



CANQUA

Canadian Quaternary Association
Association canadienne pour l'étude
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NEWSLETTER/BULLETIN Vol. 21 No. 1 Spring/Summer 2000

Greetings from the President.

It has been a quiet year for CANQUA so far, following the very successful Calgary meeting. As President my duties have not been overly onerous. Possibly the most significant activity relates to CANQUA's relationship with the Canadian Geoscience Council. CGC has been going through a period of self-examination, and CANQUA, amongst other member societies, was presented with a proposal for a new CGC, with extensive funding for a full time director, and office staff. To fund this initiative would require drastic increases in dues for member societies, as well as substantial reduction in CGC's funding of international activities such as IGCP. Member societies were asked to either approve this budget, or to provide an alternative. I consulted with Council and passed on our suggestion of maintaining international support, with modest increases in CGC contributions, and a much less ambitious office and staffing (we were one of only two member societies to respond). After the CGC meeting in Vancouver, where CANQUA was ably represented by councilor Vic Levson, it seems that something close to CANQUA's proposal was accepted. There will be a change in the dues CANQUA pays to CGC, but in the short term this will not affect CANQUA to any great degree.

The other dialogue that has been taking place with CGC is over their request that CANQUA constitute a "Task Force" to examine climate change issues. The purpose, scope, mandate and deadlines for such a group were not defined clearly despite several requests, and so this initiative has not progressed. It is up to CANQUA to define the goals of such a group, and if we do wish to move forward, CGC sees itself as a national lobby group that can bring any recommendations forward. This raises the issue of CANQUA's role and activities. CANQUA to some extent has over the last few years become an organization that exists to put on a meeting every two years, something it does very well. Of course there are many other CANQUA related activities such as the work with CGC I described above, but there is far more we could do - given the time, energy and resources.

We need to work to increase CANQUA activities. I was extremely disappointed to discover there are no CANQUA sponsored sessions at the Calgary GAC-MAC meeting this Spring. Attaching CANQUA's name to a session requires little effort but benefits both the session and CANQUA. We will be sponsoring a session at GAC 2001, here in St. John's, on the Quaternary of the NW Atlantic. We should maybe look at the activities of the Canadian Geomorphology Research Group for inspiration. They have sponsored short courses, run an excellent on-line bibliographic resource, and recently have published short course notes. There is far more we could be doing, but it requires the effort of an individual member to bring such projects forward. With the right ideas and sponsors CANQUA can provide much support.

We welcome feedback, and new ideas for CANQUA activities. It has recently been suggested to me that CANQUA should act as a central repository for radiocarbon dates. Apart from the Geological Survey of Canada's well organized database, many radiocarbon dates can be inaccessible to a researcher. An on-line searchable database of Canadian radiocarbon dates to compliment that recently put on line for archaeological purposes (<http://www.canadianarchaeology.com/radiocarbon/card/card.htm>) would be invaluable. Here in Newfoundland, we have compiled a data set that we'd be happy to contribute.

Our membership has been dropping over the last few years. Whether this reflects complacency, a lack of interest, loss of members to other organizations, or disillusionment it is hard to say. I suspect we have less than half of Canada's quaternary researchers as members, and very few students, despite the relatively low membership dues we currently charge them. I would encourage faculty members to promote CANQUA to their students as an important society to join. If we do not enroll these researchers at the beginning of their careers, CANQUA's future is bleak indeed.

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Please feel free to contact me, or other executive members,
with comments and ideas. I can be reached at
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To: The CANQUA and CGRG executive and members

From: Derald Smith, Chairman and Chief Push of the CANQUA-CGRG 1999 conference

Re: Final report on the biannual CANQUA-CGRG joint conference held August 23-27, 1999 in Calgary.

On behalf of the Canadian Quaternary Association and the Canadian Geomorphology Research Group conference organizing committee, I personally want to thank all conference participants for their tremendous support in making this gathering so successful. The symposium in honour of retiring Dr. Nathaniel Rutter, organized by Norman Catto, David Liverman and Peter Bobrowsky, added considerably to the overall success of the meeting. The conference had 10 different well-attended field trips over 17 days, involving 196 persons. There were 146 oral and poster presentations and total attendance was 178, some from as far away as Australia and Sweden. Overall, I believe that this joint meeting was the most successful to date in terms of field trip offerings, numbers of papers presented, exceptionally high quality posters, attendance, benefits to participants and final financial balance (approximately \$7000 after expenses). The final profits will be divided equally between CANQUA and CGRG. The positive financial balance was made possible due to the generous volunteerism and "sweat equity" provided by the organizing committee and field trip leaders. While I realize that such efforts usually go unacknowledged and unrewarded, conference participants should be most grateful for their assistance.

To assist future conference organizing committees, I want to share some general thoughts:

1. the next conferences should have a more aggressive promotion, possibly by having a poster presented or flyers distributed at the CANQUA-CGRG joint conference two years in advance;
2. it is now quite easy and effective to advertise meetings on the CANQUA, CGRG, CAG, GAC, AMQUA, GSA (Quaternary Geology and Geomorphology Division) and INQUA listservers;
3. the method of electronic registration and abstract submission needs improvement; abstracts generally are not formatted consistently (fonts and letter sizes need to be uniform), and people need to state whether they are making oral or poster presentations;
4. it is absolutely essential to have only one person look after registration and communication with registrants;
5. it is a good idea to have only one person handle finances, and they must co-ordinate with field trip organizers to secure vehicles and persons in charge of other activities;
6. provide a lunch (pizza and refreshments) for both general business meetings;
7. try to avoid concurrent sessions, but may be necessary for a 3-day conferences;
8. and finally, try to hold the conference at university facilities to reduce registration costs and maximize benefits to participants;
9. set times for presenters to be at their posters for discussion questions;
10. in spite of some food shortages and inadequate number of tables and chairs during the mid-conference reception, a reception in lieu of a banquet should seriously considered in the future because it can reduce the costs by half; also a reception can provide a more comfortable and congenial atmosphere especially with live music in the background.

Some of the conference activities that worked well at Calgary were the following:

1. a web site for all oral and poster session schedules and field trips;

2. e-mail to communicate with speakers and poster presenters;
3. the five day meeting with Wednesday, the middle day, set aside for field trips (5 one day trips, all free), possibly short courses, or a free day for people to relax and recharge their enthusiasm (strongly recommended); however, a 3-day format is still recommended
4. conference break refreshments and posters located in the same room(s);
5. all posters up for the duration of the conference;
6. an early morning (half hour before the first paper) light breakfast available (coffee, tea, juice, muffins, bagels and cream cheese, donuts, etc.) in the poster room(s);
7. adequate signs on lawns and walls to direct participants to meeting sites and reception location;
8. all meeting rooms and poster sessions in the same building, and preferably on the same floor;
9. theme sessions with invited speakers (very successful);

The only significant problem that arose at Calgary was the absence of on-campus housing. In spite of 6 different telephone calls in conversations with on-campus housing personnel, up to two years prior to the conference, no one told us that all housing had been reserved by other conferences during August until the year 2005! We were eventually notified of this when the first registrations for housing in June informed us of the problem. My apologies for this major inconvenience.

Report on the Activities of CNC-INQUA for 1999

1. Annual CNC-INQUA meeting

General Information

A formal CNC-INQUA meeting was held at the University of Calgary on Tuesday, August 24th, 1999, in conjunction with the biennial CANQUA meeting, for which the chief organizer was Derald Smith, Professor of Geography at the University of Calgary. A meeting of the CANQUA Council (outgoing executive) was held earlier the same day, and the general CANQUA business meeting was held on Thursday, August 26th. Outgoing CANQUA President Gail Chmura was unable to be in Calgary as she had the chance to carry out field work in South Africa following the XV INQUA Congress, but incoming President David Liverman capably handled both the CANQUA Council meeting and the CANQUA business meeting.

In attendance at the CNC-INQUA meeting were: W. Blake, Jr., Peter Bobrowsky, Les Cwynar, David Liverman, Dana Naldrett, A.G. Pronk, N.W. Rutter and N.R. Catto (Editor of QI). Following the pattern established in previous years, the members of CNC-INQUA for 1999-2001 (chosen from among the CANQUA Councillors) represent all parts of the country and as many disciplines as possible.

Topics discussed

This CNC-INQUA meeting was the first one held since the 1997 CANQUA meeting in Montréal, although a CANQUA Council meeting was held in Québec (in conjunction with the GAC/MAC meeting) in May 1998. The main topic for discussion was the XV INQUA Congress held in Durban, South Africa from Aug. 3-11, 1999. A strong contingent of Canadians attended, and the official delegate was CANQUA President Gail Chmura. Her participation was supported by NRC, and CANQUA itself provided some financial support to Past-President Peter Bobrowsky (B.C. Geological Survey) and Serge Occhietti (GEOTOP, UQAM). Our delegation was eminently successful, as John Clague (Simon Fraser University and Emeritus Research Scientist with the GSC) was elected to one of the four VP position for the period 1999-2003 (with the second highest number of votes), Nat Rutter (University of Alberta) was elected an Honorary Member of INQUA, and Norm Catto (Memorial University of Newfoundland, former CANQUA Councillor and head organizer of the 1995 CANQUA meeting in St-John's), moved up from Associate Editor to Editor of the prestigious NQUA journal Quaternary International (Founding Editor was Nat Rutter during his term as INQUA President, 1987-1991).

All in all there were approximately 750 participants at the XV INQUA Congress, representing 49 countries. Some 21 registrants were from 13 Canadian universities (Alberta, Calgary, Lethbridge, Manitoba, McGill, Memorial, New Brunswick, Northern B.C., Regina, Simon Fraser, Toronto, UQAM and York), the B.C. Geological Survey, the Geological Survey of Canada, and one private company. Thus there was excellent representation from across Canada, especially when the high cost of travel to South Africa is taken into consideration. With regard to the dozen or so INQUA Scientific Commissions, Timothy Fisher, a Canadian

teaching in the Dept. of Geosciences at Indiana University NW, is Secretary of the Glaciation Commission. Other Canadian participation in Scientific Commissions and Working Groups is as follows:

1. **Alan Bryan**, Dept. of Anthropology, University of Alberta, is Chair Emeritus of the Working Group on Beringia.
2. **Norm Catto**, Dept. of Geography, Memorial University of Newfoundland, will likely become a Member of the Stratigraphy Commission.
3. **Gail Chmura**, Dept. of Geography, McGill University, is a Member of the Carbon Commission.
4. **John Clague**, Dept. of Earth Sciences, Simon Fraser University, is a Member of the Neotectonics Commission.
5. **Jon Driver**, Dept. of Sociology & Anthropology, Simon Fraser University, is Leader of the Subgroup on High-Resolution Faunal Records across the Transition, in the Human Evolution and Palaeoecology Commission.
6. **John Menzies**, Dept. of Geography & Earth Sciences, Brock University, is a Member of the Glaciation Commission.
7. **John Westgate**, Dept. of Geology, University of Toronto, is a Member of the Tephrochronology & Vulcanism Commission.

Future plans

CNC-INQUA will hold a meeting in 2001, in conjunction with the CANQUA meeting in Whitehorse, Yukon Territory, scheduled to be held between August 23rd and 26th. As usual there will be both formal sessions and posters, as well as field trips. This meeting will be the first CANQUA meeting north of latitude 60 . It is also quite possible that several members of both CNC-INQUA and the CANQUA Council get together informally at the GeoCanada 2000 meeting, scheduled to be held in Calgary May 29th to June 2nd, 2000. The biennial CANQUA meeting for 2003 is scheduled for a locale in Nova Scotia, probably Halifax (R.R. Stea, Nova Scotia Dept. of Natural Resources, Halifax & I.S. Spooner, Dept. of Geology, Acadia University, Wolfville. A joint CANQUA/AMQUA meeting for 2004 or 2005 may be proposed for Winnipeg (J.T. Teller, Dept. of Geosciences, University of Manitoba).

The XVI INQUA Congress, in 2003, is scheduled to be held at the Desert Research Institute in Reno, Nevada, U.S.A., and agreement in principle has been given for the XVII INQUA Congress to be in Japan four years later.

2. CANQUA

The 1999 CANQUA meeting, held at the University of Calgary between August 23rd and 27th, was a great success, thanks to the outstanding efforts of the organizing committee, headed by Derald Smith. This meeting was the second (the first was in St. John's in 1995) to be organized jointly with the Canadian Geomorphological Research Group, and this resulted in the best attended meeting in many years, with 178 participants. The rich selection of pre-meeting (3) and post-meeting (2) field trips, plus five on Wednesday, August 25th (these 5 were free with registration), attracted a total of 196 participants. There were 146 oral and poster presentations during the four days of formal sessions, and the posters stayed up throughout the meeting. The first session, all day Monday, August 23rd, was in honour of retiring Professor N.W. Rutter (Univ. of Alberta). Tuesday morning, August 24th, there were concurrent sessions: 1) Paleolimnology of the Great Plains and the Mountains; and 2) Glacial and Periglacial; Tuesday afternoon the Glacial and Periglacial Session continued, plus a session on Geomorphic Response to Climate Variability and Extreme Climatic Events. Thursday started off with a session on Subglacial Processes: Review of Past and Present Findings; this was followed by a session on Geo-Archaeology: Coastal and Inland Routes for Peopling of North America. In the second half of Thursday afternoon there was a session on Holocene Climate and Glacier Fluctuations. Friday morning and early afternoon was taken up by a session on Rivers: A Stream of New Ideas; and on Friday morning there was a concurrent session on Applied and Economic Quaternary Studies. The last session on Friday was devoted to Geochronology Methods, Applications and Limitations. In addition to groups of posters accompanying each oral session, one group of posters dealt with Shallow Geophysics Method Applications in Geomorphology.

At an informal get together gathering Wednesday evening, after the field trips, CANQUA's W.A. Johnston Medal for 1999 was awarded to Professor Emeritus James C. Ritchie, formerly Dean of Life Sciences at Scarborough College, University of Toronto. Professor Ritchie is especially renowned for his

contributions to our knowledge of the postglacial development of vegetation in the far northwest of Canada (Yukon Territory and the former Northwest Territories).

Participants and contributors to the 1999 CANQUA-CGRC Meeting came from all across Canada. In addition to staff and students from many universities, as well as provincial geological surveys, museums, etc., and the Geological Survey of Canada (staff from all six offices), a number of consultants also attended. In addition, participants/contributors came from a broad spectrum across the U.S. (Arizona, Colorado, Florida, Indiana, Massachusetts, Minnesota, Montana, Nevada, New York, Oregon, Washington and Wisconsin) as well as Australia, England, Hong Kong, India, Northern Ireland, Norway, Russia and Sweden. Thus CANQUA meetings continue to attract Quaternarists from around the world.

3. Additional Information

Responsibility for the CANQUA Newsletter has been passed from Ian Campbell at the Canadian Forestry Service in Edmonton to Stephen Robinson, at Terrain Sciences Division, Geological Survey of Canada, Ottawa. The Quaternary Listserv continues to be maintained by David Liverman, now CANQUA President. As noted in last years report he has also constructed a CANQUA web site, hosted by Memorial University of Newfoundland. This web site can be accessed at <http://www.mun.ca/CANQUA/>.

Past Past-President Peter Bobrowsky continues to represent CANQUA at most Canadian Geoscience Council (CGC) meetings. However, Gail Chmura, while President of CANQUA, attended a CGC meeting in Ottawa (in early 1999) at which Member Societies were able to comment directly to the GSC (re a draft report by the Earth Sciences Sector of NRCan (ESS) on its internal science and technology capacity over the next decade). Then, in Autumn 1999 Vice-President David Sauchyn attended a CGC meeting in Regina. Dr. Bobrowsky also sits on the CGC as International Director.

Respectfully submitted,

Weston Blake, Jr.
Chair, CNC-INQUA
December 10, 1999

A note from your secretary/treasurer:

The CANQUA homepage <http://www.mun.ca/cangua> contains a membership form and a listing of current and former CANQUA members. Please check the list to ensure the data is accurate, and e-mail me any necessary changes. Or, include the changes with your completed membership form, and send it via snail-mail, along with appropriate funds to the address on the form. If you are unsure if you have paid your dues for 2000, contact me and I'll tell you.

Martin Batterson

A note from the Newsletter editor:

Owing to printing and mailing costs, and the fact that most members likely have internet access, it has been decided to primarily publish the newsletter electronically though Adobe Acrobat files. Anyone who wishes to obtain a paper copy should contact me. Libraries and institutional subscribers will continue to receive printed copies. Feedback on this new direction is most welcomed, as are contributions to future editions.

Stephen D. Robinson - Geological Survey of Canada – srobinso@NRCan.gc.ca

Partnership Group for Science and Engineering
Originally printed in Geolog (reprinted with permission)

The Partnership Group for Science and Engineering (pronounced pages) was formed in June 1995, when the Academy of Science of the Royal Society of Canada invited national science and engineering associations to form a common, positive voice, independent of government, on their contribution to Canada's economic development. The initial aim was to foster a united response to an impending report arising from the federal government's Science and Technology (S&T) review, and an examination of the effects of cuts to research budgets. Over 20 organizations, including GAC, representing researchers in universities, government labs, and the private sector, joined to create a forum in which concerns could be discussed, information shared, and action taken on matters of shared importance.

The objective of PAGSE is to ensure that Canada's research and development capacities, and the consequent industrial output, are developed to their potential. It aims to bring science to the fore in government decisions, to guide policy-making by providing credible and impartial expertise, to raise awareness of the importance of S&T to the Canadian economy and well-being, to nurture R&D in the private sector, and to promote synergies between academic, government, and industry labs. Working with industry, PAGSE demonstrates the value of publicly funded research to economic development and provides a forum for the private sector to explain how this synergy works and how it could be improved.

PAGSE council meetings are held on a monthly basis at the University of Ottawa, with consensus being the basis for actions. Initially, the group was coordinated under the auspices of the Royal Society of Canada. The Vice President of the Academy of Sciences of the Royal Society, Dr. Howard Alper, Vice-Rector for Research, University of Ottawa, chaired the group from its inception until June 1, 1999, at which time he was succeeded by former GAC president Denis St. Onge.

Direct communications conducted by PAGSE have included meetings with Ministers, government agencies, granting councils, and standing committees of Parliament on matters of common interest to the represented societies. The members comment on the state of funding and coordination of research to the Minister of Finance as part of pre-budget preparations.

Broader communications efforts maintained by PAGSE include three approaches to make politicians and senior government officials more aware of the contributions of research:

- Bacon and Eggheads: While Parliament is in session, PAGSE and NSERC co-host monthly breakfast meetings, dubbed Bacon and Eggheads, in the Parliament Buildings for MPs, Senators, senior officials, and the Press, where Canadian scientists give non-technical, well-illustrated presentations about their research.
- Science Policy series: At seminars of Canadian government leaders and science managers, co-hosted with the Department of Industry, senior science officials from industry and foreign governments speak on their practices.
- PAGSE annual meeting: a meeting attended by the Science Minister, MPs, and representatives of PAGSE member associations, and focusing on innovation in science, is held to coincide with Science and Technology Week. PAGSE recommends that member societies sponsor at least one or preferably three participants at these events.

GAC representation to PAGSE consists of Jim Franklin, who continues to play a very active role in the PAGSE Communications Committee, and Harvey Thorleifson, who, in spring 1999, succeeded the GAC Council/PAGSE liaison role previously held by Steve Lucas. Feedback regarding the role of GAC in PAGSE would be welcomed.

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Snippets submitted by our members or readers.....or compiled from the internet

A new UNESCO/IUGS IGCP project will be put into implementation in 2000 to 2004. The information about IGCP 448 "World correlation on karst geology and its relevant ecosystem" is available on the website <http://www.gxnu.edu.cn/KDL>. You can find it just click "IGCP448" on the front page.

Yuan Daoxian

The Geophysical Institute, University of Alaska Fairbanks and the Second Wadati Conference Executive Committee are inviting you to participate in the "Second Wadati Conference on Global Change and Polar Climate".

Place: Tsukuba Science City, Japan

Time: March 7-9, 2001.

Papers are sought by 10 January 2001.

Goal: The major goal of the Second Wadati Conference is to summarize our understanding for the climate change in the polar regions in the context of the global change. The goal also includes an analysis of new directions and perspectives of the polar climate investigation to demonstrate a new level of emerging information and data needs.

Scientific Sessions:

1. Evidence of Polar Climate Change
2. Processes, Interactions and Feedbacks in the Arctic and Antarctic
3. Paleoclimatic Reconstructions for Polar regions
4. Climate Modeling

Contact: Hiroshi L. Tanaka, tanaka@atm.geo.tsukuba.ac.jp

This is to announce one new and two updated databases accessible free-of-charge on the Internet. These are:

SPRILIB Russian North <http://www.spri.cam.ac.uk/lib/spiruss.htm>

SPRILIB Ice and Snow <http://www.spri.cam.ac.uk/wdcc/icesnow.htm>

SPRILIB Antarctica <http://www.spri.cam.ac.uk/lib/spriant.htm>

The Russian North database is new (19,024 records), Ice and Snow (32,536) and Antarctica (36,610) are updated. I hope you find them useful.

William Mills, Keeper and Librarian

World Data Centre for Glaciology, Cambridge

University of Cambridge

Scott Polar Research Institute

On January 5-6 2000 the The Alaska Science and Technology Foundation sponsored a workshop on the effects of a warmer climate on infrastructure. A website, <http://www.engr.uaa.alaska.edu/infrastructure/> now contains the details of the workshop, but in April of this year the discussions of the proceedings and recommendations from the workshop will be posted.

The Proceedings Of The International Symposium On Polar Aspects Of Global Change, (24-28 August 1998, Tromso, Norway) has been published by the Norwegian Polar Institute in a special double issue (1999; vol. 18, no. 2) of Polar Research. It can be purchased for NOK 250 (US \$35). Questions or subscriptions should be

directed to: subscriptions@npolar.no See the journal's website, accessed under "Publications" at <http://www.npolar.no> for a complete listing of the contents.

For the third consecutive year, the University of Regina will offer the online and field-based course "Watershed Hydrology and Sediment Budgets". This three credit course for graduate students (Geography 897) and senior undergrads (Geography 497) is based on the study of upper Battle Creek basin in the Cypress Hills of southwestern Saskatchewan and southeastern Alberta. In addition to one week (June 13-20) in the field, instruction occurs via the course web site.

For further details and registration information, visit <http://uregina.ca/~sauchyn/geog497&897/>

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Issue 19 of the INQUA Data-handling newsletter is now out, after a delay, largely brought about by the editor's change of location. The issue includes notes on calibrating spore tablets (Lou Maher) and on an image database for diatoms (Ernest Joynt and Alexander Wolfe). There is also a link to a set of notes on Data-handling methods that summarize much of the work of the newsletter over the last decade or so. Please keep articles coming, along with news of any kind of data-handling technique. It is at <http://www.kv.geo.uu.se/inqua>. Here you will find all previous newsletters, as well as the current one, access to the file boutique, and a facility to search the site.

The radiocarbon calibration program CALIB is now available in an on-line version which can be run from a network browser at the following sites:

<http://depts.washington.edu/qil/calib/>
<http://radiocarbon.pa.qub.ac.uk/calib/>

Operating instructions are given on the web page. Not all options of the downloadable versions have been included, but some may be added later. The number of samples which can be entered or pasted into the data area for calibration depends upon various factors but is on the order of 300-400. Plots may be printed directly from your browser or saved as postscript files. The on-line version is otherwise identical to CALIB 4.1.2 and uses the 1998 international radiocarbon calibration datasets. Please refer to the CALIB 4.1 on-line manual for details about the calibration datasets and calculations.

Paula Reimer & Minze Stuiver

The Climate Trends and Variations Bulletin - Winter 1999/2000 edition is now available on-line on the Greenlane (<http://www.tor.ec.gc.ca/ccrm/bulletin/>). Here are some of the highlights:

This winter ranked 4th warmest for the 53-year period of record, at 2.6°C above normal, based on preliminary data. The warmest winter was in 1986/87, at 3.0°C above normal, followed by 1997/98 (2.8°C), and 1959/60 (2.6°C). The last three winters, 1997/98, 1998/99, and 1999/2000 were among the top five warmest since 1948. The number of consecutive seasons with above normal temperatures for Canada is now up to 11 (summer 1997 to winter 1999/2000). The region including most of the Northwest Territories had its second warmest winter, at 4.8°C above normal, (1986/87 was the warmest at 6.7°C above normal).

Everyone is invited to visit "Paleofloods in the Red River Basin" web site at (<http://www.gov.mb.ca/em/pflood/pfloodindex.html>).

Our webpage discusses a multi-agency, multi-disciplinary research program on flood hazards in the Red River Basin, Manitoba, Canada initiated by the Geological Survey of Canada and the Manitoba Geological Survey. Flooding of the Red River is a significant recurring natural hazard in southern Manitoba with about 70 percent of the provincial population living in the Red River Valley. During the most recent major flood of 1997, costs for flood fighting and recovery in Manitoba were estimated at \$500 million (CND) and 28,000 people were evacuated from high flood-risk areas.

We hope to develop an accurate record of high magnitude floods in the Red River over the last 500 years and subsequently determine the impact of long-term climatic and environmental changes on flood frequency and magnitude. Our project has recently completed the first year of its four-year mandate and we'd be extremely grateful for any comments, either regarding our present results or our plans for the future.

AQQUA-GCRG 2000 - Association québécoise pour l'étude du Quaternaire et Groupe canadien de recherche en géomorphologie - Congrès conjoint du 22 au 27 août 2000 - *Joint Meeting August 22nd to 27th, 2000*
À l'Université du Québec à Montréal

Le prochain congrès de l'Association Québécoise pour l'Étude du Quaternaire (AQQUA) se tiendra dans les locaux de l'Université du Québec à Montréal, du 22 au 27 août de l'an 2000. Il nous fait plaisir de souligner la participation du Groupe Canadien de Recherche en Géomorphologie (GCRG/CGRG) qui tient, à cette occasion, sa réunion annuelle. Les thèmes scientifiques, excursions et autres activités sont résumés dans le programme préliminaire.

The next Association Québécoise pour l'Étude du Quaternaire (AQQUA) Congress will be held at the Université du Québec à Montréal, between August 22nd and August 27th, 2000. We are pleased to announce that the Canadian Geomorphology Research Group (GCRG/CGRG) has accepted to join AQQUA for their Annual Meeting. The scientific topics, field trips, and other activities are summarized in the preliminary program

Date limite pour les résumés : 12 mai 2000

Deadline for abstracts : May 12th 2000

Pour plus d'informations, consultez le web site de l'AQQUA

For more information, please consult the AQQUA web site

<http://www.unites.uqam.ca/sct/AQQUA/bulle.htm>

CALL FOR PAPERS Biogeography Study Group Session - Wednesday 3rd January, 2001

Numerical Analysis of Past and Present Biogeographical Data

Convenors: Martin Kent (mkent@plymouth.ac.uk) Dan Charman (dcharman@plymouth.ac.uk)

The aim of the session is to examine methods and applications of numerical analysis to palaeoenvironmental and contemporary ecological/biogeographical problems. There will be particular emphasis on research concerned with organism-environment relationships. Papers may consider a variety of topics including:

- . New developments in techniques
- . Examples of new applications using established methods
- . Problems in the application of techniques to specific data sets and groups of organisms
- . Numerical analysis as a basis for mapping
- . Methods to explore links between past and present organisms and communities
- . Numerical classification and ordination of communities in time and space
- . Numerical analysis and classification of remotely sensed biogeographic data

AMQUA 2000 to Discuss Climate Variability

The Environmental Dynamics Program at the University of Arkansas in Fayetteville is pleased to host the first biennial meeting of the new millennium on May 22-24, 2000. The meetings will be located in the Continuing Education facility attached to the Hilton Inn in downtown Fayetteville, about a mile from the University of Arkansas campus. We are looking forward to an exciting program on Landscape and Biotic Responses to Climate Variability being prepared by Rob Webb. He has attracted some real experts on climate reconstruction and modeling and the effects of climate change on people, vegetation, hydrology, and the landscape.

The meeting is a single session format so you will not be forced into making any decisions about which interesting talk you would like to hear or what posters to visit. The speakers are all invited to summarize research on a theme topic. We would like to encourage all attendees to submit an abstract so that they can present their own research during the poster sessions. These poster presentations may be on any Quaternary topic and will be scheduled as afternoon sessions. The poster sessions will physically and temporally coincide with breaks, so you will have plenty of time to wander, visit, and munch as you learn about some of the current research in the hot Quaternary topics.

The welcoming party and Tuesday night dinner will be included in the preregistration fee (\$140 for professionals, \$80 for students) so that all attendees will gather for some good cheer, Ozark food and southern hospitality. Short courses and field trips to see some of the outstanding scenery and Quaternary highlights of the southern midcontinent will be offered before and after the meeting. A limited number of travel grants will be competitively awarded to students. Abstracts and Preregistration is due by March 3, 2000. For the second and final circular check the web page

<http://vishnu.qlg.nau.edu/amqua/> or <http://www.uark.edu/depts/geology/>

Publications of Quaternary Interest

The Geological Society Publishing House. Unit 7 Brassmill Enterprise Centre, Brassmill Lane, Bath, BA1 3JN.
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Volcanoes in the Quaternary.

Edited by C. R. Firth & W. J. McGuire
Geological Society Special Publication No. 161

ISBN 1-86239-049-5. 220 pages. September 1999
Price: £65.00/US\$108.00

It has long been suggested that there is a causal link between volcanic activity and Quaternary environmental change. Earlier work pointed to the volcanic activity driving large-scale Quaternary glacial fluctuations. However, a growing body of evidence lends weight to the converse view that Quaternary environmental changes resulted in increased volcanic activity. Using tephra layers as chronological horizons, researchers have begun to suggest that these volcanic events may have produced not only short-term climate changes but also variations in regional vegetation patterns and in the distribution of society. A full understanding of the complex interaction between volcanic activity and Quaternary environmental change requires the collaboration of both volcanologists and Quaternary scientists. *Volcanoes in the Quaternary* brings together papers from workers in both fields and reflects the diversity of current research. The papers are grouped geographically and focus on New Zealand's North Island, the East African Rift Valley, the Mediterranean and Iceland. They cover the determination of eruptive chronologies, discuss the impacts on local vegetation and

society, outline the importance of tephrostratigraphic records and provide detailed studies of hazard assessment.

Contents: New Zealand, North Island volcanic province; The Auckland volcanic field, New Zealand: geophysical evidence for its eruption history. Impact of tephra fall and environmental change: a 1000 year record from Matakana Island, Bay of Plenty, North Island, New Zealand. Volcanic Hazards in Auckland: a preliminary assessment of the threat posed by central North Island silicic volcanism based on the Quaternary tephrostratigraphical record. East African Rift Valley and the Mediterranean; The role of tephrochronology in recognizing synchronous caldera-forming events at the Quaternary volcanoes Longonot and Suswa, south Kenya Rift. Deep sea tephra from Nisyros Island, eastern Aegean Sea, Greece. Eruptive and seismic activity at Etna Volcano (Italy) between 1977 and 1991. Late Quaternary eruptions in Iceland; Modelling the impact of Icelandic volcanic eruptions upon the prehistoric societies and environment of northern and western Britain. Characterization of tephtras using magnetic properties: an example from SE Iceland. An assessment of discriminant function analysis in the identification and correlation of distal Icelandic tephtras in the British Isles. Regional warming of the lower atmosphere in the wake of volcanic eruptions: the role of the Laki fissure eruption in the hot summer of 1783. Environmental and social responses in Europe to the 1783 eruption of the Laki fissure volcano in Iceland: a consideration of contemporary documentary evidence. Hazard assessment; Human adjustments and social vulnerability to volcanic hazards: the case of Furnas Volcano, Sao Miguel, Acores. Reconstruction of the 1706 Montana Negra eruption. Emergency procedures for Garachico and El Tanque, Tenerife, Canary Islands. Index.

Late Cenozoic Environments and Hominid Evolution: a tribute to Bill Bishop.

Edited by Peter Andrews and Peter Banham

276 pages. 93 illustrations. 19 papers. ISBN 1-86239-034-7. Published June 1999.

List price £69/US\$115

The influence of Bill Bishop is reflected throughout this volume, even though his sudden death stopped a brilliant research career in full flow. Most of the authors are connected with Bill as research collaborators and students, or as the next generation of students of these supervisors, and much of the research reported here has been aided by grants from the fund that bears Bill's name. The volume begins with an appreciation of Bill's life and work; the research contributions that then follow are arranged in three thematic sections, each with a scene-setting editorial overview:

Part 1. Early Miocene of Uganda, including the first full account and discussion of the recently discovered oldest known hominoid, *Morotopithecus bishopi*.

Part 2. Middle Miocene to Pleistocene of the Tugen hills, Kenya, a comprehensive account of the hominids and their environmental context from members of the Baringo Basin Project.

Part 3. Quaternary Environments, with particular emphases on the English Midlands, western Scotland and southern Africa.

Throughout this commemorative volume, the determination of editors and authors to place the results of specialist research into their environmental context is perhaps the clearest indication of the visionary influence of Bill Bishop. Every paper presents new, unpublished research e.g. the first full account of the oldest known hominoid (Uganda), *Morotopithecus bishopi*; the first integrated account of the Baringo Basin (Kenya) hominids and their environmental contexts; the climatic implications of the ages and directions of the dune winds of southern Africa; new ideas on physical and biological aspects of the British Quaternary.

A Revised Correlation of Quaternary Deposits in the British Isles.

Edited by D. Q. Bowen.

Geological Society Special Report no. 23

ISBN 1-86239-042-8. July 1999.

List price £39.00 / US\$65

Realization that continental records of Quaternary rocks were more complex than hitherto believed came with the re-interpretation of oxygen isotope stratigraphy in the late 1960s and early 1970s. This necessitated a comprehensive re-evaluation that has been assisted by the emergence of new geochronological methods for terrestrial as well as land-sea correlations. The current state of such correlations is presented in this revised set of proposals for correlations in England, Ireland, Scotland and Wales, which also includes the Quaternary geology of the continental shelf.

Correlation with the global standard of oxygen isotope stratigraphy enables the significance of British lithostratigraphical units to be appreciated in a wider context that includes the evolution of the climate system on a margin of the northeast Atlantic Ocean. It thus provides timely British data for the international palaeoceanographical and palaeoclimatological community and the correlations proposed are primarily on Milankovitch timescales. But their appearance coincides with the early stages of a paradigm shift to the search for both terrestrial and land-sea correlation on millennial timescales and then on centennial and decadal ones. This is the first of many similar terrestrial and land-sea correlations.

Readership: Academics in quaternary research, postgraduates, general geological community, hydrologists, civil engineers and some nature conservationists.

1. On the correlation and classification of Quaternary deposits and land-sea correlations. 2. Eastern England. 3. English Midlands. 4. The Thames Valley, its tributary, valleys and their former courses. 5. South and Southeast England. 6. Southwest England. 7. Wales. 8. Northern England. 9. Scotland. 10. Ireland. 11. The Continental Shelf. References

Recently Completed Theses

McMARTIN, I. 2000.

QUATERNARY GEOLOGY AND ENVIRONMENTAL GEOCHEMISTRY OF THE FLIN FLON REGION, MANITOBA AND SASKATCHEWAN.

Unpublished Ph.D. Thesis, Carleton University, 289 p. Supervisors: F.A. Michel and W.W. Shilts

This thesis is based on surficial geology and geochemical mapping studies undertaken by the author as part of the NATMAP Shield Margin Project at the Geological Survey of Canada in 1991-1995. Two major themes related to the surficial geology of the Flin Flon region have been developed in the thesis: 1) the Quaternary Geology, which includes the glacial history and the regional post-glacial uplift history and paleogeography of Lake Agassiz, and 2) the impact of a base metal smelter on the geochemistry of soils.

The Quaternary geology of the Flin Flon region reflects a complex glacial history at the confluence of two major Sectors of the Laurentide Ice Sheet during the Pleistocene (Keewatin and Labrador). The glacial erosional record indicates multiple ice flow events, primarily related to the last cycle of glacial advance and retreat. Surficial glacial deposits exhibit contrasting composition, distribution and morphology which are related to 1) differences in provenance and glacial sedimentation processes between the two ice masses during the last glaciation, and 2) the contrasting nature of the Paleozoic and Shield terrains which underlie the region. The rarity of older glacial sediments beneath surface till demonstrates almost complete glacial erosion during the latest glacial events hence the lack of significant compositional masking of the underlying bedrock, a situation favourable to drift prospecting for base metals, gold or diamonds.

Following deglaciation, the area was inundated by Lake Agassiz. Post-glacial lake strandlines record a series of six regressive lake levels formed between approximately 8.3 ka and 7.9 ka ¹⁴C BP as the ice front retreated and lower outlets were opened. Elevation measurements of newly-recognized strandlines and correlation of these strandlines with existing shoreline data indicate that glacial rebound has tilted the paleo-water planes to the northeast during the Holocene, with gradients decreasing from the highest to the lowest level, from about 0.34 m km⁻¹ to 0.22 m km⁻¹. This suggests significant differential uplift in central Manitoba and Saskatchewan following final drainage of Lake Agassiz. The finding has major consequences regarding

correlation of glacial lakes across the mid-continent, the post-glacial history of large lakes in the region, and for interpretations of earth rheology and its implications for ice sheet reconstruction.

The soils of the Flin Flon region are naturally elevated in metals, but concentrations are considerably augmented by atmospheric fallout of smelter-derived particulate emissions. In surface organic soils, the concentrations of smelter elements (As, Cd, Cu, Hg, Pb, Zn) decrease with increasing distance from the stack, and regional patterns reflect the historical record of smelter contamination. In the underlying Ghorizon till, concentrations show the absence of significant contamination at depth, except at highly contaminated sites (<4 km from the stack) where metals can be leached from humus into the underlying sediments. The contaminant pathways in the soils vary with the element and distance from the smelter, as indicated by the chemical speciation of the metals in labile and non-labile phases. The maximum radius of contamination varies among the major smelter elements, ranging from 70 km for Cd to 104 km for As. No direct relationship exists among emission, deposition and sink concentrations, reflecting the complexity of factors influencing total metal concentrations in soils. Factors considered here include the natural geochemical signature of the underlying substrate, the airborne behavior of the smelter particulates, and natural soil-forming processes, such as biogeochemical enrichment in the surface organic layer and post-depositional mobilization of elements. With increasing distance from the smelter, beyond the background distances, these factors become significant and the relative proportion of anthropogenic contamination in the surface terrestrial environment is more difficult to estimate, as the geochemical response to bedrock composition becomes more obvious.

MOORMAN, B.J., 1998.

THE DEVELOPMENT AND PRESERVATION OF TABULAR MASSIVE GROUND ICE IN PERMAFROST REGIONS

Ph.D Thesis, Carleton University, Supervisor, F.A. Michel

An investigation of tabular massive ground ice was conducted to ascertain if ground ice has distinctive characteristics that could be measured and used to determine the origin of the ice. Initial studies were conducted on Bylot Island in the eastern Canadian Arctic, where some glaciers are rapidly retreating, resulting in buried massive ground ice. The environments with the greatest potential for the burial and preservation of massive ice were first examined and the processes of burial identified. It was determined that glacier end and lateral moraines have the greatest potential for preserving massive ice.

Ground penetrating radar (GPR) methodology was developed for imaging the subsurface geometry and structure of glaciers, icing, and ground ice bodies. GPR was shown to be effective for mapping icing and glacier geometry, hydrology and subbottom structure, and possibly thermal conditions. GPR also proved effective at delineating the size and thickness of massive ground ice bodies. This revealed that the ice core in lateral and end moraines around Stagnation Glacier are continuous and extensive.

Physical property analyses indicated that some ice types could not be differentiated on their physical properties alone. A methodology was thus developed for extracting and analyzing the gaseous component of ice which would provide a differentiating technique. This method enabled the measurement of the chemical and isotopic composition of the ice and gases, and direct age determination of the ice by radiocarbon dating of the CO₂ in the bubbles. In testing the technique in the proglacial environment on Bylot Island, the environmental history of the site was linked to the more extensive ice core records from Greenland and Devon Island.

Along with the other ice property analysis techniques, the gas analysis techniques were applied to three sites across the western Canadian Arctic (Peninsula Point, North Point, and Herschel Island). It was discovered that ground ice bodies in the Tuktoyaktuk Peninsula and on Herschel Island were considerably younger than had been reported previously. In a detailed study of the massive ground ice at Peninsula Point it was determined that the ice mass developed from the segregation of ice formed from a ground water source. The ground water probably originated as glacial meltwater, with several different sources, each with different isotopic signatures.

ROBICHAUD, A., 2000

ÉTUDE PALÉOÉCOLOGIQUE DE LA VÉGÉTATION LIGNEUSE DE LA TOURBIÈRE DE POINTE-ESCUMINAC, NOUVEAU-BRUNSWICK. (PALEOECOLOGICAL STUDY OF THE POINTE-ESCUMINAC BOG'S WOODY VEGETATION, NEW BRUNSWICK).

Thèse de doctorat, département de géographie et Centre d'études nordiques, Université Laval, Québec, Québec, Canada.

RÉSUMÉ

Le développement d'une tourbière ombrotrophe bombée de la zone océanique nord-américaine, plus précisément sur la côte est du Nouveau-Brunswick (47°04'18"N, 64°49'58"W), a été étudiée sur l'ensemble d'une coupe stratigraphique de 1 km de long. Cette coupe a été formée par l'érosion littorale qui sévit depuis plusieurs millénaires dans la région.

L'accumulation de la tourbe a débuté sur le secteur étudié vers 9 000 ans BP dans le creux d'une dépression. Les phases successives de développement (fen riche - fen pauvre - bog) ont généralement été influencées par des processus autogènes. Néanmoins, deux importantes phases d'ombrotrophisation ont coïncidé avec le passage d'un climat plus chaud et sec à des conditions plus fraîches et humides durant deux périodes: vers 5 500 et vers 2 800 ans BP. Par ailleurs, un climat frais et humide et une topographie plane ont favorisé une expansion rapide de la tourbière, mais un climat chaud et sec et surtout des pentes fortes l'ont entravé. Le climat aurait donc eu une influence sur l'ombrotrophisation et sur la vitesse de paludification à Pointe-Escuminac, mais il n'a pas été responsable des processus même. Il est surtout intervenu en tant qu'élément déclenchant, accélérant ou freinant ces processus. L'hypothèse selon laquelle les tourbières situées en climat océanique seraient plus sensibles aux variations climatiques est appuyée par cette recherche. Les effets des incendies sur la paludification ont surtout agi dans le sens vertical (entourbement local) et ont eu peu d'effets dans le sens horizontal (expansion de la tourbière). Les assemblages de macrorestes végétaux suggèrent que le milieu s'est déboisé progressivement. Actuellement, les éricacées sont les espèces ligneuses dominantes. Il est proposé qu'une nappe phréatique relativement élevée et stable et la difficulté des arbres à se reproduire ou à recoloniser le site ont été les principales causes de la "déforestation" du milieu.

Les nombreux lits carbonisés enfouis dans la tourbe ont aussi été étudiés. On en a dénombré jusqu'à 27 dans un profil de la marge sud. Les feux sur la tourbière ont surtout brûlé la végétation de surface. Seulement un cas de combustion profonde a été relevé où au moins 5 cm d'épaisseur de tourbe a été consommé. La fréquence des feux a généralement été plus faible au centre de la tourbière que dans les marges. L'intervalle de feu moyen à la marge sud a été plus long (500-750 ans) entre 9 000 et 4 850 ans BP et plus court (175 ans) entre 4 850 ans BP et l'actuel. Il y a eu une alternance de périodes à intervalles de feu longs (110 à 140 ans) et de périodes à intervalles de feu courts (330 à 340) au cours des derniers 4 850 ans. La durée de ces périodes a varié de 625 à 1 600 ans. La marge de la tourbière de Pointe-Escuminac aurait brûlé au moins autant sinon plus fréquemment que les forêts environnantes actuelles qui ont une période de rotation des feux de 230 ans. Les causes de la variation de la fréquence locale des feux n'ont pu être déterminées avec exactitude et l'étude suggère une influence à la fois locale et régionale.

Un profil de la marge sud de la tourbière a été étudié en détail, mettant l'accent sur la végétation ligneuse. L'identification des macrorestes végétaux, y compris les charbons de bois sur lesquels une analyse anthracologique a été effectuée, a permis la reconstitution de la succession végétale sur près de 5 000 ans. La succession à long terme (pluri-séculaire) a surtout été causée par des changements climatiques et des modifications du régime trophique. Elle est caractérisée par le passage d'une communauté végétale à une autre (lagg boisé - fen pauvre arbustif - tourbière ombrotrophe à sphaignes et à éricacées), chacune ayant persisté pendant plusieurs centaines d'années. La succession à "court" terme (pluri-annuelle) a surtout été causée par la compétition, les feux, des variations climatiques de plus faible magnitude et probablement par d'autres facteurs écologiques non décelés. Les communautés végétales ne subissaient alors que des transformations mineures: la composition spécifique ne changeait presque pas (il était rare que de nouvelles espèces apparaissent ou que des espèces disparaissent de façon permanente) et les modifications concernaient surtout l'abondance relative de ces espèces. Les feux n'ont principalement influencé la dynamique végétale qu'à court terme (au plus quelques décennies). En revanche, ils ont favorisé une transformation rapide d'une communauté à une autre lors des successions à long terme, i.e. en l'absence de feu, la transformation était plus lente et graduelle.

Les restes d'insectes ont aussi été identifiés dans ce profil. Les assemblages révèlent un changement rapide et permanent des taxons et une forte diminution du nombre et de la diversité des restes d'insectes lors du passage d'un milieu forestier (lagg) à un milieu tourbeux (fen). Les taxons forestiers disparaissaient presque totalement et les taxons de tourbière dominaient après ce changement permanent de végétation.

MILLER, ANN A.L., 1999

THE QUATERNARY SEDIMENTS AND SEISMOSTRATIGRAPHY OF THE GRAND BANKS OF NEWFOUNDLAND AND THE NORTHEAST NEWFOUNDLAND SHELF: FORAMINIFERAL REFINEMENTS AND CONSTRAINTS".

Ph. D. dissertation, co-supervised by Rex Hanger, The Geo. Washington University, Washington, D.C., and Gordon Fader, Geological Survey of Canada, Atlantic, Bedford Institute of Oceanography, Dartmouth, N.S.

Benthic, planktonic and reworked foraminifera have been analysed from sediment cores and boreholes collected from the Grand Banks of Newfoundland and the Northeast Newfoundland Shelf. Twenty-three foraminiferal assemblages, delineated into six assemblage groups, have been recognized. The environments of deposition inferred from the foraminiferal assemblages refines and constrains information from seismostratigraphic interpretation and lithologic characteristics. Important glacial / deglacial / oceanographic conditions are reflected in the benthic foraminiferal faunas; changes not otherwise observed in the sediments. Offshore ice-cover was widespread during the Wisconsinan glaciation. Evidence indicates that during deglaciation there were at least four offshore dispersal centers. Grounded ice did not extend to the outer northern Northeast Newfoundland Shelf, but floating ice was proximal. Detrital carbonate intervals in these sediments may provide the first evidence of Heinrich layers and at least one massive meltwater discharge through Hudson Strait. Bonavista Channel, "Catalina" Basin, and Downing Basin were covered by grounded ice. The presence of the Trinity Moraine and surrounding meltwater channels, suggest meltwater radiating from a Newfoundland-centered ice cap that extended onto Northeast Newfoundland Shelf. The foraminiferal evidence of meltwater channels on southern Grand Bank, and in the near-surface on Whale Bank; and the meltwater / deglacial foraminiferal faunas in the Tail of the Bank Mud, all suggest deglaciation of a Grand Bank-centered ice cap with meltwater flowing to the south.

The sand ridges on Grand Bank formed in a mid-shelf environment in post-transgressive times. Distinct foraminiferal zonation suggests the ridges are fairly stable and have not undergone complete migration and sediment turnover. The foraminiferal content of the core of the ridges also indicates meltwater channels were wide-spread on southern Grand Bank when the transgression commenced. There is evidence of three ice advances from the Mid-Wisconsinan through to the Younger Dryas preserved in the sediments of Halibut Channel. Seismostratigraphic evidence suggests that the two younger advances were centered offshore. Till and till-tongue sediments have been collected and studied for the first time on the western Atlantic margin, providing insights into till-tongue deposition.

Foraminifera faunas have been utilized to distinguish (along with physical properties and sediment characteristics) lodgement till from deformation till. Constraints can be placed on the age and origin of the Hibernia Delta, an outer bank progradational coarse sediment wedge. The Delta is Mid- to Late Pleistocene in age; has a glaciogenic origin, or is the product of reworking of glaciogenic sediments, or was deposited by both processes. The extent and thickness of the preserved Quaternary sedimentary record on the Grand Banks is much greater than previously believed. An extensive foraminiferal taxonomic study, describing and illustrating about 300 benthonic foraminiferal species, applying the most up to date suprageneric and generic classification systems, was also completed.



CANQUA '93 AWARD

The Canqua '93 Award for 1999 goes to Ms. Sonya Larocque. Sonya is currently registered in the Department of Geography, University of Victoria where she is completing her Ph.D. research on the Paleoclimatology and Debris Flow activity in the centre part of the Coast Range, BC using tree-ring analysis. Her work is being supervised by Prof. Dan Smith of the same department. Sonya originally comes from Rimouski, Quebec where she completed her B.Sc. in Physical Geography at the Universite de Quebec a Rimouski. She went on to the Universite Laval, Centre d'Etudes Nordiques where she finished her M.A. on the Geomorphic and ecological impacts of slushflow activity in central Gaspé Peninsula under the supervision of Drs. Louise Filon and Bernard Hetu. This year the Canqua '93 award consists of a full one year membership, including subscription to GPQ. As the recipient of this award, Sonya is congratulated on scoring the highest mark in the senior course on Quaternary Geology offered in the fall of 1999 in the School of Earth and Ocean Sciences, University of Victoria. CANQUA wishes Sonya all the best in her career as a Quaternarist and continued success with her research endeavors.

International Union of Geological Sciences

Did you know that since the inception of the International Union of Geological Sciences (IUGS) in 1961, three of its presidents have been Canadians, more than any other of the 110 member countries? Our most recent President and current Past President is Dr. Bill Fyfe (U of Western Ontario), but previous presidents include Dr. Jim Harrison and Dr. Bill Hutchison. But what exactly is IUGS and how does Canada fit into this organization? The IUGS is one of the largest, non-profit, apolitical, non-governmental organizations in the world dealing with earth sciences. IUGS and its many sister organizations, such as IUGG, all belong to ICSU (International Council for Science).

Briefly, the purpose of the IUGS is to improve communication and positive action amongst the various earth science disciplines around the world. The organization promotes and encourages the study of earth science problems, primarily those with a global significance. To accomplish this rather broad mandate, the IUGS operates through any number of Commissions, Subcommissions, Working Groups and Joint Programs. It also relies considerably on the international activities of some three dozen affiliated bodies and organizations. The IUGS has a permanent Secretariat based at the Geological Survey of Norway in Trondheim.

Every four years, the IUGS sponsors the scientific aspect of the International Geological Congress, but it also helps in the organization of sessions, workshops, fieldtrips and other activities associated with the congress. Here, at the congress, the Council of IUGS, which consists of representatives from various member countries, as well as adhering organizations as designated by statute, meet to maintain the business of the Union. In the year 2000, the 31st International Geological Congress will be held in Rio de Janeiro, Brazil from August 6-17. Between congresses, the IUGS sponsors and promotes numerous other international, national and regional meetings, workshops and other activities.

The IUGS is managed by an elected Executive Committee, consisting of a President, Secretary General, Treasurer and Past President as well as some six Vice Presidents. But the real yardstick of success of the IUGS is the scientific accomplishments of its members. Topics which require long term geoscience attention are the domain of Commissions and Subcommissions. Canadian geoscientists are involved in all of the current Commissions and Subcommissions as working scientists, but several individuals are presently active in executive roles. For example, Dr. D. Francis (McGill) is on the Commission on Igneous and Metamorphic Petrogenesis, Dr. Benoit Beauchamp (GSC) is the Chair of the Commission on Global Sedimentary Geology, Dr. S.H. Williams (MUN) is Secretary of the ICS Subcommission on Ordovician Stratigraphy, Dr. A. Lenz (U of Western Ontario) is Secretary of the ICS Subcommission on Silurian Stratigraphy, Dr. F.P. Agterberg (GSC) is

Chair of the ICS Committee on Quantitative Stratigraphy, and Dr. P. Bobrowsky (BSGS) is Secretary General of the Commission on Geological Sciences for Environmental Planning.

Working Groups are developed for those topics which require prompt action and less time than Commissions. Again, Canadians are involved in all of the five current Working Groups with executive positions including Dr. A.G. Darnley (GSC) as Honorary Chair of the WG on Global Geochemical Baselines, and Dr. D.M. Cruden (U of A) Chair of the WG on Landslide Inventory.

Joint Programs are those sponsored by IUGS and other organizations such as UNESCO or IUGG. Five programs are currently active in the IUGS. The program on Mineral and Energy Deposit Modeling has as its Secretary Dr. S. Green (GSC), whereas the International Geological Correlation Program (IGCP) had Dr. N. Rutter (U of A) as one of the Executive Board Members. New Canadian candidates have just been nominated to the IGCP Board to replace Rutter. IGCP is the most successful venture sponsored by the IUGS and UNESCO, and through the last few decades, 100's of Canadian earth scientists have participated and benefited from IGCP projects.

A number of Advisory Boards also exist in IUGS, including one for Publications for which Dr. W.G.E. Caldwell (U of Western Ontario) is the Chair. The editorial board of the IUGS journal Episodes has Dr. R. Grieve (GSC), and Dr. V. Singhroy (CCRS) is the IUGS representative on the ICSU Committee on Space Research.

One of the most successful components of the IUGS is the participation of the Affiliated Organizations (e.g. SEG, AAPG, IAH, AGID, etc.). In this case the list of Canadian involvement appears endless. Notable examples include Dr. H. French (U of Ottawa) President of the International Permafrost Association, Dr. O. Slaymaker (UBC) President of the International Association of Geomorphologists, Dr. J. Clague (SFU) Vice President of the International Union for Quaternary Research, Dr. A. Naldrett (U of T) President of the International Mineralogical Association, Dr. G. Hall (GSC) Treasurer of the Association of Exploration Geochemists and Dr. G. Rostoker (U of A) International Secretary of the American Geophysical Union.

As noted earlier, Canada is one of some 110 countries which belongs to and pays dues into the IUGS. Membership ranges from Level I to VIII depending on the financial well-being of the country. Level VIII countries such as Japan, Russia and the USA pay \$28,000 US annually in dues. Canada is a Level VII member, as is China, Germany, Italy, France and the United Kingdom. Our annual dues of \$14,000 US are paid through the Canadian National Committee of IUGS (CNC-IUGS) which operates under the umbrella and sponsorship of the Canadian Geoscience Council (CGC). Level of membership dictates the weighted voting power of a member country, but membership in IUGS is essential to ensure that Canadian geoscience issues and opinions are respected in all IUGS decision making actions. In other words, CGC is the official adhering organization of Canada in the IUGS and it is represented by CNC-IUGS.

The CNC-IUGS consists of a Chair (the current International Director of the CGC), four members appointed by the CGC in consultation with Member Societies, three members appointed by the CGC in consultation with CNC-IUGS and three ex-officio members (GSC representative, CNC-IGCP secretary and Dr. Bill Fyfe as the Canadian member of the IUGS executive). The committee holds one meeting per year (teleconference call in alternate years) to maintain momentum on international issues and act as the primary liaison to IUGS in communicating Canadian geoscience accomplishments and concerns to the IUGS. As a member of IUGS, Canada has been able to successfully sponsor a large number of international meetings often via a national body. Two recent examples of meetings held here include the Association of Exploration Geochemists which sponsored the International Geochemical Exploration Symposium in 1999 and the Canadian Geotechnical Society which cosponsored the International Association of Engineering Geology meeting in 1998.

All of the activities of the IUGS, its Commissions, Subcommissions, Working Groups, Joint Programs and Affiliated Organizations are routinely summarized in the journal Episodes. Special publications such as monographs and more recently an informative web site (www.iugs.org) are also used to communicate accomplishments and activities of the IUGS.

Since most earth scientists in Canada belong to one or more professional organizations, we all benefit from our direct and indirect relationship with the IUGS. Those individuals that are active in IGCP, routinely read Episodes or visit the web site know that Canada's global influence and the international benefits which return back to Canada keep us on the leading edge of good geological science.

For more information regarding IUGS, CNC-IUGS or CNC-IGCP please contact Peter Bobrowsky, International Director-CGC, c/o BC Geological Survey Branch, PO Box 9320, Station Provincial Government, Victoria, BC, V8W 9N3. Tel: 250-952-0395; Fax: 250-952-0381; Email: peter.bobrowsky@gems7.gov.bc.ca.

INTERNATIONAL GEOLOGICAL CORRELATION PROGRAMME

In 1972, a joint scientific research initiative between UNESCO and the International Union of Geological Sciences (IUGS) was started under the name of International Geological Correlation Programme (IGCP). The primary aim of IGCP is to encourage geoscientists from around the world to formulate new approaches to earth science problems that deal with such topics as the discovery of mineral, groundwater and energy resources, mitigation of natural hazards, evaluation of human induced hazards, and so on. IGCP has defined clear scientific objectives on programs of global importance:

- improve living conditions by better understanding factors controlling the environment;
- develop more effective ways for locating, evaluating and sustainably managing natural resources;
- increase our understanding of geological processes and concepts;
- improve research capacities, techniques and methods including international collaboration; and
- promote multi-disciplinary cooperation within the UNESCO framework.

Ideas from geoscientists are put forward as formal proposals to the IGCP international board through the National Committee of each country. All successful proposals share certain features: scientific excellence, reliance on advanced methodology, contemporary societal relevance, as well as significant collaboration between developing and developed nations. Each project must be represented by at least one scientific leader who becomes responsible for annually reporting to the scientific board. Participating countries can nominate interested and qualified national leaders to represent and coordinate activities within projects in their own country. With an average life span of up to five years, IGCP projects succeed by reaching milestones associated with the general IGCP objectives. IGCP projects host regular international and national meetings, workshops, conferences, fieldtrips, etc. Global participation is imperative.

The IGCP consists of a board of 16 scientists representing various disciplines and regions around the world, as well as the Director of the Earth Sciences Division of UNESCO and the President of the IUGS. Members of the board have limited terms and are appointed by the Director General of UNESCO to specific working groups consisting of: 1) stratigraphy, sedimentology and fossil fuels, 2) Quaternary, environmental and engineering sciences, 3) mineral deposits, petrology and geochemistry, and 4) geophysics, tectonics and structural geology.

The board annually meets in Paris to deal with a number of issues. New project proposals are evaluated, reports from ongoing projects are assessed, funding levels for projects are established, and broader issues such as the Constitution and comments from National Committees of IGCP are discussed. Active projects are graded annually by the board and are assigned funding from low (< US \$4,000) to medium (US \$6-7,000) to high (US \$10,000) levels. Funding disbursed by the Scientific Board (circa US \$250,000) comes from UNESCO and IUGS.

The programme provides seed money to approximately 40 active projects per year. This money is used by thousands of geoscientists from about 150 countries to participate in their respective IGCP project. During 1999 the following projects with Canadian leaders were active:

- No. 380 Biosedimentology of Microbial Build-ups (Brian Pratt)
- No. 391 Groundwater and Sand Accumulations in the Sahara (Vern Singhroy)
- No. 396 Continental Shelves in the Quaternary (Heiner Josenhans)
- No. 406 Circum-Arctic Paleozoic Vertebrates (Mark Wilson)
- No. 408 Rocks and Minerals at Great Depth and on the Surface (Robert Linnen)
- No. 413 Understanding Future Dryland Changes from Past Dynamics (Dave Sauchyn)
- No. 415 Glaciation and Reorganization of Asia's Network of Drainage (Jim Teller)
- No. 418 Kibarian Events in Southwest Africa (Toby Rivers)
- No. 419 Foreland Basins of the Neoproterozoic Belts in Central to Southern Africa and South America (Pier Binda)
- No. 420 Continental Growth in the Phanerozoic: Evidence from East-Central Asia (Mike Brookfield)
- No. 425 Landslide Hazard Assessment and Cultural Heritage (Oldrich Hungr and Peter Bobrowsky)
- No. 426 Granite Systems and Proterozoic Lithospheric Processes (Sandra Barr)
- No. 427 Ore-Forming Processes in Dynamic Magmatic Systems (Mike Leshner and Sarah-Jane Barnes)
- No. 428 Past Climatic Change Inferred from the Analysis of the Underground Temperature Field (Jacob Majorowicz, Trevor Lewis and Hugo Beltrami)
- No. 429 Organics in Major Environmental Issues (Jim Baker)
- No. 432 Contourites, Bottom Currents and Palaeocirculation (D.W.J. Piper)
- No. 437 Coastal Environmental Change during Sea-Level Highstands (R.T. Patterson)

No. 440 Rodinia Assembly and Breakup (Tony Davidson)
No. 442 Raw Materials of Neolithic Artifacts (Victor Ownes)

The Canadian National Committee of IGCP (CNC-IGCP) consists of a Chair, the International Director of the Canadian Geoscience Council and six other board members who annually meet (teleconference in alternate years) to evaluate minor funding requests from Canadian participants in IGCP projects. Applicants request financial support to attend international conferences, sponsor meetings in Canada as well as other activities directly related to specific IGCP projects. A total of \$18,000 (Canadian) is provided annually to CNC-IGCP by the Canadian Geoscience Council for disbursement. Individual grant amounts are set by CNC-IGCP depending on the total amount of requests received in any one year. Presently allocated grants range from \$500 to \$1100.

Professional geoscientists in Canada are encouraged to participate in active IGCP projects by directly contacting the Canadian leaders. New projects are continually being accepted by the IGCP Scientific Board, so regular contact with CNC-IGCP members should be maintained. For more information on IGCP and CNC-IGCP please contact Peter Bobrowsky, International Director-CGC, c/o BC Geological Survey Branch, P.O. Box 9320, Station Provincial Government, Victoria, BC, V8W 9N3. Tel: 250-952-0395; Fax: 250-952-0382; Email: peter.bobrowsky@gems7.gov.bc.ca.

INTERNATIONAL GEOLOGICAL CORRELATION PROGRAM REPORT OF CANADIAN ACTIVITY 1999

PROJECT # 413 TITLE Understanding Future Dryland Changes from Past Dynamics CANADIAN LEADER
Dave Sauchyn, University of Regina

The major 1999 meeting of IGCP 413 was held during the 15th INQUA Congress in Durban, South Africa. A symposium comprised of ten invited papers attracted more than 100 INQUA delegates. A poster session spanning three days consisted of about 40 orally-introduced posters. The Canadian correspondent (Sauchyn) presented the poster "Landscape sensitivity to climate variability in the sub-humid Canadian Plains: Modelling over time and space".

The Canadian contribution to IGCP 413 focuses on the dynamics and sensitivity of subhumid and semiarid landscapes, which in many respects are more sensitive (responsive) to climatic change and variability than hot deserts. The main activities in 1999 were a special session at the annual meeting of the Canadian Association of Geographers (Lethbridge, June 1-5) and a contribution to a special session at a joint meeting of the Canadian Quaternary Association and Canadian Geomorphological Research Group (Calgary, August 23-27).

Plans for 2000 include the initiation of a research project on "Climate Change and Drought Impacts on the Canadian Prairies" led by the Geological Survey of Canada and sponsored in part by IGCP 413. A project proposal, involving seven Canadian scientists, has been prepared under the leadership of Steve Wolfe of the GSC. Preliminary results from this project will be presented by Sauchyn and Wolfe at the IGCP 413 meeting on the theme "Fluvio-Aeolian Interactions in Drylands" to be held during October 22-30 at the Zzyzx Research Station, Mojave Desert, California. Another IGCP 413-related project, "Sensitivities of Regional Ecosystems and Soil Landscapes to Climatic Variability and Change (Sauchyn, P.I.)", has been funded by the Prairie Adaptation Research Cooperative.

Further information on the international activities of IGCP 413 is available at
<http://www.shef.ac.uk/uni/academic/I-M/idrv/lqcp413/index.html>

From the preface of the upcoming Quaternary International Rutter volume

authors Peter Bobrowsky, Norm Catto and Dave Liverman

Quaternary International: Nat Rutter In Honorarium volume

Preface

This special issue of Quaternary International is dedicated to Professor Nathaniel Westland Rutter as a tribute to his exemplary contribution to Quaternary science over the past 40 years. In 1975, Dr. Nat Rutter joined the Department of Geology at the University of Alberta in Edmonton, Canada, as a Professor of Quaternary Geology. Before he assumed that new position, he had already established himself as one of the leaders in Pleistocene studies in Canada. With a solid and varied education from Tufts University (MA), the University of Arizona, the University of Alaska, and the University of Alberta, Nat began his prominent career by tackling the ice dynamics of the Gulkana Glacier of Alaska, followed by analysis of the glacial geological history of Banff National Park in Alberta. Up until that time, little work had been done in the Canadian Rocky Mountains concerning Quaternary research, with most previous work centred in the High Arctic, Great Plains, and Ontario and Québec. His decision to look at the mountainous terrain of Canada reflected his, now well-known, precedent-setting attitude towards interdisciplinary endeavours.

Upon completion of his graduate work in 1965, Nat accepted a position as Research Scientist with the Geological Survey of Canada. Based in both Ottawa and Calgary, Nat continued expanding his geographical areas of study into much of western and northwestern Canada, eventually working in many areas of British Columbia, Alberta, Yukon, Northwest Territories, and Nunavut. While in Calgary, Nat juggled his workload conducting research for the GSC with a full time effort in teaching a number of interesting courses to geologists, geographers, and archaeologists. This interest in teaching students and his drive to pursue interdisciplinary research prompted Nat to subsequently accept a full-time teaching appointment at the University of Alberta.

Once at the University of Alberta, Nat's diplomatic skills won him the role of Chair of the Department of Geology from 1980-1989. During this time he oversaw an impressive expansion of the department, including a \$12 million renovation to the earth sciences building and an increase in faculty research funding. His profile at the University of Alberta was responsible for the inevitable onslaught of graduate students who he attracted over time, and who would attempt to follow in his creative footsteps. Nat's continuing interest in interdisciplinary teaching and learning led to the establishment of numerous links with other departments involved in Quaternary research. Today, the Department of Earth and Atmospheric Sciences at Alberta carries on this interdisciplinary ideal.

Nat's professional accomplishments in Canada are well documented. Noteworthy among these are: membership in the Geological Association of Canada's Selection Committee for the Logan and Past-President's Medals; Chair of the Natural Sciences and Engineering Research Council of Canada Grant Selection Committee; co-founder and Vice-President of the Canadian Quaternary Association; member of the National Research Council Association Committee for Quaternary Research; member of the associate Committee for Urban Engineering and Terrain Problems; member of the Canadian National Committees for INQUA, IGCP, IUGS, and the Canadian Global Change Research Committee. At present, he is Chairman of the Board of the Burgess Shale Research Foundation, and a member of the Subcommittee on Natural Science of the Canadian Commission for UNESCO.

During the last four decades of active geological work, Nat has and continues to put in his time "in the trenches". After devoting many years of his life to studying the Quaternary of Canada, Nat has gradually moved off the North American continent for some of his fieldwork. As his publication record of over 150 refereed contributions indicates, Nat has contributed significantly to Quaternary research in many countries, including Peru, Colombia, Argentina, Venezuela, Namibia, South Africa, China, Thailand, and Russia. With this geographic breadth came a thematic diversity including engineering geology, sedimentology, stratigraphy, geochronology, faunal and floral analysis, and climate change: Nat's research has touched virtually every area of Quaternary study.

Dr. Rutter's international prominence has not gone unnoticed. One of his major career highlights was his involvement in the International Union for Quaternary research (INQUA), the premier Quaternary organization in the world. His Canadian peers nominated him to be Vice-President of INQUA in 1982, the first Canadian ever to serve on the INQUA executive. Following his tenure as Vice-President, Nat was elected President of INQUA in 1987, during INQUA's XIIIth Congress in Ottawa. Nat had done an exemplary job of organizing the Ottawa Congress over the previous three years. From 1988-1994, Nat served on the Steering Committee of Past Global Changes (PAGES), a core project of the International Geological-Biological Programme of the International Council of Sciences. More recently, he completed a term as member, rapporteur, and subgroup leader of the IGCP/UNESCO Scientific Board, involved in the selection and allocation of funding for globally relevant projects deemed interesting to the United Nations.

Dr. Rutter's accomplishments have been acknowledged through a number of honors bestowed upon him, both nationally and internationally. He was elected as a Fellow of the Royal Society of Canada (1992), and awarded the IW Killam Annual Professorship from the University of Alberta for outstanding scholarship (1993-1994), an Honorary Professorship by the Institute of Geology of the Chinese Academy of Sciences (1994), a University Professorship at Alberta (1997), the WA Johnston Medal by CANQUA for professional excellence in Quaternary Research (1997), and the J Willis Ambrose Medal of the Geological Association of Canada, for sustained distinguished service to earth sciences (1998).

Since 1975, the Quaternary research program at the University of Alberta has been amongst the most vigorous in North America. The breadth of topics addressed in graduate research by these students under Nat's direct supervision is impressive, reflecting his belief in multidisciplinary and interdisciplinary approaches to Quaternary investigations. Many of Nat's former and present graduate students have contributed research papers to this volume.

The Nat Rutter Honorarium volume of Quaternary International has been compiled in honor of Nat's recent retirement from active teaching in the Department of Earth and Atmospheric Sciences at the University of Alberta. Many of the contributions were presented at the Symposium held in Nat's honor at the biennial meeting of the Canadian Quaternary Association (CANQUA) in Calgary, held in August 1999. The contents of this volume provide a small tribute to the many contributions which Nat has provided and inspired in Quaternary research, and the strong and positive influence he has made as mentor, colleague, and friend to dozens of graduate students, both in Edmonton and elsewhere. The papers in this volume were written by Nat's peers, friends, colleagues, and former students.

We wish Nat the very best in "semi-retirement" as Professor Emeritus at the University of Alberta. During his first two years of "retirement", Nat remains active in Quaternary Research, as he is currently spearheading a major investigation into the Quaternary of southern Siberia. We all look forward to many further professional contributions, and to continued interaction and friendship with Nat.

FOCUS ON A NEWLY APPOINTED QUATERNARIST

I have instituted this section to give some exposure to a new Quaternary-related faculty member at a Canadian university. It gives the opportunity for these new faces to explain a bit of their research, and perhaps make some new contacts. Our first "guest" is Dr. Scott Lamoureux of the Department of Geography at Queen's University. Suggestions for future contributions to this section are most welcomed. -- S.R. (editor)



Dr. Scott Lamoureux

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Email: lamoureux@lake.geog.queensu.ca

Research interests: Paleohydrology, paleoclimatology, climate change and Quaternary geomorphology

Statement of research interest:

There is a paucity of long climate and hydrological records to demonstrate the characteristics of natural climate variability and to assess the impacts of human activities on the hydroclimatic system. My research is focussed on developing long records of hydroclimatic variability through the use of lake sediments and other records that provide high temporal resolution. Field research is directed at linking the weather and stream processes with sediment delivery and deposition in lakes in order to interpret and calibrate the long sedimentary record. Laboratory research is carried out to identify the characteristics of the sedimentary structures through the use of detailed sedimentology, geochemistry and related measurements. I am particularly interested in the record of hydrologic events found in clastic varved sediments. New research in northwest British Columbia and the middle Arctic is directed at studying the characteristics and limits of recognition for sub-annual events. This work builds on my previous experiences in the high Arctic. Field studies will be directed at sediment transfer produced by individual weather events and the associated sediment deposition response in the lake. I am also interested in how the hydroclimatic signal is preserved across a given lake, and research will be focussed on generating reproducible records from each site. Additional proxy records, particularly tree rings, will be used to provide independent climate information. I am also keen to explore other proxy records like diatoms and pollen within this high resolution framework.

Laboratory support for these field studies will be centred in my new Environmental Variability and Extremes (EVEX) laboratory. This facility has been designed to efficiently process sediment cores for detailed sedimentary analysis. New equipment has been obtained to study very small sediment samples, including a laser scattering particle size analyser, high-capacity combustion systems for geochemical analyses, and a high-resolution magnetic susceptibility logging system. My work is also directed at image analysis of sedimentary sequences, and the laboratory has equipment for analysis of thin sections and digital images. A range of field equipment for hydrological, meteorological and limnological measurements is also available.

Together with Bob Gilbert, we have already developed a dynamic group interested in developing and understanding sedimentary records of environmental change. Similar interests in the PEARL laboratory operated by John Smol and Brian Cumming provide a unique opportunity to share and build mutual research themes.

Employment

1999- Assistant Professor, Department of Geography, Queen's University, Kingston.

1998-9 NSERC Postdoctoral Fellow, Department of Geography, Queen's University, Kingston. Supervisor: Robert Gilbert

Education

- 1998 Ph.D. Department of Earth and Atmospheric Sciences, University of Alberta
Thesis: Distinguishing between the geomorphic and hydrometeorological controls recorded in clastic varved sediments. Supervisors: Drs. John England and Martin Sharp
- 1994 M.S. Department of Geosciences, University of Massachusetts Amherst
Thesis: Reconstructing past climate from varved lake sediments, Lake C2, Ellesmere Island, NWT, Canada. Supervisor: Dr. Raymond Bradley
- 1990 B.Sc. (Honors, first class) Physical Geography, University of Alberta

Scholarships and Awards

- 1998-00 NSERC Postdoctoral Fellowship (Queen's University, supervisor Robert Gilbert)
1998-9 Queen's University Advisory Research Council Postdoctoral Fellowship (honorary)
1997-8 Royal Canadian Geographic Society Studentship
1997-8 University of Alberta Dissertation Fellowship
1996-7 Alberta Heritage Doctoral Fellowship
1996-7 Harington Paleoenvironmental Scholarship, University of Alberta
1994-6 NSERC Postgraduate Scholarship (PGS B)
1989,90 NSERC undergraduate summer research award

Field Research Experience

- 8 seasons Canadian High Arctic (Ellesmere, Devon, and Cornwall Islands)
- Alberta Rocky Mountains
- Northwest British Columbia, Yukon, southeastern Alaska
- Southeastern Ontario.

Recent Publications

Lamoureux, S.F., 2000. Five centuries of interannual sediment yield and rainfall-induced erosion in the Canadian High Arctic recorded in lacustrine varves, *Water Resources Research*, 36: 309-318.

Lamoureux, S.F., 1999. Catchment and lake controls over the formation of varves in monomictic Nicolay Lake, Cornwall Island, Nunavut, *Canadian Journal of Earth Sciences*. 36: 1533-1546.

Lamoureux, S.F., 1999. Spatial and interannual variations in sedimentation recorded in nonglacial varved sediments from the Canadian High Arctic, *Journal of Paleolimnology*, 21: 73-84.

Overpeck, J., K. Hughen, D. Hardy, R. Bradley, R. Case, M. Douglas, B. Finney, K. Gajewski, G. Jacoby, A. Jennings, S. Lamoureux, G. MacDonald, J. Moore, M. Retelle, S. Smith, A. Wolfe and G. Zielinski, 1997. Arctic environmental change of the last four centuries, *Science*, 278: 1253-1256.

EESD meeting in Fredericton in conjunction with the AGS, February 10, 2000 by Toon Pronk

The first EESD technical meeting held outside the framework of the annual GAC/MAC meetings was attended by a wide variety of geoscientists from central and eastern Canada. The meeting was held in conjunction with the annual Atlantic Geoscience Society meeting, and held in Fredericton over a two-day period (Feb. 10 and 11). Approximately 180 delegates attended the joint meeting, of whom about 90 braved a major snow storm to attend the EESD events held on the first day of the meeting.

The title of the meeting; "Current Environmental Research and Foci for the Next Century", accurately reflects the material presented. The technical oral presentations varied from foraminiferal research on the West

Coast and Holocene change by Trecia Schell, to policy papers on New Brunswick water resources by Darryl Pupek, coastal zone environmental impact given by David Monahan, and coastal change along the eastern shore of Nova Scotia by G. Manson and D. Forbes. The geographical variety was evident with site-specific projects, such as the Fredericton Aquifer study by Karl Butler and River Enhancement in Nova Scotia by Ian Spooner, and regional overviews including; a seismic assessment of the Great Lakes area by Joe Wallach, and Dave Liverman's avalanche inventory of Newfoundland and Labrador. Bruce Broster discussed hazard assessments for engineering in areas of potential earthquake events and Ken Burke presented data on seismic recurrence in eastern Canada. Tim Webster discussed the use of Radarsat as a tool in terrain evaluation and monitoring, while Toon Pronk presented arguments for the importance of mapping and archival geochemical survey data for environmental baseline assessments. Don Fox and Adrian Park discussed environmental issues relating to sulphide reactivity and enhanced groundwater flow in underground mine workings, respectively.

Posters covered a similarly wide variety of research, including: GIS mapping by Don Fox; geophysical techniques for aquifer mapping by J. Paasche, T. Gilman and K. Butler; hurricane records in the Carolinas by D. Scott, E. Collins, P. Gayes and E. Wright; landslide hazards in the Rockies by Andrew Stumpf and Bruce Broster; and the biogeological structure of rusticles on the remains of the RMS Titanic by Jim McCarron, Henrietta Mann and Frank Thomas. Several of the papers in the general AGS sessions also reflected the focus of the EESD meeting.

The overall quality of research was excellent and student presentations were of a high caliber. Several of the presentations touched on policy and legal matters, and several common themes were repeated throughout the conference. These included: the use of geoscience for the service and greater well being of the population, in particular: the role of geoscientists relative to examining existing environmental regulations and land-use practice, and their contributions to the identification of hazards or other 'Earth' issues. On several occasions delegates emphasized the importance of interaction of the geoscience community with other disciplines like environmental science, biology, regional planning, and especially the need to make the general public more aware of the wealth of information available through the geosciences. While most of us were at times, "preaching to the converted", it was generally accepted that as geoscientists, we need to take our 'message' beyond the confines of our own organizations.

We can congratulate meeting chairs Tom Al and Bruce Broster, and also the larger AGS/EESD Organizing Committee, on a well-attended and excellent joint EESD/AGS meeting.

CANQUA EXECUTIVE

CANQUA has a Council consisting of a President, Vice-President, a Secretary/Treasurer, the Past-President, and councillors representing the West, Plains, Central, East, and Atlantic. The executive consists of the President, Vice President, Secretary/Treasurer, and the Past-President.

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