant digits: No. 13 (imprint date April 1st, 1997), No. 16 (August 13, 1999, a Friday the 13th), No. 17 - December 23, 1999 (done in a Christmas green cover), No. 18 - November 11, 2000 (done in a Remembrance Day red cover).

Acknowledgments are due to all the authors and co-authors, especially to the repeat contributors - Jisuo Jin (No. 13, 18), Rolf Ludvigsen (No. 6, 21, 22), Keith Rigby (No. 2, 16), Steve Westrop (No. 6, 12). Special thanks to ex-JCPM member Brian Chatterton for his involvement as a co-author of No. 1, 13, 16, 19, 21, and 22. Thanks to all the reviewers - reviewing a monograph demands a lot of time and effort. The accounting and reporting have been done by Business Mangers Tim Marchant (No. 1-12) and Ross McLean (No. 1-21). Finally, thanks to GAC and CSPG staff for handling these publications - especially Arlene Power and Jaime Croft, respectively.

Sandy McCracken
Chair, JCPM

Fifth British Columbia Paleontological Symposium

May 2 - 5, 2003
Nanaimo, BC

The BC Paleontological Alliance presents the fifth BC Paleontological Symposium featuring the world-renowned vertebrate paleontologist, **Dr. Betsy Nicholls of the** Royal Tyrrell Museum.

An exciting variety of presentations, workshops and field trips will appeal to all members of the professional and amateur paleontological community.

Contributed papers are invited for oral presentations and posters for the Symposium. Artists are invited to submit works in various media for the popular juried art show "Fossil Rebirth".

Visit the web site for full details:
http://web.mala.bc.ca/faep/paleo.htm

or contact: Maggie McColl, 250 753-3245, local 2334

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

Sections and Divisions

News from the Newfoundland Section

The Newfoundland Section of the GAC has been very active for the past seven months and is looking forward to 2003 with a renewed sense of vigor. The 2002-2003 executive includes Donald James (President), Doug Boyce (Vice-President), Shirley McCuaig (Secretary-Treasurer), Andrew Kerr (Technical), Chris Pereira (Past-President), Jeff Pollock (Education), Helen Gillespie (Social), Tim Thompson (Councillor - Petroleum Industry), and Heather Hunt (Memorial University).

Fall Field Trip

The highlight of the Fall season was a 2.5 day field trip of the southern Avalon Peninsula, eastern Newfoundland. The field trip, led by Dr. Guy Narbonne, Queen's University, and Rodrigo Sala, Memorial University, focused on the paleobiological characteristics of the Neoproterozoic strata. It addressed implications of the glacial diamictites and cap carbonate of the Gaskiers Formation to the "Snowball Earth" model, the stratigraphic relationships of Neoproterozoic glaciation and the first appearance of Ediacara-type fossils, and the evolution of Ediacaran assemblages of Avalonia. The spectacular exposures of these fossils at the Mistaken Point Ecological reserve, Guy's obvious passion, and the beautiful weather combined to make a very enjoyable weekend for the more than 30 participants. The finale of the trip was a tour of the Colony of Avalon, Ferryland, established in 1621 by Sir George Calvert and the site of ongoing archaeological studies. Our thanks to sponsors Petro-Canada, APEGN, Altius Minerals, the Department of Earth Sciences, Memorial University, and the Geological Survey of Newfoundland and Labrador for their generous support.

Guy Narbonne (centre) discusses the significance of the Gaskiers tillite occurrence at Harbour Main, Conception Bay, with field trip participants.

2003 Spring Technical Meeting
New Directions in Research and Exploration

The Spring Technical Meeting will be held February 24 and 25 at the Alexander Murray and S. J. Carew buildings at Memorial University. We hope to provide a stimulating technical program that will attract an audience from academic, government and industrial sectors. This year's meeting will not be focused on any particular discipline in Earth Science. Rather, we are inviting and soliciting diverse and eclectic technical presentations, with an emphasis on new directions and ideas in academic and government research, and in our active mineral and petroleum exploration sectors. Further information about the meeting can be found at www.geosurv.gov.nf.ca/conference/gac_nfld.html or by contacting the Technical Chairman, Andrew Kerr (akr@zeppo.geosurv.gov.nf.ca). The abstract deadline is January 31, 2003. Abstracts should be submitted by e-mail attachment, preferably in Microsoft Word or WordPerfect formats, to akr@zeppo.geosurv.gov.nf.ca.

GEOLOGICAL ASSOCIATION OF CANADA
NEWFOUNDLAND SECTION
GAC | AGC

Highway Map Project

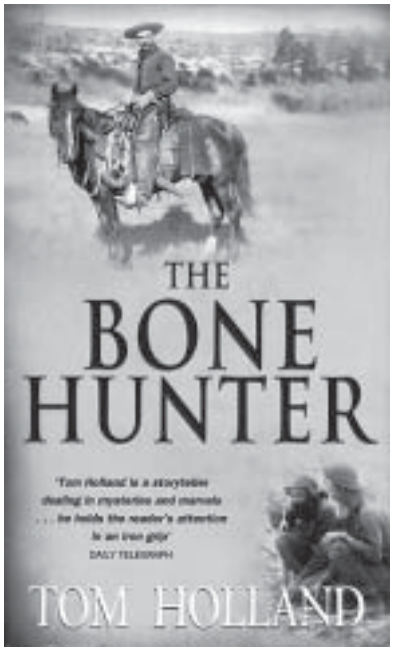
Chris Pereira, Past-President, is coordinating efforts to reproduce the very popular Newfoundland and Labrador Traveller's Guide to the Geology (highway map and guidebook). First published in 1994, English versions of the map and guidebook have been sold out for some time. New copies are expected to be available for distribution before the summer of 2003.

Donald James
President
GAC Newfoundland Section
dtj@zeppo.geosurv.gov.nf.ca

Reading on the Rocks

The Bone Hunter

Tom Holland (2002), Abacus, London, UK. ISBN 0-349-11522-2 516 pages. $9.99



It's 1878 and, in the recently United States, bone wars are in full swing. In the academic world, Professors Edward Drinker Cope and Othniel Charles Marsh are bitter opponents, each seeking to outdo the other in spectacular dinosaur finds. Out west, their rival field crews race to ship specimens back east and sabotage each other's sites. So when government geologist Sheldon Prescott claims to have recovered a quite remarkable bone assemblage from the Big Horn Mountains, both scholars are eager to learn the site's location and be the first to garner the fame the find will bring. A bidding war ensues over the collection. But it seems that others may have an interest in Prescott's finds too and are much less scrupulous about how they get their hands on his specimens and data. Violence and murder seem to follow the crates of rock and fossils though their intended destination is the peaceful shelves of a museum.

Prescott's reputation attracts Captain William Paley Dawkins, a young Englishman condemned by circumstances to the military though with a passion for paleontology. Despite little formal training, Dawkins had made a minor name for himself as an authority on Pterosaurs, until he published a disastrous monograph that brought him only ridicule. Now, encouraged by an exchange of letters with Prescott, the Captain sails for the New World, anxious to find work, foster his scientific interests, and perhaps gain enduring fame as a paleontologist. But on arrival Prescott spurns him with contempt as an amateur. Driven by a desperate need to justify himself and make a living, Dawkins sets off for the west, having been enlisted by Marsh to work at Como Bluff.

Meanwhile Lily Prescott, Sheldon's spoiled and selfish daughter, is determined to discover where her father found the strange assemblage of bones and a small leathery wing fragment. All she has as guidance is a drawing made by Prescott, showing a perfectly circular lake surrounded by conifers in a lonely valley. Undaunted, she sets off to Medicine Bow on the newly-completed railroad, hoping to meet up with some of her father's former field crew and find out more. There, she runs into Cope who, out of gallantry and curiousity, escorts her on her journey to the mountains. Not to be outdone in gallantry, the Captain sets off after them.

For the Captain and Lily, the west is at first only an empty place of violence and savagery, lacking amenities, as the Cavalry seeks to exterminate the tribes that are holding up the vanguard of progress. The shadow of the Little Big Horn looms large and travellers are always alert for attack. The Captain finds that his fieldcraft and survival skills, honed by service in Africa, are valuable assets. But their journey through the land is also a journey through self-knowledge. The Captain becomes entranced by the beauty and freedom of the landscape and the knowledge that his family background and poverty matter nothing here. Lily comes to the realization that the fripperies of society and social hierarchy are irrelevant and that ultimately kindness and character are what count.

Guided by two cowboys, who were once part of Prescott's field crew, Lily and the Captain arrive at the source of his collection. But this place is a nexus, as Marsh and Cope clash once more, each deeply suspicious of the other. And from the forest other people, who have no interest in science or paleontology, step forward to try and obliterate all knowledge of the site. Though they are far from New York, the origin of the mystery and violence are there, rooted in corruption and squalid political ambition.

Cope, browsing through his collection in Philadelphia before heading to the field, comes across the skeleton of *Elasmosaurus*, the earliest cause of friction between himself and Marsh. He knows that "the wonder of it … lay not in what men such as he and Marsh made of it, not in quibbles of anatomy, but in the fact of such a creature having swum within the oceans, where now there was nothing but grass and dust to see" (p. 181). Throughout this story runs the fascination of paleontology, the wonder and spectacle of ancient bones, and the obsessions they evoke.

Alwynne B. Beaudoin
Edmonton, Alberta

Mélange

$130.1 M for 123 New Canada Research Chairs

Federal government officials recently announced an investment of $130.1 million to support the creation of 123 new Canada Research Chairs. Six of these positions are assigned to geoscientists (listed below).

Budget 2000 allocated $900 million to the Canada Research Chairs Program to help Canadian universities attract and retain the best researchers and achieve research excellence in natural sciences and engineering, health sciences, and social sciences and humanities. The Canada Research Chairs Program has awarded 746 Chairs to date, with a goal of 2,000 Chairs by 2005. The number of international recruits has risen to 128 with this latest announcement, including 70 expatriate researchers who have returned to Canada to pursue their careers.

Additional information at: http://www.chairs.gc.ca/english/Media/news/index.html

Douglas R. Schmitt
Canada Research Chair in Rock Physics and Time-lapse Geophysics
University of Alberta

Dominique Wies
Canada Research Chair in the Geochemistry of the Earth's Mantle
The University of British Columbia

Thormod E. Johansen
Canada Research Chair in Petroleum, Reservoir Engineering and Characterization
Memorial University of Newfoundland

David A. Fowle
Canada Research Chair in Biogeochemistry
University of Windsor

Sarah-Jane Barnes
Canada Research Chair in Magmatic Metallogeny
Université du Québec à Chicoutimi

Alessandro M. Forte
Canada Research Chair in Numerical Modelling and Global Geodynamics
Université du Québec à Montréal

APEGBC Awards to Geoscientists

The Association of Professional Engineers and Geoscientists of the Province of British Columbia's (APEGBC) recently awarded Lindsay Bottomer with its C.J. Westerman Memorial Award for his exceptional leadership in uniting the BC mining industry and his sustained efforts to educate the government, public and media about the importance of mining in society. The award is given to the geoscientist who combines a solid professional career with outstanding service and dedication to advancing public recognition of professional geoscience in BC. Additionally, George Cavey was awarded the APEGBC Professional Service Award for his dedicated service in many facets of professional geoscience, most recently as President of the Canadian Council of Professional Geoscientists.

The Canadian Geological Foundation
is pleased to announce
the launching of its webpage.

For information about the Foundation and how to apply for a grant to support your geoscience project, visit:
www.canadiangeologicalfoundation.org

Annual Invitation for Grant Applications

The Canadian Geological Foundation is now inviting all interested parties to submit grant proposals for the year 2003. The Foundation was established in 1968 as a non-profit, charitable organization dedicated to assist in the development of geological sciences in Canada. In principle, grants are made only in support of activities of broad significance, with emphasis on those of long-term importance. Grants are made only on the basis of written applications giving a summary and detailed budget of the proposed project. The Foundation disburses about $25,000 to $50,000 annually.

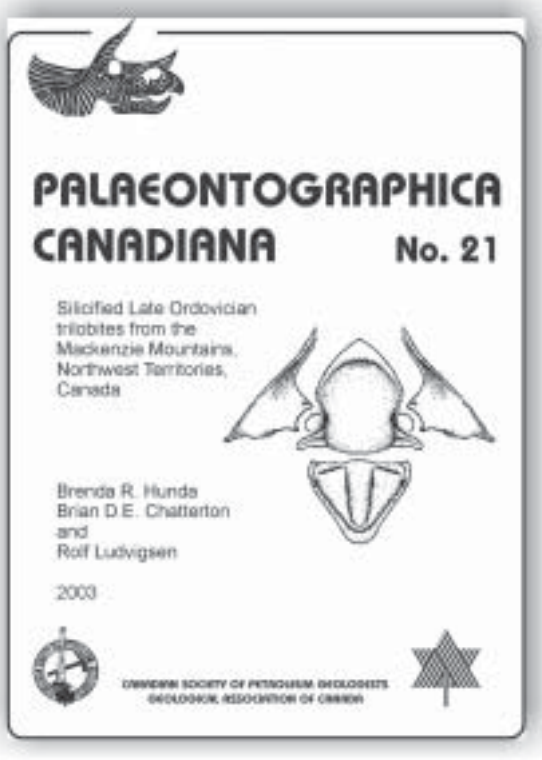
A large part of the disbursements in any year is used as "seed" money to help initiate worthy projects meeting the above requirements. Such projects include: (a) promoting public interest in the value of geological sciences to society, (b) summer institutes for the training of high school science teachers in the field of earth sciences, (c) preparation of career booklets in the geological sciences, (d) preparation of general geology textbooks, displays, videos and films emphasizing Canada and involving national co-operation, (e) partial financial support for the publication of special scientific papers involving national cooperation, (f) support of national seminars and conferences aimed at furthering the application of geological sciences, and (g) financial assistance to geological societies in co-operative projects of national and long-term significance.

Each application for a grant is appraised on its own merits in relation to the general objectives of the Foundation and the monies available. **The Secretary must receive all applications before March 31, 2003.** For any given year, all recommendations of the Grants Committee are first considered for approval at our Annual Meeting and by the Board of Directors at its Spring meeting at the annual GAC - MAC meeting. Applicants are notified within one month of the Directors' meeting. Results of the competition are published each year in GEOLOG and will be posted on the Foundation's and the GAC's Internet sites.

Written proposals are to be sent directly to the Secretary. The proposal should include a title, a description of the project, expected benefits in view of the above principles, a detailed budget and other real or anticipated sources of funding. **The Foundation will not consider for support, projects that are normally funded by government granting agencies (such as NSERC, NRCan, etc.) or by university budgets, nor does it support fieldwork or simply salaries.**

Additional information about the Canadian Geological Foundation is available at http://www.canadiangeologicalfoundation.org . Queries should be addressed to the Secretary at the following address:

Mike Cherry
Geological Services Division, Nova Scotia
Department of Natural Resources
P.O. Box 698, 1701 Hollis Street
Halifax, Nova Scotia B3J 2T9
Tel: 902 424-8135
Fax: 902 424-7735
E-mail: cherryme@gov.ns.ca



PALAEONTOGRAPHICA CANADIANA

Palaeontographica Canadiana No. 21

Silicified Late Ordovician trilobites from the Mackenzie Mountains, Northwest Territories, Canada.

Brenda Hunda, B.D.E. Chatterton, and R. Ludvigsen, 2003,

87 p. incl. 21 pl.

Collections of silicified trilobite from the Whittaker Formation for two sections near Avalanche Lake, Northwest Territories, demonstrate faunal changes through the latest Ordovician, up to the base of the Silurian. The trilobites were collected from horizons of Edenian to Gamachian (latest Ordovician) in age, directly below the Ordovician/Silurian boundary. Thirty-three species, representing 15 families are identified in the two sections. Fifteen new species are identified, described, and classified.

Ontario Rocks Exhibited at UofT

The University of Toronto's Department of Geology's had its official opening for the Ontario Rock Exhibit on Nov. 21, 2002. The exhibit consists of 24 large labeled rock specimens (and more to come) within and adjacent to the Geology department.

It features the major rock and mineral types in Ontario, including economically important mineral deposits. Highlights include large samples of fluorichterite in the hall outside the departmental office (installation shown in photo at right) and a chunk of gold ore from the Dome Mine.

This display allows students to be exposed to a wider diversity of rock types than are locally available. The exhibit is used to enhance undergraduate courses ranging from introductory geology to structural geology and igneous petrology, as well as identifying the Department of Geology and providing outreach to the public. In addition, the display will promote an awareness of geology to students on school visits. The department is developing a descriptive pamphlet that will be available through the departmental office and posted on their web page in the near future.

Rock specimens were generously donated by alumni, former and current faculty, students and mining companies. Supporting funds were contributed by the Canadian Geological Foundation and matched by the U of T Faculty of Arts and Science.

The exhibition was initiated by Ed Freeman, a geologist with many years experience promoting awareness of Ontario's mineral resources. Ed worked for the Ontario Geological Survey until 1994. Since then, Ed has assisted the Toronto and Region Conservation Authority with research into the Don Valley Brick Work's geological and industrial history.

For more information on the Ontario Rock Exhibit please contact: cjbray@geology.utoronto.ca or www4.geology.utoronto.ca/FRED/december.05.2002.pdf

Sudbury Mines Multimedia

Dynamic Earth is Northern Ontario's newest attraction. Dedicated to earth sciences, this centre is scheduled to open on the former Big Nickel Mine site in 2003. This $15.3 million attraction will enable visitors to discover the extraordinary geology of the Sudbury Basin and the strong connection between the mines and the community over the past 100 years. Through interactive exhibits, multimedia theatre shows and a unique site interpretation, Dynamic Earth offers an experience as diverse as the minerals it celebrates and is as enlightening as it is entertaining.

Dynamic Earth
Terre dynamique

www.sciencenorth.on.ca/plan/abouttheattractions/dynamic_earth/

Get on the List
send majordomo@esd.mun.ca
an E-mail with the message
subscribe gacl

Employment Opportunity

Petroleum Geology

The Department of Earth Sciences at Memorial University of Newfoundland invites applications for a tenure track faculty position in petroleum geology. The successful candidate will undertake graduate and undergraduate teaching and research in the field of petroleum geology with emphasis on one or more of: sedimentology; stratigraphy; reservoir geology; and hydrocarbon exploration. Applicants will normally hold a PhD in sedimentology, stratigraphy, petroleum geology or a closely related field, and have a demonstrated record of research and publication in the field of petroleum geology. A proven record of effective research work involvement with the petroleum industry would be a significant asset.

The successful candidate will join an active department of 25 faculty members with a wide range of interests relevant to petroleum geology, as well as close collaborative ties with industry and geological surveys, locally, nationally and worldwide. The department has a number of faculty members with a well established basic and applied research track record in various aspects of petroleum geology that are supported by extensive laboratory and computing facilities. Memorial University has recently committed to a new Oil and Gas Development Partnership with major new initiatives embracing broad aspects of the petroleum sector. Further information is available at http://www.mun.ca/OGDP/OGDPreport.

Applications, accompanied by a curriculum vitae, and the names of at least three referees, should be sent to Chair, Petroleum Geology Search Committee, Department of Earth Sciences, Memorial University of Newfoundland, St. John's, Newfoundland, Canada A1B 3X5. Processing of applications will commence February 3rd, 2003, and continue until the position has been filled. Additional information is available at http://www.esd.mun.ca or by contacting Dr. Jim Wright, Head of Earth Sciences at jim.wright@mun.ca or by phone at 709 737-2334.

Memorial University is part of a vibrant, local scientific and engineering community, which maintains an inventory of available positions that qualified partners can apply for on a competitive basis. Partners of candidates for this position are invited to include their CV for possible matching with other job opportunities.

In accordance with Canadian Immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada. Memorial University is committed to employment equity and encourages applications from qualified women and men, visible minorities, aboriginal people and persons with disabilities.

Top Ten Northern Bush Planes

Many geologigists working in the North have come to respect the aircraft that got them there. And although some frontiers have been opened by ships, some by trains, others by foot and horseback, the North was arguably opened up by air - by bush planes, that is. The early decades of flight in the North are still considered the golden era, when pilots often risked life and limb to bring Northerners everything from mail and building materials to dog teams and medical care.

The planes they flew on these missions share the spotlight with the pilots. Here's our vote of the Top Ten Northern bush planes (in no particular order).

1. Noorduyn Norseman: The first aircraft specifically designed to meet the rigours of flying in the bush. It proved popular with bush pilots because it was easily adapted to wheels, floats or skis, and was covered in fabric. It came out in late 1935, and was a cornerstone of the Northern air fleet for decades.

2. de Havilland Beaver: All-metal and designed to meet the demand for a simple, rugged utility bush plane, its design was based on input from experienced bush pilots. Released in 1946, it had unique flap ailerons that made short take-offs and landings possible, and it was easy to fit on skis, floats or wheels.

3. de Havilland Single Otter: A decade after the Beaver rolled off the assembly line, the manufacturer began looking for a plane of equal performance but with greater payload capability. The Otter delivered, making it valuable for building camps.

4. de Havilland Twin Otter: Its predecessors had proved themselves as versatile, reliable aircraft, but the demand had grown for the greater safety and heavier payload capability that two engines could provide. De Havilland's answer was the Twin Otter, still a common sight in the North today.

5. Cessnas: The North has been home to the 170, 180, 185, 195, 206 and Caravan, among others. They've generally been fast, economical and capable of operating on wheels, floats and skis. Most are four- and five-seaters, while the Caravan can carry nine to 14 passengers.

6. Douglas DC-3: These war horses of the Second World War, which made their debut as passengers planes in the 1930s, still drone over the North like friendly bumblebees.

7. Bellanca AirCruiser: The AirCruiser was a spacious, single-engine aircraft capable of carrying 13 passengers or a ton and a half of cargo. Manufactured in the mid-1930s, the high-wing monoplane had a range of 1230 kilometres, a speed of 226 km/hour, and a ceiling of 5000 metres.

8. Fairchild: Thanks to an airplane designer who got cold feet, an aircraft was born that revolutionized flight. You can thank Sherman Fairchild for deciding to enclose and heat the cockpit, an invention that made the airplane popular and useful during the heydays of exploration in the late 1920s and 1930s.

9. de Havilland Fox Moth: The Fox Moth was a hybrid of three earlier, pre-Second World War de Havilland airplanes: the Gypsy, Puss and Tiger Moth. Her adaptability - it could be transformed into an aerial ambulance, an aerial photography craft, a freighter or passenger carrier, and could be fitted with skis, floats or wheels - made it an ideal bush plane.

10. Fokker Super Universal: While not designed for Northern bush conditions, these planes - single engine monoplanes capable of carrying up to six passengers or a cargo of 567 kilograms - were used to undertake the first major air-freighting job in Canada (in 1927) and they were instrumental in opening up unexplored parts of the Canadian Arctic in the late 1920s.

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WANTED
DEAD OR ALIVE*

MARKETING PERSON

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

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

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

*This is marketing! We really need you alive.

Marking Geological Sites in the Ottawa area

Looking to develop public awareness of earth sciences, a group of 25 geoscientists, including three past Directors of the Geo logical Survey of Canada, have started a project to catalogue and preserve impressive geological features in the Ottawa and Gatineau regions of eastern Ontario and western Quebec.

The effort, called the Ottawa-Gatineau Geoheritage Project, is headed by Al Donaldson of Carleton University, Don Hogarth of the University of Ottawa, and retired Geological Survey scientists Denis St-Onge and Hal Steacy. They are identifying significant geological features worthy of being designated as Geoheritage Sites.

They have received support from the Department of Natural Resources, which will soon release a poster entitled "Geoscape Ottawa/Gatineau", an educational poster mainly aimed at a student audience but also available to tourists and the general public. As a complement to the poster, the project's supporters hope to see new signage and guidebooks locating and describing key geological features in the region. (Another 15 Geoscape posters are in various stages of production across the country, offering similar opportunities in other regions.)

The Geological Association of Canada has expressed interest in supporting the publication of an updated guidebook to the geology of the National Capital Region, and the National Capital Commission (NCC) — the Crown corporation that manages lands owned by the national government in the Ottawa region — has indicated it may expand its program of educational signage and descriptive brochures. The NCC already maintains descriptive panels at Champlain Lookout, describing how the Grenvillian mountains, possibly rivaling the Himalayas, existed there more than 1 billion years ago and gradually worn down by erosion before the onset of the recent Ice Age.

NCC officials have also taken favourable note of the committee's suggestion for signs near a popular NCC bike path, on the Gatineau side of the river, where a 450 million-year-old Ordovician limestone bed, exposed by unusually low water in the Ottawa River this past summer, provides a spectacular view of a single bed of stromatolites. Associated fossils, ripple marks and mudcracks demonstrate that these stromatolites grew in a shallow intertidal environment. An article about this site appeared in the Ottawa Citizen on Sept. 10/02. Since then, more than 2000 have visited the locality, demonstrating the public's desire to gain an appreciation of the geological components of natural history.

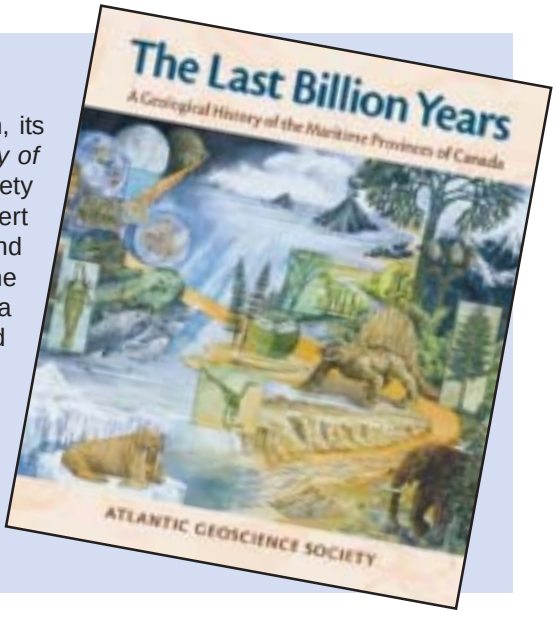
The Committee is considering other sites including an exposure of the unconformity between Precambrian and Paleozoic rocks, an occurrence of post-Grenvillian volcanic rocks, Ordovician strata rich in corals and other fossils, folded and faulted strata at Hog's Back Falls, glacially polished metamorphic rocks beneath glacial till and sand outwash, and a major landslide area within post-glacial deposits of Leda Clay.

In view of the current resurgence of public interest in things geological, success of the Ottawa-Gatineau Geoheritage Project should serve to advance interest in a science that builds on all other sciences. Anyone wishing to obtain additional information should contact Al Donaldson at: Dept. of Earth Sciences, Carleton University, 1125 Colonel By Drive, Ottawa, ON, K1S 5B6, jadonald@ccs.carleton.ca, tel. (613) 225-6427.

Award for AGS Volume

The Association of Earth Science Editors has awarded a Canadian publication, its *Award for Outstanding Publication*. *The Last Billion Years: A Geological History of the Maritime Provinces of Canada*, is published by the Atlantic Geoscience Society and Nimbus Publishing. Jennifer Bates, was the production coordinator; Robert Fensome was co-editor and project leader; and Graham Williams, co-editor and chair of project committee. The book is the first modern book written for the general reader on the geological history of the Maritime Provinces of Canada (New Brunswick, Nova Scotia and Prince Edward Island). It is beautifully illustrated in full colour with paintings of ancient vistas, over 150 photographs, and explanatory diagrams and sketches. The book was published with the support of numerous geoscience organizations, including the Canadian Geological Foundation.

Can be purchased or ordered from most bookstores in North America. ISBN 1-55109-351-0, or go the the AGS website at: http://is.dal.ca/~walla/ags/ags-pubs.htm

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Earth's Oldests Volcanics

The Earth's oldest volcanic rocks may lie in northern Quebec. The estimated 3.8-billion-year-old rocks could help to understand the first quarter of the planet's history. The rocks were found in the village of Inukjuak on Purpose Cove on Hudson Bay. So few rocks have been discovered from this time that every find may offer a wealth of data, said Simon Fraser University Earth Sciences Prof. Laurent Godin. Godin supervised Pierre Nadeau, a graduate student at SFU, who helped to date the rocks. The date of 3,825 ± 16 Ma was obtained using U-Pb methods.

Until now, the oldest rocks of this type were thought to be 3.80 billion years old.

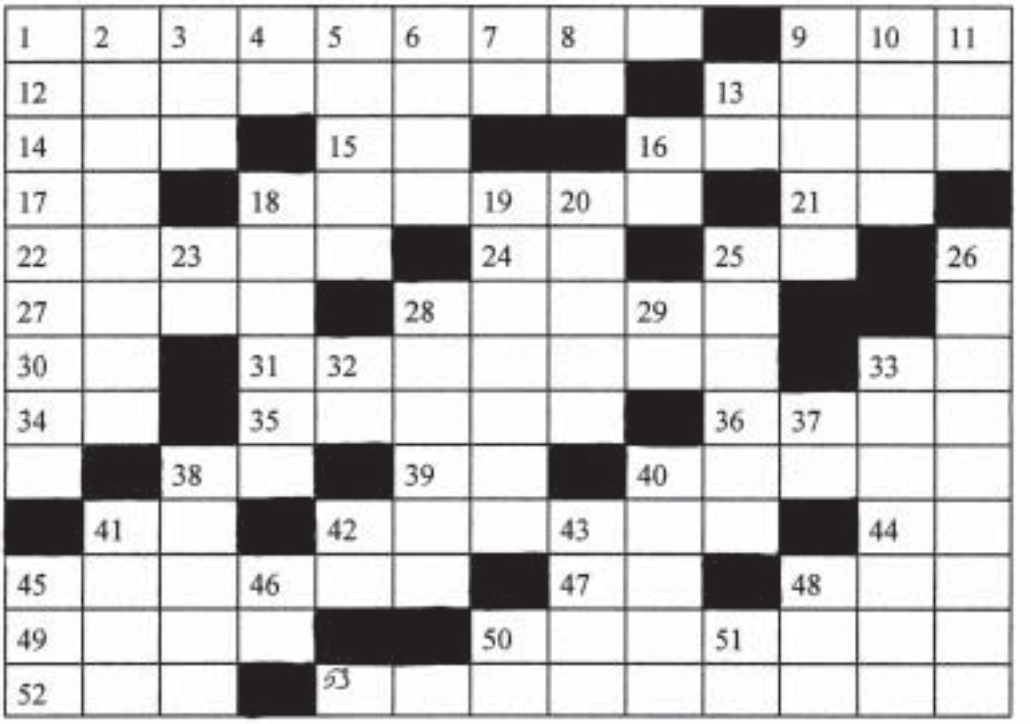
The team was amazed when the dating results were first revealed such that they thought it was a mistake as they were expecting 2.8 to 2.9 Ga.

To check, dating team leader Jean David of Quebec's Ministry of Natural Resources (MRN) collected more rocks from the 4 x 10 kilometres site - they matched.

The oldest rocks of this type were thought to be from western Greenland and the Quebec rocks offer an opportunity to test the Greenland find.

UQAM Earth Sciences Prof. Ross Stevenson helped identify where the ancient rocks were likely to be and Martin Parent of MRN was the geologist in the field who lead the five-year mapping project. The mapping project was funded by the government of Quebec and was presented at an MRN annual meeting.

GeoCrossWord



ACROSS

1. Coarse intrusive
9. Early fur-trading company
12. Kyoto car
13. Thick snakes
14. Early car or speedwagon
15. Word origin
16. Hexagonal gem
17. Runs the celebration
18. Tired in a lecture
21. Marine vessel type
22. Alcohol base
24. Self
25. Appliance Maker
27. Disappearing sea
28. Wait On
30. Half Bull?
31. Turn to glass
33. Group I element
34. 950 to Brutus
35. Spatial extent or geological map coverage
36. Coprolite prefix or scram
38. One end, plagioclase
39. Rail abbrev.?
40. Frost prefix
41 Radio band
42. Wandering merchant
44. Exercise type
47. Psych. self term
48. Here in Hull
49. Instead of
50. Green gem neosilicate
52 Spring mo.
53. Early compass mineral

DOWN

1. Lets fluids pass
2. Au alloy
3. Earth prefix
4. 1100 for Nero
5. Coral isle
6. Found in 18 down area
7. Printed on clock face
8. Tank Corps
9. Rock mass between faults
10. Coastal indents
11. Canadian shipping line
13. "Or not to __"
16. At the side of
18. Wooded (adj.)
19. Transparent 16 across
20. Danger
23. With Ah = "I see"
25. Like artesian, but hot
26. A pyroxene
28. Way to visualize air photos
29. Very fine
32. Part of EM spectrum
33. Tent bed, sometimes
37. Crocoite metal
38. Geological resin
40. Poppa in Peru
41. This decides kicker
42 Platinum group metal
43. Lenders recourse
45. "____ carte"
46. Continental element
48. African ex-dictator
50. Common mineral group
51. That there thing

This GeoCrossWord was developed by Alan Gorman of Queen's University.

Answers on page 27.

HINT: many two and three letter answers may be abbreviations.

Calendar

* = new entry

2003

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

February 23 - 25
Society for Mining, Metallurgy & 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 26 – April 1
8th Field Workshop on Volcanic Gases, Nicaragua and Costa Rica
Web: http://volcgas.unm.edu/nextworkshop.htm

March 27 - 29
Joint Meeting of Northeastern GSA & Atlantic Geoscience Society, Halifax, NS
Web: www.dal.ca/ ~ es/2003GSA/2003-NEGSA.htm

March 29 - April 2
3rd International Limnogeology Congress, Tucson, AZ
Tel: 520 621-4691; Fax: 520 621-2672;
E-mail: acohen@geo.arizona.edu

April 7 - 11
EGS, AGU, and EUG Joint Assembly, Nice, France
Web: www.copernicus.org/egsagueug/

April 8 - 9
Northwestern Ontario Mines &Minerals Symposium,Thunder Bay, ON
E-mail: mwopa@tbaytel.net

April 15 - 16
Northeastern Ontario Mines & Minerals Symposium, Cobalt, ON
Tel: 705 567-4377

April 16 - 17
12th Calgary Mining Forum, Calgary, AB
Tel: 403 242-7745;
Web: www.meg.calgary.ab.ca

*May 2 – 5
Fifth British Columbia Paleontological Symposium, Nanaimo, BC
Tel: Maggie McColl, 250-753-3245, local 2334; E-mail: mccoll@mala.bc.ca;
Web: http//web.mala.bc.ca/faep/paleo.htm

May 4 - 7
CIM 2003 Conference, Montreal, QC
Canadian Institute of Mining Metallurgy and Petroleum. Tel: 514 939-2710; Fax: 514 939-2714; Web: www.cim.org/MCE/montreal2003/index.cfm

*May 3 - 11
Environmental Geochemistry Iberian Pyrite Belt Field Course, Portugal
E-mail: wxchavez@nmt.edu;
Web: www.segweb.org/IberianCourse.htm

May 25 - 28
11th Symposium on Deformation Measurements, Santorini, Greece
Web: www.heliotopos.net/conf/11fig

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

June 8 – 10
3rd Canadian Conference on Geotechnique & Natural Hazards, Edmonton, AB
Web: www.geohazards2003.eba.ca

June 30 - July 11
International Union of Geodesy and Geophysics (IUGG2003), Sapporo, Japan
Web: www.jamstec.go.jp/jamstec-e/iugg/index.html

*July 14 - 18
Cities on Volcanoes, Hilo, HI
Web: http://www.uhh.hawaii.edu/ ~ cov3/

August 10 – 14
Geoscied IV: Earth Science for the Global Community, Calgary, AB
Web: www.geoscied.org

August 10 – 16
XV International Congress on Carboniferous & Permian Stratigraphy, Utrecht, The Netherlands

*August 16 - 21
State-of -the-Arc, Cascades, WA
E-mail: leeman@ruf.rice.edu

August 18 - 21
9th Int'l Symposium on the Ordovician System & 7th Int'l Graptolite Conference, San Juan City, Argentina
E-mail: galbanesi@arnet.com.ar; Web: http://ceor.seos.uvic.ca/ordovician or http://iago.stfx.ca/people/mmelchin/silurian9.htm

*August 24 - 28
SGA Meeting, Athens, Greece
Web: www.igme.gr/sgaconference.htm

August 27 - September 3
Int'l Geochemical Exploration Symposium, Dublin, Ireland
Association of Exploration Geochemists.
Web: www.aeg.org.

August 31 - September 3
North Atlantic Minerals Symposium(NAMS), Dublin, Ireland
Tel: 709 729-5946; Web: www.gov.nf.ca/nams/; E-mail: bfk@zeppo.geosurv.gov.nf.ca

September 2 - 6
Fifth Hutton Symposium on the Origin of Granites, Toyohashi, Japan
E-mail: Hutton-V@m.aist.go.jp;
Web: www.gsj.jp/Info/event/hutton

September 7 – 11
ISEG 2003: 6th International Symposium on Environmental Geochemistry, Edinburgh, Scotland
Web: www.iseg2003.com

September 10 - 12
Debris-Flow Hazards Mitigation: Mechanics, Prediction, and Assessment, Davos, Switzerland
Web: www.wsl.ch/3rdDFHM

*October 6 - 10
Chilean Geological Congress and Andean Metallogenesis Symposium, Chile
Web: www.udec.cl/cgeologico

*November 2 - 5
GSA's 115th Annual Meeting, Seattle, WA
Geological Society of America. Tel: 303 357-1038; Fax: 303 357-1072;
Web: www.geosociety.org/meetings/index.htm

2004

*February 23 - 25
SME — Society for Mining, Metallurgy and Exploration Annual Meeting, Denver, CO
Tel: 303 973-9550; Fax: 303 979-3461; E-mail sme@smenet.org

May 12 14
GAC/MAC 2004, St. Catharines, ON
E-mail: gacmac04@brocku.ca

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http://www.fossiltrail.org/

Virtual Waterloo
Alan Morgan takes you on virtual geology tour
http://www.city.waterloo.on.ca/pws/environment/lands/forestedhills.html

Geological Mapping In The Cordillera - Then And Now
http://www.em.gov.bc.ca/Mining/Geolsurv/Publications/OpenFiles/OF1992-16-Pioneer/Mapping.html

Climate Change in Canada
http://adaptation.nrcan.gc.ca/posters/

The Canadian Gemmological Association
www.canadiangemmological.com

Specimens Galore – the Mineral Miner
http://www.mineralminers.com/

Expansion Tectonics
Just won't go away
http://www.triplehood.com/expa.htm

1 P	2 E	3 G	4 M	5 A	6 T	7 I	8 T	E	■	9 H	10B	11C
12E	L	E	C	T	R	I	C	■	13B	O	A	S
14R	E	O	■	15O	E	■	■	16B	E	R	Y	L
17M	C	■	18S	L	E	19E	20P	Y	■	21S	S	■
22E	T	23H	Y	L	■	24M	E	■	25G	E	■	26E
27A	R	A	L	■	28S	E	R	29V	E	■	■	N
30B	U	■	31V	32 I	T	R	I	F	Y	■	33 C	S
34L	M	■	35 A	R	E	A	L	■	36 S	37 C	A	T
E	■	38 A	N	■	39 R	L	■	40 P	E	R	M	A
■	41 F	M	■	42 P	E	D	43 L	A	R	■	44 P	T
45 A	L	B	46 E	D	O	■	47 I	D	■	48 I	C	I
49 L	I	E	U	■	■	50 P	E	R	51 I	D	O	T
52 A	P	R	■	53M	A	G	N	E	T	I	T	E

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