ATLANTIC GEOSCIENCE SOCIETY

NEWSLETTER

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PRESIDENT'S FORUM

Tom Martel

I hope everyone has had a good summer, whether you were in the field or on holidays. Now that the summer is over, it's back to work or university. The AGS is starting to get geared up again after the summer break. The Society is now actively preparing for the annual meeting that will be held in Antigonish on the 8th and 9th of February. St. Francis Xavier University has kindly agreed to host the meeting this year – it promises to be a good one. Each year, the Society organises a couple of special sessions on Atlantic geology. Topics in the past few years have included Geology of the Maritimes Basin, Geological Correlations between New Brunswick and Maine, Onshore and Offshore Oil and Natural Gas Exploration and Related Research. Now is the time to propose any special session(s) that you think appropriate, and to discuss your ideas with Brendan Murphy of St. Francis Xavier University.

One of the most exciting events of the summer was the launch of the AGS-sponsored publication *The Last Billion Years*. The book is a collaboration of many local authors chronicling the geologic history of the Atlantic Provinces over the last billion years. It was published by Nimbus Publishing, launched in the spring to rave reviews, and instantly became a best seller. Twenty-one hundred copies were printed and the publisher was sold out within five weeks. You may be able to find the occasional copy in local bookstores, but you had better be quick. The AGS and *The Last Billion Years* committee are in discussions with Nimbus about a possible second printing of the book.

Congratulations are due to *The Last Billion Years* committee chaired by Graham Williams, the many contributing authors, and Nimbus for a first class publication. According to friends of mine in the book industry, the book has been a resounding success, especially considering that it is the geologic history of the Atlantic region and thus mainly of interest to a relatively small market.

In my failed search for a copy in downtown Halifax, I was told by one bookseller that the book sold well because it was very well laid out, accessible, and appealed to a broad range of ages. As one of the main goals of the AGS is to promote a wider understanding of earth sciences within the local community, it is clear that *The Last Billion Years* must be considered a resounding success. A good number of people (myself included) stumble into a career in earth sciences purely by accident. Perhaps *The Last Billion Years* will direct some of its younger readers toward a career in earth sciences that they may have otherwise missed!

A TRIBUTE TO NICK RAST

Ron Pickerill

The Atlantic Geoscience Society lost one of its founding members with the passing of Professor Nicholas Rast on August 28, 2001 from complications following colon surgery. Prof. Rast served as the Society's third president,

Professor Nicholas Rast, 1927-2001

in 1974-75, and was a major force in the establishment of the annual Colloquium, the first of which was held in 1973 in Fredericton.

Nick was born in Iran in 1927, his parents being a mix of Russian and British, and probably one of the reasons why he was fluent in so many languages. His early education was based in Iran where in 1945 he graduated from the Technical Institute in Abidan with a background in Industrial Chemistry. As a result of his scholarship he was awarded funding to study in the UK where in 1952 he was awarded a B.Sc. from the University of London in Geology/ Geochemistry. From there, he transferred to the University of Glasgow as an Assistant Lecturer while undertaking his Ph.D. that was eventually conferred in 1956. From 1955 to 1959 he assumed the position of Lecturer at the University of Wales, Aberystwyth, and then transferred to the University of Liverpool, where from 1959 to 1971 he spent many productive years. In 1971, Nick thought it was time for a change and was attracted to the University of New Brunswick as Chair of the Geology Department, where again he spent many productive years. This was the period in which he was actively involved in the AGS and other academic societies and organizations. In 1979, he was lured into accepting the prestigious position of the Hudnall Chair of Structural Geology and Tectonics at the University of Kentucky in Lexington, and where he remained as an Emeritus until his untimely death. Even so, Nick did not forsake his enthusiasm for the Maritimes, and was an active participant on many NEIGC field trips, particularly in the 1980s.

Nick was in many senses a most remarkable individual. First and foremost, he was a skilled field geologist in a variety of disciplines. He possessed the ability to not only see the minutest of details at a particular outcrop, but also to immediately convert his observations into broader scale and regional consequences. It is therefore hardly surprising that among his more than 150 publications, many concern detailed interpretations of entire orogenic belts, particularly that of the Appalachian-Caledonian orogen. His linguistic abilities also allowed him to translate several major geological texts, particularly those in Russian. In addition to being an avid researcher, Nick was a devoted mentor to several tens of research students, many of whom are now in their own right household names in the geologic fraternity, and in whom he instilled the same enthusiasm for and love of fieldwork.

Yet for those unfortunate not to have known or met him, Nick also had a side that would perhaps surprise some individuals. Nick was an expert in classical music, a cordon bleu chef and wine connoisseur, even writing a weekly wine column for the Fredericton newspaper during his residence in New Brunswick. Well known for his keen sense of humour, he was also a man of charm and elegance and a devoted family man. In April of 2001, a conference was held in Lexington in honour of Nick's retirement. Many friends and former colleagues from different parts of the world attended. At the conference, Jim Skehan, whom many of you will know and who was an active research collaborator with Nick, in his own tribute to Nick perhaps summarized him best as "… *one of the most talented, adventuresome, interesting, stimulating and delightful geologists that I and many of you have had the pleasure of knowing, a true renaissance man*…".

Nick will be sadly missed by all who knew him. He is survived by his wife Diana and four children: Alexander, Andrew, Nicholas and Elizabeth.

Ed. Note: This tribute was extracted from one prepared by Ron Pickerill for the 2001 NEIGC fieldtrip guidebook. Jim Skehan's tribute to Nick Rast can be read at http://www.uky.edu/AS/Geology/dept/skehan.html.

UPDATE ON OIL AND GAS EXPLORATION

Tom Martel

As one of the few AGS members directly employed in the petroleum industry in Eastern Canada, one of my duties is to keep the readership abreast of what is happening on the petroleum exploration front. While I am not privy to much more information than is available through the newspapers, I have been following the local developments in Nova Scotia and New Brunswick quite closely.

In New Brunswick, Corridor Resources has made a gas discovery in the McCully area near Sussex. Three wells have been drilled in the structure to date, and a fourth is being drilled as I write. The first two wells tested the equivalent of 2.6 and 4.1 million cubic feet per day (unstimulated) and the third well has been cased for fracing in the future. Columbia Resources (now Nisource) is drilling in partnership with Corridor Resources at Coppermine Hill (north of Sackville, New Brunswick, and has drilled a number of other wells, the results of which are still confidential. Corridor Resources also has a partnership with Globex Resources of Calgary and they intend to do some drilling west of Sussex this fall after analysing recently shot seismic.

Newfoundland is doing very well with the Hibernia operation. The FPSO (Floating Production, Storage, and Offloading) unit for Terra Nova is completed and should begin production in the very near future. The White Rose Field is under evaluation, but there is optimism that it will eventually go into production. Like Nova Scotia, Newfoundland has a deepwater play of its own that may prove interesting. The Imperial Ventures play in Western Newfoundland is in its early days, but it is hoped that it will lead to a modest onshore oil and gas industry in Newfoundland.

Nova Scotia onshore is heating up with Northstar drilling five coreholes this year and with EOG farming in on Hunt to drill a well this fall. In the offshore, Pan Canadian is excited about their new discovery - Deep Panuke - in the Abenaki Carbonates. They have announced the development of the project and will run a new pipeline to Goldborro where they will hook up to an expanded Maritimes and Northeast Pipeline. Since the discovery, Pan Canadian has drilled a couple of dry holes in the Abenaki, but the play is still in its infancy. The Sable Project is rolling along with plans of early expansion, however, recent announcements of an increasing salt water cut is something to watch for as it may impact the long term success of the project.

The seismic boats have been very busy shooting over the new licence blocks that have been taken in the last few years. The big excitement is being created by the offshore deepwater blocks where the various companies have committed to spending nearly a billion dollars in exploration expenses. The deepwater has the potential to be either oil or gas, with numerous large structures and thick turbidite sandstone reservoirs. The first wells are to be drilled late this fall or perhaps early next year. The deep-water wells will require big "iron" such as the Pan Canadian rig being worked on in the Halifax harbour. Is Nova Scotia reaping any benefit? I have read that over 50% of the new office spaces leased this year in Halifax have been by oil companies. Kerr McGee and Marathon have already set up offices that will probably expand when drilling begins. They would undergo much larger expansions if a discovery were made. The next three to five years will tell the story. Success would change the face of this region.

UNIVERSITY NEWS

UNB

Murray Gingras

The UNB Geology department was quite quiet during the summer term. This is because almost every researcher in the department was in the field during some part of the summer. Our department continues to invade several localities in North America, and a few outside, that comprise our collective study areas. Research interests are varied and they represent a good cross-section of current geological endeavours. At UNB, we strive to maintain a balanced geological program. This is reflected by our research breadth and course offerings. Our course offerings are bolstered by the excellent instruction of Adrian Park, James Whitehead and Lucy Thompson.

The most exciting news to report is that of a new hiring. We are pleased to announce the appointment of Dr. Cliff Shaw to a faculty position in igneous petrology. Cliff has developed expertise in a wide variety of igneous processes. His current interests focus on the kinetics of reaction between silicate and oxide minerals and silicate melts, the petrology of the upper mantle in the

2001-02 Executive and Council of the Atlantic Geoscience Society

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Vice-president:	Jennifer Bates	GSC – Atlantic
Past-president:	Mike MacDonadl	NSDNR
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Industry		
	Paul Durling	Corridor Resources Inc.
	Alan Ruffman	Geomarine Associates Ltd.

Quaternary West Eifel volcanic region in Germany, the dynamics of magmatic systems, and the synthesis and characterization of new high-pressure minerals. We anticipate continued growth as a department and hope to make similar announcements in the future.

UNB Fredericton and NBDNRE hosted this year's New England Inter-university Geological Conference (NEIGC) in late September. The gathering was a fabulous success. Participants had the opportunity to make many new friends and attend many excellent field trips. Saturday evening's mixer was a grand event, with folk music and excellent food, all in the great outdoors. Dave Lentz and Karen Shea were the primary organizers. Many of the department's graduate students and several of our undergraduates assisted Dave in pulling the weekend off. They are fine examples of what UNB is all about: enthusiasm, interest, and fun.

It would be most unfortunate not to mention Ron Pickerill's effort in helping Dave prepare the NEIGC Field Guide. It is fair to say that without Ron's help, Dave's task would have been much more difficult.

Unfortunately for our department, Joe White (Chair) has been sequestered by UNB administration in the office of the Vice President of Research. Joe's students have remained active, and our department has functioned well by collectively filling the void created by his absence. We all look forward to his return, probably in December, 2001. Until that time, John Spray remains Acting Chair.

Current Research

John Spray has been very active with his research group. The Planetary and Space Science Centre (PASSC) was officially opened in April and it continues to generate local excitement. Post-Doctoral Fellow James Whitehead is commencing a one-year post-doc at PASSC. James will use Mars Global Surveyor laser altimetry data and high-resolution images of Martian impact structures to help further the understanding of cratering processes on the Red Planet. Project collaborators include Richard Grieve (Chief Geoscientist of the GSC and UNB Adjunct Professor) and Jim Garvin (NASA Chief Scientist for Mars). John's graduate students continue to excel. Their research has focused on gathering crucial field data from known meteorite impact sites.

Paul Williams and his students continue to build upon Paul's impressive knowledge and understanding of the Monashee Mountains in British Columbia. Recent research has focused on the development of structures and microstructures in metamorphic rocks and the processes responsible for their development.

Our economic geology research group, which is led by David Lentz, has been very active, especially in New Brunswick. Dave's students have presented their research at many conferences - local, regional and international.

Tom Al has begun work on a 4-year research project within the Canadian Water Network NSERC NCE, focusing on the Fredericton Aquifer. This initiative is led by Tom and Kerry MacQuarrie (Civil Engineering Dept., UNB). Additional researchers include Karl Butler (Geology Dept., UNB). Tom recently graduated two M.Sc. students, Tracy Cochrane and Mallory Gilliss.

Karl Butler enjoyed geophysical field work close to home and abroad this summer. In June, aboard UNB's research vessel Mary-O, he collaborated with Dr. Russ Parrott from GSC Atlantic and UNB's Ocean Mapping Group to probe the depths of the Fredericton aquifer using a high resolution seismic profiling system on the Saint John River. In July he travelled to Australia for a geophysical adventure in the Western Australian gold fields, carrying out an experimental seismic/seismoelectric survey over a paleochannel system that provides water for nearby mining operations. Both projects yielded wonderful data sets, and Karl reports that he is 'on the look-out' for potential graduate students to share in the excitement of working through them and planning follow-up studies.

Last year, the professional world of Quaternary Research had two more protégés of Bruce Broster unleashed upon it. Andrew Stumpf and Marni Dickson graduated in late 2000 and early 2001, respectively. Both were very involved in till geochemistry (related to drift prospecting) and Quaternary geomorphology. They have found full-time employment with geological surveys in the United States. Bruce continues to pursue interests in Applied Glacial Geology, including environmental, engineering and exploration applications of glacigenic facies, compositional variability and dispersal, deformation structures and neotectonics. He continues to serve as the Director of the Medical Laboratory Science Program.

Ron Pickerill still serves as an editor or an active reviewer for several journals. Ron's current research encompasses trace fossil research in Korea, New Brunswick, Jamaica, and Carriaco. Ron and Stephen Donovan (Head of Palaeontology, National Natuurhistorich Museum / Naturalis, Leiden; adjunct, UNB) continue to collaborate on various paleontological and sedimentological projects.

The UNB Sedimentary Research Group, led by Murray Gingras, has started work on the development of an integrated, high-resolution, four-dimensional flow model for reservoirs characterized by inclined heterolithic stratification in the McMurray Formation, Northeastern Alberta. Murray has also worked on various sedimentary rock imaging techniques, primarily with the intention of mapping heterogeneity in sedimentary rocks. This work has been greatly facilitated by Dr. Bruce Balcom (UNB

Physics) and Dr. Esam Hussein (UNB Engineering).

Nick Susak is primarily pursuing geochemical interests. His research has reached into several fields of geochemistry; these include experimental aqueous geochemistry, the geochemistry of ore deposits, and the geochemistry of natural waters.

Awards and Honors

Andrew Stumpf, a Ph.D. student supervised by Bruce Broster at UNB Fredericton, has been awarded first prize in the CIM (Canadian Institute of Mining, Metallurgy and Petroleum) 2001 Student Thesis/Essay Competition. This award is given in recognition of the best thesis or essay written by a graduate student in the field of geology.

Gordon Osinski (Ph.D. candidate, John Spray) won the E.M. Shoemaker Award of the Geological Society of America for the year 2000 (awarded last Fall at the GSA annual convention, Reno). This annual award recognizes outstanding students working in the field of impact geology and planetary geology.

Erin Walton, M.Sc. student with John Spray, won the best student abstract (Materials Science Division, Atlantic Region) at the MSC.

C.R. Harris, M.K. Gingras, M.J. Ranger and S.G. Pemberton won the best poster award at the 2001 annual CSPG convention for their poster on facies mapping in the Athabasca oil sands.

A number of the department's students won UNB awards, including Nicolette Stanley (Fred Klidaris – A.L McAllister Scholarship), David Lister (Geological Association of Canada Award), Erin Smith (Sharon L.W. Bachinski Memorial Scholarship), and Tanara Holmes (A.L. McAllister Scholarship).

Recent Graduates

Tracy (Gray) Cochrane graduated in May 1998 with a B.Sc. in Earth Sciences from Dalhousie. She completed an M.Sc. program in hydrogeochemistry with Tom Al at UNB, and graduated in May 2001. She currently works for Environmental Strategies Corp. in Reston, Va.

Martin de Keijzer completed his Ph.D. with Paul Williams in late 2000. Martin is working with Shell International in the Netherlands.

Marni Dickson graduated in 2001 with an M.Sc. Her work with Bruce Broster has led to employment with the Indiana Geological Survey.

Mallory Gilliss completed an M.Sc. in hydrogeochemistry with Tom Al in August 2001. She currently works in Fredericton for Jacques Whitford Environmental Limited.

Andrew Stumpf graduated in 2001 with a Ph.D. His work with Bruce Broster has led to employment with the Illinois Geological Survey.

Ronald Scott graduated in 2001 with his Ph.D. His thesis is entitled "Origin of the South Range Breccia Belt and the Emplacement of the Frood-Stobie Ni-Cu-PGE Deposit, Sudbury Impact Structure". Ron now works as a Research Associate at the University of Ottawa.

New Graduate Students

The department welcomes the following new students: Serge Allard (M.Sc.) with Bruce Broster; Antu Chakkunny (Ph.D.) and Larry Amskold (M.Sc.) with Tom Al, and Barton Blakeney (M.Sc.) with Murray Gingras.

Acadia

Sandra Barr

After what seemed like an even shorter summer than usual, classes resumed on September 5th, although students (and faculty!) participating in senior field school had already been hard at work making maps in the Guysborough area 10 days earlier. This year, we are missing both Ian Spooner (on sabbatical leave) and Nancy Van Wagoner (on administrative leave). As seems to be the rule in recent years, the university administration did not give us a replacement position, but expected us to somehow fill the gap with part-time positions - a total of five courses, in addition to the two part-time positions filled on a long-term basis by Alan Macdonald, who teaches structural geology in the Fall term and metamorphic geology in the Winter term. To our immense relief, two enthusiastic and competent geologists stepped forward to cover the three Fall term courses for us. David Keighley is teaching two of Ian's courses (geomorphology and sedimentary petrology) and Ann Miller is covering Nancy's introductory course. We are grateful to David and Ann for their willingness to commute to Wolfville for this work (David from Fredericton for three days a week and Ann from Halifax two days a week).

Dr. Kelsie Dadd of Macquarie University and her family returned home to Australia in early October. Kelsie arrived in May to undertake various collaborative research projects in volcanology with Nancy Van Wagoner, including field work, field trip leading, and paper writing.

In late August, Larry Mireku successfully defended his M.Sc. thesis on *Geology, geochemistry and hydrothermal alteration of the Halfmile Lake South deep zone volcanic-hosted massive sulphide deposit, Bathurst, New Brunswick*. Larry's supervisor was Cliff Stanley. Larry was the recipient of the Noranda Award at last February's AGS

Available Soon – Volume 36, Numbers 2&3 – Atlantic Geology

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meeting, and worked for Noranda in the Bathurst area over the summer.

New graduate students at Acadia this term are Andrea Locke (B.Sc. Memorial University), who is working with Cliff Stanley and Ian Spooner on the glacial stratigraphy of tills and geochemistry of the Brazil Lake pegmatites, southwestern Nova Scotia, and Kim Wahl (B.Sc. University of Victoria), who is working with Ian Spooner on a GIS-based landslide hazards assessment for the Cape Breton Highlands National Park.

Continuing M.Sc. students, all working with Sandra Barr, are Steve King (A geophysical study of the nature of the Mira - Bras d'Or terrane boundary in Cape Breton Island), Kirsten McLaughlin (Petrology, age, and tectonic setting of the Moosehorn Igneous Complex, New Brunswick and Maine), and Paul Ténière (Stratigraphy and structure in the Lochaber-Mulgrave area, Nova Scotia).

Honours students this year are Dan Hagan, working with Sandra Barr on the petrology and tectonic setting of volcanic rocks in the White Rock Formation in the Torbrook area; Matt Jodrey, working with Alan Macdonald on the Dufferin Mine saddle reef gold deposit, and Heather Paul, working with Cliff Stanley on the petrology and lithogeochemistry of a volcanic massive sulphide deposit, Manus Basin, Papua New Guinea.

The Fletcher Geology Club, under the leadership of this year's president Peter Budgell, is planning a busy year, including field trips to Amethyst Cove, Parrsboro, and The Ovens. The latter trip, led by Department Head Rob Raeside, has become somewhat of an annual tradition. Also an annual tradition for the club members is their assistance with the Fall blood donor clinic at Acadia; this year marks the 105th time that the club has undertaken this worthwhile activity.

When you call the departmental office these days (902-585-1208), the cheerful voice on the line belongs to Cathy Walsh, who joined the department as secretary and "upstairs technician" last spring. Her enthusiasm and organizational skills have been a welcome addition to the department. She has even gone so far as to enrol in an introductory geology

course so that she will know what all those materials are in the display cases and better understand the jargon that she hears in the halls!

We are looking forward to a busy and productive year here in Wolfville, and the rare treat of two visits to Antigonish, for AUGC and the AGS meeting!

St. Francis Xavier

Cindy Murphy

The 2001 summer and fall months have been productive times within the Department. During the months of June and July, Dr. Rainer Thomas, from the GeoForschungsZentrum Potsdam, Germany, served as the James Chair Professor in the Geology Department. Dr. Thomas worked with Alan Anderson on the properties of Li-F rich granite melts and on the structure of some unusual Hf-rich zircons in the Georgeville Granite,Nova Scotia. Alan is currently a member of GeoCARS (Consortium for Advanced Radiation Sources) and a General User at the National Synchrotron Light Source, Brookhaven National Laboratory, New York

In July, Hugo Beltrami began his sabbatical for the 2001-02 academic year. Hugo will be pursuing his research interests in the area of terrestrial heat transfer with special emphasis on the determination of past climates from geothermal data as well as the experimental and numerical study of the energy exchanges at the air/ground interface as they apply to climate dynamics. Hugo is currently associate member of GEOTOP at UQAM and he is one of 20 elected members of the International Heat Flow Commission. His sabbatical replacement, Elisabeth Levac, is a Ph.D. candidate from Dalhousie University. Elisabeth is presently completing a thesis on the Holocene paleoceanography of the southeast Canadian Margin using palynological records.

Lisa Kellman's research involves the study of nitrogen and carbon biogeochemistry of natural and disturbed aquatic and soil environments, and the use of stable isotopes to better understanding cycling and processes in these environments. She co-supervises an M.Sc. student, Dave Risk, with Hugo Beltrami. Dave received the AGU Outstanding Student Paper for his presentation at the Fall 2000 meeting in San Francisco.

Mike Melchin was invited to China in May and June to work on the project *Biotic Recovery from Ordovician Mass Extinction in South China* at the National Natural Science Foundation of China**.** He has been appointed chair of the NSERC grant selection committee for Solid Earth Sciences for 2002-03. He currently supervises two graduate students; one registered at Dalhousie but currently residing at St.FX, and the other co-supervised at University of Western Ontario. In October, he has a post-doctoral fellow arriving from China.

Brendan Murphy, chair of the department, has just returned from a short trip to the Swiss Alps as co-leader of an IGCP-UNESCO Project 453 entitled: *Uniformitarianism revisited: a comparison between modern and ancient orogens*. This research contributes to the understanding of orogenic processes, their relationship to supercontinent amalgamation and dispersal, and the processes responsible for the growth of the North American continent during Appalachian orogenesis. Brendan was the recipient of the 2001 Gesner Medal for research in Atlantic Canada, and an invited speaker at the Geological Society of Australia, Sydney (June, 2001), and the upcoming 2001 GSA fall annual meeting in Boston. He currently supervises two graduate students.

The Department is busy making final decisions for the new Science building, scheduled for completion in 2003. The faculty has recently completed an AIF proposal in collaboration with other departments on campus to establish a center of Applied Petroleum Studies (CAPS). The Department is also looking forward to the upcoming 51st Atlantic University Geological Conference at the end of October in Antigonish, hosted by the Faribault Geology Club, and to hosting the AGS conference in February of 2002.

Dalhousie

Peter Reynolds

People

This year, we welcome Nick Culshaw and Marcos Zentilli back from sabbatical leave. Martin Gibling is on sabbatical this year. Martin will be based at the University of Exeter, U.K., and will be conducting research on the modern river systems of the Ganges Plains, with analysis of cliff sections along the major rivers to establish a geochronological framework for river and climate change in the late Quaternary; and the Tertiary braided-river systems that radiated from the volcanic system of the Isle of Elba in northern Italy. John Gosse, appointed to a Tier II Canada Research Chair, arrived in July to take up this position. John has taken over the office space previously occupied by Jim Hall who retired in July after many years of service, most recently as our principal instructor of first year classes. We welcomed earlier in the year Killam Postdoctoral Fellow, Howard Falcon-Lang, who works principally with Martin Gibling. This fall Howard assisted Nick Culshaw on the Honours Field Trip in Ontario, and also is teaching one of Martin's undergraduate classes for us.

New This Year

Dalhousie Regional Electron Microprobe Laboratory

The electron microprobe laboratory located in the Department of Earth Sciences at Dalhousie University is jointly owned by researchers from

Dal, Acadia, St. Francis Xavier and Saint Mary's universities.

We have just purchased a new JEOL JXA-8200 electron probe microanalyzer, due for delivery on October 1, 2001. The new instrument is a state-of-the-art, fully automated, digital, scanning electron microprobe equipped with five WDS X-ray spectrometers and one EDS X-ray spectrometer, as well as with a backscattered and secondary electron detector, an optical microscope, and a cathodoluminscence imaging system. The microprobe will provide rapid, non-destructive quantitative chemical analyses of minerals, glasses, ceramics, and metals in grains as small as a few microns in size. Fully quantitative analysis can be provided for elements ranging from uranium down to and including boron. The microprobe also has an image analysis system to produce secondary, backscattered, and X-ray images that provide quantitative data on abundance, size and shape, as well as X-ray maps of the distribution of elements in a sample. Software includes complete quantitative data acquisition and auto particle analysis programs.

We expect that installation and testing of the new instrument will take several months. We will attempt to keep the old microprobe operating until the new instrument meets specifications and is able to take over fully.

Cosmogenic Nuclide Extraction Laboratory

The abundance in rocks of isotopes produced by cosmic ray interactions (e.g., ^{10}Be, ^{26}Al, ^{36}Cl) is a measure of the length of time these rocks have been exposed to cosmic radiation. Consequently, their measurement provides a way to determine the age and erosion history of landforms. Prof. John Gosse is building a laboratory in the department designed to extract such cosmogenic nuclides from selected rocks and minerals. Following extraction at Dalhousie, John will measure the abundances elsewhere using the methods of accelerator mass spectrometry.

Northern Outreach

Becky Jamieson was invited this summer to participate in the Geological Survey of Canada (GSC) - Canada-Nunavut Geoscience Office (C-NGO) interdisciplinary mapping project on Baffin Island. The project (under the leadership of Marc St-Onge and David Corrigan, GSC, and Dave Scott, C-NGO) involves bedrock and surficial mapping and associated laboratory research of a 100 by 210 km transect across central Baffin Island. Becky is supervising M.Sc. student, Simon Gagné, who was employed by the GSC on this project in 2000 and 2001, and who has been invited to participate again in 2002. His project will involve a detailed study of the chemistry**,** texture, and age (using the new microprobe!) of monazite from the upper Piling Group. He will look at samples from a range of metamorphic grades to see where monazite first appears and how its texture, composition, and age change with increasing temperature and pressure.

Marcos Zentilli and graduate student Sandy Grist were invited this summer to participate in a multidisciplinary research expedition to the Nares Strait that was financed by the German Federal Institute for Geosciences and Natural Resources, the Canadian Coast Guard, and the Geological Survey of Canada. Their interest in this project is to study the flank uplifts and normal faulting related to the Baffin Bay - Labrador Sea Rift, the timing and magnitude of uplift/exhumation related to Eurekan compression, and the thermal history of Cenozoic clastic units. This research has long-term implications for hydrocarbon exploration in Nunavut. For example, the permeable Tertiary clastic units (3 above) would make excellent reservoirs, and the coaly and organic rich strata found in them are potentially good source rocks for hydrocarbons.

Saint Mary's

Jarda Dostal

This academic year, the department has experienced an increase in student enrollment along with a number of new developments. Dr. Pierre Jutras was hired in a tenure-track position, which was vacated after John Waldron left. Pierre did his Ph.D. at the Université du Québec à Montreal on the tectonostratigraphy of the Chaleur Bay area, a part of the upper Paleozoic Maritimes Basin. His research has led to the identification of several previously unrecorded tectonic and sedimentary events in that area. Perhaps his most important contribution is the identification, within Carboniferous sediments, of a rare type of groundwater calcrete that had previously only been recognized in Quaternary deposits of Central Australia. He is currently working on the pan-Atlantic Canada correlation of the continental units at the Viséan-Namurian (mid-Carboniferous) boundary.

Victor Owen is back from sabbatical leave. His sabbatical research included field work in western Newfoundland and trip to Russia to visit colleagues with whom he works on the petrology of ancient pottery.

Qadeer Siddiqui attended the International Symposium on Ostracoda in Japan and is working on a monograph of Tertiary shallow marine ostracods from Pakistan.

Georgia Pe-Piper has returned full-time to the department after a two-year appointment as Director of Graduate Studies and Research. She has a major research contract with oil companies.

David Slauenwhite, together with summer student Stewart Yule, put into operation a recently acquired sulfur-carbon-nitrogen analyzer. The equipment, set up for the routine analysis of geological and environmental samples, adds a new dimension to the operation of the Regional Geochemical Centre. The

university provided the centre with funding for a part-time student to help David during the academic year.

Honours student Michelle DeWolfe earned an NSERC graduate scholarship, as well as the Mining Society of Nova Scotia scholarship and the Rupert H. MacNeil award at the AGS Annual meeting. Two geology students - Lila Dolansky and Steve Ingsm - received NSERC undergraduate summer scholarships. Two third year students - Peter Cooper and Chris Baldwin - went to Mexico in January 2001 for a five month term to study and do research at the Institute de Geologia, Universidad Nacional Autonoma de Mexico in Mexico City. The trip was sponsored by the NAFTA Student Mobility Program.

Our part-time faculty includes A. K. Chatterjee, Howard Donohoe, Cecily Honig, Robert Ryan and Mohamed Salah. Randy Corney is instructing two web-based courses in introductory geology aimed at arts and commerce students. At present, we have seven students working on their honours theses. This past summer, the university initiated a new graduate program – M.Sc. in Applied Sciences, which also involves our department.

Current Research at the University of Maine at Farmington

David Gibson
Associate Professor of Geology
University of Maine at Farmington

"Cryptic" evidence for magma mixing in coastal Maine plutons

The Coastal Maine Magmatic Province (CMMP) is composed of over 100 plutons which range in age from Late Silurian to Devonian, and in composition from gabbroic to granitic. In many intrusions there is spectacular evidence for the contemporaneous mixing and mingling of felsic and mafic magmas. Several ground-breaking papers by Wiebe and co-authors on the Pleasant Bay, Mount Desert Island and Vinalhaven complexes have detailed field, petrographic and geochemical evidence for the repeated influx of basaltic magma into granitic magma chambers. From these studies, the concept of a distinct and important class of plutons - Mafic-Silicic Layered Intrusions or MASLI - has emerged. The widespread occurrence of spectacular hybrid rocks produced by the mixing and mingling of contrasting magma types suggests that this might be an important process in the crystallization of granitic rocks.

MASLI style intrusions from the CMMP are recognized because post-crystallization tilting has exposed cross sections through these "fossil" magma chambers, revealing the mixing zones where basaltic magma invaded the felsic chamber. In addition, these MASLI plutons are among the oldest intrusions of the CMMP (~ 400 – 420 My) and therefore may have been eroded to deeper levels compared to their younger counterparts of the province. In our recently funded NSF proposal, my co-workers (Drs. Dan Lux and John Hogan) and I ask the question – are there textural, mineralogical and geochemical/ isotopic criteria which can be used to identify MASLI plutons where only the granitic roof is exposed? In other words, if we were able to drill through some CMMP plutons (a costly venture!) would we encounter, at depth, the mixing zones where basaltic magma mingled with granitic material? We have focused our research on three plutons – Vinalhaven (a known MASLI pluton and our "control"), Deer Isle (which contains some evidence (mafic enclaves and composite dikes) that it received mafic inputs) and the Mt. Waldo, of which only the top 350m is exposed.

Our recent investigations have revealed "cryptic" evidence to suggest that the Mt. Waldo and Deer Isle plutons may have received mafic inputs during their emplacement. In these plutons there are abundant mafic enclaves, which may represent the hybrid rocks formed at the interface of crystallizing granite magma and basaltic inputs. Schlieren are also common in parts of the Mt. Waldo and Deer Isle plutons. They contain high concentrations (up to 12 modal %) of REE-bearing accessory minerals (zircon, sphene, and apatite) in what appear to be "depositional" structures (*i.e.*, troughs and cross beds). Furthermore, the plagioclase feldspars are often complexly zoned. Some exhibit step-wise zoning (cores of An_{45}, central areas of An_{25} and rims of An_{15}) whereas others have continuous, normal zoning (An_{25} - An_{15}). These variably zoned plagioclases occur alongside boxy cellular plagioclase and rapakivi feldspars even on the scale of a thin section.

Collectively these features challenge the traditional view of how felsic magma chambers crystallize. For these CMMP plutons we would suggest that crystallization occurred in a much more dynamic environment. The complex zoning histories preserved within the plagioclase record fluctuations in the intensive variables (temperature, pressure and composition) during their growth within the magma chamber. Therefore, although they may have formed in different parts of the magma chamber we now observe them juxtaposed. The preponderance of mineral layers (schlieren), comparable to the classic layered granites of SW Greenland, point to the convective flow of magma, a mechanism which could also have distributed hybrids (the enclaves) throughout the magma chamber. The "smoking gun" may well be that basaltic magma periodically flooded into these magma chambers, not only injecting material but also infusing heat into the system.

In the future we will be examining the mineral and isotopic chemistry of the plagioclase and accessory phases. We believe this approach, more commonly applied to volcanic systems, may provide definitive evidence of the role of mafic inputs in the crystallization of these felsic plutons. Perhaps MASLI

plutons are not the exceptions but rather the rule, not only within the CMMP but also worldwide!

NEWS FROM PROVINCIAL AND STATE SURVEYS

New Brunswick

Don Carroll

New Brunswick's Annual Review of Activities Set for Early November

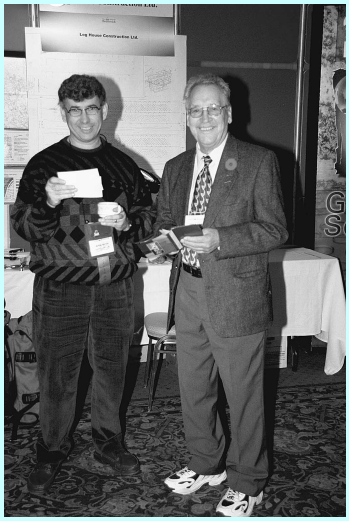
After last year's successful 25th anniversary event, some folks had a few doubts as to whether the organizers of the New Brunswick Department of Natural Resources and Energy Review of Activities could rally the troops to work toward putting on another great program.

Well, the proof will be 'in the pudding' as they say, but once again, industry, academia, and government have co-operated to set the stage for another major November conference.

Instead of the usual 2.5 day format, this year's Review extends one more day, starting on Sunday, November 4 and finishing at noon on Wednesday, November 7, 2001.

The opening program begins with a UNB-SEG-sponsored seminar entitled *Mineralized Shear Zones: Structural Kinematics to Fluid Flow*. Organized by Dr. David Lentz of the University of New Brunswick, the program will include speakers such as Drs. François Robert (Barrick), Paul Williams (UNB), Adrian Park (UNB), Shoufa Lin (Waterloo) and David Lentz (UNB).

On Monday, November 5, a couple of things will be happening and the choice is yours. First, there will be a field trip to one of the hottest gold exploration areas in New Brunswick, the southwestern area of the province where Freewest Resources Canada Inc. and other junior mining companies plus prospectors have been exploring for gold. The official title of this field trip is *Geological Setting of the Clarence Stream Gold Deposit*. It is being organized by Kathleen Thorne (UNB), Don Hoy and Glen Lutes (Freewest), and Adrian Park and David Lentz (UNB). Considering the news coming from Freewest lately, this should prove to be a popular event.



Blaine Phillips (BAP Equipment, left) chatting with prospector Don Black of Bathurst at the NBDNRE's 2000 Review of Activities.

Second, there will be a special computer workshop, organized by Paul Rennick of the New Brunswick Geological Surveys Branch. As we all know, mineral exploration companies, consulting companies and individuals are asking to be provided with more geoscience and related land information data in digital format. Additionally, these folks want the data in 'real time', that is, they need it 'now' and want ready access to servers that will provide them with that data. Paul has lined up an interesting mix of speakers from the Geological Survey of Canada, Service New Brunswick, Universal Systems Ltd., and from staff within the Geological Surveys Branch. Paul may have a few things to say about the Department of Natural Resources and Energy's newest initiatives on this front.

After two days of seminars, workshops, and field trips, it will be time to relax and to network with your fellow colleagues at the Meet and Greet Commercial Trade Show and Geoscience Poster Session on Monday night. Following this event at 9 p.m. will be the opening of The Gold Bar, a modification of last year's successful Prospector's Pub, an opportunity to really relax and enjoy the music of Frank Scott, the Flying Scotsman.

Tuesday morning kicks off with the technical sessions. More than 15 speakers representing the mineral and oil and gas sectors, academia, and staff from the Geological Survey of Canada and New Brunswick Geological Survey Branch are included in this year's technical sessions. Steve McCutcheon and associates once again have come up with an interesting and informative program.

This year's Tuesday evening banquet is an event you won't want to miss. The special banquet speaker is Dr. John Spray, Acting Chair of UNB's Geology Department, and Director of the Planetary and Space Science Centre. Dr. Spray's presentation is titled *Deep Impact in the 21st Century*. For those wanting an inkling of what this presentation will be about, check out our conference web site at: http://www.gnb.ca/0078/minerals/review.htm .

The 26th Annual Review of Activities concludes on Wednesday morning with a program that, again this year, focuses on industry involvement, in what we call the Industry Forum. This year's forum is a bit of a soul-searching session, concentrating on four resource commodities: base metals, gold, hydrocarbons, and industrial minerals.

A multidisciplinary panel has been formed from a cross-section of today's mine and oil/gas finders who will address several crucial issues, including: What is the perceived potential of the New Brunswick's mineral/ hydrocarbon resources?

What are the issues facing each sector? What does industry perceive the role of the government to be in the sector? Is government perceived as meeting the service needs of each sector? How could exploration and development activities be increased in each sector?

Come and join us for what is hoped to be another great New Brunswick Annual Review of Activities. If you plan on coming, book your accommodations early!

The Great Canadian Mine Show Tours New Brunswick

By now you may have heard of the Great Canadian Mine Show, a cross-Canada tour of a tractor trailer unit with all kinds of neat computer simulations, etc., publicizing the importance of the Canadian mineral industry. The Great Canadian Mine Show toured New Brunswick from September 7 to September 18, 2001, stopping at Sussex (during the Balloon Fiesta), Fredericton, Bathurst, and Moncton.

Prior to its arrival, several organizations (such as the New Brunswick Mining Association, the New Brunswick Branch of Canadian Institute of Mining, Metallurgy and Petroleum, and the New Brunswick Department of Natural Resources and Energy) met regularly to outline a strategy for the visit of this mineral industry promotional event.

Several of the Natural Resources and Energy staff had already seen the trailer unit at the International Convention and Trade Exposition of the Prospectors and Developers Association of Canada in Toronto in March. One of the main issues arising out of staff comments at that time was that it would be imperative for New Brunswick to supplement this promotional event with an exhibit concentrating on New Brunswick - in other words, showing New Brunswickers where exploration and mining was going on today, what local minerals such as gold (in hosted rock) or potash ore look like and to give the populace a glimpse of what other minerals can be found in the Province. Additionally, folks interested in learning more about identifying minerals and becoming a prospector would be given information on upcoming prospecting courses. Although the planning stage for this tour was in the middle of the summer field season, Geological Survey Branch geologists and staff pitched in and supplied samples plus lots of ideas and material for poster displays.

Photograph taken from a hot air balloon showing a view of the Sussex Balloon Fiesta grounds with the Great Canadian Mine Show trailer and prospector tent at left centre. Photograph by Don J.J. Carroll.

The Great Canadian Mine Show in New Brunswick consisted of two parts: the tractor trailer unit with its interactive computer simulations and audiovisual presentation, and the adjacent 20 ft. by 40 ft. prospectors' tent containing the New Brunswick displays. The latter was a joint New Brunswick Prospectors and Developers Association (NBPDA) and New Brunswick Department of Natural Resources and Energy (DNRE) initiative. Don Hattie (NBPDA) displayed a plethora of mineral samples and electronic 'mine finder' gear to promote upcoming prospecting courses and Don Carroll (DNRE) extolled the 'What's Happening Where' scenario in New Brunswick. At each stop, local Geological Surveys Branch staff (Nicole Cormier in Bathurst and Maurice Mazerolle in Sussex) pitched in to help make the show a success.

It is estimated that, at the four stops in the Province, well over 2000 people (mostly adults) took the opportunity to visit the Great Canadian Mine Show trailer and talk to Don and Don in the prospectors tent.

Nova Scotia

Mike MacDonald

25th Year for Fall Conference

For 25 years, the Mines and Minerals group of the Nova Scotia Department of Natural Resources has hosted a Fall conference to showcase geoscience research and promote mineral development opportunities in Nova Scotia. The first 'Open House' was held in the Fall of 1977 at the Nova Scotia Technical College (now called DalTech) on Barrington Street. Since

then, the event has been held at the Lord Nelson Hotel, the Sheraton Hotel, and the World Trade and Convention Centre. This year, the conference is slated for Thursday and Friday, November 8 and 9, in the newly refurbished Commonwealth Ballrooms of the Westin Nova Scotian Hotel in Halifax.

The early conferences were called an Open House. Later, the name was changed to Review of Activities. In 1998, NSDNR re-organized the meeting to include stronger links with a variety of economic development agencies in Nova Scotia, and broadened its focus to include raising awareness of the mining industry, as well as reporting on geoscience research. The conference is now known as *Mining Matters for Nova Scotia: Opportunities for Economic Development*. This is the fourth year for *Mining Matters* and it appears that the new approach is working. Contacts and partnerships with non-traditional groups are becoming more commonplace and DNR staff are frequently being called on to make presentations regarding mineral-related economic development opportunities throughout Nova Scotia.

As in the past several years, the conference is being jointly organized by the departments of Natural Resources (DNR) and Economic Development, the Mining Society of Nova Scotia, the Chamber of Mineral Resources of Nova Scotia, and the Nova Scotia Prospectors Association.

The conference will feature a wide range of posters and technical sessions highlighting the many facets of Nova Scotia's mining industry. Specifically, topics will include: prospecting and advanced mineral exploration for industrial minerals such as kaolin, silica and titanium, as well as for base metals and gold; overviews of several current mining operations; and results from current geoscience projects involving researchers from the Department of Natural Resources, the Geological Survey of Canada and Nova Scotia's universities.

On Thursday afternoon, November 8, a special technical session will be held entitled Minerals and Economic Development in Nova Scotia. Presentations will focus on the new gold mining operation near Port Dufferin, exploration activities for titanium-bearing heavy mineral sands in the Shubenacadie River, development work for quartz and kaolin near Yarmouth, and the role of minerals in the development plan for the Guysborough area, to name a few.

Following the technical session, a reception hosted by the Honourable Ernest Fage, Minister of Natural Resources, will be held in Commonwealth Ballroom A. This reception will present an excellent opportunity for delegates to interact and to view the many poster displays in a relaxed atmosphere. GSC (Atlantic) geophysicist Gordon Fader and his band will provide the musical entertainment. Special 25th anniversary events are planned for the reception.

At 11:15 a.m. on Friday, November 9, a keynote address will be given by Tony Andrews, Executive Director of the Prospectors and Developers Association of Canada (PDAC). Dr. Andrews' presentation, entitled *Public Image of the Mining Industry: Some Myths and Realities*, will present a review of information and experience accumulated in Canada over the past 15 years and show how the underlying assumptions about the public image of the mining industry, as originally understood, are fundamentally wrong. Dr. Andrews will present evidence to indicate that strategies focused primarily on the general public will not be effective in altering the way in which the mining industry is perceived. The PDAC proposes that efforts should focus on special publics as opposed to the general public. The ultimate objective of these efforts by the mining industry should be to improve public trust rather than public image, and to accomplish this based on what the industry does, as opposed to what it says.

All readers of the *AGS Newsletter* are invited to attend. A special invitation is extended to past employees of NSDNR, and former associates and clients of the department who have taken part in the annual conference over the years. If you have any questions, please contact Mike MacDonald (902-424-2523) or call the NSDNR library (902-424-8633). You can register on-line at http://www.gov.ns.ca/natr/meb/oh/oh-regis.htm.

See you there!

Newfoundland and Labrador

Baxter Kean

Review of Activities 2001

The 25th Annual Review of Activities of the Newfoundland and Labrador Department of Mines and Energy will be held at the Delta St. John's on Thursday, November 1, 2001. It is being held in conjunction with the 48th Annual Meeting of the Newfoundland Branch of the Canadian Institute of Mining, Metallurgy and Petroleum, November 2-3, 2001.

The Thursday morning session will consist of overview oral presentations on the various activities of the department (including geoscience programs, mineral rights and mineral development activities), the Department of Earth Sciences/Centre for Earth Resources Research, Memorial University of Newfoundland, and more detailed presentations on selected geoscience projects.

The Thursday afternoon sessions will consist of a poster session where the results of seasonal projects and other activities in the province will be on display. There will also be an opportunity for discussion with project leaders and senior staff of the department.

A prospectors' room and core shack will also be held.

There is also a Public Lecture on Thursday evening at 7:30 p.m.. The lecture entitled *Geological Disasters in Newfoundland: Recent avalanches, landslides and tsunamis* will be given by Dr. Martin Batterson of the Geological Survey of Newfoundland and Labrador.

Those intending to attend may register online at http://www.geosurv.gov.nf.ca/ .

Maine Geological Survey

Henry "Spike" Berry

A Reconnaissance Sketch of the Maine Geological Survey

The large blank space at the west edge of many New Brunswick geologic and geophysical maps is the state of Maine. Although we have several good geology friends in the Atlantic provinces, many AGS members may not know much about the Maine Geological Survey (MGS), so we thank Chris White for suggesting that we take an opportunity to introduce ourselves.

The role of the Maine Geological Survey is to collect and provide geologic information useful in understanding the interaction of human and natural environments. There are no active metal mines in the state, so our constituents include consulting geologists (basic geologic map information), the state environmental protection agency (land and water management), the emergency management agency (earthquake, flood, landslide issues), towns and conservation groups (land-use planning), private landowners (stone and gravel resources, erosion control, wetlands), homeowners (water well data), mineral collectors (field guides and compendia), and school groups (field trips, on-line activity book). Some of the issues are new, yet the fundamental role of geologists in describing and interpreting geologic features remains the same.

In addition to the State Geologist, Bob Marvinney, our Augusta office has a permanent full-time staff of 8.5 geologists (one split appointment with the University of Maine), 4 cartographers and production staff, and a publications secretary. We currently have two additional geologists working full time on externally funded "soft-money" projects. Each summer we hire 3-5 professional geologists and 6-8 student interns, as funding allows, to support various mapping projects.

Four long-term mapping programs proceed largely independent of political whimsy. The hydrogeology program is nearing completion of 1:24,000 mapping (2000 feet to the inch) of all sand and gravel aquifers in the state. This effort has produced over 400 quadrangle maps so far, with the remaining 50 or so expected over the next two years. The surficial geology program has produced 1:62,500-scale reconnaissance maps for the populated areas, about 3/4 of the entire state. In the early 1980's we began a program of detailed mapping (1:24,000), working systematically along the population corridor from the southwestern tip toward Portland and Lewiston. The bedrock program is built on a collection of various reconnaissance and detailed maps accumulated over 50 years. For some areas, the only published bedrock map is the 1:500,000-scale map of the state. The current strategy is to work on one 1:100,000 sheet at a time, combining existing maps with new 1:24,000-scale quadrangle mapping to produce an intermediate scale map in a timely way. We are now working in the Augusta 1:100,000 sheet. The coastal program has produced several series of maps, including maps of sea floor deposits, sand dunes, coastal bluffs, and landslide hazards. All maps produced at MGS since 1996 are plotted to order in full colour. Many older ones have been colour-enhanced, but the remainder will be carried along as scanned black and white images for the time being.

In addition to basic mapping and data collection, we assist with policy decisions. Among current issues are construction in the coastal zone, dam-controlled lake levels on populated lakes, protection of hydrologically-defined zones around public water wells, withdrawls of irrigation water from rivers with salmon habitat, and the relationship of the chemical composition of naturally occurring groundwater to bedrock type.

We have a strong presence on-line, including a searchable bibliography, a *Geologic Site of the Month* feature, and complete publications information. To find us, search Yahoo for Maine Geological Survey, or go to the Maine state home page (http://www.state.me.us/) and submit a keyword search on MGS.

AGS NEWS

Atlantic Geology

Sandra Barr

The last two issues of Volume 36 of *Atlantic Geology* (the year 2000 volume) will be published together as a "double issue". This issue is in the final stages of preparation by Production Manager, David McMullin. The Table of Contents is provided elsewhere in this Newsletter.

The completion of Volume 36 also marks the end of Graham Williams term as co-editor of the journal. The remaining two editors were initially feeling overwhelmed by this loss, but were cheered when Rob Fensome agreed to replace Graham as co-editor. Rob's appointment has been approved by the AGS Executive. Rob has demonstrated his editorial skills in the production of *The Last Billion Years*. It is also convenient that Rob and Graham work in the same office area at GSC Atlantic and, hence, the transition in duties can be efficiently accomplished. Our only concern is that Rob may have inherited Graham's

knack for making deplorable puns and witty jokes at every possible opportunity.

In spite of the puns, we owe Graham a large vote of thanks for his dedication and commitment to the journal, as well as to other AGS activities.

OTHER ORGANIZATIONS

Fundy Geological Museum

Ken Adams
Director/Curator

Current Research

Work continued over the past summer on the preparation of the prosauropod material collected from Wassons Bluff in 2000. Tim Fedak, currently an M.Sc. candidate at Dalhousie University, led a team of staff and volunteers whose efforts were supported by funding from Clearwater, Sable Offshore Energy, Oxford Frozen Foods, Leica and the *Young Canada Works in Heritage Institutions* program. Portions of the skeleton prepared this summer include skull elements, teeth, neck and tail vertebra, pelvic bones and one hind foot. Based on the size of this material, the specimen represents the largest prosauropod noted to date at this site.

The museum is currently working on an exhibit of material collected by one of its volunteers, Eric Leighton. This exhibit will include fossils from Carr's Brook and a new "horseshoe crab" site near Maccan. This locality contains trace fossils and fossilized carapaces. A note is being prepared for submission at a later date on the correlation of this site with the trace fossil locality associated with the Forty Brine Seam of the Joggins section.

EdGeo Workshop

The Fundy Geological Museum hosted its second EdGeo Workshop on August 20 and 21. Twenty-seven participants from around the province were treated to two days of immersion in the local geology. I would like to thank Jennifer Bates, Graham Williams and the other instructors from the Geological Survey of Canada, Nova Scotia Department of Natural Resources and DalTech who participated in this event.

The Museum has served as a base camp for several groups. Ten Earth Science teachers from Texas took part in a two-day in-service program and Roy Sclische and Martha Withjack conducted a field camp for their geology students from Rutgers University. Teachers from the Nicomis School District in Maine will arrive for a three-day in-service program in early November.

Elderhostel

Over the past three years the Museum has provided a *Geological Safari*" package to Elderhostel Inc. through the *Route to Learning* program. The third annual safari, held September 9-15, attracted 27 participants from the United States. As the tragic events in New York and Washington, D.C. unfolded, the participants responded enthusiastically to five days of Nova Scotian heritage, cuisine, scenery and local geology. Graham Williams, Rob Fensome, Bill MacMillan and John Shimeld of the Geological Survey of Canada , Maxine Westhead of the Department of Fisheries and Oceans and Museum staff all received votes of thanks for their hospitality and concern. A second Elderhostel session will begin on October 7th.

Copies of *The Last Billion Years* were distributed as part of the course materials during the Edgeo and Elderhostel programs. The public response, by both geological novices and long term devotees, to this new publication has been very positive. We would like to congratulate Graham Williams and The last Billion Years Committee, the Atlantic Geoscience Society and Nimbus for this invaluable new resource. Comments have ranged from "*A must read, before coming to the area*" to "*Should be included as part of the science curriculum*", and sales in the Museum Shop continue to do well.

The Great Canadian Mine Show

The Fundy Geological Museum hosted *The Great Canadian Mine Show* on September 20-22. Over 500 students from Springhill, Amherst, River Hebert and Parrsboro were bussed in to view this exhibit. The official Nova Scotia opening of the show on September 21 was emceed by Dr. Howard Donahoe with Natural Resources Minister Ernest Fage and representatives from the Town of Parrsboro, Cumberland Geological Society, Mining Society of Nova Scotia, Chamber of Mineral Resources and the Nova Scotia Prospectors Association in attendance.

Third Annual Geological Symposium

The Fundy Geological Museum's third annual geological symposium had to be cancelled this year. We are currently rethinking this event. Dr. Paul Olsen has suggested a symposium based on the Triassic-Jurassic. Potential participants carrying out research and field work on this time period are asked to contact me (adamskd@gov.ns.ca) or Marilyn Smith (smithmf@gov.ns.ca.).

Other News

Kathy Goodwin recently took over the position of Lab Manager at the Fundy Geological Museum.

Geological Society of Maine

Dr. David Gibson
President

I was very pleased to be asked to write this article about the Geological Society of Maine (GSM) as I have often thought that our two societies probably share common interests and goals. Our society was founded nearly thirty years ago and is a mixture of professionals, geology students,

interested "rock hounds" and of course us academics! We currently have a membership of 370, though whenever dues are due it always appears that a few members disappear!

We meet three times a year, usually at the various university campuses around Maine. Our fall meeting often takes the format of a particular university highlighting its research. In recent years, however, we have been invited to the Poland Springs Bottling Company's new education and information center. The spring meeting is usually held in early April and is a chance for students, both undergraduate and graduate, to present their research in either an oral or poster format. Students from the various Maine universities attend and often we will have some out-of-state students give presentations on their research in Maine. Our third meeting is a field trip during the summer and is often a time when members will bring their families along for a weekend away. We often enlist the expert in the geology of an area to lead our trips. This year for example we went to Grand Manan where Les Fyffe (NBDNRE) showed us around the spectacular Lower Paleozoic and Mesozoic geology of the island.

Our Newsletter is published three times a year and contains articles of interest to the general membership, reports of the various meetings and the abstracts for the spring meeting. We also have a web site (www.gsmmaine.org) which gives our members quick access to information about upcoming meetings and other events.

I believe GSM has a lot to offer to those interested in the geology of Maine and indeed many of the issues facing rural societies today. Our appeal to a broad interest base is a great way to spread relevant information to the general public. In the future, I think it would be a great idea to have a joint GSM - AGS field trip and meeting to discuss many of these issues and exchange ideas.

STATUS REPORT ON PROFESSIONAL GEOSCIENCE IN NOVA SCOTIA

David Carter
Vice-President, APGNS and CCPG Director for Nova Scotia

Background

The profession and practice of Professional Geoscience (geology, geophysics, and environmental geoscience) is not regulated by legislation in Nova Scotia. Professional Geoscience is regulated by legislation in all other jurisdictions of Canada except PEI and the Yukon.

The Association of Professional Geoscientists of Nova Scotia (APGNS) has established a process to register Professional Geoscientists (P.Geo.) and maintains a register of Professional Geoscientists active in the Province. APGNS is recognized by the Canadian Council of Professional Geoscientists (CCPG) and the Canadian Geoscience Standards Board (CGSB) as a Constituent Association, with pending legislation.

APGNS and the Association of Professional Engineers of Nova Scotia (APENS) have proposed the *Engineering and Geoscience Professions Act* (Bill 16) to the Nova Scotia legislature. The Act includes the regulation of the practice of Professional Geoscience and the registration of Professional Geoscientists in Nova Scotia. A new association - the Association of Professional Engineers and Geoscientists of Nova Scotia (APEGNS, pronounced A-PEG-NS) - will be created by the legislation.

The proposed legislation has received overwhelming support from both the engineering and geoscience communities in the Province. The Act has passed first reading in the Nova Scotia legislature and is scheduled for second reading during the fall 2001 session, although it may be delayed due to objections from the Nova Scotia Association of Architects (NSAA).

The key issue for Professional Geoscientists in Nova Scotia is the ability to practice Professional Geoscience and have that work recognized and accepted, in Nova Scotia, in Canada and internationally. Currently, there are three main components to this issue:

- designation of a Qualified Person (QP);
- designation of an Environmental Site Professional; and
- inter-association mobility, transfer and/or incidental practice.

Qualified Person

The Canadian Securities Administrators (CSA), based on the recommendations of the Mining Standards Task Force (MSTF) of the Ontario Securities Commission (OSC) and the Toronto Stock Exchange (TSE), has published rules governing public disclosure in the mining and mineral exploration industry.

National Instrument 43-101, *Standard of Disclosure for Mineral Projects*, together with its Companion Policy 43-101CP and Form 43-101F1 *Technical Report*, establishes standards for all public disclosure of scientific and technical information concerning mineral projects. These documents specify that all scientific and technical information for public disclosure must be based on information prepared and certified by a "qualified person" or "QP". National Instrument 43-101 came into effect as of February 1, 2001.

By definition, the qualified person:

- must be an engineer or a geoscientist;
- must be an individual, not a firm;
- must have at least five years of experience;
- must have experience relevant to the particular project; and
- must belong to a self-regulatory organization with disciplinary powers that is recognized by

statute (a "professional organization").

Under National Instrument 43-101, APEGNS will qualify as a "professional association". Professional Geoscientists registered under Nova Scotia legislation can be recognized as "qualified persons".

Environmental Site Professional

The Nova Scotia Department of Environment and Labour (NSDEL) has established *Guidelines for Management of Contaminated Sites in Nova Scotia*. Similar documents (e.g. *Guidelines for the Remediation of Petroleum Contaminated Sites in the Atlantic Provinces*) have also been developed and are being utilized in Atlantic Canada.

These guidelines include the requirement for an "Environmental Site Professional", as a person who is responsible for ensuring that the assessment, remediation and compliance process is followed at a site, and for determining and implementing actions at the site.

The Environmental Site Professional is defined by the guidelines as:

- an appropriately experienced and knowledgeable professional licensed by the Association of Professional Engineers of Nova Scotia; or
- an appropriately experienced and knowledgeable person licensed by a licensing body authorized by the NSDEL; any such organization will be required to actively pursue professional status pursuant to the Professional Act of Nova Scotia.

As a transitional provision, APGNS has been recognized by the NSDEL as providing the designation of Professional Geoscientist (P.Geo.) and maintaining a register of members, including those practicing Environmental Geoscience. APEGNS will qualify as a "professional organization" and registered Professional Geoscientists could be eligible for the designation of Environmental Site Professional and would be eligible to submit documents, including a Certificate of Compliance.

Inter-Association Mobility

The Canadian Council of Professional Geoscientists (CCPG) has recognized the need to improve inter-association mobility of both relocating and non-resident licensed Professional Geoscientists in Canada. This mobility is also a requirement defined in the Canada Agreement on Internal Trade.

CCPG has prepared the "*Agreement on Mobility of Professional Geoscientists Within Canada*" which has been ratified by the Constituent Associations. The mobility agreement is based on the Canadian Geoscience Standards Board (CGSB) National Geoscience Standards document (*Recommended Minimum Requirements of Geoscience Knowledge and Work Experience for Professional Practice*). APGNS is recognized as a Constituent Association of CCPG and participated in the preparation of both these documents, however, APGNS cannot ratify the mobility agreement because it is not legislated.

The mobility agreement will form the basis for inter-association mobility of Professional Geoscientists and the practice of Professional Geoscience. This mobility will include, but not be limited to, inter-provincial practice, transfer of registration and incidental professional practice.

Closing

The issues cited in this report should only confirm that the profession and practice of Professional Geoscience (geology, geophysics, and environmental geoscience) must be regulated by legislation in Nova Scotia.

Upcoming Events

51st Atlantic Universities Geological Conference. St. Francis Xavier University, Antigonish, Nova Scotia, October 2-27, 2001. For information, visit the conference website at http://www.stfx.ca/academic/geology/Content/SInterests/2001AUGC/AUGC2001.html

Annual Review of Activities, Geological Survey of Newfoundland and Labrador and Newfoundland Branch CIM Annual Meeting. Delta Hotel, St. John's, Newfoundland, November 1-3, 2001. For information, call Norm Mercer (709-729-6193) or visit the conference website at http://www.geosurv.gov.nf.ca/conference/revbro2001.html

26th Annual Review of Activities, Minerals and Energy Division, New Brunswick Department of Natural Resources and Energy. Sheraton Hotel, Fredericton, New Brunswick, November 5-7, 2001. For information, call Don Carroll (506-453-6642) or visit the conference website at http://www.gnb.ca/0078/minerals/review.htm

Mining Matters for Nova Scotia 2001, Minerals and Energy Branch, Nova Scotia Department of Natural Resources. Westin Nova Scotian Hotel, Halifax, Nova Scotia, November 8-9, 2001. For information, call Mike MacDonald (902-424-2523) or visit the conference website at http://www.gov.ns.ca/natr/meb/oh/index.htm

Colloquium and Annual General Meeting, Atlantic Geoscience Society. Antigonish, Nova Scotia, February 8-9, 2001.

To list your event, send information to the Newsletter Editor (see page 1)