Acadia Geology Alumni/ae Newsletter

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VIEW FROM ACADIA

As I write this message, my term as the "acting head" of Earth and Environmental Science is rapidly drawing to a close. Rob Raeside returns as head beginning Jan. 1, 2010, and it is probably a "toss-up" as to which one of us is happier about that! To be honest, however, I found many aspects of being department head to be rewarding, and if we did not have a capable and willing incumbent returning to the job, continuing in the role would have been OK.

The past year at Acadia has more than lived up to the supposed ancient Chinese curse "may you live in interesting times". The main topic occupying everyone's mind on campus has been the university budget. As department head, I was responsible for monitoring (I won't go so far as to say "controlling") departmental spending, but in reality the non-salary departmental budget is probably less than the household budget for most of you. Even though we are now a combined department, Environmental Science was a programme, not a department, and hence did not bring much money to our merged unit. Basically we are living on the old Geology Department non-salary budget, and even that was cut by 30% in 2009. The saying that "two can live as cheaply as one" is not really the case – the new Department of E&ES has twice as many students as Geology alone had.

We are feeling the effects in our day-to-day operations. For example, we have to look very hard at field trips and field schools, which are major expenditures for the department. We all feel that they are an essential part of the experience in our Geology courses, but the cost of renting a bus for the afternoon for the Geol 1013 field trips is over $300! Luckily we have funnelled many non-major students away from Geol 1013 which now has only one lecture section, a cap of 50 students, and only three lab sections (not four or five as in the past). In my opinion this is a shame - I know that many of you ended up in Geology because you took the intro course and liked it, especially the labs, and especially the field trips. However, it is a necessity, and the students have been funnelled into a highly successful alternative course, Geol 1073 (Natural Disasters) – being a non-lab course, it costs less to deliver. Another aspect of budgetary constraints is a lack of replacements for faculty on sabbatical. In the "good old days" such absences were typically covered by a full-time faculty replacement, but now we are lucky to receive one "per-course replacement". Such replacements have been great but they are paid specifically to teach the single course assigned to them, and hence do not provide any coverage for other activities integral to running a department, such as counselling students, supervising honours and special project students, serving on committees, and so on. This ripple-down effect hits especially hard in a small department such as ours. Fortunately, faculty in E&ES have been helpful by taking half-year sabbatical leaves and taking them in the term which has the least impact on their teaching, and by continuing to supervise students even while on leave. So far, we have managed.

Acadia's financial situation is not unique – most universities seem to have similar problems and are working hard at recruitment and retention of students to try to increase income. Our alumni play a major role in sending students our way, so please keep us in mind. However, in conversations with some of you at meetings and conferences, I discovered that a misperception exists about the result of the merger of Geology and Environmental Science into a single department. Contrary to what some of you think, although we are a single administrative unit, we still award a degree in Geology (and since 2004, Environmental Geoscience or ENGO). The Geology degree still includes all the basic information and skills that students need to embark on a career in geology. Although some of the individual GEOL course numbers and names may have evolved since you went through the program, the basic elements that you studied are still part of our degree, albeit modernized to keep up with current geoscience knowledge and professional requirements. So be assured that about half the students in the merged Department of Earth and Environmental Science still receive a degree in Geology!

Sandra Barr

NEW MICROSCOPES!

During 2009, the department was fortunate to receive a donation from the estate of the late James P. Nowlan, an Acadia geology graduate of 1928 (at the age of 18, perhaps the youngest graduate in the university's history). Dr. Nowlan had a distinguished career in the mining industry, and was Nova Scotia's Deputy Minister of Mines from 1958 until his retirement in 1973. He served as GAC president in 1964-1965. Dr. Nowlan died in 1986.

The decision was made to use the donation money to purchase 17 new Leica transmitted light petrographic microscopes to replace the aging microscopes that have been the workhorses of the department for 30 years. The new microscopes were installed in early September just in time for the start of term, and a ceremony to mark the refurbished facility was held on October 16th in combination with other Acadia University "Homecoming" events. The presentation was well attended by members of Dr. Nowlan's family, and included a demonstration of the capabilities of the new microscopes by Rob Raeside and David McMullin. The video camera attached to one of the microscopes enables projection of the image "live" through a data projector onto a screen for all the class to view in colours close to those seen through the microscope. The camera also takes single images, and has been used extensively during the term by graduate and honours students to illustrate theses and presentations.

Ian Spooner demonstrates the function of the new petrographic microscopes to Clara Jefferson, niece of James Nowlan, with graduate student Jean-Luc Pilote looking on. For more photos of the event, see the alumni page on our website (ees.acadiau.ca).

ACADIA LIFE-LONG LEARNERS

Faculty in Earth and Environmental Science reached out to the community by presenting a series of lectures through ALL (Acadia Lifelong Learning). The presentations were held on a weekly basis throughout October and into November and included the following topics:

The Bones of Nova Scotia Laid Bare (Sandra Barr)
The Land We Live In (Cliff Stanley)
Minerals in the Service of Society (Rob Raeside)
Lumpy, Bumpy and Flat as a Pancake (Ian Spooner)
Life through Time (Peir Pufahl)
Toxic Humans: What we Don't Know (Nelson O'Driscoll)

The presentations were well received and we all enjoyed the enthusiasm and keen interest of the (mainly elderly) participants. Over 30 participants attended these lectures.

HAPPENINGS

Since the Fall of 2008, we have taken greater advantage of our excellent thin- and polished-section preparation facility by soliciting work from external users in a formal way. This venture has been highly successful, with fees from external users (representing other universities, government, and industry) covering more than one day a week of salary and thus enabling our technician Don Osburn to work full-time. Prices are competitive with other organizations that provide this service, but the feedback on the quality in comparison with at least some other providers has been very positive. Submissions are welcome ($20/thin section and $32/polished section).

Approximately 25 Acadia students and faculty attended the Atlantic Geoscience Society Colloquium in Moncton, NB, on February 6-7, 2009. The Acadia students were particularly active at the conference, showing up in the technical sessions, browsing the posters, and generally having a great time. Stephanie Anderson and Jean-Luc Pilote both gave talks, Stephanie's based on her M.Sc. research, and Jean-Luc on his honours thesis work at the Université de Moncton. Tim Collins, Edwin Escarraga, Tamara Moss, Pizye Nankamba, and Meredith Roik presented posters. Congratulations to Tamara who won the Graham Williams best poster award, and to Edwin, who was a runner-up in this category!

In February, Cole Edwards, a MSc student in Geology, participated in a field school investigating the geology and petroleum industry of Trinidad organized by Dr. Grant Wach of Dalhousie University. Much appreciated financial support was provided by the Department of Energy to allow students from universities in Nova Scotia to participate in energy-related training opportunities outside of the province.

A group of Environmental Science students, accompanied by Dr. Nelson O'Driscoll, attended the APICS Environmental Science conference in Fredericton, NB, on March 27-28. Talks were given by Sarah Haverstock, Jennifer Herrick, Claire McIntyre, and Emily Nadolny on their honours thesis research and by Sam Edmonds and Emma Vost on their M.Sc. work. Sarah Haverstock took home the "best undergraduate student presentation" award for her talk on "Photo-oxidation of Dissolved Organic Carbon by Ultra-violet Radiation in Freshwater Lakes", which included a $200 prize.

Acadia's Spring Convocation was held on May 11th. Nine students received BSc degrees in Geology, and two in Environmental Geoscience. In addition, 4 degrees were awarded in Environmental Science with Honours, and 2 regular BSc degrees in Environmental Science. Three students received MSc degrees in Geology or Applied Geomatics. We wish all of our graduating students the best of luck and good fortune, and hope that they will continue to keep in touch with us (so that we can feature them in this newsletter, for example!).

In June, four employees in the Earth & Environmental Science Department were recognised for their long terms of service at the annual Summer Assembly at Acadia. Both David McMullin and Cliff Stanley received their 10-year pins. Linda Lusby and Don Osburn received their 25-year plaques. Congratulations!

During the Fall term, students and faculty members represented the department at the Atlantic Universities Geological Conference at Saint Mary's University in Halifax, NS (see more details under Fletcher Geology Club), and at the annual reviews of the New Brunswick and Nova Scotia departments of Natural Resources in Fredericton and Halifax, respectively.

As usual, throughout the year we had a number of visiting speakers in the department on a variety of topics. Many of these visits were part of national or regional lecture tours sponsored by the Geological Association of Canada, Canadian Society of Petroleum Geologists, Canadian Society of Exploration Geophysicists, and the Atlantic Geoscience Society/APICS. These contacts with the broader geoscience community are good for both students and faculty, and we appreciate being included in the tour schedules.

The department was pleased to welcome a new adjunct professor in late 2009. **Dr. Adrian Park** of the Department of Geology at UNB will be collaborating with Sandra Barr in the thesis project of MSc student Robert Treat. We now after nine adjunct professors associated with the department, most of whom are involved in MSc Geol or MSc Applied Geomatics project supervision.

FACULTY AND STAFF NEWS

Sandra Barr was amazed to find herself teaching part (albeit the small tectonics part) of the structural geology course in the Fall of 2009. During her career she can now say that she has taught at one time or another virtually every component of a geology degree. In March, Sandra and graduate students Edwin Escarraga and David Swanton attended the annual conference of the Northeastern Section of the Geological Society of America in Portland, Maine. Edwin won the 3rd place prize in the student poster competition for his thesis-based poster on granites in the Antigonish Highlands. Sandra did not win any prizes but gave a talk on her work on rocks sampled decades ago by the submersible Alvin in the Gulf of Maine. In addition, she co-chaired a session on Ganderian terranes of the Appalachian orogen, and was co-author on a talk on detrital zircon data from Ganderia in that session. She was also busy at the AGU-GAC-MAC in Toronto in May, co-chairing a session on "Appalachian Connections through the Americas" and co-authoring five oral or poster presentations. She continues as co-editor of the journal "Atlantic Geology", as an Associate Editor for the Bulletin of the Geological Society of America, and as Book Editor for the Geological Association of Canada. She enjoys a wide range of research collaborations on topics as varied as stable isotopes, detrital muscovite and zircon geochronology, palaeomagnetism, and acritarch micropaleontology. She hopes to have more time in 2010 to devote to her numerous graduate and honours students, now that she is no longer department head.

Lynn Graves continues to keep track of us all (faculty and students included) and to help us remember to get everything done that needs doing. Her help with keeping track of the budget expenditures is especially appreciated, along with her willingness to take the minutes at the bi-weekly departmental meetings, not an easy job. She continues to ably meet the challenge of managing faculty and students in two separate locations (Huggins and KCIC).

Linda Lusby teaches many of the courses in the Environmental Science program, and advises the students in that program. This year she was appointed Board of Directors of ESANS, the Environmental Services Association of Nova Scotia, the Nova Scotia environmental business network. Recognizing her role as an active participant in national, regional and international standards organizations for many years, as chair of the Standards Council of Canada from 1998 - 2001 and in that capacity as representative for Canada on the Council and Technical Management Board of International Standards Organization (ISO), this appointment provides Linda with some closer to home opportunities to be a leader in the environmental industries of Nova Scotia.

David McMullin had an eventful and exciting year. In January, he started his first sabbatical (a new privilege for Instructors). He spent 3 months at sea aboard the "S/Y Fryderyk Chopin" gadding about the Caribbean (see separate article). While aboard David taught 3 courses, Our Dynamic Earth (GEOL 1013), Natural Disasters (GEOL 1073), both of which he had taught before, and General Oceanography (GEOL 1033), which was new for him. Back on dry land, David attended a conference sponsored by the Society for Teaching and Learning in Higher Education (STLHE). Following that, David eased back into the life in the Department. In the Fall, he again co-taught Natural Disasters with Ian Spooner. This class has gained a strong reputation within the University as both fun and interesting and it once again had near-record attendance (nearly 240 students). The upcoming winter term sees David immersed in 4 courses including Metamorphic Geology and assisting Peir Pufahl in labs for the redesigned course GEOL 2043 (Techniques in Petrology and Stratigraphy). David is hoping that keeping busy will help him deal with spending a winter in Nova Scotia instead of on the tropical seas of the Caribbean.

Alan Macdonald was persuaded to come out of retirement yet "one more time" to help us out by teaching Metamorphic Geology in the Winter term. Finding a "per course" sabbatical replacement for a specialized upper level class is not easy in the Wolfville area, and we very much appreciated Alan's willingness to teach this course yet again.

Nelson O'Driscoll has been busy with the development of CARE (Center for Environmental Research on the Environment) at the KC Irving Center. CARE recently added $500,000 in LIDAR air

quality equipment as a part of a collaboration with Environment Canada (www.CORALNET.ca). Nelson chaired two mercury sessions and presented research results at SETAC North America in November in New Orleans. His research on the regional and global distribution of mercury is being done in collaboration with several funding groups (e.g. Environment Canada, Natural Resources Canada, and Ducks Unlimited), and is contributing to the Canadian Mercury Assessment. He will be working also with the UNEP Global Mercury Assessment. His students Emma Vost and Stephanie Rogers received NSERC CGS-M graduate scholarships, and Jillian Hanmore an NSERC USRA scholarship. MSc students Samuel Edmonds and Emma Vost, and BSc honours student Jillian Hanmore presented their work on mercury fate at SETAC North America in New Orleans. Sam received a SETAC travel award to present his research on mercury concentration in the rusty blackbird. Asif Qureshi (PhD student) had his mercury in ocean water research accepted for publication in the high-impact journal Environmental Science and Technology. Gordon McArthur will be presenting his work on greenhouse gas fluxes at AGU in 2010.

Don Osburn continued to toil in the "rock room", producing an amazing number of high quality thin- and polished sections for both internal and external users. Our students may not always realize how lucky they are to be using thin sections made by Don. In addition he did substantial amounts of rock collection curation and maintenance, and continues to be a major asset to the department.

Christa Pufahl joined us for both the Winter and Fall terms. She worked full-time as David McMullin's replacement in the Winter term, teaching Sedimentology and Stratigraphy and labs in Earth History, as well as coordinating and instructing part of both our spring field schools. In the Fall, she substituted for Cliff Stanley and taught the new version of Mineralogy, which now includes both Mineralogy and Optical Mineralogy. We really appreciated her positive attitude in this challenging job.

Peir Pufahl was promoted to Associate Professor this past year. He's been busy as the acting Chair of the Canadian Sedimentology Research Group and as a newly appointed Associate Editor for the journals *Sedimentary Geology* and *Marine and Petroleum Geology*. It's been hectic for his students as well. Stephanie Anderson defended her M.Sc. thesis last April and then headed home to Chicago to start her career. Another of his graduate students, Cole Edwards, secured a coveted summer internship with Chevron in Calgary. Cole looks forward to defending his thesis this April and starting a Ph.D. in the United States, where he hopes to continue investigating the relationship between ancient microbial ecosystems and sedimentation. Annas Abdul Aziz is an honours student whose thesis focuses on enigmatic limestone beds at Joggins. Melissa Grey of the Joggins Fossil Institute is co-supervising Annas' research.

Peir again led his biennial carbonate sedimentology field course to Bermuda. He and 11 undergraduates enjoyed the warm weather and superb geology of the island last May. Peir is always looking for alumni to participate so please contact him if you're interested. The next field course is May 2011.

In research-related news, Peir's investigations of Paleoproterozoic iron formation have taken him to Australia where he has a number of new collaborations. He's looking forward to the publication of his chapter on Bioelemental Sediments in the new edition of *Facies Models*. Peir is currently in the midst of writing two other review papers on iron formation and phosphorite for *Marine and Petroleum Geology* and *Economic Geology*.

Rob Raeside has completed his 3.5 year term as acting Dean of Science – what was originally supposed to be an 8-10 month temporary replacement ended up being the longest lasting dean this decade! He will miss the interactions with over 100 faculty and support staff, the opportunity to promote the achievements of students from Engineering to Psychology (he'll still be promoting Geology and Environmental Science!), the mentoring of new faculty from their hiring up to their first promotions and tenure applications, and the sunny South Side office in Huggins. He will not miss endless meetings of committees, losing touch with the Geology and Env Sci majors, or not having the time to work on his geological research projects. Apart from the dean's office, Rob took over teaching Structural Geology this year - it's the first new course he has developed since the early 1990s, and helped him to sympathize with the new professors who are preparing several courses in their first years at Acadia. He had the pleasure of calling his son, Gordon's, name at convocation as he graduated with a BA in History (but a minor in Geology!)

Ian Spooner continues to be busy working on a number of research projects. NSERC-funded undergraduate student Trevor Brisco is working with Ian and Peir Pufahl investigating a group of elliptical features 1 km north of the Bloody Creek crater (located near Bridgetown) that appear to be evidence that multiple low-angled impacts took place. They plan to core the crater this winter after the reservoir that has flooded the site freezes. Ian has also been busy establishing research projects in Nova Scotia examining the vulnerability of lakes and reservoirs to short-term climate change.

Cliff Stanley taught Economic Geology in the winter term, and then in the spring went on two week-long tours across Canada to deliver lectures on "Quality Control in Mineral Exploration and Mining" as a 2009 Canadian Institute of Mining and Metallurgy Distinguished Lecturer. He also went on a three-week trip to New Zealand to deliver three short courses and eleven lectures on lithogeochemistry and quality control as the 2009 International Lecturer for the New Zealand branch of the Australian Institute of Mining and Metallurgy. Following that, Cliff started a half-year sabbatical and spent a month and a half in Santiago at the Universidad de Chile with fellow geochemist Dr. Brian Townley, fracturing the Spanish tongue and studying how to detect porphyry Cu mineralization beneath 100 m of pediment. Over the year, Cliff co-supervised Chemistry Honours Student Janice Chipman, and took on new Honours Students Harun Indis, Physics Honours Student Emma Murowinski, and Environmental Science Student Miranda Saroli. In addition, Cliff accepted new M.Sc. student Biniam Tesfay Bisrat, from Eritrea, and continued supervising M.Sc. Students Tamara Moss and Pizye Nankamba.

GRADUATE STUDENTS

Geology M.Sc. student, Stephanie Anderson, defended her thesis on April 6, 2009, and graduated in May. Her thesis is entitled "The sedimentology of phosphatic iron formation from the Labrador Trough: Implications for the accumulation of Precambrian phosphorite. Two Applied Geomatics MSc students also finished and graduated. Tim Collins finished his project on "Snow pack modeling using LiDAR-derived elevation data", supervised by Ian Spooner and Chris Hopkinson, and Meredith Roik finished her project entitled "Using LiDAR-derived digital elevation models to identify areas of unregulated surface mining in the Sydney Coalfields of Cape Breton Island, Nova Scotia, Canada", supervised by Ian Spooner and Tim Webster.

Two new graduate students began their MSc work in Geology in September, 2009. Robert Treat arrived from the University of Southern Maine, and Biniam Bisrat arrived from the University of Asmara (Eritrea). In addition, three students arrived from the Centre of Geographic Sciences in Lawrencetown to begin the MScAG: Neville Crasto, Kathryn LeBlanc, and Stephanie Rogers.

Current students and their projects are:

Biniam Bisrat: Metamorphosed massive sulphide deposit in the Snow Lake Camp, Manitoba (tentative topic). *Supervisor*: Cliff Stanley.

Neville Crasto: Mackenzie Delta fluvial geomorphological change and water level fluctuations using LiDAR. *Supervisors*: Chris Hopkinson, Ian Spooner.

Cole Edwards: The paleoecology of fossil microbial communities from the Ferriman Group, Labrador Trough, Canada. *Supervisor*: Peir Pufahl.

Edwin Escarraga: Field relations, petrology, and tectonic implications of Devonian-Carboniferous(?) plutons in the Antigonish Highlands, Nova Scotia. *Supervisors*: Sandra Barr, Brendan Murphy.

Kathryn LeBlanc: Assessing shoreline change in the Antigonish region, Nova Scotia. *Supervisors*: Tim Webster, Ian Spooner.

Tamara Moss: Lithogeochemistry of hydrothermal alteration at the Pampalina porphyry Cu deposit, Region 2, Chile. *Supervisor*: Cliff Stanley.

Pizye Namkamba: Geology, geochemistry, and mineralogy of the Three Mile Plains U deposit, Nova Scotia. *Supervisors*: Cliff Stanley, Elizabeth Kosters.

Jean-Luc Pilote: Petrology, petrogenesis, and economic potential of the Landry Brook and Dickie Brook plutons, northern New Brunswick. *Supervisor*: Sandra Barr

Stephanie Rogers: Using Fluorescence LiDAR to model lake chemistry and productivity. *Supervisors*: Nelson O'Driscoll, Tim Webster, Ian Spooner.

David Swanton: Field relationships, petrology, tectonic setting, and economic potential of metamorphic and igneous rocks, Whycocomagh Mountain area, Cape Breton Island, Nova Scotia. *Supervisors*: Sandra Barr, Chris White.

Feseha Tesfai: Petrology and Ti-P-V potential of the Lower Coverdale Plutonic Suite, southeastern New Brunswick. *Supervisor*: Sandra Barr.

Robert Treat: High-strain zones in the Caledonian Highlands, southern New Brunswick. *Supervisors*: Sandra Barr, Adrian Park.
Matthew Tucker: Geology and mineralization in the Faribault Brook area, western Cape Breton Island, Nova Scotia. *Supervisor*: Sandra Barr.

HONOURS STUDENTS

Four students finished their honours theses in geology or on geoscience-related topics in the spring of 2009:
Janice Chipman (CHEM): Partial digestions detecting exchangeable labile ions in soils. *Supervisors*: John Murimboh & Cliff Stanley.
Justin Granek (PHYSICS): Quantification of cathodoluminescence analysis of carbonates. *Supervisors*: Michael Robertson & Peir Pufahl.
Sarah Haverstock (ENVS): Organic carbon by ultra-radiation in freshwater lakes: development of a whole-lake model. *Supervisor*: Nelson O'Driscoll.
Jennifer Herrick (ENVS): Trends in atmospheric mercury deposition in North America (1997-2006): Examining atmospheric chemistry and regulatory policy. *Supervisors*: Linda Lusby and Nelson O'Driscoll.

B.Sc. Honours theses involving E&ES faculty under way in 2009-2010 are listed below:
Annas Abdul Aziz (GEOL): Carbonate sedimentology of enigmatic limestone beds in the Pennsylvanian Joggins Formation, Nova Scotia, Canada. *Supervisor*: Peir Pufahl
Kate Albright (GEOL): Petrology of cuttings from oil wells in the Phetchabun basin, Thailand *Supervisor*: Sandra Barr.
Trevor Brisco (GEOL): A low angle multiple impact hypothesis for Bloody Creek, Nova Scotia, Canada. *Supervisors:* Ian Spooner, Peir Pufahl
Vincent Doucette (GEOL): Hemlock Hill gneiss - Meguma basement or contact metamorphosed country rocks? *Supervisor:* Sandra Barr
Carla Doyle (CHEM): Unbiased analytical calibration during geochemical analysis. *Supervisors*: Pritam Ranjan, John Murimboh, Cliff Stanley.
Jillian Hanmore (ENVS): Developing a controlled analysis method for quantifying the relative mercury photo-volatilization potential for soils across Canada. *Supervisor:* Nelson O'Driscoll
Emma Hebb (CHEM): Tertiary phase extraction for environmental solid samples. *Supervisors:* Anthony Tong, Cliff Stanley.
Alex Kaul (GEOL): A petrological study of carbonatite intrusions from the Lofdal Farm, Namibia, Africa. *Supervisor:* Sandra Barr.
Harun Mohamad Idris (GEOL): Soil geochemistry of the zinc anomaly at West Barneys River, Nova Scotia: Possible skarn mineralization associated with a Proterozoic syenite granitoid. *Supervisor:* Cliff Stanley.
Kelly Moores (ENVS): Response of shade tolerant *versus* shade intolerant plants to elevated carbon dioxide. *Supervisor*: Ed Reekie
Emma Murowinski (PHYS): Ground magnetic patterns over the Bloody Creek Meteorite Impact Crater, Bridgetown, Nova Scotia. *Supervisors*: Michael Robertson, Cliff Stanley.
Miranda Saroli (ENVS): Drivers of avian geophagy in southeastern Peru. *Supervisors*: Dave Shutler, Linda Lusby, Cliff Stanley.
Chris Stevens (GEOL): Petrology and tectonic implications of mafic dykes in the Boisdale Hills, Cape Breton Island, Nova Scotia. *Supervisor*: Sandra Barr.

FLETCHER GEOLOGY CLUB

The Fletcher Geology Club had an active year in 2009. The club again became a GAC-PDAC Logan Student Chapter in 2009 and received a $500 Logan grant which was used to assist with the costs for the approximately 20 students who attended the Atlantic Geoscience Society meeting in Moncton, NB, in February. Club members assisted with set-up and serving refreshments at the Winter and Fall blood donor clinics on campus, a service that the Fletcher Geology Club has performed for nearly 60 years.

In September 2009, 15 students ventured into the Cape Breton Highlands to enjoy the pristine nature and unique geology for one weekend. Aside from several hiking trips, the students collected a number of specimens from the only occurrence of genuine Nova Scotian ruby. Other club activities during the year included several field trips in the local area, including a field trip to the Amethyst Cove in October which included a brisk hike, followed by a slow and steady descent on ropes to the beach where the hunt for amethyst began.

In October, 8 students attended the 59th annual Atlantic Universities Geology Conference (AUGC) hosted by Saint Mary's University in Halifax, NS.

Students enjoying Mary Ann's Falls in the Cape Breton Highlands National Park.

Two Acadia students, Trevor Brisco and Alexander Kaul, presented on their honours research. Trevor gave an oral presentation entitled *"A low angle multiple impact hypothesis for Bloody Creek, Nova Scotia, Canada"*. Alexander prepared a poster entitled *"A petrological study of carbonatite intrusions from the Lofdal Farm, Namibia, Africa"*. The Fletcher Club will be hosting the 60th Annual AUGC in 2010 and is already making preparations. The conference will be held on October 28-20, with accommodations at the Old Orchard Inn and presentations in the K.C. Irving Environmental Science Centre. Planned social activities, in addition to the traditional banquet on Saturday night, include a barn dance.

The club helped organize the department's annual Christmas party in December. Peir and Christa Pufahl were kind enough to host the pot luck this year, and as always, the food was great and a good time was had by all.

Alexander Kaul
Fletcher Geology Club President
December 2009.

THREE MONTHS "BEFORE THE MAST"

In January 2009 I packed my bags and fled the Nova Scotia winter in order to teach aboard the tall ship "S/Y Fryderyck Chopin". In early February I set sail with nearly 50 other intrepid souls from the eastern-most point of Brazil. By the time I arrived back in Nova Scotia in late April my stops along the way had included the tropical paradise of Tobago, Port-of-Spain in Trinidad during Carnival, the tiny desert island of Klein Curacao, the historic walled city of Cartagena (Colombia), the jungles of Costa Rica, and the Mayan ruins of Chichen Itza in Mexico. By the time it was over I'd been scuba diving (Tobago), nearly mugged (Trinidad), zip-lining and white-water rafting (Costa Rica), and taken a boat trip on an underground river beneath the tower karst of western Cuba.

Aboard ship, life was not always so rosy. Though I will always treasure my memories of my watches at the helm steering the ship under a tropical, star-studded, night sky, I will have less fond memories of the (sometimes) terrible food, the cramped living conditions, and the smell of "grey water" (i.e., drains). And of course I was teaching – three courses. I'd not taught Oceanography before and I went to Brazil about two weeks early to acclimatize and get some

The “S/Y Fryderyk Chopin” (left) (sleeps 50) docked alongside a luxury yacht, the “Nuberu Blau” (sleeps 8), in Cartagena, Colombia.

much-needed course preparation done. Though I’d known in theory some of the challenges I’d face, it was a bit of a shock to feel the heat and see just how small were the rooms. The classroom was barely 18’x18’ and at times would house about 15 of us. There were none of the facilities I’d come to take for granted at Acadia – photocopier, printer, internet access, library facilities, maps, and samples to name just a few. I brought a few samples and maps with me but the lack of resources was worrisome. I’d had lots of “brilliant” ideas about how the close association with students would bring out new and better ideas for teaching. Hah! On our first leg of the trip, with strong winds and waves, I ended up sitting on the floor of the classroom holding on to my laptop, the projector, and my breakfast, and I realized that just being there was an achievement. I’d not realized just how difficult it is to focus on a screen or even keep ones hands on the keyboard when your workspace is tilting back and forth up to 30 degrees and climbing and plunging 5 metres every few seconds.

The classroom aboard the S/Y Fryderyk Chopin during somewhat calmer conditions. Don’t be fooled. Note my left leg pressed against the table leg and students lying on the floor for stability.

Tower karst of the Viñales Valley, western Cuba.

Work aboard wasn't just teaching and learning. We had all the daily chores of home life (cooking, cleaning, laundry, etc.) as well as tasks specific to a sailing vessel. We all stood watches and had to be prepared to answer "all hands" calls for sail manoeuvres, as well as man overboard and fire drills, at whatever time of the day or night that the captain or nature decreed. I ended up very much in awe of the students who did much better in courses than I expected under the circumstances. I will never forget those incredible highs and awful lows, and I consider myself privileged to have spent time with a wonderful group of men and women. Would I do it again? Absolutely!

David McMullin

WHERE ARE THEY NOW?

Each year we ask a graduate to write an article on his/her past and current activities since leaving Acadia. This year we invited Stephen Locke, who studied at Acadia from 1980-85.

Of course when I look back it appears to be a carefully planned and plotted career, with each step an important, well thought out piece to an ultimate outcome. Unfortunately, very little of it was planned, much of it was about timing and a lot of it was luck.

I'll start with luck. For many years I used to say I was lucky – with this particular opportunity or that particular project. Then one year I found a definition of luck, not sure where I read it, but it was "luck is when opportunity meets preparation". This is an incredibly true definition and I realize now that those were not random occurrences, in fact I had held up my share of the equation and I had been prepared for when opportunities presented themselves.

Not knowing what to study at Acadia I opted for computer science which in 1980 involved a mainframe computer that filled a room, endless card-punching and writing miles of FORTRAN and COBOL programs. In my second year I happened to take a geology elective – "rocks for jocks" – with the goal of an easy credit. I absolutely loved the course, the outdoor excursions, the geological detective work, and the vastness of geological time. By my third year I had switched to all geology courses.

I greatly enjoyed my time at Acadia though I must admit that I have more memories from the Anvil, from Willet house parties and from the rugby field, than from my geology courses. However, I do remember with fondness the geology field trips, the lab work, and the learning of a new science. In fact, I enjoyed learning paleontology with Dr. Cameron so much that I took his course twice.

When I switched to geology as my major in 1982, the geology sector was booming, summer jobs paid well and jobs were plentiful. The offshore oil and gas sector was expanding, gold was rediscovered in Nova Scotia and the whole resource sector was hot. As for me, my dream job was to be working in the offshore as a marine geologist.

Well, three short years later in 1985 it was a different story – we were deep in a recession. I had my brand new geology diploma in hand and contacted some 200 companies across Canada only to find they were busy laying off ten-year geologists. Under those economic conditions there were just no geology jobs to be had. Many in my graduate class simply stayed in school, many were unemployed and bar-tending was a common choice.

After months of job-searching I obtained my first post-university job as a draftsperson working for a manufacturing plant – not exactly what I had hoped for. In those days fear of unemployment developed a great work ethic and for the next four years I worked extremely hard moving from drafting to procurement to process engineering and finally to assistant manager of a small engineering department. None of this work was remotely close to geology but I still learned a great deal.

In 1989 the environmental sector was just taking off and a good friend helped me get a job interview. On the drive home from the interview the radio informed me that the manufacturing company I worked for just declared bankruptcy. After a worried weekend I received a call on Monday offering me a position as a geologist with the consulting firm Jacques Whitford Environment Ltd (JWEL). Finally I had a real geology job and I would leave my cushy office job for the great outdoors. Of course, my first real project happened to be manning a drill rig for four weeks straight during a colder than cold February in River John, Nova Scotia. Regardless, I was collecting samples, classifying till and looking at rock cores – I was a geologist.

I spent five good years as a consulting geologist with JWEL, a great place to work and to start a career. I always worked hard to be the best at what I did. I specialized in environmental site assessments and remediation and supplemented my academic background with graduate courses in hydrogeology at the Technical University of Nova Scotia. After five years with JWEL and three years of night courses I was an accomplished hydrogeologist.

I accepted a term position in 1994 with the federal government as a senior hydrogeologist and continued assessment and remediation work on federal properties all over Atlantic Canada. Although initially I just wanted the experience of working with government I soon realized it was a great place to work, very challenging, with exciting projects and after a year I won a full-time competition. I spent the next six years with the Environmental Services Sector of Public Works and Government Services Canada (PWGSC) as a hydrogeologist and worked on many exciting projects such as the Sidney Tar Ponds, closure of US Base Argentia, DEVCO site closure, Sable Island assessment, Goose Bay fuel spill, and decommissioning DFO lighthouses. Two of those years were spent in Ottawa working on assignment.

I was slowly moving from doing less and less field work to more and more project management, managing larger and larger projects. Recognizing that I needed to strengthen certain weaknesses that I had in business and management (after all I was a scientist) I started taking night courses in subjects like finance, accounting, and economics. What started out as simple training and preparation turned into an MBA that I finished over seven years part-time at Saint Mary's University.

In 2000 there was an opening at PWGSC for a manager position of a new group called Sustainable Development Initiatives. Even though this was not at all my specialty and a far cry from geology I felt that I was ready for a different management position. My

extensive project management experience and my new MBA had prepared me for such an opportunity. I accepted the position and was suddenly thrown into a whole new area of expertise that I had to quickly learn.

I found that my background as a geologist prepared me for many aspects of senior management, such as being able to draw conclusions from small bits of information, to be able to see the big picture when only exposed to a few outcrops. Many scientists are hesitant to morph into management but I found the science of management every bit exciting as the science of geology, with just as many unknowns, just as many theories and dealing with unexpected changes. Somewhere around this time I had read that a well-structured career is one third practical, one third middle management and one third senior management. I thought this was a good idea and I had myself a career plan.

In 2002 my Regional Director asked me to temporarily accept one of PWGSC's senior Client Service Director positions. Again I found myself in a new world, this time of multi-million dollar construction projects, federal acquisitions and accommodations. This assignment lasted almost two years and led to an opportunity for French language training. While on language training in idyllic Kirkland Lake, Ontario (picture log house on a pickerel-filled lake), I won a competition for Director of Agricultural Water for the department of Agriculture and Agrifood Canada in Regina, Saskatchewan.

Another opportunity had presented itself, to work in another part of Canada, this time the prairies, and in another sector I really did not know anything about. Again I buckled down to learn a new body of knowledge and a new culture. My wife Krista also worked with the federal government and in some ways we managed our careers in tandem where sometimes she was promoted and I found an assignment or I had the promotion and she found an assignment. Along with our two children we looked at these opportunities as family adventures.

While this senior position with Agriculture had nothing to do with geology, it had a lot to do with hydrogeology and hydrology and my science background served me well on many occasions. We had a great time living in Regina where we traveled all over the prairies, became Saskatchewan Roughrider fans and learned to survive in -50 C weather. After almost three years out west I finally found my dream job.

In October 2008 I accepted the position of Director of the Geological Survey of Canada (GSC) Atlantic Division, located at the Bedford Institute of Oceanography in Dartmouth. With this job I returned home to Nova Scotia, returned to geology and finally, after twenty-three years, working in offshore geology. This after many twists and turns, many non-geology adventures, and a lot of interesting stops along the way. At GSC Atlantic we are the center of expertise for marine geoscience for the GSC doing fascinating work in all three of Canada's oceans.

I think my early scare with unemployment, with the recession, gave me a strong work ethic, a certain fear that pushed me further, always trying to do my very best. When starting your career do not be concerned with not having that perfect job or taking a non-geology position as you will learn from every job you have. Also, many times in my career I walked into something that I knew absolutely nothing about. Through experience you will find these are refreshing times, challenging times, times when the slate is clean and you are a sponge just looking to absorb a whole new field of knowledge.

Along the way be sure to "do your time" to gain that valuable experience. I always tell my kids to not grow up too fast, enjoy each age. It is the same with your career, enjoy each stage along the way and gain that valuable experience. Also be sure to assess yourself critically on a regular basis, to reevaluate your strengths as well as the areas that you need to work on. Then work on those areas. I have done this my entire career and continue to do so. Remember to be prepared for when those opportunities present themselves, and be lucky.

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ACADIA GEOLOGY FACEBOOK

Interested in connecting with your peers in the 21st Century fashion? Some of our more recent grads have set up an Acadia Geology facebook page, and have been posting their highlights. You can sign up to join at http://www.facebook.com/n/?group.php&gid=2230922055 (that's all one URL, no spaces or other characters, for those who wonder) to see over 100 photos of your activities (including a surprising number of graduation photos – obviously a highlight in many people's lives!)

ACADIA GEOLOGY GRADUATE AWARDED ORDER OF CANADA

Acadia geology graduate Bruce V. Sanford (BSc ’49) was one of 57 Canadians appointed to the Order of Canada by Governor General Michaëlle Jean in December 2009. Originally from Princedale, Nova Scotia, he worked in the summers after his third and fourth years as a field party assistant for the Geological Survey of Canada. After graduation, he joined the GSC on a permanent basis, and spent his career working for the GSC and Atomic Energy of Canada Ltd. in Ottawa, taking samples, making maps and compiling the geological history of southwestern Ontario. And after he retired from his survey work, Sanford obtained a PhD in geology at the University of Ottawa. Congratulations to this exemplary geologist!

WE STILL NEED YOUR HELP!

Our students still need to have had as much field experience as possible when they graduate. Increasing costs and other financial pressures on our budget make it extremely difficult to keep our field schools affordable for students. Hence we are grateful for any donations to help us to subsidize the cost for students. Any amount is a help. Please send donations clearly marked for "Geology Field School" (but cheque made out to Acadia University) to Rob Raeside Head, Earth and Environmental Sciences, Acadia University, Wolfville, NS B4P 2R6.

KEEPING IN TOUCH

If you have an item of interest, or any news of your activities (or those of your classmates), please let us know. We will try to incorporate as much as possible into future newsletters. Did you write an annual newsletter at Christmas? Send a copy to Dr. Barr or Dr. Raeside at the Department of Earth and Environmental Science (sandra.barr@acadiau.ca or rob.raeside@acadiau.ca)

Paul Barker (BSc ’05) wrote to announce that he and Lauren are now proud parents of Owen Francis Barker, born Sept 27. Paul is based in Toronto, working for Golder Associates. He was working on a proposal to use satellite imagery to help an oil and gas client do geology mapping in the Congo and had run into Geology alumna **Lorraine Tighe** (BSc ’88). He had also been working on some closer to home areas, like Grand Manan Island for DFO.

Troy Boyd (BSc ’89) teaches Geology and Chemistry in Fort St. John, BC, but looking forward some day to moving to his “beautiful little farm back home in Debert, NS” where he'll retire. He is starting to learn to do online distance education in real time, which he describes as the way of the future. He did some consulting for the oil and gas industry on the side for 12 years, but with the recent downturn and so many other interests, has stopped that.

Corey Curl (BSc ’04) wrote last winter to tell us that he and his fiancée Tiffany Hardy, a registered nurse with two majors from Memorial University, were setting a wedding date for September 2009.

Stuart Deveau (BSc ’88) was encountered in Fredericton at the NBDNR Exploration, Mining and Petroleum 2009 conference. He is Vice President of the Claim Group Inc., based in Carleton, Nova Scotia, a professional land management and geological consulting firm.

Brian Eddy (BSc ’87 announced that he accepted a research scientist position with NRCan in Corner Brook, NL, starting 1 June and adjunct professor at MUN on the Sir Wilfred Grenfell campus as part of their new Sustainable Resource Management program. He will focusing on integration and comprehensive ecosystems modelling - including human-environment interaction, and interfacing with others on the team who conduct various types of spatial analyses. Part of his research will also look at cybercartography and its role in information-sharing among multiple stakeholders. He looks forward to moving from Ottawa to the west coast of Newfoundland, which he describes as both an experimental laboratory and a beautiful place to live.

Mark Ferry (BSc ’02) dropped by at the end of the summer. He now works for Terracon Geotechnique on contract to Shell Albian Sands, in Fort McMurray. He has enjoyed the oil patch and the opportunity to travel, especially in Asia.

Thanks in part to a hacker who sent blank e-mails to everyone in his address book, we had an update recently from **Gordon Guy** (BSc ’89). As he wrote, it was “a little annoying, but it has gotten me back in touch with a lot of different people!” Gordon is now working for NEXT Environmental Inc. based in Burnaby, BC, and is excited about an upcoming one-month trek through South America in the Spring.

Heather Levy (BSc ’88) has been with the RCMP for the past 17 years and has recently assumed a new position as the Executive Assistant to the Commanding Officer for Nova Scotia.

Robert Lodge (BSc ’05) and Cassie Gaudet got engaged on a vacation to El Salvador. They enjoy living in Millertown (NL) but his work there has ended and he was in discussions with a couple of universities about starting a PhD program.

Edwin MacDonald (BSc ’87) is Vice President Exploration for Contact Exploration Inc., based in Calgary and Stellarton, NS. He was encountered in Fredericton at the NBDNR Exploration, Mining and Petroleum 2009 conference, and provided dinner and an interesting update on his work on the Stoney Creek Oil Field and other projects.

Lachlan MacLean (BSc ’99) is working with Health Canada and CANMET in Ottawa as a post-doctoral fellow. In October he presented his work on Pb speciation in dust at a medical geology conference in Montevideo, Uruguay. The biggest news for his wife Heather and him was the birth of their second child (first boy), Jon Berkley, at the end of August.

Kim Markvoort (BSc ’07) was accepted to the Masters program in Integrated Water Resource Management via the University of Queensland Australia, in conjunction with the International Water Centre, but decided to defer attending until 2011. Since leaving Acadia, she started working for Stantec Consulting Ltd. in their Environmental Management division, working on developing drinking water intake protection zones for municipalities and conservation authorities within the Great Lakes. From there she moved to the Calgary office as a junior hydrogeologist, later moving to the Remediation Consulting Group Inc. as an intermediate project manager, working closely with a senior hydrogeologist, senior geochemist, and an agrologist on remediation action plans, spill response, and compliance for oil and gas production sites.

Frances (Mitchell) Rivers (BSc ’04) and her husband, John, had a baby, Noel, early in 2008. They are now living in the Houston, where John is working for ExxonMobil, and Fran is reported to be quite happy in her new job as Mommy.

Erin (Oickle) Carr (BSc ’04) writes that she and her husband (Blaine) welcomed their first baby, Michael Mackenzie in May 2008. With Mackenzie’s arrival she stopped work, but was picking up jobs here and there at home. She missed out on her "annual" Beaufort Sea job, but Blaine went and got to work with a new piece of survey gear that Erin is eager to get her hands on!

James Perry (BSc ’86) is working with StatsCan in Ottawa as a Programmer/Analyst for Small Area and Administrative Data Division. It’s a far cry from practising geology, which he does in his spare time with the Ottawa Lapsmith and Mineral Club, but it’s easier on the knees, and has replaced swarms of blood sucking insects with hordes of civil servants...who occasionally have their own life sucking tendencies!

Mike Weagle (BSc ’83) is doing SAP software configuration in Halifax. He also writes a biweekly humour column for the Halifax Chronicle-Herald and has started a blog/website featuring his work at www.mikeweagle.com. Mike writes, “if you like his blog, forward it to friends or fellow alumni. If you don’t like it, might I suggest that you send it to SMU grads.”

Gerry Wilson (BSc ’86) was spotted on campus touring his son around as a potential Biology student next year. He now works at Cavendish Farms in Moncton.

Jennifer Wilson (BSc ’08) spent a year at the Rocky Mountain Institute in Boulder, Colorado, enjoying(?) training for triathlons, and taking up rock climbing. She has since moved to Green College, Oxford University, studying in the Environmental Change Institute, focusing in on Energy, the Environment and Business, and hoping to take up rowing.