



CANQUA

Canadian Quaternary Association
Association canadienne pour l'étude
du Quaternaire ISSN 1183-8566

NEWSLETTER/BULLETIN Vol. 23 No. 1 Fall/Winter 2002

President's Message

In just six months, we gather in Halifax for the 2003 biennial meeting. Ralph Stea and his organizing committee are very well prepared. Visit

<http://www.gov.ns.ca/natr/meb/canqua/Canqua.htm> for a preview of the various paper sessions, field trips and social events that will comprise another stimulating and productive CANQUA meeting. These are interesting times in Quaternary research, because our work has never been more relevant. The impact of human activities on global climate is detectable only because Quaternary scientists have established the range of natural climate variability. The current demand for commentary and information about environmental change seems to exceed the supply of credible sources. Besides the media feeding frenzy, virtually every society and institution, from government agencies to church groups, seems to be using climate change as a theme for meetings and workshops. Our perspective is well received; public and professional audiences generally relate better to descriptions of recent earth and human history than projections of future climate or accounts of climate anomalies from ancient epochs that tend to be poor analogues for the current climate change.

At a recent leadership forum for employees of SaskEnergy, the provincial natural gas utility, a former president of a crown corporation gave a presentation entitled "Knowing" in response to my talk on climate change. The link between our presentations was initially not apparent as he conceptualized about modes of thinking and acting. In short, his thesis was that nearly all actions are based on instinct, habit and imitation and, when faced with major issues, most decision makers resort to conventional thinking. This led him to conclude that 1) adaptation to climate change is a huge opportunity for creative

thinking and innovation, and 2) the sources of information often are one or several steps removed from the study of climate change, that is, the opinion many "experts" is their interpretation of the work of Quaternary and atmospheric scientists.

Quaternary research currently enjoys considerable relevance and perhaps an enviable position in the geosciences. We could use this to our advantage in furthering the status of Quaternary science within our institutions and the geosciences in general. In August the Canadian Geoscience Council held a summit in Calgary to reflect on the state of Canadian geoscience and seek a common vision and collaboration among member societies. Alejandra Duk-Rodkin postponed a trip to Europe in order to represent CANQUA, so we are fortunate to have a first hand account of the proceedings (see the report in this newsletter) which suggest that the earth sciences are groping for relevance and it seems to lie in the "softer" side of the discipline. A similar message was evident in the 2003 application from the Solid and Environmental Earth Science sectors to the NSERC Reallocations Committee. The submission urged NSERC to support and expand capacity in three targeted areas of research. Two of these areas are "Global Environmental Change and the Challenge of Greenhouse Warming" and "Earth Resources: Environmental Stewardship and Sustainable Development". The NSERC committee agreed that these are important fields of research, but found the submission lacking a clear sense of strengths and priorities. If the Canadian geoscience community is going to target the environmental earth sciences for relevance and support, then Quaternary scientists will have to provide some leadership. We have to look no further than the new president of the Geological Association of Canada, CANQUA executive

member John Clague. Read about John's goals and ambitions in the current issue of *Geolog.*

Assuming you receive this newsletter in December, have a peaceful holiday and happy New Year.

Dave Sauchyn
PARC, University of Regina

Upcoming Meetings:

CANQUA 2003 – June 8-12 Dalhousie University, Halifax, Nova Scotia – joint meeting with the Canadian Geomorphology Research Group (CGRG)

Ralph Stea and his organizing committee have a great conference planned for Halifax next summer. Below are the highlights with more information available online at <http://www.gov.ns.ca/natr/meb/canqua/Canqua.htm>

Special sessions include:

Tracing meltwater and Lake Agassiz floods to the Atlantic Ocean / Retracer les crues d'eau de fonte et du Lac Agassiz vers l'Océan Atlantique - *Conveners: Mike Lewis (Geological Survey of Canada), Jim Teller (University of Manitoba), Bob Mott (Geological Survey of Canada).*

Recognition of the significance for ocean circulation and climate of meltwater drainage from Laurentide Ice Sheet is a notable achievement and a rapidly advancing topic in Quaternary science. This session will review current knowledge of freshwater outbursts to the Atlantic Ocean and related climate change events, particularly floods from glacial Lake Agassiz through its major outflow routings to Gulf of Mexico via Mississippi River, North Atlantic Ocean via Hudson and St. Lawrence rivers, Arctic and Atlantic oceans via Mackenzie River, and Labrador Sea via Hudson Bay. We invite contributions presenting evidence and impacts of the Agassiz freshwater

flows, as well as other enhanced inflows to Atlantic Ocean such as surface and subglacial drainage and icebergs from Laurentide ice, and melting sea ice to Atlantic estuaries, continental shelves and ocean basins. We welcome presentations of evidence of freshwater flows and related abrupt paleo-environmental change in continental and oceanic settings as revealed in sedimentary sequences, geomorphic features, and paleoecological, geochemical, or isotopic excursions.

La reconnaissance du lien entre le drainage des eaux de fonte de l'Inlandsis Laurentidien et la circulation océanique et le climat est une percée majeure et un domaine en pleine progression dans l'étude du Quaternaire. Cette session permettra une revue des connaissances actuelles sur les débordements d'eaux douces vers l'Océan Atlantique et les changements climatiques qui en ont découlé. On s'attardera en particulier sur les crues provenant du Lac glaciaire Agassiz vers ses exutoires principaux, soit le Golfe du Mexique par le Fleuve Mississipi, l'Atlantique Nord par les fleuves Hudson et Saint-Laurent, les océans Arctique et Atlantique par le Fleuve Mackenzie, et la Mer du Labrador par la Baie d'Hudson. Nous sollicitons des contributions documentant les impacts des écoulements d'eaux douces en provenance du Lac Agassiz, et autres apports majeurs, sur l'Océan Atlantique, tel que le drainage de surface et sous-glaciaire, le délestage d'icebergs de l'Inlandsis, la fonte de la glace de mer dans les estuaires atlantiques, les plateaux continentaux et les bassins océaniques. Nous recherchons particulièrement des contributions faisant état des traces laissées par les flux d'eaux douces et les changements paléo- environnementaux abrupts qui leur seraient associés dans un contexte continental et océanique, tel que révélé par les séquences sédimentaires, la géomorphologie, ou les signatures paléo-écologique, géochimique ou isotopique.

Prospecting in Glaciated Terrain / La prospection glaciocédimentaire - *Conveners: Bruce Broster (University of New Brunswick) I. Spooner (Acadia University), C. Stanley (Acadia University)*

We invite oral and poster presentations that are concerned with mineral exploration in areas of glaciated terrain. This session may include examples of material investigated, methods of investigation, or advances in the interpretation and presentation of data that facilitate the detection of anomalies, assessment of direction and distance to ore sources,

and the recognition of palimpsest dispersal patterns or secondary hydromorphic dispersal. Papers will likely cover a broad spectrum of topics from glacier dynamics related to dispersal and provenance to case study examples and advances in exploration techniques.

Nous sollicitons des contributions orales et des photoprésentations en lien avec l'exploration minérale dans les régions ayant été englacées. Cette session inclura des exemples concernant le type de matériel recherché, les méthodes d'investigation, les nouvelles avenues dans l'interprétation et la présentation des données qui facilitent la détection des anomalies, l'évaluation de l'orientation et de la distance par rapport à la source, et la reconnaissance des patrons de dispersion palimpsestiques ou dispersion hydromorphique secondaire. Les contributions couvriront certainement un large éventail de sujets, de la dynamique glaciaire liée à la dispersion et la provenance jusqu'à des études de cas et des percées dans les techniques d'exploration.

Geoarchaeology and applied dating methods / Géoarchéologie et méthodes de datation appliquées - *Coordinators: Pam Dickinson (University of New Brunswick) and Dorothy Godfrey-Smith (Dalhousie University)*

Papers and posters are invited for a special session on Geoarchaeology, the study of the direct interrelationships between humans and their environment. The session is designed to give researchers the opportunity to present research highlighting the interaction between archaeology and geology, geography, oceanography, climatology and geophysics. Some of the topics covered in this session will include archaeological surveys, site formation processes, land use patterns, site stratigraphy, palaeoenvironmental reconstruction and lithology. Age dating is a crucial part of every archaeological project and papers on methods and problems of age dating will be welcomed

Nous sollicitons des contributions orales et des photoprésentations pour la session spéciale sur la géoarchéologie, l'étude des inter-relations directes entre les humains et leur environnement. Cette session se veut un forum pour permettre aux chercheurs de présenter les points saillants de leurs travaux sur l'interaction entre l'archéologie et la géologie, la géographie, l'océanographie, la climatology et la géophysique. Les sujets couverts incluront les levés archéologiques, les processus de

formation des sites, les patrons d'utilisation du territoire, la stratigraphie des sites, les reconstructions paléoenvironnementales et les lithologies.

From traditional to 3D glacial mapping: onshore, offshore and subsurface / La cartographie glaciaire, du traditionnel au 3D: sur terre, sous la mer, et en sous-surface (*Coordinators Andrée M. Bolduc and Serge J. Paradis; GSC-CGC Québec*)

Surficial mapping and glacial modelling have greatly evolved over the last 10 years. Not only do specialized software packages exist that allow the direct transfer of information from air photos, but also, others that allow visualisation of the third dimension. This last aspect is particularly important when surficial geology maps and glacial models are used as decision making tools, for example for regional, or even local hydrogeological studies. This session aims at evaluating the various approaches used by quaternarists, in offshore, onshore and subsurface mapping in this fast evolving field to touch base and progress from each other's experience.

La cartographie des formations superficielles et la modélisation glaciaire ont grandement évoluées au cours des 10 dernières années. Non seulement des logiciels spécialisés permettant le transfert direct des informations contenues sur les photos aériennes existent-ils, mais aussi, d'autres permettant de visualiser la troisième dimension. Ce dernier aspect est particulièrement important lorsque les cartes de formations superficielles et les modèles sont utilisés comme outil de prise de décision, par exemple dans des études hydrogéologiques régionales, et même locales. Cette session vise à faire le point sur les différentes approches utilisées présentement par les quaternaristes pour cartographier sur terre, sous la mer et en sous-surface, afin de permettre décharger et de faire progresser ce domaine de pointe.

ACID 2: Atlantic Canada Ice Dynamics Workshop - *Coordinator: John Gosse (Dalhousie University)*

The Atlantic Canada Ice Dynamics workgroup will meet during the CANQUA 2003 conference for the ACID Workshop 2. The group is interested in converging marine and terrestrial records of paleo-glacier ice cover, paleoclimatology, sea level changes, and crustal emergence to drive thermomechanical simulations of Atlantic Canada

Canada paleo-ice dynamics. The primary focus of this workshop will be to present draft maps of regional ice flow histories and ice marginal positions over the past 100 ka. Poster areas will be provided for the draft maps. The morning session will provide a forum for Atlantic Canada ice geometry and deglacial history. The afternoon session will be committed to summaries of the regional paleo-ice data (terrestrial and marine) and a discussion of the uncertainties, limits, and assumptions intrinsic to the database.

Nous sollicitons des contributions orales et des photoprésentations en lien avec l'exploration minérale dans les régions ayant été englacées. Cette session inclura des exemples concernant le type de matériel recherché, les méthodes d'investigation, les nouvelles avenues dans l'interprétation et la présentation des données qui facilitent la détection des anomalies, l'évaluation de l'orientation et de la distance par rapport à la source, et la reconnaissance des patrons de dispersion palimpsestiques ou dispersion hydromorphique secondaire. Les contributions couvriront certainement un large éventail de sujets, de la dynamique glaciaire liée à la dispersion et la provenance jusqu'à des études de cas et des percées dans les techniques d'exploration

Field Trips:

Field trip on three coasts: Glaciation and sea level changes in Nova Scotia / Excursion le long de trois côtes : Glaciations et changements du niveau marin en Nouvelle-Écosse - *Coordinators Rudolph R Stea (Nova Scotia Department of Natural Resources) and John Shaw (GSC, Atlantic).*

The field trip will span three different coastlines, the Bay of Fundy, the Gulf of St. Lawrence and the Atlantic Ocean in addition to a major inland sea, the Bras D'Or Lakes in Cape Breton. During the trip we will examine evidence for 1) Interglacial sea levels >10 m, 2) Interglacial climate change revealed in buried forests and mastodon bone beds, 3) Shifting regional to local ice centres during the Wisconsinan and field evidence for ice streams, 4) Paleogeography of the Maritimes, Late glacial uplift and delayed rebound under late ice, offshore lowstands of sea level, 5) Younger Dryas glaciation and rapid climate change, and 6) Regional subsidence related to forebulge collapse.

L'excursion couvrira 3 côtes différentes, soit la Baie de Fundy, le Golfe du Saint-Laurent et l'Océan

Atlantique, en plus d'une importante mer intérieure, le Bras D'Or du Cap Breton. Lors de cette excursion, nous examinerons des évidences de 1) Niveaux marins interglaciaires à plus de 10 m, 2) Fluctuations climatiques interglaciaires révélées par des forêts enfouies et des lits d'os de mastodontes, 3) Centres glaciaires régionaux versus locaux et preuves de terrain en faveur des courants glaciaires, 4) Soulèvement tardiglaciaire et retard du rebondissement isostatique dû à de la glace tardive, bas niveaux marins, 5) Glaciation au Dryas récent et fluctuations climatiques rapides, et 6) Subsidence régionale

Other field trips include an Atlantic Ocean trip on a large or small boat with demonstrations of offshore seafloor mapping and harbour cruises (for the wave challenged).

Don't forget, check out the web site and plan to be in Halifax June 8 –12, 2003 !

XVI INQUA CONGRESS – July 23 - 30, 2003 Reno, Nevada, USA

Held every four years, the INQUA Congress is the largest gathering of Quaternary scientists. The theme for this Congress is "*Shaping the Earth, A Quaternary Perspective*"

For general information go to the INQUA 2003 web site at: www.inqua2003.dri.edu

For further information on the scientific program, please contact:

John Clague
Department of Earth Sciences
Simon Fraser University
8888 University Drive
Burnaby, British Columbia V5A 1S6, Canada
jclague@sfu.ca
Phone: 1-604-291-4924
Fax: 1-604-291-4198

Glen MacDonald sent word of a special poster session to be held at the INQUA meeting in Reno "*The Global Carbon Cycle with Focus on the Role and History of Siberian Peatlands*".

Visit http://ingua2003.dri.edu/sci_program.htm#posters or contact Glen MacDonald (macdonal@geog.ucla.edu) for detailed information.

CAP website meetings page: <http://www.scirpus.ca/cap/conf.htm> or contact Francine McCarthy (Brock University) francine@craton.geol.brocku.ca

A joint meeting of the **American Association of Stratigraphic Palynologists (AASP)**, the **Canadian Association of Palynologists (CAP)** and the **North American Micropaleontological Section (NAMS) of the SEPM** will be held in Canada's Niagara Peninsula, October 5-8, 2003.

Symposia proposed to date include (convenors indicated in parentheses):

- Micropaleontology and Palynology of the Atlantic and Gulf Coastal Plains of North America (*Peter McLaughlin*)
- Land-Sea Correlation in the Quaternary/Cenozoic (*Alwynne Beaudoin and Martin Head*)
- Great Lakes Palynology, Paleoecology and Archaeology (*Catherine Yansa and Sarah Finkelstein*)
- Origins and Evolution of Microfossils (*Paul Falkowski, Miriam Katz, Oscar Schofield*)
- Micropaleontological Applications in Geoarchaeological Studies (*Eduard Reinhardt*)
- Pragmatic Palynology: Melissopalynology, Forensic Palynology etc. (*John H. McAndrews*)
- Micropaleontological Applications in Ecology and Paleoecology (*R. Timothy Patterson*)

The conference will be held at the Four Points Sheraton Hotel in St Catharines, Ontario.

Abstracts must be submitted by May 30, 2003

Suggested field trips include:

- * Crawford Lake - archaeology and paleoecology
- * Niagara Falls - geology and history
- * St John's Conservation Area/Short Hills Provincial Park – biogeography and birding
- * Niagara Wine Region - geology and wine

For more information please see the AASP website meetings page: <http://www.palynology.org/meetings.html>, the

Other upcoming meetings and special sessions:

Environmental catastrophies and recovery in the Holocene (special session) - Suzanne Leroy (Suzanne.Leroy@brunel.ac.uk), Iain Stewart, Holocene Commission, Neotectonics Commission, Commission on Sea-Level Changes and Coastal Evolution - INQUA congress, Reno, Nevada, USA, 23-31 July 2003, conference contact: nick@dri.edu, Nick Lancaster, secretary general <http://ingua.nlh.no/congress/congress.html>

NATO Advanced Research Workshop on 'Dying and dead seas' and the 35th International Liege Colloquium on Ocean Hydrodynamics, 5-10 May 2003.

<http://modb.oce.ulg.ac.be/natoarw/>

a special session on: "Holocene palaeolimnology of abrupt lake level changes, salinisation, eutrophication and other catastrophes" (Suzanne Leroy - organizer)

ILIC 3 - the 3rd International Limnogeology Congress will be held in Tucson, Arizona, USA from 29 March-2 April, 2003. Information on conference themes, format, registration, abstracts and hotels is all available at <http://w3.arizona.edu/~uaextend/ilic3/>

Conference organisation: Andrew Cohen (acohen@GEO.ARIZONA.EDU). A special session will be held on "Holocene Catastrophic Events Recorded in Lakes". Suzanne Leroy (Suzanne.Leroy@brunel.ac.uk) or Daniel Ariztegui (Daniel.Ariztegui@terre.unige.ch)

32° International Geological Congress will be held in Florence, Italy in 20-28 Aug. 2004.

<http://www.32igc.org/plug-in.htm>

Topical Symposium T13 : Geosciences for Cultural Heritage, session T13.4 : Geoarchaeology for climatic change and

catastrophic events in human history. Convenor: Suzanne Leroy.

The upcoming Northeastern Section Meeting of GSA will be held in Halifax, Nova Scotia, on March 27-29, 2003. As part of this Meeting, we are convening a Symposium under the broad topic of "Regional Hydrogeological Studies in Northeastern America". We hope that you will consider attending and participating in this special session. Deadline for abstract submission is December 18, 2002; more information can be obtained from the GSA website at <http://www.geosociety.org/sectdiv/northe/03nemtq.htm> Submitted by Yves Michaud, Geological Survey of Canada, Quebec City (ymichaud@nrcan.gc.ca) and Roger Morin, U.S. Geological Survey, Denver, Colorado (rhmorin@usgs.gov)

Conference Reports:

In May 2002, we hosted two special sessions at the Canadian Association of Geographers Annual Meeting in Toronto entitled '*Holocene environmental change in the Great Lakes region*'. Our sessions comprised 8 talks and were chaired by Dr. Tony Davis of the Department of Geography at the University of Toronto. Several authors (S. Finkelstein, G. Lee, M. Peros) addressed the environmental history of two regionally significant coastal wetlands - Cootes Paradise and Rondeau Park - and methodological issues inherent in the wetland record. J. McAndrews spoke about decreasing ice cover in Toronto Harbour. A. Stewart addressed floodplain formation processes on the Thames River and their archaeological implications and F. McCarthy talked about water level history and human disturbance at Severn Sound. M. Oakes spoke about cliff- top dunes on the north shore of Lake Erie. We also attracted international attention. R. Meyrick came from Germany and presented research on molluscs as paleoindicators in southern Ontario, and J.-N. Haas joined us from Austria and presented a poster on catastrophic drought 5500 years ago. We were very pleased

with the quality of the talks and stimulating discussion generated by the exciting and innovative research in this region. We hope that this session helps to further communication and collaboration between paleoenvironmental researchers in the Great Lakes region.

Submitted by:

Sarah Finkelstein and Matthew Peros
PhD Candidates
Department of Geography
University of Toronto
sarah.finkelstein@utoronto.ca
matthew.peros@utoronto.ca

'Environmental Catastrophes and Recoveries in the Holocene' international conference on 28 Aug.-2 Sept. 2002 in West London, organisation: Suzanne Leroy and Iain Stewart. Abstracts available on website: <http://atlas-conferences.com/c/ai/q/01.htm>

Hélène Jetté 1953-2002



On August 13, 2002, Hélène Jetté died in Ottawa as a result of cancer. She was 48. Hélène showed little outward sign of her struggle and maintained her love of life, kind disposition and concern for others to the end. She leaves

her daughter Louise Demers, her husband, Larry Dyke, her family and many friends to mourn her passing.

In the small world of Canadian Quaternary Palynology, H el ene's story is unique. Born in the village of St. Honor e, a country childhood was followed by studies at the University of Qu ebec at Chicoutimi, where she earned a B.Sc. in biology in 1976. There she met Pierre Richard where he had been teaching the courses in general botany since 1971. Between 1973 and 1976 Dr. Richard remembers a quiet student working during the summers on marine organisms at the biology laboratory being developed by Denis Larriv ee. In 1976 Dr. Richard accepted a post in the geography department at the University of Montr eal and moved the palynology laboratory there. He was very surprised to receive a letter from H el ene, offering him her services.

Dr. Richard had nothing permanent to offer but that didn't matter to H el ene. However, she ended up serving as pollen analyst in his laboratory from February, 1977 to May, 1984. Her work was remarkable for attention to detail and effectiveness in identifying pollen, spores, and other microfossils. Furthermore, she endeavoured to transfer these skills to a host of students embarking on graduate studies. During this period, H el ene undertook a Master's degree and took time for the birth of her daughter in 1979. She wanted to establish the pollen species for northern grasses and sedges, research which would also supported the doctoral work of Louise Savoie. Working on this degree was not enough to keep her busy. Excess energy was taken up with night courses in science education at the University of Qu ebec at Montr eal, learning German at the University of Montreal, and teaching science at the primary and secondary school level at St. Marcelline Villa school in Westmount. It was her awareness of the precarious nature of research funding that led H el ene to expand her capabilities in these ways.

In 1984 H el ene accepted a research assistant position in the paleoecology laboratory directed by Robert Mott at the Geological Survey of Canada. H el ene worked at the GSC until 1995,

the year the paleoecology group was practically eliminated in the face of massive federal budgetary cuts. During her time at GSC, H el ene was active in a variety of palynological and paleoecological studies. Supporting Dr. Mott's and Dr. Thane Anderson's work, she aided sampling of lake bottom sediments in New Brunswick, Nova Scotia, Newfoundland, and New York State. In 1987 she helped to organize the 12th INQUA congress in Ottawa and in 1988 presented with Dr. Mott an analysis of problems with dating sediments at Chance Harbour Lake at the 6th AQQUA conference in Rimouski. Her Master's thesis, Postglacial Palynostratigraphy of the Lake Harriman region (southern Gasp e Peninsula) was completed by 1991 and published in *G eographie physique et Quaternaire*. She already had two other publications in collaboration with Anne de Vernal and Robert Mott.

The growing interest of the Terrain Sciences Division of GSC in climate change led H el ene to become active in the paleoecologic component of the Paleoclimate Model Intercomparison Project (PMIP) for 6,000 years BP. This activity culminated in a special volume of *GpQ* in 1995 which she coordinated and edited. The volume described the paleogeography and paleoecology in Canada 6,000 years ago, with 15 contributing authors. It was the first contribution on this scale to PMIP and followed a workshop conducted by the Royal Society of Canada, the Canadian Climate Centre, and the GSC. In 1992, H el ene began a doctoral project at the University of Montr eal on the postglacial vegetation and climate history of Mackenzie valley. She planned to apply transfer functions linking climate and pollen and evaluate the results in collaboration with Anne de Vernal and Jo el Guiot, including an integration with diatom results. Field work during two summers and her residence requirements were completed, but the end of her employment with GSC also ended her doctoral program. During these endeavours, she also ensured the progress of other projects by supplying pollen analyses to many colleagues, enabling publication of several articles after her termination. Her compilations of pollen data also contributed to PMIP and the early stages of the Climate System History and Dynamics project,

organized by Richard Peltier with Konrad Gajewski and Pierre Richard among the collaborators. Her primary role in the compilation of the first paleovegetation map of Canada for 6,000 years ago was essential for this project.

Hélène's last few years at GSC were marked by outstanding scientific activity. Hélène played a leading role in fostering pan-Canadian cooperation among paleoecologists around the theme of Past Global Changes. But this coincided with a gradual loss of interest by management in paleoecology, despite increasing activity by the wider scientific community in reconstruction of the late Pleistocene and Holocene climate and the established capacity within GSC to contribute to this objective. She continued to approach her work with openness and devotion but her research career was terminated, along with several others.

In 1995, Hélène was again hired by Natural Resources Canada but now in the Minerals and Metals Sector. In the Mineral and Metal Policy Branch she was responsible for coordinating provincial and federal mining policy for Quebec. Being fluently bilingual, having a background in environmental science and the ability to organize and rigorously analyse issues not only won her this job but also made her the logical choice to prepare one of the first "environmental assessments of policy" as required by then new government guidelines. It was these same qualities that resulted in her being enticed to work with the Sustainable Development Policy Integration Division. There she took on the challenge of coordinating the federal government's response to the reports by a House Standing Committee on Streamlining Environmental Regulations for Mining. The trust and respect that she earned from federal and provincial departments, the minerals and metals industry and non-governmental organizations resulted in her being selected to coordinate a Mines Ministers Task Force to review federal - provincial - territorial environmental regulations affecting mining. For her work on this first national review of its type, Hélène and the federal team won Sector and Departmental

awards and the first ever Clerk of the Privy Council's Award for Policy Development.

By this time, Hélène had become the Deputy Director of the Division, the lead policy advisor in the Department on northern mining issues and the environmental assessment of mining projects and a well respected expert in cumulative effects assessment, regulatory reform and decision making processes based on sustainable development. She presented papers and expert advice at forums in both Canada and abroad.

Hélène went on to begin a major initiative looking at ways that governments could work more proactively in minerals and metals regions to facilitate good decision making on issues ranging from environmental assessments to business opportunities to building community capacities to ensure their sustainability when mines close. Her efforts continue to provide the basis of ongoing work in this area.

Hélène Jetté is an example of determination, courage and devotion. In Robert Mott's laboratory, her potential as a research scientist became obvious. Despite her career in palynology being cut short, it lasted close to twenty years. She has left her mark and an important legacy. Everybody's memories of her are fond ones. A person so loved can never die for she was the embodiment of so many gracious qualities.

Pierre Richard, Robert Mott, David Pasho, Bernard Pelletier, Roger McNeely, Larry Dyke

Hélène Jetté 1953-2002

À Ottawa, le 13 août 2002, Hélène Jetté s'éteignait des suites d'un cancer. Elle avait 48 ans. Elle a mené une lutte courageuse contre la maladie en gardant intacts jusqu'à la fin son amour pour la vie, sa gentillesse, son ouverture aux autres. Elle laisse dans le deuil sa fille Louise Demers, son époux Larry Dyke, sa famille et ses nombreux amis.

Dans le petit monde des palynologues quaternaristes canadiens, l'histoire d'Hélène Jetté est singulière. Née à Saint-Honoré, son enfance est champêtre mais les études se font à Chicoutimi, la ville où elle décroche un Baccalauréat en biologie de l'Université du Québec en 1976. C'est alors que sa route a croisé celle de Pierre Richard qui y assurait alors les cours de botanique générale depuis 1971. De 1973 à 1976 il lui reste le souvenir d'une étudiante discrète qui travaillait l'été (1974-1976) sur les organismes marins au Laboratoire de biologie du développement du professeur Denis Larrivée. En juin 1976, Pierre Richard accepte un poste au département de géographie de l'Université de Montréal et y déménage le Laboratoire de palynologie créé à l'UQAC en 1973. Quelle ne fut pas sa surprise de recevoir une lettre d'Hélène Jetté, datée du 13 décembre 1976, lui offrant ses services!

Pierre Richard n'avait rien de durable à offrir, mais cela a convenu à Hélène. Elle fut technicienne pollenanalyste dans son laboratoire de février 1977 à mai 1984; elle y a accompli un travail soutenu, remarquable de minutie et d'application pour l'identification du pollen, des spores et des autres microfossiles. Elle a ainsi contribué à l'encadrement de plusieurs étudiants aux études supérieures : Claude Labelle, Louise Savoie, Michèle Fréchet, Paul Comtois, Robert Gauthier, Marc Leduc, Claire Goyette, Johanne Parent, Henri Diné, Anne de Vernal, Louise Durand, Louise Labre. Durant cette période, Hélène a entrepris une maîtrise en biologie qu'elle a dû interrompre lors de la naissance de sa fille en 1979. Elle voulait s'attaquer à la détermination des espèces du pollen des Graminées et des Cypéracées nordiques, en soutien aux travaux doctoraux de Louise Savoie alors sous la direction du professeur Pierre Gangloff. Son énergie et sa curiosité intellectuelle se sont à cette époque aussi manifestés par les cours du soir qu'elle a suivis en Sciences de l'Éducation à l'UQAM (1978-1981), d'autres en langue allemande à l'UdeM (1981), mais aussi par l'enseignement des sciences naturelles qu'elle a dispensé aux niveaux primaire et secondaire, comme suppléante à l'école Villa Sainte-Marcelline à Westmount (1978). Hélène Jetté était

consciente de la précarité d'un emploi soutenu par les seuls fonds de recherche et s'affairait courageusement à élargir ses horizons.

En 1984, Hélène Jetté obtenait un poste d'assistante de recherche au Laboratoire de paléoécologie dirigé par Robert Mott de la Commission géologique du Canada à Ottawa. Hélène a décroché cet emploi suite à un concours national qu'elle a remporté haut la main grâce notamment à son exceptionnelle compétence en analyse pollinique. Fierté pour Pierre Richard, mais aussi une surprise; Hélène, secrète, ne l'avait pas informé de ses démarches. Elle menait sa barque de manière responsable, évitant de faire peser sur quiconque les aléas de sa destinée professionnelle. Hélène a oeuvré à ce poste jusqu'en 1995, année du démantèlement du groupe de paléoécologie lors des coupures budgétaires fédérales massives à la Commission géologique du Canada.

Hélène Jetté s'est montrée particulièrement active en palynologie et en paléoécologie entre 1984 et 1995. À l'appui des travaux de Robert Mott et de Thane Anderson, elle participe à l'échantillonnage de nombreux lacs au Nouveau-Brunswick, en Nouvelle-Écosse, à Terre-Neuve et dans l'État de New York (étés de 1984 à 1987). En 1987, elle assiste au XII^e Congrès de l'INQUA organisé à Ottawa et participe à l'excursion dans les Provinces atlantiques. En 1988, elle présente une communication avec Robert Mott sur les problèmes de datation des sédiments du lac Chance Harbour, au VI^e congrès de l'AQQUA qui se tient alors à Rimouski. En septembre 1989, elle s'inscrit à la maîtrise au département de géographie de l'Université de Montréal et en 1991, elle dépose son mémoire de recherche sur la *palynostratigraphie postglaciaire de la région du lac Harriman (Gaspésie méridionale)*, qu'elle publie l'année d'après dans *Géographie physique et Quaternaire*. Hélène Jetté avait alors déjà à son actif deux publications tirées de sa collaboration avec Anne de Vernal (1983) et Robert Mott (1991). L'obtention de la maîtrise consacrait sa capacité d'effectuer des recherches.

L'autonomie croissante que lui accordait Robert Mott, encouragée par la direction de la Division de la Science des terrains à la Commission géologique du Canada a mené Hélène Jetté à s'impliquer très activement dans la composante paléocologique de PMIP (*Paleoclimate Model Intercomparison Project*) pour la période de 6000 ans BP et ce, au plan canadien. Cette activité a culminé dans la parution d'une synthèse de *la paléogéographie et la paléoécologie d'il y a 6000 ans au Canada* réunissant les contributions de quinze auteurs (*Géographie physique et Quaternaire*, 1995). C'était une première mondiale dans les contributions nationales à PMIP, qui faisait suite à un atelier parainné en 1992 par la Société royale du Canada, le Centre climatique canadien et la Commission géologique du Canada. C'était, pour une jeune chercheure, une bien lourde tâche de gestion éditoriale et de stimulation des auteurs; mais Hélène s'y est attelée avec énergie et tact. En 1992, Hélène s'est inscrite au doctorat à l'Université de Montréal avec un sujet portant sur *l'histoire postglaciaire de la végétation et du climat le long du fleuve Mackenzie*, une des régions ciblées par la Commission géologique du Canada pour les recherches paléocologiques. Elle projetait d'appliquer des fonctions de transfert pollen-climat et d'en évaluer les résultats, en collaboration avec Anne de Vernal (UQÀM) et Joël Guiot (Marseille), et d'y intégrer une comparaison avec l'étude des diatomées; elle a effectué les contraignants travaux de terrain durant deux étés consécutifs et complété sa scolarité de doctorat, mais elle n'a pu mener son projet à terme en raison de sa mise à pied. Elle assurait en parallèle des activités de service en analyse pollinique pour divers projets, comme en font foi les articles publiés après 1995 auxquels elle collabora. Hélène Jetté a dans le même temps beaucoup œuvré à l'informatisation des données d'analyse pollinique accumulées à la Commission géologique du Canada, pour contribuer à l'objectif de PMIP et du projet CSHD naissant (*Climate System History and Dynamics*, Richard Peltier et collaborateurs, dont Konrad Gajewski de l'Université d'Ottawa et Pierre Richard). Son implication dans la confection de la toute

première carte de la paléovégétation du Canada il y a 6000 ans fut essentielle (1994).

Les dernières années d'Hélène Jetté en paléoécologie furent réellement marquées par une activité hors du commun sur le plan scientifique, mais aussi au plan de la collaboration entre les chercheurs dans le domaine des paléoclimats du Pléistocène supérieur et de l'Holocène. Les témoignages du rôle positif d'Hélène Jetté dans la concertation de tous les spécialistes autour du thème des changements climatiques du passé sont légion, bien que non exempts de critique. C'est bien normal, et il fallait le dévouement et la personnalité généreuse et ouverte d'Hélène Jetté pour faire face aux difficultés. Cette concertation, naissante à l'échelle canadienne, devait s'écrouler avec le retrait du rôle de la Commission géologique du Canada en paléoécologie. La carrière d'Hélène Jetté fut alors interrompue. Celle de plusieurs autres personnes a connu le même sort.

Hélène Jetté a alors accusé le coup, déployé son extraordinaire énergie, et mis ses talents au service du Secteur des minéraux et des métaux du Ministère des Ressources naturelles du Canada. Elle fut d'abord responsable de la coordination des politiques minières provinciale et fédérale pour le Québec; elle prépara l'une des premières évaluations environnementales de ces politiques, s'appuyant sur sa formation en sciences naturelles. Sa compétence et sa rigueur, reconnues par tous les niveaux de gouvernement et par l'industrie lui a valu d'être choisie pour coordonner un groupe de travail du Ministre sur les règlements fédéraux et provinciaux touchant les normes environnementales après exploitation minière. Ce travail d'Hélène et de l'équipe fédérale fut reconnu à l'interne et reçu le premier des prix du Conseil Privé pour le développement de politiques. Hélène fut nommée adointe au Directeur de la Division de l'intégration de la politique du développement durable; elle était la principale conseillère du Secteur touchant les questions liées aux évaluations environnementales des exploitations minières en milieu nordique. Elle prépara des publications et présenta des exposés lors de rencontres tant à l'échelle internationale que canadienne.

Hélène Jetté est pour nous un exemple de force, de courage et de tenacité. Les années qu'elle a passé dans nos laboratoire laissent d'excellents souvenirs. Celles qu'elle a passé dans le laboratoire de Robert Mott furent marquées par l'éclosion de son potentiel de recherche. Malgré une carrière écourtée en palynologie, elle y aura tout de même œuvré près de vingt ans; elle a fait sa marque et nous a laissé un héritage important. Le souvenir de sa gentillesse et de son dévouement nous soutiendra dans notre vie personnelle, comme dans l'accomplissement de l'œuvre commune.

Pierre Richard, Robert Mott, David Pasho, Bernard Pelletier, Roger McNeely, Larry Dyke

Palynology Publications of Hélène Jetté / Publications palynologiques d'Hélène Jetté

White, J.M., Ager, T.A., Adam, D.P., Leopold, E.B., Liu, G., **Jetté, H.**, and Schweger, C.E., **1999**. Neogene and Quaternary Quantitative Palynostratigraphy And Paleoclimatology From Sections In Yukon and adjacent Northwest Territories and Alaska. Geological Survey of Canada, Bulletin 543, 30 p.

White, J.M., Ager, T.A., Adam, D.P., Leopold, E.B., Liu, G., **Jetté, H.** and Schweger, C.E., **1998**. Neogene and Quaternary Selected Palynological Data from Yukon and Adjacent Northwest Territories and Alaska. Geological Survey of Canada, File N° 3557, 43 p.

Plouffe, A. and **Jetté, H.**, **1997**. Middle Wisconsinan sediments and paleoecology of central British Columbia: sites at Necoslie and Nautley rivers. *Canadian Journal of Earth Sciences*, 34 (2): 200-208.

White, J.M., Ager, T.A., Adam, D.P., Leopold, E.B., Liu, G., **Jetté, H.** and Schweger, C.E., **1997**. An 18 Million Year Record of Vegetation and Climate Change in Northwestern Canada and Alaska: Tectonic and Global Climatic Correlates. *Palaeobotany and Palynology*, 96: 281-304.

Dyke, A.S., England, J., Reimnitz, E. and **Jetté, H.**, **1996**. Changes in Driftwood Delivery to the Canadian Arctic Archipelago: The Hypothesis of Postglacial Oscillations of the Transpolar Drift. *Arctic*, 50 (1): 1-16.

Harrington, C.R., Plouffe, A. and **Jetté, H.**, **1996**. A partial bison (*Bison cf. B. Latifrons*) skeleton from

Chuchi Lake, and its implications for the Middle Wisconsinan environment of central British Columbia. *Géographie physique et Quaternaire*, 50 (1): 73-80.

Jetté, H., **1995**. Présentation: A Canadian contribution to the Paleoclimate Model Intercomparison Project (PMIP). *Géographie physique et Quaternaire*, 49 (1): 4-12.

Jetté, H. and Mott, R., **1995**. Vegetation and climate of Maritime Canada 6000 years BP: A synthesis. *Géographie physique et Quaternaire*, 49 (1): 141-162.

Jetté, H., **1994**. The 6 ka paleovegetation map and a proposal for a 6 ka paleoclimate reconstruction. American Quaternary Association 13th Biennial Meeting, 19-22 June 1994, University of Minnesota, Program and Abstracts, p. 103.

Jetté, H., **1993**. The 6 ka paleovegetation map and a proposal for a 6 ka paleoclimatic reconstruction. p. 44-45, in: "Proxy climate data and models of the six thousand years before present time interval: the Canadian perspective. Abstracts of a workshop", Telka, A., edit., Canadian Global Change Program, Incidental Report Series, no. IR93-3, The Royal Society of Canada, 57 p.

Jetté, H. et Richard, P.J.H., **1992**. Contribution à l'histoire postglaciaire de la végétation en Gaspésie méridionale, Québec. *Géographie physique et Quaternaire*, 46 (3): 273-284.

Jetté, H., **1991**. Palynostratigraphie postglaciaire de la région du lac Harriman (Gaspésie méridionale). Mémoire de M. Sc., département de géographie, Université de Montréal, 87 p. de texte + 49 p. d'annexes.

Jetté, H. & Mott, R.J., **1989**. Palynostratigraphie du Tardiglaciaire et de l'Holocène de la région du lac Chance Harbour, Nouvelle Écosse. *Géographie physique et Quaternaire*, 43 (1): 27-38.

de Vernal, A., Richard, P.J.H. et **Jetté, H.**, **1983**. Sur les effets de la technique de Lüber utilisée en analyse pollinique pour éliminer la matière organique non décomposée. *Pollen et Spores*, 25 (3-4): 541-548

"Glenn Goodfriend, noted amino acid racemization geochemist, died on Tuesday Oct 15, 2002 in Washington, DC. Glenn had worked at the Weissman Institute in Israel, and the Carnegie Institution of Washington. He was an adjunct at George Washington University. He will be missed by the Quaternary community." submitted by Bonnie Blackwell

Canadian Geosciences Council Meeting report

Preface: The Canadian Geoscience Council held a “Summit” in August to reflect on the state of Canadian Geoscience. This report was compiled from the minutes of that meeting as supplied by Robert Mummery and from the notes and impressions of Alejandra Duk-Rodkin, who represented CANQUA and deserves a big thanks.

Dave Sauchyn

CGC Sponsored Geoscience Summit
Ramada Hotel, Calgary August 24-24, 2002

Attendance:

16 Societies /Groups were represented
CANQUA representative: Alejandra Duk-Rodkin

Organizer: Robert Mummery - CGC Executive Officer

Facilitator: Ken Robertson (K.J. Robertson Associates Inc.)

A survey of attendees prior to the meeting indicated that there were noticeable differences of opinion regarding the public’s perception of the geosciences in Canada, and that these opinions were an excellent starting place for the weekend’s discussions.

Issues and Opinions

- geoscientists are perceived as an isolated group within science,
- the need to encourage all geoscience professional and learned societies to become actively involved and financially support national geoscience initiatives,
- the need to encourage other, peripheral, professional and learned societies which overlap with geoscience become actively involved and financially support national geoscience initiatives,
- the public’s concern over Canada’s supply of potable water,
- geoscience can be related to just about every aspect of Canada’s consumed resources,
- the need to integrate earth science with other disciplines, but without watering down earth science degrees,
- the need to get 1-2 geoscience courses incorporated into post high school education programs,
- the resistance of other academic disciplines to integration overtures,
- new graduates in earth sciences are doing their own creative integrating by finding and developing unique niches/opportunities in the job market (even if it means doing extra formal course work,
- provincial registration requirements may be inadvertently restricting the available numbers of geoscientists,
- the lack of success at “educating” the general public suggests working on “selected” publics on their turf,
- the need to focus on issues that affect the everyday lives of Canadians in a manner that relates to Canadians in their own communities,
- earth science should be socially relevant and involved in the decision making business (political & corporate),
- business using a shopping-cart approach to finding the technology it needs (world-wide) rather than investing in home-grown R & D,
- amending current co-op education programs to more directly relate to current community concerns (e.g. water quality and hydro-geology),
- are jobs the drivers of interest, and do we need to better define the contribution of geoscience in terms of jobs,
- perception of Earth Science starts at elementary school level,
- some geoscience groups have excellent presence but need a stronger, cohesive message; need goals & targets for representatives e.g. political lobbying is currently done within PAGSE through individuals attending Bacon & Eggheads breakfasts and annual meetings,

- the need for effective lobbying efforts - BCYCM does this through the use of a non-scientist lobbyist,
- concern with CGC lacking the critical mass to be effective, and the fact that several ES groups have not “bought in” to the concept of a Nation Coordinating Body (such as CGC),
- perhaps the CGC needs to make a subtle shift in mandate to be a national supporting body vs coordinating body, and
- the demand for information is there – how ES organizations fill it in a manner which can relate to Canadians is critical to success,
- People have no idea of what geoscience is and what is the importance of it
- Canadians are interested in geoscience. They know where we are. There are too many students in geoscience
- The quantity of students in geoscience is diminishing. Education is needed. Geoscience professionals are the best schoolteachers.
- Geoscience education in Australia is diversifying. They are creating diplomas of mixed specialties, i.e. Geography-agriculture, environment-law, geography-architecture etc.
- People relate to subjects such as “clear water”
- Those are long time solutions
- No resources to produce cross specialties
- At one point in time Gulf Canada had 500 exploration geologists. Now none. Geologists need knowledge in finances to work in the private sector.
- USGS has 4000 hydro-geologists, GSC only 10

Shared interests

- economies of scale through shared resources (joint offices, joint publications, joint conferences),
- shared policy advocacy especially in areas of resource protection and balanced exploitation,
- future supply of trained people,
- informing the public on ES related issues,
- expanding employment & career opportunities for individuals in geoscience-related occupations,

- professional development opportunities for geoscientists (through direct participation in organizations, education programs, shared newsletters, access to data bases, etc.), and
- overall improved communication amongst groups interested in geosciences.

It was clear that any additional levies on members of the represented groups and societies in support of a national initiative would not work, and would, in some instances, likely result in the member organization leaving the CGC. A national initiative would require a common vision. Initial statements included:

- *“increasing the relevance of geoscience knowledge to the general public/society”*
- *“increasing cooperation between ES Societies”*

As it was obvious that additional member funding would be a “hard sell” at best, a breakout session was used to identify what short-term opportunities for better cooperation between societies and for improvement of communication with the “public” (citizens, media, decision makers) might be achieved within the current financial means of the CGC.

Opportunities and Solutions

- more Joint Meetings/Conference (less cost/less volunteer time/more profit),
- shared articles for publication,
- more complete calendars of ES events, shared across organizations and societies,
- improved websites,
- ES Careers website,
- compilation & accessibility of educational resources,
- shared costs of speaker tours,
- the need for “professional” help in communicating, marketing, and finances,
- the need to “target” our message to different groups, each group uses a different language, for example:
 - general public – interest driven by external events (crisis)
 - politicians - relate to “Speech from the Throne”
 - educators - provide tools for teaching

- private sector- focus message to senior executives (accountants, lawyer)
- other scientists- express a “whole earth” viewpoint,
- the need for national outreach including:
 - connecting Canadians to ES resources & processes
 - “citizen” scientists to meet politicians in their Ridings
 - expand EdGeo
 - capitalize on “water” as a current issue
 - develop contacts & linkages for others (media, politicians, general public) to the ES community.
- a number of societies are already actively cooperating on a number of common initiatives and that involvement by a national body would be of likely limited value
- new initiatives could require some additional funding and therefore might be non-starters.
- the list was virtually the same as those from previous attempts to find efforts member groups could rally around; it was like seeing the same movie in a different theatre.
- create a magazine similar to the Ontario “Innovation Magazine” which promotes solutions to problems and jobs.
- bring geology to urban and agricultural areas
- get to the level of decision making like layers
- specific targets, influence the right people from universities, government, industry. We need a plan to implement how to influence. To lobby the government not from industry but from geoscience
- a plan to know what to do when we get there
- an organization where the press can call for answers. We are too fragmented and do a great job on our own but we do not communicate
- better communication between ourselves before we try to communicate to the public May be we need to bring the USA into it for transnational problems like water, contamination
- we need to be represented by a member of parliament

Well over two-thirds (2/3) of participants were uncomfortable with the lack of agreement on

common, achievable goals. There was an expression of the need for a Vision Statement related to sustainable resource development and the environment. Concern was expressed that the meeting was really dealing with two separate agendas: the role of a national coordinating body (CGC) versus earth science society collaborations. Bilateral and trilateral collaborations are currently underway among several member societies. The CGC could possibly help communicate these activities without creating additional delays or burden. However, an expanded role for the CGC requiring increased funding/staff does not seem to be on any member society “radar screen” at this time. There was concern that some professional societies and their industries are “disconnected” with the CGC.

Jeremy Hall proposed that participants recommend that their society support the CGC in undertaking the production of a document that sets out the “**Contributions of Smart Earth Science to the Health & Welfare of Canadians**”. The hope is that this document will represent a vision for the Earth Science Community for the next two decades. Jeremy will use as a guide the “Origins of Structures in the Universe” prepared by the NRC-NSERC Long-Range Planning Panel for Canadian astronomy and astrophysics. He will consult with several member groups for input and will present a plan for the development of this document at the next CGC Council meeting, scheduled for November 17-18, 2002 in Ottawa. This suggestion received unanimous approval.

John Smol delivers the Inaugural Miroslav Romanowski (Royal Society Of Canada) Environmental Science Lecture Tour

The Royal Society of Canada (RSC, <http://rsc.ca/>), The Canadian Academy of the Sciences and Humanities, is Canada’s senior national body of distinguished scientists and scholars. Its primary objective is to promote learning and research in the natural and social sciences and in the humanities. The Society

consists of approximately 1600 Fellows: men and women from across the country who are selected by their peers for outstanding contributions to the arts and sciences. The Society is dedicated to: 1) Fostering the highest levels of learning and research in all areas of scholarship; 2) Making available its members' broad and varied knowledge to evaluate and advise on social, cultural, economic and scientific issues for the benefit of Canada; 3) Promoting Canadian scholarship and accomplishments internationally through active exchanges with other national academies. The Society is composed of three Academies: the Académie des lettres et des sciences humaines; the Academy of Humanities and Social Sciences; and the Academy of Science.

Amongst its various functions, the RSC awards several medals for scholarship and other activities. The Miroslaw Romanowski Medal (http://www.rsc.ca/english/awards_romanowski.html) was established in 1994, at the generous bequest of the estate of the internationally respected metrologist Miroslaw Romanowski. The medal is awarded for significant contributions to the resolution of scientific aspects of environmental problems or for important improvements to the quality of an ecosystem brought about by scientific means. The award consists of a bronze medal and a cash award of \$3,000, and is awarded every year if there is a suitable candidate. Beginning in 2002, an annual lecture series for the award recipient is also associated to the Medal.

Miroslaw Romanowski strongly believed that scientists have an "unquestionable duty towards nature: we must protect it with all our means and forces". He was perturbed by the degradation of the environment and concerned that scientists were not always working hard enough to remedy what he perceived to be a grave situation. Despite his apprehensions, he remained hopeful about the role of science and scientists, and his desire to establish a prize for environmental research reflected his concern for nature, for the human community's well-being and survival, and his hope for the involvement of scientists in these endeavours.

This is the first year that a lecture tour is associated with the Medal. John P. Smol, FRSC, who is a Professor in the Dept. Biology at Queen's University, and Co-director of the Paleocological Environmental Assessment and Research Laboratory (PEARL, <http://biology.queensu.ca/~pearl/>), was last year's recipient of the Medal, and is delivering the inaugural Miroslaw Romanowski Lecture Tour, with about 6 stops across Canada in Autumn and Winter 2002 and early 2003. John is a paleolimnologist who uses paleoenvironmental techniques to study a wide spectrum of environmental problems. His lecture "Water Quality, Climate Change and Pacific Salmon Stocks: It's as Clear as Mud!" shows how paleolimnological approaches can be used to track a variety of pressing issues, such as declining fish stocks, taste and odour problems in drinking water supplies, and climate change.

Dave Sauchyn
PARC
University of Regina

***Journal of Paleolimnology* - Special Individual Subscription Rates for 2003**

We are happy to report that Kluwer Academic Publishers is once again offering a special personal subscription rate to the *Journal of Paleolimnology* (JOPL). The special rate for 2003 (which includes volumes 29 and 30, of 4 issues each), is again \$140.00 US (including postage). If you would like to take advantage of this special rate (2 volumes, 8 issues in total, including special issues), please follow the instructions at:

<http://www.kluweronline.com/issn/0921-2728>

For more information about JOPL, please visit the web page at

<http://www.umanitoba.ca/geoscience/paleolim/jopl.html>

The *Journal of Paleolimnology* is an international journal, which publishes papers dealing with all aspects of paleolimnological research. JOPL will

be publishing its 100th issue this January 2003. For more information about JOPL, please visit the web page at:

<http://www.umanitoba.ca/geoscience/paleolim/jopl.html>

or contact the co-editors:

John Smol (SmolJ@Biology.QueensU.Ca) and William Last (WM_Last@UManitoba.Ca)

Privileged subscription price for the Holocene

Since the last newsletter, CANQUA was added to the list of Quaternary Societies recognized by Arnold Journals, so that our members now qualify for the "privileged" rate for a personal subscription to The Holocene. Rates are given on the Arnold Journals web site (www.arnoldjournals.com), with CANQUA listed under "Privileged".

Dear Colleague(s),

We are very pleased to announce the arrival on the Web of a new scientific journal called **PALANTH – International Journal of Palaeoanthropology**, and in so doing, to come up with our first, preliminary call-for-papers.

Clicking on <http://www.palanth.com/preview/> will give you access to a poster-like presentation of what the Journal is all about in terms of its goals and purposes, its scope and structure, and its original presentation and design. In addition, you will note that we have made available a downloadable (PDF) version of the poster that, should wish to turn it into a colour or black & white brochure, can be passed around to colleagues, students and other interested parties.

As indicated in the poster, the regular (quarterly) publication schedule (to begin early in the year 2003) will be preceded by an Inaugural Issue -- a demonstration if you will of the Journal's overall demarche or approach – that will be

freely accessible to all individuals interested in palaeoanthropological international discourse and ongoing developments. This issue will online by mid December 2002.

You will also note that the only means of subscription presently available through the poster (PDF subscription form) is by regular mail. An electronic version that will allow credit card payments is now undergoing tests and will soon be circulated.

Finally, we should mention that if, for one reason or another, you cannot gain access to the online poster, you will be able obtain a copy of it (as a PDF or as text file) by sending your request to: info@palanth.com or jacques.cinqmars@sympatico.ca

Hoping that this information package will encourage you to subscribe and, eventually, contribute to the Journal, we remain,

Yours very truly, PALANTH - Editorial Committee.

Margherita Mussi, Raymond Le Blanc, Nicolas Rolland, Greg Laden, Ken Antanaitis-Jacobs, and Jacques Cinq-Mars.

A message from Roger McNeely of the GSC Radiocarbon Lab

As many of you are aware the GSC is undergoing, yet again, a revision of its program structure with the intent of putting all programs, projects, activities, services, etc. on a cost recovery basis. This short memo is to alert everyone that as of the beginning of next fiscal year (2003-2004) i.e. April 2003 the GSC Radiocarbon Dating Laboratory will have to charge all users, both within the GSC and external, for dating. I have noted below the fee structure that will be used as of April 2003.

GSC RC Costing (in Cdn\$):

Radiocarbon Dating	400
del 13C analysis	20

wood analysis	50
shell identification	100
sample prep. for AMS submission	50

It will be business as usual with a Fall call for dating requests and then the RC Committee will meet to vet the requests of both internal and external clients.

New Book Series:

Developments in Paleoenvironmental Research

Kluwer Academic Publishers has begun a new monograph series: *Developments in Paleoenvironmental Research (DPER)* with John P. Smol and William M. Last as series editors.

Aims & Scope of DPER Series

Paleoenvironmental research continues to enjoy tremendous interest and progress in the scientific community. The overall aims and scope of the *Developments in Paleoenvironmental Research* book series is to capture this excitement and document these developments. Volumes related to any aspect of paleoenvironmental research, encompassing any time period, are within the scope of the series. For example, relevant topics include studies focused on terrestrial, peatland, lacustrine, riverine, estuarine, and marine systems, ice cores, cave deposits, palynology, isotopes, geochemistry, sedimentology, paleontology, etc. Methodological and taxonomic volumes relevant to paleoenvironmental research are also encouraged. The series will include edited volumes on a particular subject, geographic region, or time period, conference and workshop proceedings, as well as monographs. Prospective authors and/or editors should consult the series editors for more details. The series editors also welcome any comments or suggestions for future volumes.

The first 4 volumes of this new series, all dealing with methodology/techniques in paleolimnological and related research, are now available. The titles of the completed volumes are:

Last, W.M. and Smol, J.P. [Editors]. 2001. *Tracking Environmental Change Using Lake Sediments. Volume 1: Basin Analysis, Coring, and Chronological Techniques.* Kluwer Academic Publishers, Dordrecht. 548 pp. ISBN 0-7923-6482-1. \$110.00 US

Last, W.M. and Smol, J.P. [Editors]. 2001. *Tracking Environmental Change Using Lake Sediments. Volume 2: Physical and Geochemical Methods.* Kluwer Academic Publishers, Dordrecht. 504 pp. ISBN 1-4020-0628-4. \$120.00 US

Smol, J.P. Birks, H.J.B., and Last, W.M. [Editors]. 2001. *Tracking Environmental Change Using Lake Sediments. Volume 3: Terrestrial, Algal, and Siliceous Indicators.* Kluwer Academic Publishers, Dordrecht. 371 pp. ISBN 1-4020-0681-0. \$87.00 US

Smol, J.P. Birks, H.J.B., and Last, W.M. [Editors]. 2001. *Tracking Environmental Change Using Lake Sediments. Volume 4: Zoological Indicators.* Kluwer Academic Publishers, Dordrecht. 217 pp. ISBN 1-4020-0658-6. \$63.00 US.

The DPER web page at: <http://home.cc.umanitoba.ca/~mlast/paleolim/dper.html> provides detailed Table of Contents for each volume (as well as other information about the DPER series).

For further information, please contact the series co-editors:

John P. Smol SmolJ@Biology.QueensU.Ca
William M. Last WM_Last@UManitoba.ca

**Geological Society of London
Special Volume 185**

Drift Exploration in Glaciated Terrain

Editors: M.B. McClenaghan, Geological Survey of Canada, P.T. Bobrowsky, British Columbia Geological Survey, G.E.M. Hall, Geological Survey of Canada, and S.J. Cook, Hudson Bay Exploration and Development Co. Ltd.

350 pages

Available from: Geological Society of London, <http://bookshop.geolsoc.org.uk>

Price: \$177.00 US

This special volume is a compilation of papers presented at the Drift Exploration in Glaciated Terrain Short Course held in conjunction with the 19th International Geochemical Exploration symposium in Vancouver, British Columbia in April, 1999. The short course was sponsored by the Association of Exploration Geochemists.

The volume focuses on the application of till geochemical and indicator mineral methods to mineral exploration in the glaciated terrain of Canada. The principles and examples described, however, have direct applications for explorationists working in glaciated parts of North America, northern Europe and Asia and mountainous regions of South America. Mineral exploration in glaciated terrain requires an appreciation and understanding of glacial processes, surficial sediments, glacial history and soil formation in addition to economic geology. The 15 chapters of the book address these issues and are organized to lead the reader from the general to the specific.

The first half of the volume is an introduction to glaciated terrain. Sampling techniques are described, followed by reviews of indicator mineral methods used for diamond, gold and base metal exploration. Lake sediment and biogeochemical methods are included to complement geochemical and indicator mineral methods. One chapter on the application of GIS methods to till geochemical data has also been included reflecting the importance of data interpretation and display as essential parts of regional or detailed geochemical surveys. The

second half of the volume consist of a series of case studies addressing each of the three major glaciated terrains in Canada; flat lying Shield terrain of central and northern Canada, rounded mountains of Appalachia, and rugged mountainous terrain of the western Canadian Cordillera.

List of Chapters

Introduction

1. A Quaternary geological perspective for geochemical exploration in glaciated terrain
R. Klassen, Geological Survey of Canada

Sampling Techniques

2. Till geochemistry and sampling techniques in Shield terrain. *I. McMartin and M.B. McClenaghan, Geological Survey of Canada*
3. Regional till geochemical surveys in the Canadian Cordillera; sample media, methods and anomaly evaluation. *V. Levson, British Columbia Geological Survey*

Heavy minerals in Mineral Exploration

4. The application of heavy indicator mineralogy in mineral exploration with emphasis on base metal indicators in glaciated metamorphic and plutonic terrain. *S.A. Averill, Overburden Drilling Management Ltd.*
5. Indicator mineral and till geochemical methods for diamond exploration in the glaciated terrain of Canada. *M.B. McClenaghan and B.A. Kjarsgaard, Geological Survey of Canada*

Lake sediment geochemistry

6. Lake sediment geochemical methods in the Shield and Cordillera. *S. Cook, British Columbia Geological Survey and J. McConnell, Newfoundland and Labrador Dept. Mines and Energy*

Biogeochemistry

7. Biogeochemical exploration in the Canadian Shield and Cordillera. *C.E. Dunn, Geological Survey of Canada*

Data Interpretation

8. GIS methods in geochemical exploration. *J.R. Harris and L. Wilkinson, Geological Survey of Canada*

Case Histories I - Shield Terrain

9. Regional and local-scale gold grain and till geochemical signatures of lode Au deposits in the western Abitibi Greenstone Belt, central Canada. *M.B. McClenaghan, Geological Survey of Canada*

10. Application of composite boulder sampling to exploration for unconformity-type uranium deposits in the Athabasca Basin, Saskatchewan. *S. Earle, Grasswood Geoscience Ltd.*

Case Histories II - Appalachia

11. An evolutionary model of glacial dispersal and till genesis in Maritime Canada. *R.R. Stea and P.W. Fink, Nova Scotia Dept. Natural Resources*
12. Contrasting styles of glacial dispersal in Newfoundland and Labrador: methods and case studies. *M. Batterson and D. Liverman, Newfoundland and Labrador Dept. Mines and Energy*

Case Histories III - Cordillera

13. Glacial transport and physical partitioning of mercury and gold in till; implications for mineral exploration with examples from central British Columbia. *A. Plouffe, Geological Survey of Canada*
14. Geochemical signatures around massive sulphide deposits in southern British Columbia. *R. Lett, British Columbia Geological Survey*
15. Glacial transport and secondary hydromorphic metal mobilization: examples from the southern interior of British Columbia. *R.C. Paulen, University of Victoria*

resources escalate, we must find new approaches to meet the challenges of the coming decades. One of the most pressing problems to effective management is the lack of long-term monitoring data. This book shows how paleolimnological approaches can be used to interpret the physical, chemical, and biological information stored in lake and river sediments, and to reconstruct past environmental conditions. Such data are required to assess the trajectories of environmental degradation and recovery, set realistic mitigation goals, and evaluate models.

Pollution of Lakes and Rivers addresses many of the current-day water quality problems from an international perspective, covering critical issues such as acidification, eutrophication, land-use changes, pollution by metals and other contaminants, introduction of exotic species, and biodiversity losses.

The field of paleolimnology has been rapidly evolving, with new applications and approaches being developed at a frenetic pace. This up-to-date volume provides wide-ranging insights into the multi-disciplinary science of paleolimnology that can help us address many of the most pressing environmental problems of modern times.

- First textbook dedicated to paleolimnology, focusing on water quality issues
- Includes comprehensive overviews of the myriad approaches and techniques used by paleolimnologists to track environmental change
- Fully illustrated throughout, with original drawings
- Addresses critical water quality issues that are high on international political, social and scientific agendas

Table of Contents

- Preface
1. There is no substitute for water
 2. How long is long?
 3. Sediments: An ecosystem's memory
 4. Retrieving the sedimentary archive and establishing the geochronological clock: Collecting and dating sediment cores

New Textbook

Smol, J.P. 2002. Pollution of Lakes and Rivers: A Paleoenvironmental Perspective. Arnold Publishers, London; Co-published by Oxford University Press, New York. 280 pp. Glossary, Index.

Paperback ISBN: 0 340 69167 0
Hardcover ISBN: 0 340 74146 5

Water is essential to life, yet the pollution of lakes and rivers has become an international problem that has reached crisis proportions in many regions. As our demands on aquatic

5. Reading the records stored in sediments:
The present is a key to the past
 6. The paleolimnologist's Rosetta Stone:
Calibrating indicators to environmental variables using surface sediment training sets
 7. Acidification: Finding the "smoking gun"
 8. Metals, technological development, and the environment
 9. Persistent organic pollutants: Industrially synthesized chemicals "hopping" across the planet
 10. Mercury -- "The metal that slipped away"
 11. Eutrophication: The environmental consequences of over-fertilization
 12. Erosion: Tracking the accelerated movement of material from land to water
 13. Species invasions, biomanipulations, and extirpations
 14. Ozone depletion, acid rain, and climatic warming: The problems of multiple stressors
 15. New problems, new challenges
 16. Paleolimnology: A window on the past, a key to our future
- Glossary, Index

ORDERING INFORMATION

The *Arnold Publishers* website at: <http://www.arnoldpublishers.com> has the paperback listed (July 2002) at £19.99 <http://www.arnoldpublishers.com/Scripts/webbook.asp?isbn=0340691670>

The hardcover listed at £50 <http://www.arnoldpublishers.com/Scripts/webbook.asp?isbn=0340741465>

North American orders should be placed with *Oxford University Press*:

In USA, the paperback was listed (July) at \$29.95 and the hardcover at \$72.00 USD <http://www.oup-usa.org/isbn/0340691670.html>

In Canada, the paperback was listed at \$53.95CDN

<http://www.oup.com/ca/isbn/0-340-69167-0>

and the hardcover at \$119.50 CDN

<http://www.oup.com/ca/isbn/0-340-74146-5>

Recently completed theses:

Biogenic Silica and Diatom Centric/Pennate Ratios as Indicators of Historical Coastal Pollution

M.Sc. Thesis

by Zorana Spasojevic, 2002,
McGill University, Department of
Geography

supervisor: Gail Chmura

Historical environmental changes in two shallow, unstratified, estuaries in Buzzards Bay, Massachusetts are compared, using three diatom paleo-production indicators: sedimentary biogenic silica (BSi), BSi flux and ratio of Centric to Pennate diatoms. Both estuaries were exposed to pollution. New Bedford Harbor (NBH) has a history of intensive nutrient loading and industrial pollution, while the control site, Apponagansett Bay, has lower levels of nutrient loading. Consideration of local precipitation history and diatom parameters suggests that salinity-driven changes in diatom production are negligible. Over the past ~350 yrs, BSi concentrations and fluxes are higher in NBH. Thus, overall diatom production is sensitive to nutrient enrichment and less responsive to industrial pollutants. The relationship between the C/P ratio and environmental conditions is not as clear, possibly due to its dependence on eelgrass abundance. The uniqueness of this study lies in its use of the parameters combined, as well as its geographic setting.

Les changements de l'environnement au cours de l'histoire dans deux estuaires concaves, non-stratifiés, à Buzzards Bay, Massachusetts sont comparés en utilisant trois indicateurs de paléo-production de diatomées: la silice biogénique

sédimentaire (BSi), le flux BSi et la proportion entre les diatomées cylindriques et elliptiques. Les deux estuaires ont été exposés à la pollution. New Bedford Harbor (NBH) a un historique de chargement nutritionnel et de pollution industrielle intensifs, tandis que le site de contrôle, Apponagansett Bay, a des niveaux de chargement nutritionnel moins élevés. L'examen de l'historique des précipitations locales et des paramètres des diatomées suggère que les modifications dues à la salinité dans la production des diatomées sont négligeables. Au cours des 350 dernières années, les concentrations de la BSi et les flux ont augmenté à NBH. Ainsi, la production totale des diatomées est sensible à l'enrichissement nutritionnel et moins sensible aux polluants industriels. La relation entre la proportion C/E et les conditions de l'environnement n'est pas aussi claire; il est possible que cela soit dû à sa dépendance à l'abondance de la zostère marine. La présente étude est unique du fait qu'elle utilise les paramètres combinés, ainsi que la position géographique des sites.

Research interests: isotope hydrology and paleohydrology, paleolimnology, paleoclimatology, paleoenvironmental reconstruction, carbon and nitrogen cycling, water resource management, climate change impact, northern hydrology, Mackenzie Basin Deltas.

My field- and laboratory-based research focuses on using elemental and stable isotope composition in the organic fraction of lake sediments for reconstructing past hydrological and climatic change, evaluating anthropogenic watershed disturbance, and documenting lake carbon and nitrogen cycling responses to past environmental change. This research is coupled with efforts to characterize the modern hydrology of lakes using stable isotope tracers. Overall, my research is frequently carried out as part of team-based multidisciplinary national and international paleolimnological investigations. These have been conducted in the circumpolar arctic and subarctic, subtropical Andes, temperate regions of North America, and in the Great Lakes of North America and East Africa.

Focus on a recently appointed Quaternarist....

Brent B. Wolfe, Ph.D.

Research Assistant Professor

Department of Earth Sciences

University of Waterloo

Waterloo, ON

Canada N2L 3G1

tel 519_888_4567 ext 2236

fax 519_746_0183

e_mail bwolfe@sciborg.uwaterloo.ca

(after July 1, 2002)

Assistant Professor and NSERC Northern Research Chair

Department of Geography and Environmental Studies

Wilfrid Laurier University

Waterloo ON

Canada N2L 3C5



Current research:

Current research is centred on developing high-resolution 1000-year histories of the frequency and magnitude of floods and droughts and corresponding ecological responses in the Peace-Athabasca Delta, Slave Delta and

Mackenzie Delta from multi-proxy analyses of lake sediment records. This is a new 5-year research project funded by the NSERC Northern Research Chair Program. The Mackenzie Basin Deltas have broad ecological and cultural significance and are ecosystems highly sensitive to prevailing climatic and hydrological conditions. Results will provide an essential database for refining and validating models of climate change and impact on delta hydrology. This information is vital to allow provincial and territorial governments, First Nation communities, and industry to develop water resource management adaptation strategies to minimize the impact of future change. Changing delta lake levels impact aquatic and terrestrial ecosystems, wildlife habitat, and traditional First Nation occupations such as fishing, hunting and trapping.

Field work in the fall of 2002 will be conducted in the Slave Delta with collection of water and surface-sediment samples for assessment of modern limnological and hydrological conditions and paleolimnological indicator calibration. These investigations will be conducted in close collaboration with on-going paleolimnological research as well as modern hydrological and limnological studies in the Peace-Athabasca Delta, funded by BC Hydro. Subsequent field seasons will focus on lake-water - surface-sediment calibration studies in the Mackenzie Delta, retrieval of lake sediment cores from the Slave and Mackenzie Deltas, and hydrological and limnological monitoring in all three Mackenzie Basin Deltas.

Positions are currently available at the Masters and PhD level to work on this project. Students interested in exceptional field- and laboratory-based research opportunities and with interests in isotope hydrology, paleoenvironmental reconstruction, isotope paleolimnology, climate change impacts on water resources, and GIS-based spatial analyses are encouraged to apply. Graduate students will conduct their research as part of a large multidisciplinary team, interact with northern communities, and work alongside partner organizations including BC Hydro, The National Water Research Institute, Department of Indian Affairs and Northern Development,

Wood Buffalo National Park, and Aurora College.

Preparation of sediment samples for elemental and isotope analysis will take place at a new Laboratory for Paleohydrological and Paleoclimatic Reconstruction, Department of Geography and Environmental Studies, Wilfrid Laurier University. The Department also has an affiliated Cold Regions Research Centre and houses a CFI-supported GIS and Spatial Analysis Laboratory with state-of-the-art computing facilities and software for spatial modeling and mapping. Isotope analyses will be conducted at the University of Waterloo - Environmental Isotope Laboratory (UW-EIL), a world-renowned facility dedicated to analysis of isotopes for application in environmental studies.

Interaction between faculty at Wilfrid Laurier University and the University of Waterloo offers strong potential for multidisciplinary hydrological- and ecological-based research at contemporary and paleoenvironmental time-scales. Research collaborators include Dr. Michael English (Geography and Environmental Studies, WLU; northern delta hydrology and geomorphology), Dr. Barry Boots (Geography and Environmental Studies, WLU; GIS and spatial analysis), Dr. Tom Edwards (Earth Sciences, UW; isotope hydrology and climatology), Dr. Roland Hall (Biology, UW; diatom paleolimnology and paleoecology), and Dr. Barry Warner (Geography, UW; wetland ecology and paleoecology).

Contact details for graduate programs are listed below:

! [The Waterloo-Laurier Graduate Program in Geography \(WLGPIG\)](#)

Information, forms and applications can be obtained from: The Director, WLGPIG, University of Waterloo, Waterloo ON, Canada, N2L 3G1. tel (519) 885-1211 ext. 2730; fax (519) 726-0658; e-mail:

wlgpig@fes.uwaterloo.ca;

<http://www.wlu.ca/~wwwgeog/wlgpig/wlgpigmain.htm>

! The Department of Earth Sciences, University of Waterloo

Information, forms and applications can be obtained from: Graduate Coordinator, Department of Earth Sciences, University of Waterloo, Waterloo ON, Canada, N2L 3G1. tel (519) 885-1211 ext. 5836; fax (519) 746-7484; e-mail: sfisher@sciborg.uwaterloo.ca
<http://www.science.uwaterloo.ca/earth/>