



NEWSLETTER

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Newsletter Address

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Deadline for next issue:

December 15, 2004

PRESIDENT'S FORUM

Joe White

Clancy@unb.ca

Hopefully those of you who were in the field this past summer (?) had a fruitful and interesting time. Despite over two decades of crawling around on outcrops throughout the region, I am still surprised by how many nooks and crannies with remarkable rocks one can still come across for the first time. Sometimes (in my case) it takes showing rocks with which one has grown familiar to visiting geologists to be reminded of how fortunate we are in our natural setting.

In October, Geoscience Summit 2004 will be held in Ottawa, comprising representatives of the private sector, government, universities and professional bodies. The aim is the ongoing, but nevertheless important, attempt to establish a strong voice for the earth sciences in Canada – issues that have been at the forefront for several years. The organizers hope to achieve some sort of consensus on promotion of the discipline with regards to personnel requirements, industry needs, significant research directions, *etc.*, while at the same time not being over specific. This is, to say the least, a challenge. Our diversity, a fundamental strength in many of our minds, has not always aided provision of a common front. Instead of a situation where “a rising tide lifts all boats” we can end up the syndrome of “all hanging separately”. These issues will remain central to several AGS mandates and it is important that we be involved. There will be several persons in attendance who have cross-representation (*i.e.*, are also AGS members) and our region's and society's voice should be sufficiently strong. Hopefully more on this in the next newsletter.

A reminder about the Annual Colloquium in Saint John. There remains some time to propose a special session or workshop (see notice in this issue) before the program is finalized and the call for abstracts is made.

GEOLOGICAL SURVEY NEWS

EXPLORATION – MINING NEW BRUNSWICK 2004 MINERALS AND HYDROCARBON CONVENTION

Carol McNeill-Dobbelsteyn

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The 29th annual New Brunswick Department of Natural Resources' Review of Activities (now called Exploration – Mining New Brunswick 2004) will be held from Sunday, November 7 to Tuesday, November 9, 2004 at the Delta Hotel in Fredericton.

Once again this year, the organizers have partnered with two associations (New Brunswick CIM Branch and the New Brunswick Prospectors and Developers Association) to create a program that should be of interest to the engineers and geoscientists.

Over 30 presentations will be given over the 2-day technical session period. At this year's meeting, both the President of the national Prospectors and Developers Association (Mr. Peter Dimmell) and the President of the Canadian Institute of Mining, Metallurgy and Petroleum (Mr. Warren Holmes) have been invited as guest speakers.

Exploration – Mining New Brunswick 2004 begins on Sunday, November 7 with a geological field trip. The field excursion, titled “Renewed Gold

Exploration in the Cape Spencer Area, Southern, New Brunswick”, will be led by Michael Henrichsen of Geodex Minerals Ltd. and Malcolm McLeod (NBDNR) and will provide a golden opportunity for attendees to see and hear what activity has been taking place in this region of the province.

A trade show, prospector and exploration displays, a banquet, and other social activities will also form part of the 2004 conference.

To keep up to date on the conference program, please check out the conference web site at http://www.gnb.ca/0078/minerals/Annual_Review_of_Activities/activities-e.asp.

Anyone interested in becoming a conference sponsor or wishing to take part in the trade show should contact Don Carroll at 506-453-6642 or Don.Carroll@gnb.ca

MINING MATTERS FOR NOVA SCOTIA 2004

Mike MacDonald
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(The following article was originally published in Volume 21, no. 3 of the Nova Scotia Minerals Update.)

What is the impact of the mining industry on the Nova Scotia economy? What mineral commodities are mined in Nova Scotia? Does Nova Scotia have economic deposits of gold? Is there any coal mining on Cape Breton Island? Does a mining company have to clean up the land when mining is finished? Does the general public have any say in proposed mining projects? The answers to these questions and many others may be found at the Mining Matters 2004 conference, to be held at the Westin Nova Scotian Hotel on Monday and Tuesday, November 1 and 2.

In 1998, NSDNR made significant changes to its annual conference, changing the name from Review of Activities to Mining Matters, and

broadening the mandate of the event. It was decided that in addition to providing a venue to highlight geoscience research in Nova Scotia and promote the mineral potential of the province to interested mineral exploration companies, the conference would be used to increase the awareness and understanding of the mineral industry to a wide audience. Since its inception, the list of partners involved in the organization of Mining Matters has grown to include the departments of Economic Development and Natural Resources, the Mining Society of Nova Scotia, the Chamber of Mineral Resources of Nova Scotia, and the Prospectors Association of Nova Scotia. Delegates at the conference, historically dominated by geologists and mineral explorationists, now include representatives from many provincial government departments and agencies, Natural Resources Canada, local universities, Regional Development Agencies, municipal planners, supply and service industries, and the general public.

Making sure that these groups of delegates gets their collective ‘bang for the buck’ is not easy, especially since the organizers of the conference want to retain the core geoscience and mining aspects of the conference. This year’s conference, however, is shaping up to do just that! Three technical sessions will focus on general developments in the mineral industry, the mineral wealth of southwestern Nova Scotia (in recognition of the 25th anniversary of the discovery of the East Kemptville tin deposit), and the geology and mineral deposits of the Carboniferous rocks of northern Nova Scotia and Cape Breton Island. Two field trips are planned. One will visit Black Bull Resources Ltd.’s new quartz mine near Yarmouth and examine the geology and reclamation of the former East Kemptville tin mine. The second trip, provisionally termed MetroGeo, will feature the urban geology of the metropolitan Halifax area. A special treat for delegates this year will be the participation of local stone mason Heather Lawson from Raspberry Bay Stone. Heather

will be on hand carving one of the plinths that will be used in a new interpretation centre at Joggins.

Mining Matters 2004 will also feature luncheons with guest speakers on both days of the conference and a Baron of Beef reception hosted by the Hon. Richard Hurlburt, Minister of Natural Resources. Mark November 1-2 on your calendar and plan to attend.

More information can be obtained from the departmental website at <http://www.gov.ns.ca/natr/meb>.

28TH ANNUAL REVIEW OF ACTIVITIES, MINES AND ENERGY BRANCHES, NEWFOUNDLAND AND LABRADOR DEPARTMENT OF NATURAL RESOURCES

(The following was distributed by the Geoscience Publications and Information Section, Geological Survey of Newfoundland and Labrador.)

The 2004 Review of Activities for the Mines and Energy branches of the Newfoundland and Labrador Department of Natural Resources will be held on Thursday, November 4, at the Delta St. John’s Hotel and Conference Centre, St. John’s. The meeting will present an overview of the current research and other activities of the department, including overview presentations, technical papers, and a poster session. Project leaders and senior staff will be available for discussion of their and the department’s activities.

There will also be a public lecture, entitled “Meteorite Impact Cratering: A Force of Planetary and Biological Change, with Some Newfoundland and Labrador Examples”. This lecture will be delivered by Gerry Squires, at 7:30 pm on Thursday.

Pre-registration is available online at <http://www.gov.nl.ca/mines&en/geosurvey/conferences/openhouse04.htm> until October 20.

Program details will be posted later on the department website, at <http://www.gov.nl.ca/mines&en/>, or on the Geological Survey's website at <http://www.gov.nl.ca/mines&en/geosurvey>. Additional information is also available from Norman Mercer (709-729-6193 or nlm@zeppo.geosurv.gov.nl.ca) or Debbie Downie (709-729-3159 or dmd@zeppo.geosurv.gov.nl.ca).

Registrants are responsible for booking their own accommodations. Delegates reserving rooms at the Delta St. John's (1-800-268-1133 or 709-739-6404) should advise the hotel that they wish a room in the CIM block.

The Review of Activities is being held in conjunction with the 51st Annual Meeting of the Newfoundland Branch of the Canadian Institute of Mining, Metallurgy and Petroleum (CIM).

UNIVERSITY NEWS

ACADIA

Sandra Barr
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After another all-too-short summer, another term is getting underway.

A hardy group of 10 students (as well as instructors Rob Raeside and Sandra Barr) once again survived senior field school in Cape Breton Island in late August through early September. Working in pairs or groups of three, the students mapped separate areas of about 25 km² and then used the field data to produce individual maps and a report interpreting the geology of the map area. The map and report were submitted on the last day of the field school, evaluated, and returned to the students for "improvements". The final grade is based on the resubmitted map and report. The school is held in the excellent facilities of the Gaelic College at St. Anns. The instructors note that the use of GPS has led to more efficient field work, and the outcrop locations (although not necessarily the outcrop observations!) are now more accurate. Those dreaded

CALL FOR NOMINATIONS

The Atlantic Geoscience Society is accepting nominations in the following categories:

AGS Distinguished Scientist Award (Gesner Medal)

and

AGS Distinguished Service Award

A nomination shall include:

1. A statement of between 500 and 1,000 words, succinctly explaining how the candidate meets the selection criteria (see below).
2. Supporting documentation from the nominator and a letter of support from the seconder. The supporting documentation could include a selected bibliography (abstracts not needed), documentation of impact of work, and supporting letters from referees other than the nominator and seconder.
3. The nominator and seconder shall be members in good standing of the Atlantic Geoscience Society.

Deadline for Nominations is December 31, 2004

CRITERIA

AGS Distinguished Scientist Award (Gesner Medal)

- a) The Award is made to a person who has, through his/her own efforts (publications, maps, memoirs, etc.), developed and promoted the advancement of geoscience in the Atlantic region in any field of geology.
- b) The contribution of the person should be of large enough scope to have made an impact beyond the immediate Atlantic region.
- c) The person does not have to reside in the Atlantic region nor be a member of the Atlantic Geoscience Society.
- d) The person must be alive and active in geoscience research, although not necessarily full time in the Atlantic region.

AGS Distinguished Service Award

This Award shall be given "in recognition of exceptional and altruistic contributions to the Atlantic Geoscience Society over a long period of time". There are no specific criteria other than this.

Please submit nominations and supporting documentation in writing to:

Dr. David Keighley
Vice President, Atlantic Geoscience Society
Department of Geology, University of New Brunswick
Fredericton, NB E3B 5A3

Telephone: (506)-453-5196
Facsimile: (506)-453-5055
Email: keig@unb.ca

traverses across the highlands plateau from one stream head to another always result now in a happy ending!

Rob Raeside is on sabbatical leave this term, and Cliff Stanley is acting head through December, 2004, after which Rob re-assumes the role.

Beginning this fall, the Geology Department is offering a new program in Environmental Geoscience. This degree program is available at both a B.Sc. and B.Sc. (Honours) level. It has been introduced in response to recently passed provincial legislation identifying the knowledge requirements required for professional registration as an 'Environmental Geoscientist' in Nova Scotia (similar co-recognized legislation exists in most other provinces and territories, 39 states within the USA, and in the UK). This legislation identifies three Professional Geologist specialties: 'Geologist', 'Environmental Geoscientist' and 'Geophysicist'. The new Environmental Geoscience degree curriculum provides a basis for application to the "Professional Environmental Geoscientist category". It includes a core of courses at the first and second year level in common with Geology majors, and diverges at the third year level to incorporate courses in geochemistry, geophysics, and hydrogeology (all of which are electives in the regular geology program). Outside the Geology Department, students will also take first-year Biology courses, and Mathematics, Physics, and Environmental Science courses (Human Activity and the Environment, Environmental Law, and Environmental Impact Assessment).

The year looks busy in terms of visiting speakers and other special events – anyone interested in attending events at Acadia should check out the website at <http://ace.acadiau.ca/science/geol/coming.htm>. We are all looking forward to hosting the AUGC in late October (see accompanying article for more details).

We welcomed three new graduate students to the department this term, bringing the total to 10, a record number. Amanda Blackmore, from the University of Guelph, is doing a joint Acadia - COGS M.Sc. program. She has completed her year at COGS and will be based at Acadia in the coming months to do a thesis with Ian Spooner

on the hydrogeology of the Annapolis Valley, focusing on aquifer vulnerability. Brent Lennox, from the University of Toronto, also will be working with Ian Spooner, on Late Holocene climate change in the Maritimes. Jose Texidor-Carlsson arrived from London, England, with his wife Helen (and cat Shadow!) in late August. He is in the process of turning his engineering background into a geological career, and will be working with Sandra Barr and Cliff Stanley on an economic geology project as yet to be determined.

Continuing students are Cameron Bartsch (Geology of the Blacks Harbour - Beaver Harbour area in southern New Brunswick), Robin Black (pre-Mesozoic rocks on Grand Manan Island, New Brunswick), Lori Cook (interpretation of geophysical data in the Gulf of St. Lawrence west of Cape Breton Island), Russel Hiebert (geochemistry of the Mechanic Settlement Gabbro and its relationship to PGE mineralization, southern New Brunswick), Tansy O'Connor-Parsons (litho-geochemistry of the Golden Mile gold mine, Kalgoorlie, Western Australia), and Cheryl Reid (contact and regional metamorphism around the Barrington Passage Pluton in southwestern Nova Scotia). Andrea Locke, who returned to Newfoundland to take advantage of an employment opportunity, continues to write her thesis on glacial stratigraphy and till geochemical dispersion controls associated with the Brazil Lake Pegmatite, Yarmouth County, Nova Scotia.

B.Sc. Honours theses this year are listed below by student name:

Jeffrey Bigelow - Gold precipitation mechanisms in sheeted quartz veins, Callie Gold Mine, Northern Territory, Australia (Supervisor: Cliff Stanley)

Christina Caldwell - Physical properties of soils on Heckmans Island: Evolution and diversity (ENVS thesis) (Supervisors: Soren Bondrup-Nielsen and Ian Spooner)

Josh Goss - Characterization of

petroleum contaminated soils in Atlantic Canada that are amenable for phytoremediation (Supervisor: Cliff Stanley)

Robert Lodge - Styles of explosive mafic volcanism: examples from the Silurian Eastport Formation, Maine, USA (Supervisor: Nancy Van Wagoner)

Charles Madden - Thermal sensitivity of small boreal lakes, experimental lakes area, northwestern Ontario (ENVS thesis) (Supervisor: Ian Spooner)

Brian Martin - Landscape evolution in the Pleasant River area, southwestern Nova Scotia (ENVS thesis) (Supervisor: Ian Spooner)

Patrick Moran - Petrology of the Seal Island granite, offshore southwestern Nova Scotia (Supervisor: Sandra Barr)

Rebecca Shaeffer - Gold uptake in *Eucalyptus salmonophoia*: A possible explanation for gold anomalies above barren overburden (ENVS thesis) (Supervisor: Cliff Stanley).

DALHOUSIE

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Student Activities

Our Honours Excursion took place in May 2004 under the direction of John Gosse and Lawrence Plug. The students spent 16 days examining evidence of how Late Cenozoic strain has been partitioned across the Walker Lane Belt, the tectonically active region between the Sierra Nevadas and the Basin and Range province. In addition, the students studied aspects of the regional volcanology, desert geomorphology, soils, glacial geology, and the wide range of geochronology that has been used to study the landscape evolution of western Nevada and eastern California. Highlights of the trip included lunch on a steaming rhyolite dome in the Coso Volcanic Field and a tour of the geothermal

plant there, the tectonic geomorphology of Death Valley and surrounding basins, determining the sense and magnitude of shear on a recent high-way cutting strike slip fault, a debate on the geological assessment of the US high level radioactive waste repository at Yucca Mountain, Mono Lake, and numerous day hikes without flies.

During the mid-term break in February 2004, Grant Wach led a student excursion to study Petroleum Systems in Trinidad, in conjunction with the University of the West Indies. Highlights included an examination of the famous Pitch Lake and a walk through a sandstone reservoir dripping with oil at the Stollmeyer Quarry – a remarkable and active petroleum system, and an unforgettable student experience.

Twelve undergraduate students completed honours theses in April 2004, in a variety of fields. The top thesis award went to Chris Hamilton for his thesis entitled "Ice-contact Volcanism in the Vífilsfjell Region, Southwest Iceland". Chris also presented his thesis results in the Planetary Sciences Section at the American Geophysical Union (AGU) Joint Assembly in Montreal, and received one of a small number of Outstanding Student Paper Awards.

Several undergraduate student theses from 2003 received awards from the Canadian Institute of Mining in 2004, in competition with student theses and essays from across Canada. The President's Gold Medal award for the top Canadian thesis went to Joseph Kidston for his thesis "Depositional Environment and Provenance of the Dina formation, Provost Oil Field, East Central Alberta, and a Discussion of Hydrocarbon Distribution", which also received the Petroleum Award. Camilla Melrose received the Coal and Oil Sands Award for her thesis "Fossilized Forests of the Lower Carboniferous Horton Bluff Formation, Nova Scotia". Karla Pelrine received the Geology Award for her thesis "Ilmenite-Pyrophanite and Niobian Rutile in the South Mountain Batholith, Nova Scotia".

In the CIM graduate thesis competition, Sarah Caruzzo received First Prize in the Geology category for her Ph.D. thesis "Granite-Hosted Mineral Deposits of the New Ross Area, South Mountain Batholith, Nova Scotia, Canada", supervised by Barrie Clarke. Second Prize in the Petroleum category went to Mark Deptuck for his Ph.D. thesis "Post-rift Geology of the Jeanne D'Arc Basin, with a Focus on the Architecture and Evolution of Early Paleogene Submarine Fans, and

Insights from Modern Deep-Water Systems", supervised by David Piper.

Four graduate theses have been defended successfully since the winter:

Alexander Grist (Ph.D.): "Aspects of the Thermal History of the Eastern Margin of Canada Based on Apatite Fission Track and (U-Th)/He Thermochronology", under the supervision of Marcos Zentilli.

Simon Gagne (M.Sc.): "Textural, Chemical and Age Variation in Monazites of the Paleoproterozoic Longstaff Bluff Formation, Central Baffin Island, Nunavut", supervised by Becky Jamieson.

Andrea Hawkes (M.Sc.): "A Study of Attached Benthic Foraminifera Associated with the Deep-Sea Coral *Primnoa* resedaeformis on the Scotian Margin", supervised by Dave Scott.

Heidi McDonald (M.Sc.): "Sedimentology, Stratigraphy and Paleocology of the Late Carboniferous Sydney Mines Formation at Morien Bay, Nova Scotia", supervised by Martin Gibling.

Faculty and Research Activities

Dorothy Godfrey-Smith has resigned from Dalhousie to take up an appointment with the Department of National Defence in Ottawa. She will be greatly missed here.

Rebecca Jamieson and Co-op student Neil Tobey did their summer field work close to home – very close to home! Metamorphic Petrology class projects in 2002 and 2004 revealed some intriguing mineral assemblages and textures on the Dalhousie campus, which lies within the outer part of the contact aureole of the South Mountain Batholith. A map of the campus showing outcrop locations, metamorphic isograds, and building stone features has been prepared. A test version for the general public will be distributed at the upcoming Dalhousie Open House (October 22-23), and an "expert" version will be distributed

LAST CALL FOR PROGRAM IDEAS!

ATLANTIC GEOSCIENCE SOCIETY 31st Colloquium and Annual General Meeting

Current Research in the Atlantic Provinces

February 4 to 6, 2005
Saint John Trade and Convention Centre and Hilton Hotel
Saint John, New Brunswick

Planning is well underway for the AGS's 31st Colloquium and Annual General Meeting. All AGS members are encouraged to plan to attend the event.

Proposals for special sessions and/or workshops should be sent, as soon as possible, to Randy Miller at millerrf@nbnet.ca.

with GAC-MAC-CSPG-CSSS registration kits in May 2005. The isograd map is being extended to other parts of Halifax, including Point Pleasant Park, and the results will be presented in poster form at AGS and GAC.

David Scott participated as one of the PI's in the Canadian Arctic Shelf Exchange Study (CASES) and ArcticNet. He was chief scientist for part of Leg 8 (June 25-August 5, 2004) on board the CCGS *Amundsen* in the McKenzie River Shelf. The sub-project being investigated by Scott and colleagues is "Millennial and decadal scale changes in ice cover in the Arctic" and, in ArcticNet, "sovereignty and paleoceanography of the NW Passage". The project involves students and postdocs from Dalhousie as well as co-PIs from Université de Québec à Rimouski, University of New Brunswick, and Natural Resources Canada. The *Amundsen* is an icebreaker refitted specifically for the CASES programme and will continue to work in the Arctic for up to 15 more years investigating all aspects of the Arctic environment. Scott also continues to investigate deep sea corals off the east coast of Canada. These corals have received considerable attention in the last few years as it becomes clear that they offer some of the best fish habitat available. Scott and colleagues have been using the corals as climate recorders because these organisms secrete yearly bands that provide unparalleled climate records in the ocean.

SAINT MARY'S

Jarda Dostal

Jarda Dostal continues to investigate the use of geochemical fingerprints of igneous rocks to decipher geodynamic events, metallogeny, and petrogenetic processes. He recently has focused attention on rocks in British Columbia, the Yukon, and abroad.

Pierre Jutras has been working on mafic dykes and associated perperites at the intrusive contact with Late Dev-

BEYOND THE LAST BILLION YEARS 2004-05 TALK SERIES

The Atlantic Geoscience Society and the Nova Scotia Museum of Natural History will co-sponsor the following talks in the fall of 2004. All talks will be at the Museum of Natural History, 1747 Summer Street, Halifax, beginning at 7:30 pm. The talks are designed for the general public. They are free, although donations to the Halifax Food Bank are greatly appreciated.

Pick up a passport at one of the first two presentations, and have it stamped at each talk you attend. Those who attend all talks in the 2004-05 series will be eligible to win a copy of "The Last Billion Years". Geological door prizes will be awarded at each presentation.

Secrets of the Seabed off Nova Scotia Revealed: The New Mapping September 15, 2004

Multibeam bathymetric seabed mapping, developed in the early 1990s, enables high-resolution characterization, providing essential information for seabed management and conflict resolution. Gordon Fader, marine geologist with the Geological Survey of Canada (Atlantic) will explain how this new technique has been used in the Halifax Harbour cleanup, beach erosion in Prince Edward Island, the recovery of Swissair Flight 111, the discovery of shipwrecks and The Gully marine protected area.

Mountains in the Maritimes: Exploring our Geological Heritage Wednesday, October 20

Join Brendan Murphy of Saint Francis Xavier University on an exciting journey through almost a billion years of geological time. Learn about the exotic micro-continents that came together from places as far away as the South Pole to the present-day Maritime Provinces. Discover the ancient Cobequid-Chedabucto Fault in Nova Scotia, which in its time rivalled today's San Andreas Fault.

Nova Scotia Landmarks Wednesday, November 10

Local photographer Len Wagg has captured the essence and dynamic geological beauty of Nova Scotia in his new book *Nova Scotia Landmarks*. The project took five years to complete, and Len will reveal a stunning collection of aerial photography from around Nova Scotia in this presentation. Enjoy the sun setting over the Cape Split cliffs, and the ocean pounding on the granite at Peggys Cove.

It's a Shore Thing – Human Impact on Beaches Wednesday, November 17

Our close connection with the sea has often resulted in activities that have affected our natural buffer against the sea – our shores. Evidence of former loading piers, fishing wharves, extraction of sediment and the opening and closing of inlets is found along the Nova Scotia coast. Bob Taylor of the Geological Survey of Canada (Atlantic) will discuss the implications of these activities on longer term shoreline change, in light of our recent obsession with living on the coast.

onian red beds of the Gaspé Peninsula, Quebec; on Ordovician and Late Devonian paleosols developed on basalt in the area of Arisaig, Nova Scotia; on Pennsylvanian rocks of northern New Brunswick; on calcretized Carboniferous mounds in southern New Brunswick; and on the Viséan succession of the Cumberland Basin in New Brunswick and Nova Scotia.

Andrew MacRae continued work on the offshore geology of Nova Scotia and Newfoundland. Studies included macrofossils from cores of the Lower Cretaceous of the Alma Field, and description of Cretaceous-Cenozoic coreholes on the southern Grand Banks.

Victor Owen spent the summer conducting field work related to the geochemistry of historical glass and the petrology high-grade metamorphic rocks.

Georgia Pe-Piper has been working on the diagenesis of on-shore and off-shore sediments and the mineralogy and sedimentary petrology of Cretaceous rocks in Nova Scotia. She also continues to investigate Greek volcanic rocks.

SAINT FRANCIS XAVIER

(The following was abstracted from an article in the August 29, 2004 issue of the Halifax Chronicle Herald.)

Mike Melchin of St. Francis Xavier University has received \$480,018 US for a global research project on mass extinction. The funds, which will be administered over 5 years by the U.S. National Science Foundation, amount to about \$627,480 Cdn. Mr. Melchin is the co-director of the project, which will study the second biggest mass extinction in earth's history, some 440 million years ago.

Mr. Melchin will assemble a consistent set of data on the timing, duration, and severity of the extinction event in different parts of the world with help

from his co-director, Charles Mitchell of State University of New York in Buffalo and at least seven other researchers from Canada, the United States, Europe, Russia and China.

They will collect fossils of small invertebrates from the time period. They will also test the rocks around the fossils to understand the environmental changes that were taking place during the extinction.

Of the funds from the foundation, \$48,768 US or about \$63,761 Cdn will go directly to St. F.X. to hire a graduate student and to cover field work and other travel expenses. Mr. Melchin will also be able to access funds from Buffalo to bring researchers to the university.

The Natural Science and Engineering Research Council has also given Mr. Melchin about \$220,000 for the five year project.

NEW BRUNSWICK

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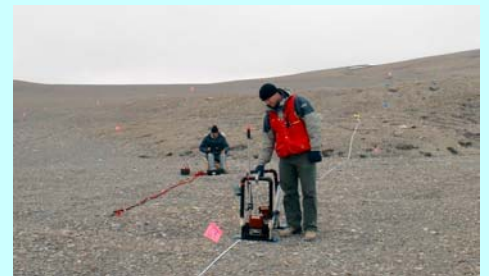
Faculty and staff of UNB Geology have been busy since the end of the spring field schools. The department had a strong presence at the GAC-MAC meeting in St. Catharine's, with many presentations by students and staff. At the meeting, Dr. Shoufa Lin, a former Ph.D. student of Paul Williams, received both the W.W. Hutchison Medal, awarded to a young

individual for recent exceptional advances in Canadian earth science research) and the William Harvey Gross Award, made to a young scientist who has made a significant contribution to the field of economic geology in a Canadian context.

David Keighley has recently joined the faculty from the NB Department of Natural Resources. David, a sedimentologist, will continue his active research in New Brunswick with Clint St. Peter (NBDNR) and Adrian Park (UNB).

Adrian Park has been studying the deformation and faulting history of the lower Carboniferous rock of the eastern part of the Moncton sub-basin, specifically the Tournaisian Albert Formation and the Viséan Weldon Formation and Windsor Group. Last spring, Adrian led a field trip of UNB graduate students to examine igneous rocks of the Oka complex and Mont Royal intrusions, and the Ile Ste. Helene diatreme.

James Whitehead and undergraduate student Chris Aaen spent several weeks during the summer on the western coast of Baffin Island. They were there to verify the origin of a circular feature touted by local diamond exploration geologists as a potential impact structure. Unfortunately, the feature turned out to be a collapsed pingo – a definite “cold hole” and not the expected “hot hole”. Despite the disappointment, struggles with polar bears and occasional gales,



UNB researchers James Whitehead and Chris Aaen investigating a circular structure on Baffin Island.

James and Chris managed to define the internal structure of the pingo through various geophysical techniques (see photograph).

Karl Butler (Geophysicist and Director of Geological Engineering) and his students J-C. Nadeau, Christian Dupuis, Richardo White and Tony Mersich staged borehole, land and marine geophysical surveys at a number of sites this summer in pursuit of geological and geophysical goals. Locally, boreholes originally drilled for studies of the Fredericton aquifer were used for seismoelectric logging experiments employing custom-made antennas and seismic sources, while studies at the Fire Road coal mine near Minto revealed the potential for monitoring environmental remediation practices by means of time lapse apparent conductivity mapping. In the Sussex area, a novel survey combining seismic reflection and seismoelectric recording was conducted in collaboration with Susan Pullan of the GSC to investigate the structure and stratigraphy of New Brunswick's only known Cretaceous outlier basin, which is host to a high quality deposit of silica sand. In late July, the group was in Alma, NB, for a week of shallow marine seismic surveying over deltaic and beach environments that are the focus of sedimentological studies by Murray Gingras and Shahin Dashtgaard at U. Alberta. The survey was technologically remarkable for employing a pair of sub-bottom profilers towed in parallel and yielding a dense data set that should facilitate pseudo-3D imaging of the shallow subsurface stratigraphy.

Cliff Shaw's (Igneous Petrologist) experimental petrology lab is fully functional and is now open for business. The equipment in the lab allows experiments from 1 atmosphere to 2 GPa at temperatures up to 2000°C. At present the lab houses the following equipment:

1. End-loaded piston cylinder press capable of generating pressure to 2 GPa and temperatures to 2000°C.
2. One-atmosphere gas-mixing furnace that operates at temperatures up to 1650°C and can control oxygen fugacity in the range QFM-2 to HM.
3. Ultra-high temperature furnace for production of melts and glasses at temperatures up to 1750°C
4. Two three zone furnaces for crystal growth experiments.

In the near future, a second piston cylinder press capable over generating pressure up to 3.5 GPa will be brought on line. We also have a three cubic metre annealing furnace that will be put into operation once it finds a home. Cliff is currently looking for graduate students (to torture) for experimental/field studies of mineral – magma reaction kinetics and their application in deciphering the dynamic behaviour of magma chambers.

David Lentz (Economic Geology) was busy with his graduate and undergraduate thesis students this summer. Jon Lafontaine (B.Sc. Laval), who is working with Kay Thorne (NBDNR) on a gold system in the Annidale Belt, began in early summer as an M.Sc. candidate.

*University of New Brunswick
Archaeological Field School 2004:
An Interdisciplinary Approach*

The 2004 UNB Archaeological Field School at Sam Orr's Pond was the first archaeological field school at UNB in over a decade. Instructors for the six week field school were Pam Dickinson, Department of Geology and Susan Blair, Department of Anthropology. Both are members of UNB's Geoarchaeology Research Group. The major themes of this project were geoarchaeological research, community-based archaeology, and coastal site salvage. One of the primary goals of this research is to try to understand the coastal landscape and how people used it in the past. During the project several pre-contact era coastal sites were explored in the Sam Orr's Pond estuary in Bocabec, near St. Andrews,

and part of an actively eroding site, designated BgDs-15, was excavated.

At the primary excavation site, BgDs-15, large quantities of soft-shelled clam, butchered animal bones, and the remnants of a small open hearth were discovered. Preliminary analysis suggests that these may represent a specialized food processing area, a place where, approximately 1000 years ago, ancestral Passamaquoddy people brought shellfish, small bony fish, and game to be butchered, smoked or dried. During the field project, it was noted that a portion of Sam Orr's Pond acts as a natural trap for marine fish. Preliminary research suggests that people living in the region in the past enhanced, or even created, this trap-feature by adjusting the position of submerged boulders along the beach front. The boulders are now well-below sea-level at high tide, but barely covered by water at low tide. As the researchers seek to establish the link between the origin of the fish trap and the site through geoarchaeological research, they consider the possibility that this may be the oldest culturally modified coastal fish trap in northeastern North America.

AGS NEWS

ATLANTIC GEOLOGY

Sandra Barr

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Although we did not get quite as much done over the summer as we had hoped, Volume 39, Number 2, is now at the printers and should be in the mail by the end of September. It is a special issue on granitic rocks, a spin-off from the highly successful session at the AGS - NEGSA meeting in March 2003 on "Processes in Felsic Magma Chambers – from Crystallization and Evolution to Emplacement". Guest editors for the special issue are the session convenors, Daniel Lux and David Gibson, assisted by journal editor Sandra Barr.

Volume 39, Number 3, is in the final stages of layout and the galley proofs will be sent soon to authors. It contains the following papers, as well as the abstracts for AUGC 2003:

1. Alleghanian faulting in the southern Gaspé Peninsula of Quebec, by P. Jutras, G. Prichonnet, and S. McCutcheon,

2. Archived U-Pb (zircon) dates from southern New Brunswick, by M.J. McLeod, S.C. Johnson, and T.E. Krogh,

3. Structural transect through Silurian turbidites of the Fredericton Belt southwest of Fredericton, New Brunswick: the role of the Fredericton Fault in late Iapetus convergence, by A.F. Park and J. Whitehead,

4. New U-Pb (zircon) age and geochemistry of the Wedgeport pluton, Meguma terrane, Nova Scotia, by N.J. MacLean, S.M. Barr, C.E. White, and J.W.F. Ketchum, and

5. Anatomically-preserved cordaitalean trees from Lower Pennsylvanian (Langsettian) dryland alluvial-plain deposits at Joggins, Nova Scotia, by H.J. Falcon-Lang.

Volume 40, Number 1, is nearly at the layout stage. It is another special issue, consisting of a single large paper by Con Desplanque and David Mossman, entitled "Tides and their seminal impact on the geology, geography, history, and socio-economics of the Bay of Fundy, eastern Canada". It also includes the AGS Colloquium Abstracts for 2004.

Thanks to those who have paid your subscriptions! To the rest of you – please remember to do so soon (or you will receive another invoice!!).

**AGS FALL FIELD TRIP:
VOLCANOLOGY OF
NORTHERN NEW BRUNSWICK
– SILURIAN- AND DEVONIAN-
AGED CHALEURS AND
DALHOUSIE GROUPS**

The AGS is holding a fall field trip, led by Reg Wilson, to examine the volcanic rocks of the Chaleurs and

Dalhousie groups in northern New Brunswick.

The field trip will be preceded by an orientation talk on the evening of Friday, October 1, at Keddy's Chateau in Bathurst. The trip will leave Keddy's at 8:00 am Saturday morning and overnight on Saturday at Howard Johnson's Motel in Campbellton. The trip will end in the early on Sunday afternoon to permit participants to return home that evening.

The trip is free. Participants are responsible for their own expenses, including transportation, meals, and food. The trip is suitable for both students and professionals.

Those interested in participating should contact Reg Wilson at 506-547-2070 or Reg.Wilson@gnb.ca.

**NEWS FROM OTHER
ORGANIZATIONS**

FUNDY GEOLOGICAL MUSEUM
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Nova Scotia's Gem and Mineral Show, formerly known as the Rockhound Round-Up, was held at the Lion's Arena in Parrsboro from August 20 to 22, the 39th year that this event has been held in Parrsboro. Over 2,000 participants from across Canada and the United States were attracted to the show this year. Several dealers, including World Wide Minerals and Rock of Ages, have now been attending the show for more than 25 years. Preparations are now underway to celebrate the 40th anniversary.

The mineral and fossil treasures found along the shores of the Bay of Fundy have attracted many visitors to this region, and more than one visitor's trip to this show has resulted in a lifelong interest in these natural resources. This includes a number of the geologists who attended the show, as well as several of the dealers and exhibitors who continue to return each year.

Visitors to the show took part in workshops and demonstrations of rock cutting, polishing agate, faceting, silver and gold wire wrapping and jewelry making. Information about the geology of Nova Scotia was available through exhibits, guided walks and presentations. Representatives of the Atlantic Geoscience Society, the Nova Scotia Prospectors Association, the Nova Scotia Department of Natural Resources, Cape Chignecto Provincial Park, and Joggins Fossil Centre also took part in the show.

Prosauropod Dinosaur Dig 2004 took place during the last two weeks in July. The romance and lore of hunting for dinosaurs led a small group of volunteers and museum staff to do something that most people only dream of – a once in a lifetime opportunity to participate in a fossil dig. On July 16, PhD. candidate Tim Fedak, in conjunction with the Fundy Geological Museum, returned to North America's richest Prosauropod dinosaur site located on Nova Scotia's Fundy shore near Parrsboro. Funding for the two week expedition was provided by the Jurassic Foundation and the work was carried out under a Nova Scotia Museum Heritage Research permit

Several dinosaurs have been found at this site, and the excursion in the summer of 2000 yielded the most complete, largest example of Canada's oldest dinosaur to date. The animals belong to a group of herbivorous dinosaurs called prosauropods, ranging up to 8 metres in length. Characterized by a long neck, long tail and small head, these prehistoric beasts may have been a forerunner of the much larger, and much more recent, sauro-pods like Brachiosaurus and Apatosaurus.

Although several prosauropods were collected in North America in the 1880's, Fedak notes that the Nova Scotia animals are unique and he may be looking at a new taxon for North America. Bones uncovered during the 2004 dig included a number of ribs, teeth, a skull fragment, and several hip bones, which will be key in helping to

identify the species of this dinosaur. These fragile bones, so crucial in species identification, are extremely susceptible to erosion. The dinosaur bone quarry is located near the base of a sandstone cliff subject to tidal erosion, giving the workers an even greater sense of purpose.

In addition to this "ground-breaking" research, Fedak's recent examination of a very small prosauropod specimen collected in 1986 revealed that the dinosaur was less than a year old at the time of its death. The discovery of the young animal suggests the presence of egg shells and other yearlings, great inspiration for dinosaur hunters everywhere!

For more information on prosauropod research in Nova Scotia, visit the Project Prosaruopod website at <http://museum.gov.ns.ca/fgm/lab/lab.html>.

In July, the Museum's Board of Directors and the Cumberland Regional

Economic Development Association received the Final Report of the "Feasibility Assessment and Business Plan for the Fundy Geological Museum Expansion," prepared by Cantwell and Company. The Museum has become an anchor tourist attraction for the region, with over 22,000 visitors each year. The report identified a need for more programming space, storage space, an enhanced laboratory, a larger giftshop, a multi-media theatre capable of seating 70 people, and renovations to the existing gallery. A new gallery has also been proposed that will allow for interpretation of a number of themes related to the Bay of Fundy. Floor plans and architectural renderings of the proposed expansion were developed in association with Communication Design Group and Anwyll Fogo Architects. The overall size of the facility would be doubled, with opportunities to significantly increase site usage and economic benefits to the region. The Museum's Board will be meeting with

its partners in the near future to determine a plan of action.

NOVA SCOTIA MUSEUM OF NATURAL HISTORY

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The "Beyond the Last Billion Years" talk series, cosponsored by the Museum and the Atlantic Geoscience Society, has been a very successful venture. The average audience size ranges from 70 to 120 people, and is mostly composed of interested members of the public. It is a captive audience and the talk series is a wonderful way to communicate the relevance of earth science. Last year, people were given the opportunity to win their own copy of the book, "The Last Billion Years", if they attended all talks. Three books were awarded and the winners' thoughts on the talk series are provided below. The series will continue this year, thanks to the participation of the volunteer speakers. The schedule for the 2004-05 talk series is provided elsewhere in this issue.

The winners of a copy of "The Last Billion Years" for 2003-04 were Mary and Gordon Leaman and Joyce Chew. Organizers of the talk series asked the following questions of the winners:

1. How did you first hear about the "Beyond the Last Billion Years" talk series?

Mary: From the museum's Newsletter.

Gordon: My daughter.

Joyce: From the museum's Newsletter and from Rob Fensome, who has been involved with the joint AGS - Photographic Guild of Nova Scotia field trips.

2. What motivated you to attend all of the talks in the 2003-2004 series?

Mary: They all seemed interesting and I wanted to win the book!

Gordon: My daughter.

Joyce: The slate of interesting topics.



AGS stalwart Peter Wallace (left) and Fred Walsh (President, Nova Scotia Prospectors Association) at the 2004 Nova Scotia Gem and Mineral Show. Peter gave two talks on the geology of Nova Scotia and AGS members John Calder and Ralph Stea also gave talks and led field trips. This year's show was attended by more than 2000 people.



Mary and Gordon Leaman – two of the three winners of a copy of The Last Billion Years for attending all sessions of the 2004 Beyond the Last Billion Years Talk Series.

3. What first interested or prompted you to attend the talk series?

Mary: I think the first talk was by Tim Fedak. Since I had met him at the Fundy Geological Museum, I thought his talk would be very interesting. Then we just decided to attend the rest of the talks.

Gordon: My daughter.

Joyce: A general interest in learning more about the geology that I had been photographing.

4. What talks did you most enjoy during this past year and why did you enjoy them?

Mary: Tim Fedak's, and the one about the mastodon. I enjoyed them because I know Tim Fedak and had worked a bit on the Prosauropod, and because the excavation of the mastodon was really interesting.

Gordon: The mastodon find in Milford and the prosauropod at Wassons Bluff. Both were well presented by good speakers.

Joyce: I enjoyed learning about the natural history of the Joggins area and about the mastodon discovery. It was very interesting to hear about the first hand experiences of those carrying out the excavations.

5. Do you have a geology background? A general interest?

Mary: Dad (Gordon) is a civil engineer and my mom is a senior

research technician for the same company. I have grown up being around rocks and dirt all my life. I also want to be a palaeontologist after high school.

Gordon: I have a basic geology background and am exposed to geology through my work as a civil engineer. Mary's interest in palaeontology strengthens my interest in geology.

Joyce: I have a general interest in geology and landscapes due to my interest in photography. I also enjoy rockhounding occasionally and like to learn more about the natural history of Nova Scotia.

6. Do you plan to attend any talks in the 2004-05 series of talks?

Mary: Hopefully.

Gordon: Yes.

Joyce: Yes.

OTHER NEWS

54th ANNUAL ATLANTIC UNIVERSITIES GEOLOGICAL CONFERENCE

Heather Wolczanski and the AUGC Organizing Committee

Acadia University's Fletcher Geology Club will host the 54th annual Atlantic Universities Geology Conference (AUGC) in Wolfville from October 28th to 30th. The conference will bring together undergraduate earth science students from across the Atlantic Provinces to participate in competitive presentations and field trips showcasing the local geology, and to learn about career opportunities through visiting speakers. Although the conference is focused on undergraduate students, it is open to anyone who wishes to attend.

The first evening of the conference will focus on careers, with a series of short talks from people who work in different areas of earth science such as environmental consulting, mining, petroleum, and government. The goal is to give students an opportunity to learn about the variety of careers available to earth science students, ask

questions of experts, and debate the pros and cons of each career path.

Full and half-day field trips will run on the second day of the conference (October 29th). They will include a trip to a gypsum mine, an overview of the surficial and bedrock geology of the Wolfville area, and structural geology of the Lunenburg area. The focus of Friday evening's activities will be an inter-university Geo-Jeopardy competition.

The final day of the conference will consist of oral presentations and posters by students representing all the participating universities. It will culminate in a closing banquet on Saturday evening, with guest speaker Dr. David Piper of GSC Atlantic.

For additional information and services, including online registration, please visit our website at <http://ace.acadiau.ca/science/geol/augc2004>.

GEOSCIENCE SUMMIT 2004

Leaders of the Canadian geoscience community are organizing Geoscience Summit 2004, which will take place in Ottawa on 16-17 October. Canadian earth sciences are at a crossroads in industry, surveys and academia, and the community needs to take stock and update its strategy. The meeting, therefore, will review the status of Canadian geoscience and reach a consensus on key steps that the Canadian earth science community needs to take to ensure its continued relevance and viability in the short and long term.

Key points will include recruitment as a wave of retirements approaches, challenges and opportunities in the energy, mining and geotechnical industries, geological survey activity, NSERC funding strategy, and planning for upcoming events such as the International Year of Planet Earth and International Polar Year.

The event will coincide with National

Science and Technology Week, will precede visits by a small delegation to senior Ottawa-based science officials, and will take the place of the regular meetings of the Canadian Geoscience Council and Council of Presidents.

Further information can be obtained from Harvey Thorleifson, President of the Canadian Geoscience Council, at thorleif@umn.edu.

FALL MEETING AND FIELD TRIP 2004, CANADIAN TECTONICS GROUP

The Canadian Tectonics Group 2004 fall meeting, in honour of Prof. Philip Simony, will be held at the Delta Hotel and Conference Centre in Saint John, New Brunswick. The meeting will be hosted by UNB and the New Brunswick Museum.

The meeting will begin on Friday evening, October 22, with a Meet and Greet social. Technical sessions will be held on Saturday. A field trip on Sunday, October 24, will be led by Paul Wilson (UNB) and will focus on aspects of deformation in the Carboniferous basins, in particular the problem of discriminating sedimentary and tectonic features.

20TH ANNIVERSARY OF THE SOCIETY FOR THE PRESERVATION OF NATURAL HISTORY COLLECTIONS

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The Society for the Preservation of Natural History Collections is proud to be recognizing its 20 years of service to the Natural History Community in 2005. SPNHC is an international association of individuals who are interested in the development and preservation of natural history collections. Within SPNHC, "natural history" encompasses more than biological and geological topics; it also includes the fields of anthropology, e.g., ethnology and archaeology. SPNHC members are collection mana-

gers, curators, registrars, conservators, and other specialists and generalists involved with research, educational and exhibit collections; a broad range of associated values to these materials are both acknowledged and protected.

In these 20 years, SPNHC has led the way in providing support to the Natural History Community via:

- **Books:** *Storage of Natural History Collections: A Preventive Conservation Approach*, *Storage of Natural History Collections: Ideas and Practical Solutions* (both of these have quickly become classics, and have import beyond natural history fields), *Managing the Modern Herbarium*, and our latest *MuseumWise: Workplace Words Defined*. More books are scheduled to come out soon.
- **Collection Forum:** Our internationally respected peer-reviewed journal, which covers the diverse subject matter relevant to the needs of natural history collection management and preservation. Book reviews are regularly included. Visit our web-site to view two volumes and the contents of other previous issues.
- **Newsletter:** Twice-yearly Newsletters, which include an occasional series of subject specific Leaflets (the Leaflets and some newsletters are on our web-site).
- **Annual Meetings:** Sometimes held in conjunction with other organizations such as the Natural Science Collections Alliance (previously known as the Association of Systematics Collections/ASC) and the International Society for Biological and Environmental Repositories/ISBER. Workshops are held at each meeting.

Participation in pertinent forums relating to the Society's mission, e.g. Heritage Preservation's *Heritage Health Index*, and the *Workshop to Produce a Decadal Vision for*

Taxonomy and Natural History Collections funded by NSF.

The Society's contributions were recognized by the American Institute for Conservation of Historic and Artistic Works (AIC) and Heritage Preservation, which presented SPNHC with its 2001 award for Outstanding Commitment to the Preservation and Care of Collections.

SPNHC is a valuable resource that should not be overlooked by workers in the natural history field. The Society actively encourages the participation of individuals involved with all aspects of natural history collections. Visit our web-site <http://www.spnhc.org> and join the listserv NHCOLL-L. We encourage you to become a member and partake of our activities, especially this coming year.

We are pleased to welcome the Natural Sciences Collections Association as a participant in our 20th Annual Meeting in London, June 12–19, 2005.

COMING EVENTS

AGS Fall Field Trip. Keddy's Chateau, Bathurst, New Brunswick, October 1-3, 2004. For information, see article in this issue or contact Reg Wilson at 506-547-2070 or Reg.Wilson@gnb.ca .

Fall Meeting and Field Trip 2004, Canadian Tectonics Group. Delta Hotel and Conference Centre, Saint John, New Brunswick, October 22-24, 2004. For information, see article in this issue or contact the Geology Department, University of New Brunswick at 506-453-4803 or geolog@unb.ca .

54nd Atlantic Universities Geological Conference. Acadia University, Wolfville, Nova Scotia, October 28-30, 2004. For information, see article in this issue or visit the conference website at <http://ace.acadiau.ca/science/geol/augc2004> .

Mining Matters for Nova Scotia 2004. Westin Nova Scotian Hotel, Halifax, Nova Scotia, November 1-2, 2004. For information, see article in this issue or contact Mike MacDonald at 902-424-2523 or mamacdon@gov.ns.ca .

Review of Activities, Geological Survey of Newfoundland and Labrador, Newfoundland and Labrador Department of Natural Resources, and Fall Meeting, Newfoundland Branch, CIM. Delta St. John's Hotel, St. John's, Newfoundland and Labrador, November 4-6, 2004. For information, see article in this issue or visit the website at <http://www.gov.nf.ca/mines&en/geosurvey> .

Review of Activities, 2004, Geological Surveys Branch, New Brunswick Department of Natural Resources. Delta Fredericton Hotel, Fredericton, New Brunswick, November 7-9, 2004. For information, see article in this issue or visit the website at <http://www.gnb.ca/0078/minerals> .

Atlantic Geoscience Society 2005 Colloquium and Annual Meeting. Saint John Trade and Convention Centre and Hilton Hotel, Saint John, New Brunswick, February 4-6, 2005. For information, see advertisement in this issue or visit the website at <http://is.dal.ca/~walla/ags/ags.htm> .

Halifax 2005: Joint Meeting of the Geological Association of Canada, Mineralogical Association of Canada, Canadian Society of Petroleum Geologists and Canadian Society of Soil Science. Dalhousie University, Halifax, Nova Scotia, May 15-18, 2005. For information, visit the website at <http://halifax2005.ca> .