Acadia Geology Alumni/ae Newsletter

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Department of Geology, Acadia University, Wolfville, Nova Scotia, B4P 2R6

VIEW FROM ACADIA

by Rob Raeside

The Dean of Science came to my office last spring with a proposition. Would I agree to act as chair of the Department of Chemistry as well as Geology for the next year? I was somewhat taken aback by the suggestion, but Chemistry was in a difficult position. After several years in which professors retired at a high rate (a result of a hiring boom in the 1970's), and during which new faculty have been difficult to retain, the make-up of the teaching staff is very skewed to young professors. The department has eight faculty members – one position is currently vacant, five professors have less than 5 years experience in the university (four of these in their first or second year of teaching), and two senior professors were on sabbatical leave this year and were replaced by interim teachers. The result was that there was no-one to steer the ship for this year, hence the Dean's proposition.

After an appropriate amount of convincing by the Dean, and discussion with the Geology Department professors, I agreed. I would receive a further teaching reduction in order to chair two departments, I would be able to hire part-time staff to fill in for Geology, and I would have two offices, one in each department.

I was most impressed first by the willingness of the members of the Geology Department to allow me to do this double task. It means that I generally spend mornings in Geology, and move to Chemistry for the afternoons. My availability for students is considerably reduced (although many geology students have found their way to Elliott Hall!), and my opportunities to interact with the Geology faculty are likewise diminished. Others have had to pick up the casual advising in the classrooms and corridors, and our secretary and technician have to know that they must catch me when they see me! Secondly, I have been very thankful for the willingness of the professors, support staff and students in Chemistry to accept into their midst someone who likes his ΔG equations to have a $P\Delta V$ (pressure-related) term, and prefers chemicals without double bonds. However, we do share a lot in common with our lab-oriented courses, although the details make for interesting differences!

When I took on the job, one of the reasons I decided to do it was to find out how another department functions. At Acadia (as at many universities, I am sure), each department enjoys considerable autonomy and decides how it will run its own affairs. While we may proclaim to ourselves that we do it better than anyone else, in our private moments we may wonder if that is really true. Maybe there is a better way to manage the budget, or hold the meeting, or get students involved and excited about their subjects, for example. There was probably a bit of self-gratification there too – as a small department on campus, Geology often feels left out of the "big club" and here was our chance to discover (or prove?) that big departments are not really any greater after all!

Whatever the lofty notions were that led me to accept the task, they were soon put to flight in the mundane day-to-day running of the department. I took over in the midst of hiring three temporary faculty members and was immediately immersed in to the details of getting them here, into offices, and on-line. Mid-summer means on-line registration and the task of convincing reluctant students that, yes, they must do that course and it will only work in that timeslot, or no, you can't do that – you really need that prerequisite to take this course. Then, a week before classes started the departmental still died – and a Chemistry department without distilled water is not a Chemistry department. The technical staff was terrific in quickly apprising me of how to deal with the situation, what is needed, and who to do it, and we soon had our own fresh flowing distilled water better than ever before with new

equipment and process.

People often now ask me how the departments differ in their approach and outlook. Geology is a smaller department on campus; Chemistry, with twice as many majors and 50% more faculty is definitely one of the "heavyweights". Geology has consistently strived to maintain its facilities over the past two decades of funding cutbacks – it has always been at the forefront in using new technologies. It was among the first to use a word processor on campus (long ago in 1982!), a colour printer, and a poster plotter, and it has consistently pushed for graphics capabilities for map work, etc. Some of these technologies seem surprisingly mundane now, but at the time when they were adopted they were significant developments on campus. Chemistry uses bigger pieces of equipment – nuclear magnetic resonance spectrometers, gas chromatography mass spectrometers, fluorimeters – and as such has been forced to settle in the past (or at least in the past two decades of limited finances) for donations of equipment being shed by industry, with all the ensuing headaches of keeping it running. Hopefully this approach is being overcome with the construction of a new equipment lab and significant new funding for the materials in it, but the attitude toward embracing the new has been somewhat more tentative.

I also notice a very different student environment. I first met the "summer people" – students working on research topics and theses in Chemistry – and was impressed by their nine-to-five dedication, working away in the lab measuring out aliquots of this or titrating that. So different from the Geology summer students who you can never pin down from one day to the next, dashing off to the field area, or down to the rock room to slab some samples. I find the general mood in Geology to be more embracive – perhaps this is natural in a smaller department, particularly where many students mix classes with other years, trying to maximize their opportunities after switching programs in their first or second year at Acadia. Perhaps being in a larger department, students in Chemistry tend to focus more on their own subgroup of colleagues rather than see themselves as a single group. In part this perception also comes from the different goals of Chemistry majors – some are headed for careers as chemists in research labs or industry, but others are on the pre-medical, pre-dentistry, pre-pharmacy or pre-veterinary tracks, in which the first degree subject is of subsidiary importance to the need to get marks as high as possible to make the cut-off.

Probably the biggest difference, however, is in the after-hours activity. As always, the Geology Department is a happening place from early in the morning until late at night. Students in Geology make the department their second home, with labs to study in, thin sections to examine, fossils to sketch, and enough Internet hook-ups to keep even the most wired student happy. In Chemistry, when the doors are locked at 5 p.m., the building shuts down. This, of course, must not be construed as a criticism of the Chemistry Department – with labs holding 30,000 different chemicals, it is a fact of safety that when the class is over, the door is locked. However, the result is that with the exception of a small seminar room with a sink, fridge and microwave oven, there is not a lot of space for things to happen after hours. This year it has been interesting to see how the Chemistry majors have been active in the Chemistry Club and a bit of a rivalry has erupted between the Chemistry Club and the Fletcher Geology Club.

I hope that as I move into the winter term, I will be able to continue to build enthusiasm in both departments for their respective subjects. The doubling of departmental meetings is more than made up for by the doubling of honours student presentations, banquets and celebratory events that I get to enjoy. It has been an interesting experience – even fun – and everyone should get a chance to experience another department. But only for one year!

HAPPENINGS

The university functions very much on the "academic year", starting in September, so by the time we write the newsletter, we are half-way through it. Usually the start of the calendar year coincides with the annual meeting of the Atlantic Geoscience Society. This year, however, the local AGS teamed up with the Northeast Section of the Geological Society of America, to host a joint meeting in Halifax. Instead of a cosy meeting of 150 or so, this was a large meeting of over 700 participants, and was held in late March. It was a great opportunity to meet our US colleagues, and to discuss cross-border issues! Several students and faculty from Acadia presented talks or posters at the meeting.

We welcomed many visitors to the department this year, some on lecture tours, others on research programs, willing to stop by and inform us of their findings. Such visits are welcome additions to our program, providing insights for our students into the "world outside". In January, Dan Kontak (N.S. Department of Natural Resources) described the "Remarkable record of the late-stage evolution of

basaltic lavas in the Jurassic North Mountain Basalt". In March, John Percival (Geological Survey of Canada) discussed "The Superior Province: a billion-year record of Archean craton evolution and the birth of plate tectonic processes" and Ashton Embry (Canadian Society of Petroleum Geologists) addressed "Practical sequence stratigraphy: principles and practice".

The fall term was one of our busiest yet with many visitors: Bill Ayrton (Canadian Society of Petroleum Geologists) described the "Geology of the Western Canadian Sedimentary Basin" and went on, courtesy of the CSPG over a pizza supper, to describe what geoscientists do in the oil and gas industry, and how to seek employment successfully. The Geology and Chemistry departments teamed up to bring Alan Anderson (St. Francis Xavier University) to present "Getting into hot water: *in situ* investigations of hydrothermal fluids using synchrotron radiation". Frank Bierlein (Monash University, Australia) dropped by with Paul Smith to discuss the many similarities between the Victoria and Nova Scotia goldfields in a lecture entitled "Orogenic Gold". One of our students, Fletcher Club president David Hapgood, worked two co-op terms in Fort McMurray, and convinced his boss, Doug Kennedy, Suncor Energy, to come to Acadia and describe "Mining at Suncor Energy Oil Sands". The APICS-AGS lecturer this year was Brendan Murphy (MSc Acadia '77, now head of Earth Science at St. Francis Xavier University), who presented a paper "How do supercontinents form?" Nelson Eby, University of Massachusetts, described "Sodic and potassic alkaline magmatism: East African examples", Mike Lewis (Geological Survey of Canada, Atlantic) discussed "Abrupt climate change in the Holocene in the Great Lakes Basin", and Tony Berger (Corner Brook, NL) lectured about "Shallow geological time – the importance of rapid geological change". As you can see, we were well treated to visitors!

FACULTY AND STAFF NEWS

Sandra Barr began a busy year as Program Chair for the joint Atlantic Geoscience Society-Northeastern Section Geological Society of America meeting in Halifax in March. Although a time-consuming task, she was at least able to arrange the program so that, for once, none of the talks that she particularly wanted to hear were "back-to-back"! It was also educational to be required to read over 400 abstracts on topics ranging from "Ichnology and Biofacies" to "Extreme Geological Events"! She also, rather unexpectedly, attended the GAC-MAC meeting in Vancouver in May, where she assumed the responsibility of being the Vice-President of the Geological Association of Canada. In Vancouver, this responsibility meant attending an abundance of meetings (in addition to trying to attend some scientific talks and posters!) and learning very quickly about GAC's operations and especially its numerous sections, divisions, and affiliated societies. The responsibility will increase in May 2004 when she assumes the GAC presidency - she should learn to say "no". Summer 2003 included a reasonable amount of field work, mainly with graduate and honours students in southern New Brunswick and Cape Breton Island, and not enough paper-writing. She is continuing to work with student assistants to develop a digital database for both areas, representing all those years of mapping in pre-computer days! The busy fall term began with senior field school at the Gaelic College in St. Ann's (a place with fond memories for many of you!) and continued with a record enrolment in Geology 1013 (with all 5 lab sections full or nearly full) and the usual great students in the Igneous Petrology and Geology of North America courses.

Barry Cameron continued full-time this year, teaching the General and Coastal Oceanography courses as well as History of Life and Micropaleontology. His research involved continuing studies of some arthropods, a seed fern, some fish fossils, and amphibian footprints from the Early Carboniferous Horton Bluff Formation. With Nadine Wood, he is also studying the diverse footprint assemblage from the Late Triassic upper Wolfville Formation. This trace fossil assemblage is notable because it contains the oldest dinosaur footprints in Canada. About 80% of the footprints were made by non-dinosaurian tetrapods, however, and there are several associated invertebrate trails that are well preserved.

Janet Harnum completed her first full year as secretary in Geology. This year she has been the master of the plotter, and has helped countless students (geology and others) to put their best work on paper. As an avid photographer, she is a natural for this task!

Ann Miller stepped into the breach on several courses this year, teaching courses for us in Geology and the Environment (relieving Nancy Van Wagoner as Director of Continuing and Distance Education), and Atmosphere, Weather and Climate (relieving Rob Raeside to chair the Chemistry Department). She also offered courses in the spring session for students trying to get a jump start on their programs.

Alan Macdonald once again taught Structural Geology in the fall term and Metamorphic Geology in the winter

term, as well as helping out with the second year field school. He also kept busy at home, with his gardens and orchards, as well as on-going home and barn renovations.

David McMullin continues to teach the first year labs and again taught Sedimentation and Stratigraphy in the winter. The fall term saw yet another increase in the first-year enrolment. At one point it was over 130 – the highest enrolment ever – which again meant teaching the labs 5 afternoons a week. In addition, David taught Rob's Cordilleran portion of the Geology of North America and in the winter term will be teaching all of Rob's Precambrian portion of the first-year course (both sections). In August David attended an international conference on Geoscience Education (in Calgary). Apart from some very interesting talks (and people) he went on field trips to Dinosaur Provincial Park and the Burgess Shale. Both are designated "World Heritage Sites" by the UN and were incredible trips. In early November David also attended (at the behest of our new President) a conference on "Teaching and Technology" at MIT (near Boston). As all the speakers were "invited" and all talks were an hour or more, he found it one of the most stimulating experiences in a long time. He continues to be the Production Manager for *Atlantic Geology* which this year moved to a new print company (with attendant headaches). To his (and Sandra's) chagrin, he has not had any time to spend completing a long-overdue paper on metamorphism of rocks in Cape Breton Island. Maybe next summer!

Don Osburn maintains his production of thin sections and rock processing for teaching and research purposes on a half-time basis, allowing him to put time into his music, make improvements on his homestead on the North Mountain, and dote on his new granddaughter. His wife, Anna, and daughter run a popular restaurant in Berwick, and the half time status at least allows him occasionally to have the same day off as Anna.

Rob Raeside took up the reigns as acting department head in Chemistry and continued the same in Geology for the year. Outside Acadia, he attended meetings of the Mineralogical Association of Canada at the annual conference in Vancouver, produced another short course handbook (Analysis of Fluid Inclusions) for the Association and continued as vice-chair of the upcoming GAC-MAC-CSPG conference, to be held in Halifax in May 2005. In August he participated in the 20th International Congress of Vexillology in Stockholm (if you don't know what that is, look it up at flagspot.net), which gave him a chance to stop in Scotland and visit family.

Ian Spooner has been busy hiking up glaciers in Smithers, British Columbia, and scrambling over peridotite in western Newfoundland, all in the name of climate change research. He continues to take an unnatural interest in lakes, especially shallow, muddy ones, perhaps because they contain such good paleo-climate records (and the odd trout as well!). Kim Wahl has finished her M.Sc. on landslides in the Cape Breton Highlands National Park and Ian and Kim are now working along with David Liverman (NL Dept. of Mines) on an overview of landslides in Atlantic Canada. If any of you Atlantic Canadians out there have an interesting story about a landslide or avalanche in your home town please let us know about it! As usual, Ian is always looking for interesting images of geomorphic phenomena so, if you have come across any in your travels, please feel free to send him a jpg or two.

Cliff Stanley has continued his Distinguished Lecture-ship for the Association of Exploration Geochemists over the past year through presentations at Acadia University, the University of New Brunswick, Queen's University, the University of Western Ontario, the Norwegian Geological Survey in Trondheim, Norway and at the 21st International Geochemical Exploration Symposium in Dublin. With visits to Australia and Europe, Cliff has been accumulating frequent flyer miles with alacrity, and logged over 51,000 air miles this past summer (more than twice around the world). At home, Andrea Locke is now in the final stages of finishing her M.Sc. thesis on glacial dispersion from the Brazil Lake Li pegmatite body in southwestern NS under Cliff's direction, and Russel Hiebert has finished the first field season of his thesis research on the igneous petrology and PGE sulphide mineralization in the Mechanic Settlement Mafic-Ultramafic Pluton in Sussex, New Brunswick, a project under the joint direction of Sandra Barr and Cliff. In January, a new graduate student, Tansy O'Connor-Parsons (formerly with Anglo-American) will be arriving to work with Cliff investigating the lithogeochemistry of the Golden Mile dolerite sill and its mesothermal gold vein mineralization in the Kalgoorlie gold mine of Western Australia (Australia's largest gold mine), funded by Newmont and Barrick Mining Companies. This year, Cliff has also taken on two B.Sc. Honours students: geologist Charlie Moore is investigating the nature of a very large Zn stream sediment anomaly in the Antigonish Highlands using selective geochemical extractions to determine the speciation of the Zn, and environmental scientist Sandi MacPherson is investigating the biogeochemistry of willow, poisoning a large number (>500) of willow

plants with heavy metals to determine their potential for taking up soluble heavy metals from a contaminated soil. In addition, Cliff has also started a similar B.Sc. Honours project for next year with environmental science student Rebecca Shaefer investigating the capability of Salmon Gums to take up gold (in cyanide and chloride complexes) through their roots.

Nancy Van Wagoner's most recent interesting adventure was a trip to Sapporo Japan to present a paper at the International Union of Geodesy and Geophysics. The conference included an interesting field trip to Mount Usu, which last erupted in April 2000. She visited Sobetsu Volcano Memorial Park which preserves evidence of the eruptive styles as well as devastation to property caused by the eruption to help educate the public about the impacts of volcanism.

People often ask about the whereabouts of retired professors – George Stevens moved south to New Hampshire two years ago, and according to latest reports was enjoying the busy life of a retired professor and continuing grandfather in the shadow of the White Mountains. Reg Moore still lives in Kent Lodge, the oldest house in Wolfville, and actively maintains it and the grounds in an 18th century style. Jack Colwell drops by frequently to keep in touch and attend special presentations. He enjoys the opportunity to travel, although his wife's job in real estate sales restricts the duration!

We also got word recently from ex-secretary/technician Peter Wilson, who now works as general manager for the Uqqurmiut Centre for Arts & Crafts, Pangnirtung, Nunavut, and has been rubbing shoulders with famous vexillologists and politicians (Andrew Qappik, a well-known Inuit artist, and designer of the Nunavut flag, coat-of-arms, and Jean Chretien, ex-prime minister).

GRADUATE STUDENTS

Our graduate student program has undergone a considerable rejuvenation this year, with four in, and two out. The graduate students, while relatively few in number, are important as role models for undergraduates, able bodies for all sorts of tasks, not the least of which is keeping professors' research programs going (and funds spent), and are a valued aspect of the department. They bring experience from other universities and bring a breath of freshness to our programs. The two who got away this year were **Kim Wahl**, who worked with Ian Spooner on a GIS-based landslide hazards assessment for the Cape Breton Highlands, and **Kirsten McLaughlin**, who worked on an "international project" with supervision by Sandra Barr on the petrochemistry and tectonic setting of the Moosehorn Igneous Complex in the St. Stephen, NB and Calais, Maine, areas. Kim was based largely at the Centre of Geographic Sciences in Lawrencetown, N.S., has returned there as an assistant instructor. **Andrea Locke** remains as the sole continuing student from last year, working with Cliff Stanley and Ian Spooner, investigating the till stratigraphy and glacial dispersal trends around the Brazil Lake pegmatite in western Nova Scotia, and hopefully defending her thesis early in the new year.

We welcomed two new graduate students in January – Robin Black from University of Victoria, working with Sandra Barr on the pre-Mesozoic geology of Grand Manan Island, and Cheryl Reid from St. Mary's University, working with Rob Raeside on the contact aureole of plutons in the Shelburne metamorphic complex, southwestern Nova Scotia. Then in the summer, we welcomed two more graduate students from the Prairies – Russel Hiebert from Manitoba, who squeezed in a field season logging core on the Mechanic Settlement Pluton, New Brunswick, and Cameron Bartsch from University of Saskatchewan, who will exchange the plains for the Bay of Fundy, working in the Beaver Harbour area, west of Saint John. Russel is supervised by Sandra Barr and Cliff Stanley; Cameron is working directly with Sandra Barr.

In January, we look forward to welcoming yet again two more graduate students to work in geophysical and geochemical studies with Sandra Barr and Cliff Stanley – but we'll report more on them when we get to know them next year.

HONOURS STUDENTS

Four Geology and three Environmental Science students undertook honours theses in geological areas in 2003-04:
Karissa Belliveau: *Characterization of the offshore physical environment, Morton Field Centre, Lunenburg County, N.S.* (supervised by Ian Spooner)
Sandi MacPherson: *Geochemistry of uptake of heavy metals by Salix bebbiana* (supervised by Cliff Stanley and Roger Evans, Biology)
Shawn Milley: *Glycol transfer from runways to rivers, Greenwood Air Force Base, N.S.* (supervised by Ian Spooner)
Frances Mitchell: *Metamorphic petrology of calc-silicate nodules from greenschist facies to migmatite grade, Liverpool-Pubnico area, Nova Scotia* (supervised by Rob Raeside)
Charlie Moore: *Distribution of zinc and cadmium in stream sediments from the West Barneys River area, Antigonish Highlands, Nova Scotia* (supervised by Cliff Stanley)
Erin Oickle: *Thermal response of Canoran Lake, Lunenburg County and Sandy Lake, Kings County, N.S.* (supervised by Ian Spooner)
Darin Wasylik: *Geology of the Washabuck Area, Cape Breton Island, N.S.* (supervised by Sandra Barr).

FLETCHER GEOLOGY CLUB

(by David Hapgood, president in 2003-04)

The Fletcher Geology Club has had another exciting year. We kicked things off with the annual Barbeque in early September and we have been busy even since.

In early October twelve geology students went tidal bore rafting on the Shubenacadie River. It was an amazing experience and will probably be repeated in the fall next year. Each year we have assisted the Canadian Blood Donor Clinic when they come to Acadia University. This year was no exception and the organization expressed its thanks once again for our assistance.

The Atlantic University Geology Conference was held at St. Mary's University in Halifax this year. Twenty geology students attended the conference. Our Frances Mitchell took home the Shea Award for best presentation relating to Economic Geology. The AUGC will be held at Acadia University next year. A committee has been put together and students are very excited about hosting the conference.

The Fletcher Club entered a broomball team in intramural competition this year. So far it has 2 wins and 2 losses and is looking forward to next term to show the rest of the league that Geology really rocks.

The annual conference of the Atlantic Geoscience Society will be held in Moncton in February 2004. Accommodations and other expenses for the conference will be partially funded by GAC, of which the Fletcher Club is a Student Chapter, for the third consecutive year and an enthusiastic contingent is ready to go.

[Note added from last year: thanks to the many of you who ordered tuques or sweaters – the club raised about $200 with it, and invested it for the AUGC, coming to Acadia next fall.]

MOUNT ETNA CONQUERED!

One of last year's honours students, **Natalie MacLean,** left Acadia right after graduation to start her MSc at the University of Regina. Her thesis is on the petrology of volcanic rocks from Mt. Etna, and she writes "on my travels I made it to the top of Mt Etna (and back down), also hiked to the top of Vulcano, and visited Stromboli to see the red glow from its recent lava flows! Sicily is such a gorgeous place to visit, and someday, when I have some money and know Italian, I'd love to go back." Here she is in front of the southeast crater:

From our western bureau

by **Stu Venables, B.Sc. '99**

G-G-Greetings from C-C-C-Calgary

It's a sweltering –28 as I write this year's Christmas update from Calgary and all I want to do is ask my supervisor for a transfer to our New Orleans office. It has been a great year for the Calgary branch of Acadia geology grads. More changes have occurred, but one thing is certain for all of us – retirement is a long way away!

James Newsome continues to work for EnCana Energy Corp. within their Coal Bed Methane group. He recently returned from Panama where he spent a week in the swamps and bogs learning about the modern depositional settings for the formation of coal. He came back with no signs of Malaria, but I don't think it's a trip he would recommend to his wife for their honeymoon! Yes, that's right, James is now married. He married Monika Pyc this summer and the two of them recently added a dog to their family. Congrats James!

Brian Campbell continues to work for PennWest Petroleum. He has moved on from the carpet bombing shallow drilling program, to head up the deep exploration program within PennWest's northern land holdings. Jamie Babineau has moved from Petrel Robertson (a geological consulting firm) to the position of geological technologist with Talisman Energy. Jamie will be working up Talisman's Western Ontario land holdings.

Kris Carruthers is back from London, Ont. and has all but finished his Masters (CONGRATS!). He is now working as a wellsite geologists for ECL consultants and he'll be doing some under-balanced horizontals this winter up north. Jason James now works for Allstream Inc. (formerly AT&T) and from all accounts, it's treating him not half bad. Myke Mitchell has been all over the place this year, as the seismic brokering business has been a bit haywire! As always though, Myke has landed on his feet and now works for Seisland. What he does there no one knows, but he's kept well fed and always has enough money for a beer, so they must be paying him.

Our honorary geologist, Blair Sangster, continues to work for Schlumberger out of their Whitecourt office. He got married this summer to the woman he met whilst working down in Salvador, Brazil. He is currently working toward getting her into Canada. We can't wait, as we are all desperate to finally meet this wonderful woman that has made Blair very happy! Congrats Blair (and good luck)!

Finally, I have moved positions. I left Devon Energy Corp. and I am now working for Dominion Energy Canada Ltd. Dominion is a large US company, but only has a small shop in Calgary. I am now responsible for the exploitation of Dominion's property holdings within NEBC. It has been a great move and the new work environment is fantastic!

Well, now you're up to date. I guess the biggest change is that Calgary recently received a professional hockey team. The Calgary Flames are actually winning some games this year and it's been a real treat be able to see professional hockey in Alberta without having to go up to Edmonton. Until next year, I hope you all have a wonderful and prosperous 2004!

From our Nova Scotian bureau

by **John Hill (MSc'71)**

John gathered this batch of illustrious Geology grads together for a photo at the annual meeting of the Mining Society of Nova Scotia last June. From left to right: Allan Davidson (Engineering graduate and friend of Acadia Geology), Glen Covey (BSc'71), Bob Ryan (MSc'75), Steve MacCormack (BSc'93), John Hill (MSc'71), Paul McCullough (BSc'71), Paul Smith (MSc'73). Also present at the meeting, but not around for the photograph were Greg Isenor (BSc'70), Avard Hudgins (BSc'57) and Bruce Hudgins (BSc'83).

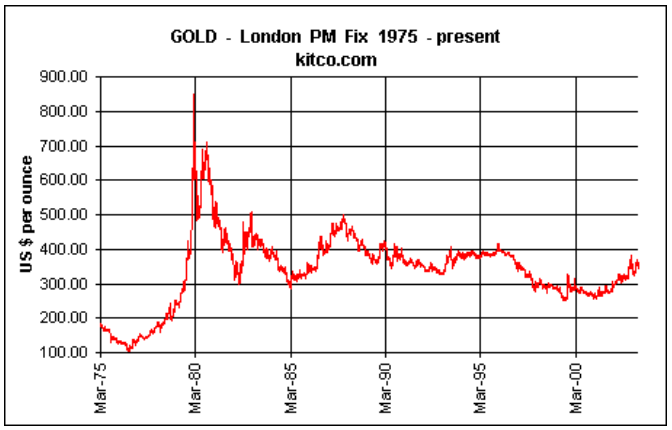
WHERE ARE THEY NOW?

Dr. Robert Morrison

Each year we ask a graduate to write an article on his/her past and current activities since leaving Acadia. This year we invited Bob Morrison, who studied at Acadia from 1977-81.

Surviving the big resource cycle

This year, the world is witnessing the resurgence in base and precious metals prices. Nickel and gold are at or close to 10 or 15 year highs, while copper, lead and zinc are on a steady increase. Mining companies that were recently on the brink of bankruptcy, now have a second life. Small, aggressive exploration companies are being (re)floated in stock markets, and are receiving full financial backing not dreamed of a mere two years ago. What happened?



When I started my university career at Acadia in 1977, the world was in a similar resource boom. It was so exciting and financially attractive, many oil companies created their own mineral exploration divisions to ride the wave. As an undergraduate, it was easy to catch the enthusiasm and exploit the opportunities as a geologist-in-training, and be recruited as part of an army of exploration assistants to march through the boreal forests of northern Canada.

The exploration field season became the unofficial summer school for the earth sciences. As a result, I was most comfortable with geology as my major at Acadia, and realised many opportunities in pursuing earth sciences as a career. The Geology Department staff at Acadia were critically important, and incredibly patient and understanding, in bridling and directing this undergraduate exploration hyper-enthusiasm towards a rewarding university experience.

In 1981 I landed in Australia to pursue an Honours degree which was beyond my reach in the *olde countrye* due to challenged grades (but not necessarily in geology). The University of Adelaide's Honours year was almost devoid of students, as many of the third year's crop were enticed into job opportunities at the tail-end of Australia's resource boom.

But that was it. The show was over. Due in part to big new producing mines around the world, commodity prices were beginning to deflate. The exploration industry was cursed by its own success. Oil companies, not accustomed to long periods of reward-less expenditure, were pulling out of the mineral exploration game. Other mineral exploration and mining companies were consolidating their position and cutting costs. The job opportunities for graduates began to quickly evaporate, and universities suddenly had a back-log of "wannabe" geologists with few new opportunities to aspire to.

The following 20 years were close to catastrophic to the mineral and mining geological communities. Base and precious metal prices sunk to historic lows. Marginally profitable mines were closed. Exploration disappeared. New deposits were never developed. Geologists were laid off. Students fled the hard-rock geology schools, and entire university earth science departments were closed or severely curtailed.

A few hardy explorationists continued to operate out of the big mining houses, but the success rate was dismal. The few exploration successes, like Voisey's Bay massive nickel sulphide deposit, were freak occurrences with little to do with a rigorous application of the best scientific methods. Ongoing exploration failures took their toll on even the most optimistic of exploration and mining managers.

During this lengthy challenging period, I sought refuge first in a Ph.D. program at the University of Adelaide, and subsequently in Geological Surveys in Labrador and the Northern Territory. The pay was marginally above the poverty line and the office politics more accurately described as internecine warfare, but the opportunity to practice quality science was outstanding. Many of my former colleagues were not so lucky and jumped ship. For example, a popular urban myth is the number of former mine and exploration geologists who are taxi drivers in the Perth metropolitan area.

A mini-resource boom in 1994 provided an opportunity to join WMC in their nickel exploration program in Kambalda, Western Australia. However, that was short-lived. After a couple of years, WMC shut down

its R&D programs at Kambalda, indicating that nickel was under the pump. R&D is an excellent barometer of the state of a health of the resource industry. WMC's St Ives Gold Mines offered me employment before nickel nose-dived and many more of my colleagues joined the taxi ranks. At the time it became very clear that exploration was an extremely risky career path. I moved sideways into resource modelling, grade estimation and near-mine ("extensional") exploration. Then it was gold's turn to face the music, and everyone at St Ives was suddenly fixated with the spot price of gold. It was only the Australian dollar's weak exchange rate which saved our jobs.

Fortunately, St Ives Gold was rescued by the big South African mining house, Gold Fields Ltd. The South Africans, anxious to expand their operations in the post-apartheid era, take a long-term view of their chosen commodity. They saw the enormous potential at St Ives through the eyes of all our geologists (it helps when the CEO for Gold Fields Ltd is a geologist by training). The outright purchase of St Ives in 2001 coincided with the gradual increase in the spot price for gold, and, at $35 million pa, Gold Fields Ltd commenced the largest exploration and resource development drilling campaign ever experienced in Australia. The exploration results have paid off and Gold Fields has recently committed $125 million to the construction of a new mill at St Ives.

The clock is now turned back to the resource industry economic climate of the late 1970's. Money is being pumped back into the exploration and mining industries. We have a second chance, and the pressure is on all geologists to deliver the goods. Can we perform? Can the universities re-tool to meet a reinvigorated mining and exploration market? There have been some hard lessons learned over the past 20 years which need to be addressed with urgency:

- Old exploration methods don't work anymore. We need to develop new methods and strategies to find ore deposits.
- R&D programs must be pragmatic and practical to survive and provide a valuable service to the industry. Exploration companies are not research institutions, and universities don't own drill rigs. However, they need to thoroughly integrate to improve the discovery rate.
- Exploration and resource industries must directly support R&D and foster university departments before they have atrophied to oblivion.
- Exploration and resource industries need to be more open in R&D. Sharing is good. Excessive confidentiality does not provide a "competitive advantage" anymore.
- Exploration and resource industries need to uplift their public profiles and actively promote their importance in the country, community and workforce.

The St Ives Gold Mining Company, Australia's second largest gold producer, is meeting these challenges by reinventing R&D. What used to be only an exercise in forensic geology (autopsies on former deposits), is now an integrated process involving universities and government research organisations. Along with Placer Dome Asia Pacific, we have initiated the "embedded researcher" concept to ensure seamless R&D interaction among the 40-50 exploration and mine geologists we have on site. The R&D project is not critical. What is fundamentally important is the *communication* between R&D and site personnel to stimulate and engage in innovative and creative thinking ways towards solving outstanding problems. We are looking at fluid flow, thermo-chemical gradients, fluid mixing, geochronology, palaeo-seismicity and aftershocks, and numerical modelling - just to name a few. Remote-controlled R&D is no longer acceptable, and we have flagged it as a vital issue to be addressed by the major providers of R&D in Australia.

This is the future in hard-core hard-rock geology. It's really exciting, and just sometimes, it feels as if it were 1977 all over again...

Dr. Robert S. Morrison, Project – Research Geologist
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FIELD SCHOOL FUND

We thank all those alumni/ae who contributed to our fund to provide some support for students to attend the senior field school at the Gaelic College, St. Anns. This year nine students were able to participate in the field school, and produced excellent maps (in CorelDraw) and reports. We continue to welcome your donations to help make this mapping experience more affordable for all senior students who wish to attend. See our page at http://ace.acadiau.ca/science/geol/giving/geologygift.htm for more information on how to this.

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 it to Dr. Raeside at the Department of Geology (e-mail rob.raeside@acadiau.ca.)

As usual, we enjoy meeting many of you at conferences and other gatherings of geologists. At the GAC-MAC conference in Vancouver last spring, we were glad to run into **Catherine Farrow** and **Diane Baldwin**, working now as consultants in Sudbury and Yellowknife, respectively, **Matt Leybourne**, now teaching at University of Texas – Dallas, **Brian Eddy**, working on his PhD at Carleton University, **Amy Tizzard** and **Heather Paul**, embarking on graduate programs at University of Victoria and **David Mosher**, from Geological Survey of Canada (Atlantic).

Shauna Baillie (BSc'94) has been travelling the world for the past 3 years. Rock climbing and living in a grass hut in Thailand, an extra as a convict in a BBC Swiss Family Robinson film, hitchhiking in north India, studying medical plant communes near Madras, cycling from Thailand through Laos, feeding silkworms, circumnavigating New Zealand by bicycle, on to Australia, back to Canada, studying migratory seabirds around oil platforms off Newfoundland, and now at a wildlife consulting firm in Wright, Wyoming, anticipating a snow trip to Yellowstone and dreaming of going to China.

Barbara (Topp) Beall (BSc'83) writes from Seattle that the geology of the West Coast is something every geologist should experience and she is in awe of the variety! Having recently moved to the Seattle area in 2002, she has spent every vacation day touring/hiking/ collecting samples from the Olympic Mountains to the Northern Cascades. Highlights include Mount Rainier (glaciers!), Mount St Helens (it is still venting!), the Columbia River Gorge and Oregon's Crystal Caves and Crater Lake (which looks like it should be in Lord of the Rings) and the lava tubes of California. It's no wonder that geology is so popular there. She'd be keen to get in touch with any alumni in the Seattle area at barbbeall@attbi.com

Andrew Bourque (BSc'85) is in Kennewick Washington. His daughters Ainsley and Chelsea are moving up through the high school and middle school ranks, and are involved in music, skating and other sports. Andrew writes that he thought it would be hockey getting him to the rink at 6:00 a.m., but it is figure skating! His son Graham (8) does play hockey. Andrew has been working with Potlatch Corporation as the Information Systems Manager on their farm, managing the computer systems for 17,000 acres of drip irrigated hybrid poplar trees using GIS along with the analysis of remotely sensed data. His geology helps with soil science work, looking at soil types and chemistry to help determine how much water and fertilizer to apply. E-mail: abourque@charter.net

Frank Dennis (MSc'88) has moved to the northernmost tip of Scotland where he works on environmental issues surrounding the Dounreay experimental nuclear reactor for the UK Atomic Energy Agency. E-mail : frank.dennis@ukaea.org.uk

Roland d'Eon drops in annually on his trips home from Hong Kong where he has been teaching science in a school for the past few years. Most recently he has been travelling in Tanzania, Kenya, and Sri Lanka. He is looking forward to the Congrès Mondial Acadien 2004, being held in the Wolfville area next summer.

Nicole Dunham wanted to make sure that everyone knew about the arrival of her son Ethen Robert Dunham on 23rd February. Nicole can be reached at nicole_s_dunham@hotmail.com, Ethen isn't reading e-mail yet.

Gerard Eddy (BSc'93) dropped by while attending the Geomatics Atlantic conference at Acadia in June. He now lives in Liverpool and works as a GIS specialist for the province in Service Nova Scotia, Bridgewater. E-mail: eddyger@gov.ns.ca

Martin Ethier (MSc'01) has returned home to Haileybury, Ontario, where he has started his own company, Hinterland Geoscience & Geomatics. It seems that his geological and GIS skills are much in demand, and he has been kept very busy with a variety of work ranging from diamond exploration to municipal planning. He can be reached at methier@ntl.sympatico.ca

Moira Goodfellow (BSc'98) was working in February at the Pearson Peacekeeping Centre in Clementsport, NS. This international peace operations training centre delivers courses on all aspects of modern peace operations. However, she was anticipating moving on to a short gig in Germany, and then probably back to school for a Masters in Conflict Resolution or maybe a law degree. E-mail: mgoodfel@peaceoperations.org

Tassos Grammatikopoulos (MSc'92) now teaches at the University of Patras, Greece. He continues to work in the mineralogy of platinum-group minerals, and was excited about a possible new mineral he had discovered in Serbia & Montenegro. He continues to collaborate with Sandra Barr on his Masters thesis project area in southern New Brunswick. He can be reached at tassosg@upatras.gr

Gordon Guy (BSc'98) finished his MSc thesis at University of Victoria on "Relationships of Bedrock Fracturing to Electrical Conductivity and Anisotropy Measurements in a Landfill, Victoria, BC", and has been working at the Vancouver Science Centre. He now is working in Kaohsiung City, Taiwan. E-mail: gordonguy58@hotmail.com

Raymond Hodge (BSc'92) dropped by in July. He now works as IT support for the Mines and Energy, Fish and Aquaculture, Forest Resources and Agrifoods departments of Newfoundland and Labrador. He can be located at rhodge@roadrunner.nf.net. He would need to be a bit of a roadrunner to keep up with four government departments!

Karen Lister (BSc'98) works at a SuperStore Pharmacy in Halifax, and is looking forward to wedding plans for next September. She hopes some day to be able to return to the Valley. Her brother **Scott (BScH Environmental Science '97)** is also back in Halifax, working for the Dept. of the Environment, and planning to marry in February.

Barbara MacBeath (BSc'81) and her sister Louise dropped by in the summer, to look around the university and bring back lots of happy memories. Barbara works in contract & lease administration for Talisman Energy in Calgary, and Louise is a teacher in Colorado.

Ian MacDonald (BSc'01) has been working as project coordinator for the Nakivale Refugee Settlement (Uganda) for "Right To Play" (formerly Olympic Aid, http://www.righttoplay.com). Ian can be reached at ian_ml_macdonald@hotmail.com

Lachie MacLean (BSc'99) dropped by in the summer. He has now completed his Masters thesis at Windsor on Experimental Studies of Microbe-Contaminant Interaction, and is moving on to the University of Western Ontario to further his studies in microbiogeochemistry.

Jim Maloney (demonstrator, 1983-84) dropped in over the summer. He is now working as senior geologist for Shaker Resources in Calgary (jmaloney@shakerres.ca).

Troy McLaughlin (BSc'99) has been working as a consultant in Business and IT in Los Angeles for BearingPoint. He was planning on moving back to New England in the new year.

David Mosher (BSc'83) was co-chief of ODP (Ocean Drilling Program) leg 207, as documented below (note the Acadia hat – see inset to prove it!) Onshore, David works at the Geological Survey of Canada (Atlantic), in Bedford, NS. He can be reached at dmosher@nrcan.gc.ca.

(photo by Cyndi Prince, ODP)

Maylia (Kempt) Parker (BSc'96) lives in Manchester, New Hampshire. She still works with Nobis Engineering, Inc. and really enjoys it. E-mail: mparker@nobisengineering.com

Jeff Parks (BSc'87) dropped by when attending the Geomatics Atlantic conference at Acadia in June. He recently built a house in Lewis Lake, NS.

Steve Sanford (BSc'01) stopped in at Christmas. He now works for Pinchin Leblanc Environmental Ltd. in Dartmouth, NS, as an environmental technologist. E-mail: ssanford@canada.com.

Trecia Schell (BSc'94) defended her PhD thesis at Dalhousie University, entitled "Possible Relationships to Late Holocene Paleoproductivity in the Northeastern Pacific; Benthic Foraminiferal Assemblages from an Anoxic/Dysoxic Fjord of Western Vancouver Island, British Columbia" in March.

Pat (Atipat) Sinthusan (MSc'85) never forgets to send Christmas greetings – he and Linda enjoy motor-biking in the Seattle area, and have taken up rollerblading for exercise too!

Matthew Stokes (BSc'02) moved out to Calgary, and worked for a spell with Excel Geophysics doing long line helicopter gravity surveys in the northern BC-Yukon border area. After the summer he returned to Nova Scotia, where he is now contemplating going back to school.

Julie (White) Thomas (BSc'02) wrote recently to update our files. She has moved from environmental studies to administration, and is now employed at the University of New Brunswick in the Office of Research Services assisting researchers applying for funding. She writes noting she finds it very interesting to be on the other side of the proverbial coin in the university: "I think the first thing I was told every time I sat down to write a test was read the instructions...carefully! That phrase has become a mantra for me, and I now know how frustrating it must be for professors to mark tests and assignments where the students clearly have not read the instructions; as I am discovering that not all researchers/professors are inclined to read the instructions, even after being instructed to do so, for filling out an NSERC (or any other application)!" Her new e-mail is jthomas@unb.ca

Roger Tomlinson (BSc'60) was award the Gold Medal of the Royal Canadian Geographical Society in October. Dr. Tomlinson has worked as a consulting geographer for over 40 years, and in the citation by the Society, he is described as a "missionary for GIS" (Geographic Information Systems). Others refer to him as the "Father" of the subject, as he practically invented GIS in the 1960's in an attempt to analyse the location of a pulp and paper mill in Kenya.

Amy Tizzard (BSc'03) wrote from her MSc thesis area in the Yukon reporting that things were going well. She had just got back from the first half of field work for the Survey - 5 weeks without a shower, rain or snow every day, mosquitos the size of a small cat, but gorgeous scenery nonetheless. Her Masters project is on the Tally-Ho Shear Zone, just to the south of Whitehorse. It's a great field area with lots of opportunity to expand to areas elsewhere. Tally-Ho is supposedly the boundary between Stikine and Yukon-Tanana terranes and is a mix of every rock type she can think of. E-mail: atizzy@yahoo.com

Blair Way (BSc'85) apologises for letting his announced status get out of date. To make up for it, he wrote at length, detailing his adventures since 1997. He left the marine service company in 1997 to join Sun Metals Corporation in Townsville, Queensland, as a project engineer to construct a $750 million zinc refinery and eventually become QA manager before finishing the construction and moving on. He returned to Canada with his Australian girlfriend Megan to "show her the winter" and worked in Nova Scotia until Feb 2001 after which they had to drive to Key West for some warmer weather (and get engaged). After winter ended Megan headed back to Australia while Blair finished up a project at Bowater Pulp and Paper, Liverpool. He had planned to return to Australia to get married and then head to the UK to live when he was asked to return to NS after the wedding to finish another project he had started. Then his old boss from Sun Metals tried to hire him to work on Australian Magnesium's $1.3 billion Stanwell Magnesium Project. He managed to return to Nova Scotia to finish the project and head back down under, by which time his wife had been around the world 2.5 times in 12 months! Work on the magnesium project began during a hot and humid Christmas 2001 first in Brisbane then Rockhampton, the nearest town to the plant site. After 6 months the project changed direction, focusing more on the engineering then construction so he returned to Brisbane and joined the contractor's team, first with Leighton Contractors and finally (at least when he wrote!) with Fluor Engineering, who took over as project managers. He was working there as project engineer responsible for permitting (compliance with all regulatory authorities, environmental, health & safety etc.) on the Stanwell Magnesium Project. However as he wrote (June), the project was on shaky ground, and insolvency was looming. So life is interesting and challenging.

He and Megan and their 2-year old fox terrier enjoy Brisbane where Blair was recommencing studies toward a part-time MBA, transferring from Central Queensland University in Rockhampton to University of Queensland in Brisbane. He also has a Boston Whaler which he brought from Nova Scotia and which he uses to do some power boating around the Queensland coast.

Chris Way (BSc'80) lives in Sydney, Australia. He works as an engineering operations manager in the oil business for ROC Oil, a listed company in Australia with activities in the UK, China and Australia.

Brian Wentzell (BSc'85) writes that he is currently in Yarmouth and in his fourth year of a 4 year Forensic Identification Apprentice program, scheduled to finish in Aug 2004. His work is a bit like CSI without all the drama. He has been in Yarmouth since August 2000 and enjoying the work. He has now completed 17 years in the RCMP, serving in Newfoundland, Northwest Territories, and now in Nova Scotia. He, Sandra, and daughters Hannah and Alison are happy to back in their home province. E-mail: bash@ns.sympatico.ca

Aléna Wilson (BSc'00) writes that after two years doing wireline logging, she decided it was time for a change. She had by then lived in Grande Prairie longer than anywhere in the last ten years – time for a change! Anyway, the big Cowtown finally sucked her in. She still preferred working in the field, so was looking for well-site geology for a couple of years. She noted she hadn't looked down the barrel of a microscope since she left Acadia, but thought it would be a refreshing change, and was excited to study physically the formations which she had been logging for the past two years. E-mail: alena_wilson@yahoo.com