



NEWSLETTER

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BEST WISHES FOR A HAPPY AND PROSPEROUS NEW YEAR

The Editorial Board

PRESIDENT'S FORUM

Jennifer Bates

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As we start a new year, I would like to wish all members a happy and fulfilling year to come. I hope you were able to put up your feet for a few moments over the holidays because AGS will be very busy for at least the first quarter of this year.

Many of you are either participating in or helping with the planning of the first joint meeting of the AGS and GSA Northeastern Section, which will take place March 27 through 29 in Halifax. Although this collaborative meeting steers us away from our annual Colloquium, we will have the rare opportunity to present to and converse with peers along the eastern seaboard. Abstracts submitted by December 18th have been received by the session chairs. The chairs are expected to have their sessions in place by early January.

Plans for GAC-MAC-CSPG 2005 are in progress, as reported elsewhere in this and previous issues of the Newsletter. It has been more than 10 years since AGS last hosted the GAC-MAC meeting in Nova Scotia. Good luck to the organizers. I know it will be another 'AGS-sponsored' success.

Now, for a few notes on the AGS

education scene. AGS has finally made an inroad into the Nova Scotia Department of Education. "*The Last Billion Years*" is now listed on the Nova Scotia Book Bureau, meaning the book has been approved by the Department for purchase by teachers. Also, a copy will be placed in every high school in the province. The provincial science consultant recently met with members of the AGS Education Committee to discuss possibilities for future collaboration. From what I hear, it went well!

If you are wondering, where everyone is these days, come to the AGS - NS Museum of Natural History talks taking place on the third Wednesday of the month at the Museum in Halifax. You might see some familiar faces.

ATLANTIC GEOSCIENCE SOCIETY NEWS

The Last Few Months of The Last Billion Years

Rob Fensome and Graham Williams
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AGS Special Publication 15 attained some significant milestones in 2002. The most surprising was the Outstanding Publication Award from the Association of Earth Science Editors.

Rob Fensome and Jennifer Bates accepted the award on behalf of all the compilers at the AESE's Annual Meeting in Halifax in September.

A second exciting development was that the book is now listed on the Book Bureau of the Nova Scotia Department of Education. The Book Bureau is a list of books approved by the Department for use in schools. If teachers wish to use "*The Last Billion Years*" in their classes, they can purchase copies with education funds. Marilyn Webster, science consultant for the Department of Education, has decided to send one copy to each high school in the Province. The review process prior to acceptance for the Book Bureau is strenuous. Each book being considered has to be acceptable to two rigorous review panels, a process that takes several months. We would like to thank Marilyn and all the teachers for their support over the last few months.

The resources gathered during compilation of the book are proving invaluable in producing spin-off products. We have completed two. The first – the poster "*The Evolving Maritimes*" – features the cover painting from "*The Last Billion Years*". The accompanying text is in English and French. The second – a colouring book – focuses on the fossils of the Maritimes. An initial run of several hundred copies disappeared in a few days.

Few people are aware that 6,000 copies of "*The Last Billion Years*" have now been printed, with the third printing last February. If you want a copy, you can buy one from AGS for the bargain price of \$30.00. But you should act quickly, since there are only four copies remaining.

Well-known AGS Member Appointed Director of the New Brunswick Geological Surveys Branch

AGS members will be pleased to learn that Les Fyffe, a long-standing member of the AGS and a former recipient

of the Gesner Medal, was recently appointed Director of the Geological Surveys Branch of the New Brunswick Department of Natural Resources and Energy. This appointment follows on the retirement of another well-known and highly respected New Brunswick geologist – Rao Irrinki.

Try as it would, the Editorial Board of the Newsletter was unable to locate a suitable photograph of Les to accompany this notice of his appointment. That shortcoming aside, the Editorial Board extends congratulations to Les, and wishes him every success as he embarks on a new phase in his long and successful career.

Preparing for the AGS – NE GSA Joint Meeting

Report from the Program Committee
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Over 400 abstracts were submitted for the 1st Joint Meeting of the Northeastern Section, GSA and the Atlantic Geoscience Society by the deadline of December 18, 2002. The Program Committee, in collaboration with the organizers of symposia and theme sessions, is in the process of arranging the program. The submitted abstracts cover a full range of disciplines and, at the time this report was prepared, it appeared that all 5 symposia and 12 of the theme sessions will be held, as well as a large number of general discipline sessions. Approximately 170 of the over 400 presentations will be by students, with the split approximately equal between undergraduate and graduate students.

The program will fill all three days (March 27, 28 and 29) with as many as 6 concurrent sessions, as well as poster sessions. Each poster session will run for a full day, so as to provide ample opportunity for all participants to view the posters.

It appears that this meeting will truly

have something for everyone! Be sure to plan to attend.

Report from the Meeting Co-Chairs
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Further to the Report of the Program Committee, who have done a professional job, we are looking forward to a large meeting in March 2003. With over 400 abstracts submitted, we should be expecting 600 or more participants. It is wonderful that so many students will participate, but Graham Williams will have a handful if we don't find a better solution, with 4 to 6 simultaneous sessions for 3 days.

To accommodate 5 symposia and 12 theme sessions, as well as many general discipline sessions, we have secured the nice Pier 21 Auditorium (400+ seats), across the railway tracks from the hotel.

Now that we have a better idea of the numbers, it will be easier to reserve the AV equipment (Charlie Walls and Dave Brown) and the various social activities (Brian Todd and others). Somebody has suggested we need to provide internet access (with short line-ups) to participants, and we are looking into this.

Our Treasurer (Pat Ryall) is breathing more easily since we have as many abstracts as our break-even attendance, and in particular because our Sponsors Committee (John Hogg) has done great job and we have some money advanced and more promised, some with, some without strings attached.

Besides Symposia and Theme and General Sessions, Field Trips, Short Courses and Workshops are being organized, and we will need everyone's help and encouragement as soon as possible. Thanks for so many of you that remain unnamed, and Happy 2003!

Atlantic Geology

Sandra Barr

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As of mid-December 2002, the combined issue Volume 37, Numbers 2 and 3 was at the printers and scheduled to be mailed early in January, 2003.

Volume 38, Number 1 is in the layout stage and a February mailing is anticipated. This issue will also contain abstracts from the February 2002 annual meeting of the AGS in Antigonish. Papers to appear in Volume 38, Number 1 include:

Deep drill hole in the Devonian South Mountain batholith, Nova Scotia: a potential for hidden mineral deposits within the batholith by A.K. Chatterjee and J. Dostal

Zeolite minerals from the North Shore of the Minas Basin, Nova Scotia by Georgia Pe-Piper and Lisa Miller

Geochronology of the Letete and Waweig formations, Mascarene Group, southwestern New Brunswick by B.V. Miller and L.R. Fyffe

Evidence for post-Acadian through Alleghenian deformation in eastern Maine: multiple brittle reactivation of the Norumbega Fault System by Chunzeng Wang and Allan Ludman

Granitoid plutons of the Brookville terrane, southern New Brunswick: Petrology, age and tectonic setting by Chris E. White, Sandra M. Barr, Brent V. Miller and Michael A. Hamilton.

Planning for GAC – MAC – CSPG 2005

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Planning for the 2005 joint meeting in Halifax of the Geological Association of Canada, Mineralogical Association of Canada and the Canadian Society of Petroleum Geologists is well underway. The Atlantic Geoscience Society is the host organization for the confer-



The Local Organizing Committee for GAC – MAC – CSPG 2005.

Front row (left to right): Rob Raeside (MAC Vice-chair), Grant Wach (CSPG Vice-chair), Scott Swinden (General Chair), Mike MacDonald (General Secretary). Middle row: Peter Wallace (Registration), Chris White (Technical Program Co-chair), Ian Spooner (Social Events), Jennifer Matthews (Exhibits), Andrew MacRae (Short Courses). Back row: Mike Cherry (Publicity), John Shimeld (Accommodations), Mark Williamson (Technical Program Co-chair), Sandra Barr (Field Trips), Charlie Walls (Technical Services), Pat Ryall (Finance). Missing from the photograph are Nan MacDonald (Fund Raising) and Evelyn Inglis (Publications).

ence. A Local Organizing Committee (see photograph) has been established and is now meeting regularly under the capable leadership of General Chair, Scott Swinden.

AGS members can expect to learn of the Committee's actions in the coming months through regular contributions to the Newsletter. Immediate next steps for the LOC include identifying members of the various sub-committees, and developing a theme and a logo for the meeting. AGS members should look for more preliminary information at the upcoming joint meeting of the AGS and NE GSA in March.

UNIVERSITY NEWS

University of New Brunswick

Murray Gingras and Ron Pickerill

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Departmental News

Serge Allard, who is presently employed by the Geological Surveys Branch of the New Brunswick Department of Natural Resources and Energy, successfully defended his M.Sc. in December, 2002. His thesis, entitled *Geochemistry, Lithology, and Depositional History of the Rollingdam Map Area Till, Southwestern New Brunswick*, was supervised by Professor Bruce Broster. Serge is the 12th graduate student to complete an advanced degree with Bruce.

52nd Atlantic Universities Geological Conference

The 52nd Atlantic Universities Geological Conference was held at the University of New Brunswick in Fredericton from October 24th to 26th, 2002. In all, 121 students from Acadia, Dalhousie, Memorial, Saint Mary's and St. Francis Xavier universities registered for the conference. A complement of professionals and university academics from Atlantic Canada supplemented the student registrants. Sixteen students delivered papers at the conference, which is a new AUGC record. All presentations were of exceptional quality.

Christine Cunningham, the student chair of the conference, raised \$15,000 to support the related activities. Donations were received from Imperial Oil, Shell Canada, Atlantic Provinces Council on the Sciences (APICS), the Atlantic Geoscience Society, Conoco Canada Resources Limited, Canadian Society of Petroleum Geologists, Maritimes and Northeast Pipelines, Association of Professional Engineers and Geoscientists of New Brunswick, Devon Canada, City of Fredericton, Jacques Whitford Associates, Major

Drilling Group, and the Potash Corporation of Saskatchewan. Well done to the organizer and our generous sponsors!

The activities began with registration and a social. Almost all the participants spent the evening discussing student life and geological interests over refreshments and karaoke.

October 25 was dedicated to geological field trips offered by UNB faculty and a member of New Brunswick's Department of Natural Resources and Energy. The field trips comprised: acid mine drainage in the Minto coalfields (led by Drs. Tom Al and Karl Butler), metallogeny at Mount Pleasant and Clarence Stream (Dr. Dave Lentz), and a look at the Albert Formation near Sussex (Drs. Murray Gingras and Dave Keighley, with help from Ian Armitage and Paul Wilson). The day was capped with a huge barbeque, hosted by Jason Kellog.

Talks and posters on student research in Atlantic Canada were presented on October 26, with the best presentations receiving awards. Talks were judged by a panel comprising Les Fyffe (NBDNRE), Dallas Davis

(Consultant), Dave Keighley (NBDNRE) and Murray Gingras (UNB). Posters were adjudicated by Jennifer Underschutz (Imperial Oil).

The APICS Award was presented to Amy Tizzard of Acadia University by Les Fyffe. This award is based on the scientific quality and relevance of the topic, the amount of the original work done by the student, and his/her understanding of the subject.

The Frank Shea Memorial Award for the best paper dealing with Economic Geology was earned by Patrick Collins of Dalhousie University. Patrick received his award from Dallas Davies.

The Canadian Society of Petroleum Geologists Trophy for the best presentation of a paper was awarded to Nicolette Stanley, a UNB student, by Murray Gingras.

The Imperial Oil Best Poster Award was won by Kim Morrissey from Memorial University. Jennifer Underschutz presented the award. All presenters also received a certificate from the AGS, and a one-year subscription to *Atlantic Geology*. Dave Keighley presented the certificates.

A cocktail reception, ably conducted by Shahin Dashtgard, provided the context for the awards presentation. Following the awards, a boat race ensued between the participating universities. Teams from each university competed, with a team of professors and professionals thrown in for good measure. The Professionals – a team of indentured boat racers (Brendan Murphy, Sandra Barr, Chris White, Dave Keighley and Murray Gingras) – easily won the meet.

The conference could not have succeeded without all of the many students who volunteered their time. Thanks go to Larry Amskold, Tamara Holmes, Jillian Hudgins, Vernon Banks, Jason Kellock, Matt Clark, Rob Richard, Shahin Dashtgard, Nicolette Stanley, Aaron Desroches,



Smiling faces at the AUGC field trip led by Tom Al and Karl Butler to examine acid rock drainage at the Minto coalfield. Photograph courtesy of Karl Butler.

Nesha Trenholm, Lynn Diamond, Ian Armitage, and Barton Blakney for jobs well done. Several faculty and staff of the UNB Geology Department contributed to and supported the conference, especially Karen Shea, Christine Lodge and James Whitehead.

Acadia University

Sandra Barr

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In October, a large group of Acadia students travelled to Fredericton to participate in the Atlantic Universities Geological Conference. Three students presented posters on their research – Paul Barker (Provenance of clasts in conglomerate units in northeastern mainland NS and southwestern Cape Breton Island); Natalie MacLean (Petrology and tectonic setting of the Wedgeport Pluton, NS), and Melanie Sampson (Economic opportunities associated with the geology of Labrador, Canada). In addition, Amy Tizzard made an oral presentation based on her B.Sc. Honours thesis, entitled "*Structural geology and basement-cover relations in the southeastern Cape Breton Highlands, Nova Scotia*". Amy was awarded the APICS prize for her presentation. Amy's work is supervised by Rob Raeside.

Sandra Barr, Cliff Stanley and Steve King participated in the New Brunswick Department of Natural Resources and Energy's 27th Annual Review of Activities in early November. Sandra presented a poster (New U-Pb zircon ages, geophysical compilations, and terranes in southern New Brunswick), Cliff presented a talk (Half-Mile Lake volcanic-hosted massive sulphide deposit, Bathurst, NB: insights into alteration, metasomatism, and host-rock control from contrasting hydrothermal systems), and Steve also presented a talk (Application of gravity and magnetic data to geological interpretations in southwestern New Brunswick). The subsequent week, a contingent of faculty and students contributed to

and/or attended the equivalent Nova Scotia Department of Natural Resources event, "Mining Matters for Nova Scotia" in Halifax. Students Paul Barker and Natalie MacLean presented posters on their research projects, and other members of the department were involved in other posters and talks.

The formal part of the Fall term concluded on November 28th with a visit from Catharine Farrow (INCO). She presented a well-attended (even some students from Dalhousie were spotted in the audience!) talk on "PGE Mineralization, Environments, Exploration and Beneficiation: From the World to the Microscope".

Cliff Stanley has been elected the Distinguished Lecturer for the Association of Exploration Geochemists in 2002-2003. He began his lecture series with a talk at Acadia in mid-November, and continued in more exotic venues during a 3-week tour of Australia in late November and December. In addition to giving four lectures at 3 universities, he continued some of his ongoing research at several gold mines down-under (Fimiston, Callie, Boddington, and Pajingo). The first three are 3 of the 4 largest gold deposits in Australia. Cliff's other stops on the tour are still in the planning stages, but will include locations in Canada, the United States and Europe.

The annual (and much-anticipated) Geology Department Christmas potluck supper and party was held once again at the home of Rob and Wendy Raeside on November 30th. After solving the challenging "treasure hunt" puzzle, attendees were treated to an incredible array of culinary delights, including both main course dishes and desserts, prepared by the talented cooks of the department (or purchased from local eateries by those less inclined toward the kitchen). Following the meal, a boisterous "gift exchange and exercise in thievery" kept everyone on the edge of their seats for two hours, after which those who were successful in hanging onto the alco-

holic gifts apparently departed for less "polite" surroundings to "enjoy" (questionable in the case of some of the beverages involved) their gifts. The rest of us went home to guzzle our chocolates, cuddle our polar bears, or whatever.

Best wishes for 2003 to the AGS community from all of us at Acadia!

St. Francis Xavier University

Brendan Murphy

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The Fall term is always busy, with the injection of energy from the influx of new Earth Science majors and the carry-over from the summer's research activities. Enrolment is still high, and numbers in second and third year core courses are especially encouraging. It seems like the term just started yesterday. Nevertheless, important milestones were reached.

Alan Anderson continues his investigation of hydrothermal processes in the Earth's crust by field and experimental studies. He is currently working on rare earth element complexing in hydrothermal brines and on zircon - aqueous solution interactions up to 500°C. These experiments have been conducted at synchrotron facilities in the United States. Alan is also an Associate Editor of the American Mineralogist, guest editor for the Canadian Mineralogist and editor and co-organizer of the upcoming short course on fluid inclusions to be held in May 2003 in Vancouver. He will be on sabbatical next term.

Lisa Kellman was the recipient of a major research award (\$198,300 over three years) from the Canadian Foundation for Climate and Atmospheric Sciences (CFCAS). Lisa will expand her research on the processes controlling the release of greenhouse gases from terrestrial environments. She has hired a post-doctoral fellow, Dr. Oseas Costa, and is supervising a Ph.D. thesis at Dalhousie University by David Risk. She is currently on maternity leave (a beautiful daughter, Sasha) and

will be on sabbatical for the 2003-04 academic year.

Hugo Beltrami studies energy balance at the Earth's surface, looking at temporal and spatial variations of heat flowing in and out of the ground using geothermal data to determine how much the climate has warmed and when. He was also the recipient of a major research award (\$226,248 over three years) from the Canadian Foundation for Climate and Atmospheric Sciences. Lisa and Hugo's proposals were among 24 successful research proposals from 62 applications across Canada. At the time of writing, Hugo is presenting his research at the AGU in San Francisco. He will also use part of his funding to hire a post-doctoral fellow as well as to support graduate students.

Mike Melchin is completing his 6 month sabbatical, and working on papers dealing with a restudy of the Ordovician-Silurian graptolites from Dob's Linn (with Fan Junxuan); the Global Stratotype for that boundary; the record of the Late Ordovician mass extinction in China (with a number of co-authors), and the carbon isotope record of the Late Ordovician-Early Silurian in Arctic Canada, with Chris Holmden. Graduate students Eugene MacDonald (working on Silurian radiolaria from Arctic Canada) and Sherrill Senior (working on Silurian graptolites from Arctic Canada) are both near completion of their Ph.D. theses.

Brendan Murphy is still chair of the department. He is co-leader of IGCP 453 – Ancient Orogens and Modern Analogues. The 2002 meeting was held in New Zealand in September. He has co-edited a special issue of *Tectonophysics* related to this project. Brendan is co-organizing special sessions at the meetings of the Northeastern and Cordilleran sections of GSA, and was a keynote speaker at the GEO 2002 conference in Germany.

We are pleased to have Elisabeth Levac with us again this year, as a

sabbatical replacement for Mike Melchin (first term) and Alan Anderson (second term). She is teaching courses in Stratigraphy and Sedimentology, Geomorphology, Earth History and Coastal Oceanography. Elisabeth also presented her research results at the AGU in San Francisco.

Dr. Tribeni Sharma starts with us on January 1st as an 18 month term appointment. He will be teaching a variety of courses, including Environmental Geology, Hydrology, Hydrogeology, and Aqueous Geochemistry. Sid Taylor and Cindy Murphy were extremely busy in teaching and grading labs and in web-based support for many courses. We were fortunate to persuade the University that we needed extra support for labs. Paul Teniere, who recently obtained an M.Sc. degree from Acadia, has just been appointed as Laboratory Supervisor, which special responsibilities for the environmentally-oriented laboratories. He will start on January 1st. We are greatly looking forward to his arrival.

The Faribault Club has been very active organizing social evenings and this will continue next term. They had 17 participants at the AUGC in Frederickton and had a great time there. Their all-star beer team finished an admirable second (bowing to the experience of the all-star faculty team of Barr, Gingras, Keighley, Murphy and White) in the beer-chugging contest, but at least they beat out their peers!

Dalhousie University

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Travels with a Hammer

Several faculty members spent some time in distant parts during 2002 (and others envied them).

Djordje Grujic and Joyia Chakungal (Ph.D. student) worked for 5 weeks in spring 2002 in the northwest corner of

the Kingdom of Bhutan in the border area to Tibet. Bhutan is generally inaccessible because only about 8,000 tourists are allowed to visit the kingdom in a year. In addition, the area visited is off limits because it is a border area. Because of good connections with the Royal Government and several years of work, however, it was possible to obtain permits to visit and work in this remote area.

The field work concentrated on collecting rocks of mafic and ultramafic composition. These rocks are from the Greater Himalayan Sequence, the metamorphic core of the Himalayas, and experienced amphibolite to granulite facies metamorphism during the Miocene. Very little, however, is known about the first 20 Ma of evolution of the Himalayas, since the collision of the Indian plate and Tibet. Because of their composition, it was hoped that the mafic rocks might contain information about the tectonic evolution of the Himalayas during those early stages. Laboratory studies will focus on thermobarometry (quantitative metamorphic petrology) to obtain information about the pressure and temperature these rocks have experienced. Djordje and Joyia will also apply numerous techniques of geochronology to unravel the age of the rocks and the time of their different stages of metamorphism. Finally, various geochemical analyses will be applied to constrain the protolith of the mafic and ultramafic rocks so as to determine if these rocks are of continental or oceanic origin. If the latter, they might be tiny remnants of the Tethys Ocean that once separated India and Tibet.

Grant Wach has been teaching a petroleum course to students in Trinidad, where he is also pursuing a research program into one of the world's most remarkable petroleum fields - including the famous "pitch lake". He also gave presentations in Houston on the way home. John Gosse is currently in Argentina, where he is sampling for cosmogenic dating applications.

Research Groups

Cosmogenic Nuclide Extraction Facility

John Gosse reports that cosmogenic nuclides have been used this year to provide chronology on fan sequences in the U.S. southwest. In central California and western Nevada, the exposure ages provide the chronology needed to evaluate strain partitioning over pull apart basins in a trans-tensional zone between the Owens Valley and Fish Lake Valley right lateral strike slip systems. In the Providence Mountains of southeastern California, the research is evaluating sampling strategies for dating fans, and gaining insight into catchment basin processes affecting sediment production, storage, and evacuation. In the Panamint Valley near Death Valley, Quaternary strains partitioned across basins and multiple active strike slip and dip slip faults are being constrained and compared to Cretaceous-Miocene deformation histories.

In the Torngats, work on soils, geomorphology, and more than 50 measurements of ^{10}Be and ^{26}Al reveals that the summits have been glaciated during the Younger Dryas but that the plateau ice was frozen to its substrate and non-erosive. A revision of the glacial history in the Saglek-Nachvak-Aluviaq region is being prepared on the bases of recent mapping and these chronologies. Jane Willenbring launched her Ph.D. study of how felsenmeer may considerably influence orogen development in regions where peak height rapidly reaches the equilibrium line altitude. In non-glacial and glacial times the felsenmeer inhibits summit erosion, increases differential erosion between summits and valleys, and can induce isostatic uplift and peak height increase.

CNEF is also involved in refining the chemical procedure used for isotope extraction from quartz (work by Guang Yang). We have begun a Canadian production rate project that forms part of our commitment to the

newly formed international CRONUS - Earth project for developing the cosmogenic nuclide method. The Canadian project involves setting NaCl targets at various latitudes and longitudes, and measuring cosmogenically produced ^{32}P (half-life = 14 days) with mobile liquid scintillation. This will help establish how other cosmogenic nuclides should be scaled for differences in production rates due to differences in geomagnetic field and atmospheric shielding.

Micropaleontology and Marine Science

Dave Scott is planning another research cruise with an ROV to the Scotian and Newfoundland margins. The project is to search for more deep-sea corals in aid of our paleoclimate studies, conducted jointly with scientists at McMaster, and UQAM. Two students and one PDF will be working on this project starting in January, 2003. Andrea Hawkes (2nd year M.Sc.) is working on relationships between the deep-sea corals and foraminifera, and Owen Sherwood (1st year Ph.D. coming from McMaster) will start work on using isotope and chemical ratios to extract climate data from the corals themselves. Kevin Strychar (Killam PDF with Ph.D. from Australia) will work on the genetics of the deep-sea corals.

Dalhousie personnel attended a coral meeting in Tampa, Florida organized by NOAA in November, 2002. Dalhousie presented a proposal to start an NSERC Deep-Sea Corals Network at Dalhousie University. The proposal received general approval and promises of cooperation from several US and European coral groups in sharing ship time and facilities.

At the annual meeting of Geological Society of America in Denver (October, 2002), Dave Scott was the co-convenor of the Cushman Foundation Symposium entitled *Micropaleontological Applications to Problems of Urbanization*. One of our former students (Jennifer Sabeau, now at Simon Fraser) and our recent Ph.D.

graduate Richard Tobin also presented papers in that session. Another of our former students (Emmanuelle Javaux, now at Harvard) presented her work regarding Pre-Cambrian dinoflagellates.

Graduate Theses

Two graduate theses were defended during the Fall. Lexie Arnott completed her Ph.D., entitled "*Evolution of the Hydrothermal Alteration at the Chuquicamata Porphyry Copper System, Northern Chile*", supervised by Marcos Zentilli. Jean-Philippe Gobeil completed his M.Sc. thesis, entitled "*Stratigraphy, sedimentology and provenance of the Chaswood Formation, West Indian Road pit, Shubenacadie, Nova Scotia*", supervised by Georgia Pe-Piper, St. Mary's University. We congratulate both Lexie and Jean-Philippe on their successful thesis completion.

End of an Era

The regional Electron Microprobe Facility, housed at Dalhousie, recently received a \$1 million upgrade with the purchase of a new probe, funded by NSERC. For the past 30 years, Bob MacKay has been in charge of the probe lab and, now that the new probe is installed and operating smoothly, he has taken the decision to retire. Bob has made a huge contribution to research in the region through his dedication and knowledge of the probe and its workings. In addition to his technical expertise, he has been a calm and skilled instructor to many of us who have had to "learn the ropes" with the machine. He will be greatly missed, and a search is underway for a replacement who will spend several months working with Bob to ensure a smooth transition. Bob is intending to spend more time with his grandchildren and in pursuing his interests in fine art.

Carnegie Professor

In 1933, the Carnegie Foundation made a large donation to Dalhousie, one of the purposes of which was to

establish a Carnegie Professorship in the then Department of Geology.

Although no funds are now attached, this honorary position still exists and became vacant after the retirement of Dr. Paul Schenk, the previous award holder. The new Carnegie Professor is Dr. Becky Jamieson, in recognition of her research and teaching in metamorphic geology and tectonics. We feel that she is an especially worthy recipient in view of her recent experience of singing in the Carnegie Hall in New York (and she even has the coffee mug to prove it).

Honours Field Excursion

Plans are underway for the Honours Field Excursion in summer 2003. This year, the excursion will visit England and Iceland, under the leadership of Gunter Muecke and Martin Gibling. Weather permitting, a wide range of geology should be on the menu. The Icelandic leg will include a visit to the Mid-Atlantic Ridge onshore, geothermal areas, glaciers, braided outwash plains, and the Blue Lagoon. The English leg will include classic Devonian localities, the

Dartmoor granite and tors (see "Baskervilles, Hound of the"), and the World Heritage Jurassic coast with its near-complete Permian to Tertiary section.

APICS Earth Science Committee Update

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After forty years of existence, the Atlantic Provinces Inter-University Committee on the Sciences (APICS)

Food for Thought - The Peer-review Process

As scientists, we all use and benefit from peer reviews of our work, whether it be a colleague who agrees to read a paper for us or the more rigorous procedure of reviews of manuscripts submitted to science journals. Editors of those journals, however, must ensure that the review process is efficient, effective and ethical. *Refereeing in the New Millenium* was one of several sessions at the joint meeting of the Association of Earth Science Editors (AESE) and the European Association of Science Editors that was held in Halifax in September 2002. Summaries of the presentations made at the session were published in *Blueline*, the AESE's newsletter. We have obtained permission to reprint the summaries in the AGS Newsletter, as the discussion is one of interest to all of us. The following is the first of several presentations that will appear in coming issues of the Newsletter.

Referees' Conflicts of Interest, Presentation by Elisabeth Kessler (Royal Swedish Academy of Sciences) and summary by Kristina Bartlett, Geotimes/American Geological Institute.

As Elisabeth Kessler said in her talk entitled "Referees' Conflicts of Interest", the peer-review process is an imperfect one. But it is necessary, she said, and she shared some tips for spotting biased peer-reviewers. The editor is in a position to detect conflict of interest, and should therefore know the signs. In being diligent, an editor can help make sure that research does not go unpublished for personal or unscientific reasons. Such diligence also protects the interests of the journal. "Conflicts of interest are a threat to the whole scientific process," Kessler said.

Kessler has worked 16 years as editor of *Ambio - A Journal of the Human Environment*, which is published by the Royal Swedish Academy of Sciences. Her journal gives non-English speaking scientists and scientists in developing countries a chance to make their research known. This idea of access for all scientists is one Kessler also stressed in her discussion of peer review. She urged editors to make an effort to publish the work of scientists in developing countries. Editors can work to help young scientists too. "We all have obligations to young scientists. We must make sure they are not thrown to the lions. And a lot of referees are lions."

How can an editor and editorial board spot the lions? Kessler described some specific red flags indicating that a reviewer might have a conflict of interest: 1) strange discrepancies in the reviews among referees; 2) a review in which criticism is unconstructive or needlessly disparaging (particularly of a young scientist); 3) a shabby review that advises rejecting the article but offers no discussion as to why; 4) a review supplied late or reluctantly (this could be a sign of fraud, with the reviewer waiting for their own work to be published first); 5) an overzealous reviewer who wants to include citations of his work.

Kessler also supplied tips on how to deal with a lion once you've spotted one: 1) send the paper to additional referees; 2) conduct a first-level, in-house review to determine the paper's value before sending it to the referees; 3) know the current and previous affiliations of referees (if the editorial staff has the time to do this, of course); 4) pay attention to a note from any referee or author that questions a rejection.

Overall, Kessler said, remember that everyone involved in the peer-review process - from the editor to the editorial board to the peer reviewers - is human and fallible.

has embarked on a strategic planning process to examine its mandate and future directions. The APICS Council is currently looking at various options in terms of future structure and new initiatives for the promotion of sciences in Atlantic Canada. This process will be ongoing until the spring, when decisions will be made during the April meeting of the Council.

The current APICS Earth Science Committee consists of Fenton Isenor (University College of Cape Breton), Serge Jolicoeur (Université de Moncton), Susan Johnson (New Brunswick Department of Natural Resources and Energy), Dan Kontak (Nova Scotia Department of Natural Resources), David Mossman (Mount Allison University), Brendan Murphy (St. Francis Xavier University), Ron Pickerill (University of New Brunswick), Peter Wallace (Dalhousie University), Ian Spooner (Acadia University) and Jarda Dostal (Saint Mary's University).

As in past years, the Committee cooperated with the Atlantic Geoscience Society to sponsor and organize a speaker tour, bringing in outstanding scientists to talk about their recent research. This year the speakers were from Dalhousie University, Dr. John Gosse from the Department of Earth Sciences and Tim Fedak, a Ph.D. candidate in the Biology Department. The title of Dr. Gosse's talk was "*Applications of cosmogenic nuclides to derive paleoclimate information from alpine and continental environments*". Tim Fedak spoke on recent vertebrate fossil discoveries from the Hettangian McCoy Brook Formation. Each speaker visited three universities in Atlantic Canada. The tour organizers were Ian Spooner and Peter Wallace.

The Committee also contributed to the 52nd annual Atlantic Universities Geological Conference, as reported elsewhere in this issue.

GOVERNMENT NEWS

Mineral Resources Branch, Nova Scotia Department of Natural Resources

Mining Matters for Nova Scotia 2003
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What do a stone sculptor, a jazz ensemble, a geological map and a high-wall miner have in common? The answer is Mining Matters for Nova Scotia. This annual conference was held at the Westin Nova Scotian Hotel in Halifax on November 13 and 14, 2002. The main purpose of the event is to convey the importance of mining and geoscience research to Nova Scotians. So, what did the delegates see and hear while at this beautiful old refurbished CN hotel?

Stone sculpting has been a human endeavor for several millennia. Conference delegates had the opportunity to watch internationally-recognized stone sculptor Vanessa Pashakarnis create a sculpture from a block of red marble from Cape Breton Island. The rock was donated by MacLeod Resources Ltd., which recently began mining of red and blue-grey marble at its quarry near River Denys, Cape Breton Island.

As we head into the winter season, road safety is prominent in many people's minds. Salt is used to keep roads ice-free, but where do we procure our road salt? Nova Scotia has two salt mines - an underground operation in Pugwash and a brine operation in Nappan. Most road salt used on Nova Scotia's roads is purchased from the Pugwash mine. Buck Wile, an employee of Canada Salt Company in Pugwash treated conference attendees to an overview of his company's operation in a presentation entitled "*Salt: A mineral that really matters*".

OK, so there are a few neat things that relate minerals and our everyday lives, but everyone knows that mining is part of that old economy, right?

Wrong! Several examples of new technologies that are being employed by Nova Scotia's mining industry were highlighted. Pioneer Coal Limited had a display about its NovaMiner 2000 high-wall miner. This proprietary technology is the only machine of its kind in the world capable of extracting coal from surface coal seams with dips up to 28°, and was designed and built here in Nova Scotia.

Another example of technological advances in mining was eloquently detailed in a talk by Kirk Hillman, Fundy Gypsum Company. Mr Hillman described continuing upgrades to his company's load-out facility at Hantsport. Once completed, this site will be capable of loading approximately 40,000 tonnes of gypsum onto a bulk-carrier in less time than a single rise and fall of the world-famous tides of the Minas Basin.

Many of us spend time along Nova Scotia's beautiful coastline. Some are lucky enough to own or share a family seaside cottage, or perhaps we have a favourite beach where we like to stroll and swim. Consequently, erosion of the province's coastline is an important issue to us, and one that often receives media attention. Bob Taylor, a research scientist from the Bedford Institute of Oceanography, presented delegates with an entertaining and informative overview of the processes and dynamics of coastal erosion. His talk, entitled "*Where's the Beach, eh?*", chronicled changes to Nova Scotia's coastline using historic air photographs and other information.

Did you know that the Halifax Regional Municipality consumes some 3 million tonnes of crushed stone aggregate each year? What is it used for? Concrete, asphalt, road beds, basements and walkways to name just a few applications. So where does all of this rock come from? Garth Prime, a geologist with the Department of Natural Resources, gave a presentation entitled "*Aggregate in the Halifax Regional Municipality: an examination of a resource facing an uncertain*

future". Garth outlined the challenges that face the municipality in this vital sector.

And now for something completely different. Many readers will recall the media coverage and controversy surrounding the new Halifax Regional Municipality landfill. After considerable evaluation of various sites, an area near Otter Lake was selected for development. This area has a thick layer of red, clay-rich glacial till overlying the granite bedrock. The till layer is impermeable and provides some of the basic materials needed to construct a modern landfill. On November 15, 35 conference delegates had a tour of the Otter Lake landfill as part of the Mining Matters field trip. The trip was organized and led by Fred Bonner and Howard Donohoe, and focused on the importance of geoscience in our daily lives. In addition to visiting the landfill, the trip included stops at the Halifax airport, where water runoff from an area of acid-generating slate is treated and neutralized, and at the largest gypsum mine in the world at East Milford.

These are but a sample of the diverse topics featured at Mining Matters. We plan to continue this tradition of excellence next year. Hope to see you there.

Newfoundland and Labrador Department of Mines and Energy

Newfoundland and Labrador Open House / CIMM Annual Meeting – The Good Times Return

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The Newfoundland and Labrador Department of Mines and Energy Open House was held, as usual, in conjunction with the 49th annual meeting of the Newfoundland Branch of the Canadian Institute of Mining and Metallurgy. Both meetings were held at the Delta Hotel in downtown St. John's over the period October 31-November 2, 2002.

This year's Open House was the usual one-day session, but was re-designed to provide a broader overview of the Department's activities, including petroleum and energy issues as well as the traditional focus on mineral exploration. The morning session was dedicated to reviews of Department activities and was opened by the Minister of Mines and Energy, the Honourable Lloyd Matthews. This was followed by sectoral reviews of the Department's energy and mining activities, and then by more in-depth reviews of Geological Survey activities, mineral exploration, petroleum exploration, and energy issues, and concluded with a review of the activities of Memorial University's Center for Earth Resources Research. The afternoon was dedicated to a poster session reviewing the project activities of the Department of Mines and Energy as well as those of the Geological Survey of Canada.

Highlights of the year for petroleum were the commencement of production from the Terra Nova field, approval for the White Rose offshore development, a successful resolution (from Newfoundland's perspective) of the offshore boundary dispute with Nova Scotia and expansion of production from the Hibernia field. On the mining side, the approval for the Voisey's Bay nickel-copper-cobalt project, and the upsurge in gold exploration in central Newfoundland were the main stories. Electrical energy developments hold great promise but will hinge on the ongoing negotiations over the Lower Churchill River project.

The Open House session was completed by an evening public lecture delivered by Sean O'Brien of the Geological Survey on the subject of "Gold - The What, Where, When and Why of the Yellow metal in Newfoundland". This continued a recent tradition of such public lectures and was exceedingly well attended by an audience of about 350 persons.

The ensuing CIMM meeting provided its usual spectrum of technical ses-

sions, trade show booths, core shack and prospector displays. Technical sessions were held on the themes of Oil and Gas Developments, the Voisey's Bay Development, Mining Technology, and Current Exploration in Newfoundland and Labrador. The Petroleum session focused on recent developments in both offshore and onshore exploration. The Mineral Exploration session spotlighted the recent upsurge in gold exploration in Newfoundland, in particular the potential for Carlin-type deposits. Interest in the mineral exploration sessions was high, particularly by junior companies, and testifies to the excitement that currently pervades the Province's mineral exploration sector.

The CIM Luncheon featured guest speaker, Mr. William Barbour, President of the Labrador Inuit Association. Mr. Barbour addressed the issue of land claims in Labrador. The meeting also featured its usual round of social events, including a curling bonspiel, hospitality suites and the annual Awards Dinner and Dance.

The Open House and CIMM conference were attended by 300 and 370 persons respectively, with most attending both events. These were the best registration figures in recent years and provide a heartening sign of both the improved climate for mineral exploration, and the new interest in the Province's energy and mineral resource potential that has developed over the past year.

NEWS FROM OTHER ORGANIZATIONS

New Brunswick Museum

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Usually the geology research collections part of the New Brunswick Museum is a relatively quiet place. The Fall of this year, however, has seen lots of visitors, including two recipients of the 2002 George Frederic Matthew Research Grants in Geology.

In September, Dr. Sue Turner from the Queensland Museum and Monash University, Australia, spent two weeks examining a Devonian shark and related specimens collected by New Brunswick Museum staff. We are currently preparing a manuscript about this specimen of the oldest articulated shark fossil with our colleague Dr. Richard Cloutier, Université du Québec à Rimouski. In addition to carrying out her research work, Dr. Turner was kind enough to help the museum with our media relations. We like to put our grant recipients to work. Drs. Turner and Miller conducted interviews for CBC Radio, Information Morning in Saint John and Moncton, CBC, ATV and Global Television and the Saint John Telegraph-Journal. The latter article was also reprinted in the National Post.

In late October, Dr. Robert Wagner, Jardı́ Botánico de Córdoba, Spain,

spent a week at the Museum examining our collection of Upper Carboniferous plants from the Lancaster Formation at Fern Ledges. Dr. Wagner arrived with Dr. John Utting, from the Geological Survey of Canada. The last time this collection received so much attention was when Marie Stopes visited Dr. Matthew to prepare her 1914 GSC Memoir 41. This was a great project to receive support from the Matthew Grant. Most of the specimens Dr. Wagner examined had passed through George Matthew's hands at one time. As we worked through the collection, portraits of George Matthew and Fred Hartt (another Fern Ledges collector) loomed over our shoulders, a clear reminder of the importance of scientific collections and connections with the past. We look forward to seeing the results of research conducted by the Matthew Grant recipients and to receiving applications for the 2003

grants.

In October, we ended travel of "Minerals Matter", our exhibition about rocks, minerals and mining in New Brunswick. We wish to thank the New Brunswick Mining Association for their support in taking the show to museum and exhibition centres around New Brunswick. After the show closed at the New Brunswick Museum it went to the Moncton Museum, the Musée de Madawaska in Edmunston, Restigouche Gallery in Campbellton, Rockwood Park in Saint John, the Sussex Balloon Festival and the Sunbury Shores Arts and Nature Center in St. Andrews. We are now working on a web version of the exhibition.

Fundy Geological Museum

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Through the winter months, the Museum's doors are open to the general public Tuesday through Saturday, 9 am - 5 pm. While traffic will be slow over the next few months, we continue to have visitors. Recently a student from Australia dropped in. A CBC camera crew appeared in the middle of a snowstorm to do an interview with Tim Fedak and Kathy Goodwin on "Project Prosauropod". The interview will appear on "Canada Now" in the New Year and will also feature one of the school classes that are following the preparation of our dinosaur material via the Museum's web site.

March Break programming will be offered from March 8th through 16th. Please call for further details (1-902-254-3814) or check out activities on our web site at

<http://fundygeo.museum.gov.ns.ca>.

We can also arrange for accommodations and meals during your visit to Parrsboro, including a visit to a local sugarbush for a meal of pancakes and maple syrup products.

Beyond The Last Billion Years Public Lecture Series

Changing Climate in Atlantic Canada: Should We Worry? by Dr. John Shaw, Geological Survey of Canada – Atlantic; Wednesday, February 19

The climate of Atlantic Canada has changed since the retreat of the great ice sheets. Join geologist John Shaw to find out more about these changes and possible future effects caused by human impact, especially on forests, rivers, ocean circulation, sea ice, icebergs and sea level.

Mass Extinctions, Asteroid Impacts and Giant Volcanic Eruptions – The Beginning and End of the Dinosaurs by Dr. Paul Olsen, Lamont Doherty Earth Observatory of Columbia University; Wednesday, March 26

There are many theories about how and why dinosaurs went extinct. Join Dr. Paul Olsen, a specialist in Nova Scotian dinosaurs, as he leads us on a journey back to the time of these giant reptiles.

Rivers Through Time: Earth's Ancient Landscapes by Dr. Martin Gibling, Dalhousie University; Wednesday, April 16

Rivers are a dynamic part of the modern landscape, and the rock record shows us that this has been the case for at least the last billion years. Join geologist Martin Gibling on a cruise down rivers ancient and modern, near and far, to learn their fascinating story.

These presentations are co-sponsored by the Nova Scotia Museum of Natural History and the Atlantic Geoscience Society. All talks begin at 7:30 pm in the Museum Auditorium. Admission is free, but a food bank donation would be appreciated.

Nova Scotia Museum of Natural History

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In October, the Museum hosted "Behind the Scenes", where the collections and exhibit construction areas were open to the public. The event was highly successful in educating people about the role and importance of museum collections. The most popular exhibit, by far, was a mummified cat.

In November, the museum hosted "Fossil Fair", when the public was encouraged to bring in fossils for identification. Five local palaeontologists were on hand to help identify specimens and educate the public about significant Nova Scotian fossils. We were pleased to have the assistance of Rob Fensome (GSC Atlantic), Andrew MacRae (Saint Mary's University), George Hrynewich (Noel Shore fossil collector and soon to be Research Associate of the Nova Scotia Museum), and Bob Godfrey (Blue Beach Fossil Museum and Research Centre).

The fall session of the "Beyond the Last Billion Years" talk series wrapped up in November, with David Christianson and Mike Saunder's presentation on the aboriginal use of Nova Scotian lithic material. Although the talks have been well-attended, although we would like to encourage more AGS members to attend. The schedule for February through April is provided elsewhere in this issue.

The museum is currently involved with several collaborative educational outreach projects, including preparation of the new edition of the Geological Highway Map of Nova Scotia, the Fundy Basin poster project, and the 2003 EdGeo conference.

The Geology Collections lab is very active. We are currently hosting two volunteers and a Ph.D. candidate. Stewart Yule, a recent Saint Mary's geology graduate, is cataloguing a

collection of trace fossils from Horton Bluff and Blue Beach. George Hrynewich has begun cataloguing a collection of Mesozoic reptile fossils he collected from the Noel Shore. The reptile collection has been fully prepared and studied by Dr. Hans-Dieter Sues and staff at the Royal Ontario Museum. Tim Fedak, a Ph.D. candidate at Dalhousie University, will be preparing prosauropod material as part of his on-going studies.

Research Grants Competition

The Nova Scotia Museum wishes to announce the 2003 competition for Nova Scotia Museum Board of Governors Research Grants. Subjects eligible for grants include Cultural History, Marine History, Archaeology, Systematics, Rare Species and Palaeontology.

Applications must be received by the Museum no later than 5 pm, January 31, 2003. Applicants must consult the Terms of Reference and the Project Submission Format before submitting an application. These documents, and additional information, are available from the Museum's website (<http://museum.gov.ns.ca>) or by writing to:

Research Grant Program
Nova Scotia Museum
Heritage Resource Services
1747 Summer St
Halifax, NS B3H 3A6

Upcoming Events

Cordilleran Exploration Roundup 2003. Westin Bayshore Resort and Marina, Vancouver, BC; January 27 – 30, 2003. For more information, visit the conference website at <http://www.bc-mining-house.com/rdup2003/roundupoverview.htm>

PDAC 2003, International Convention, Trade Show and Investors Exchange. Metro Toronto Convention Centre, Toronto, ON; March 9 – 12, 2003. For more information, visit the conference website at <http://www.pdac.ca/pdac/conv/index.html>

AGS – NE GSA Joint Meeting. Westin Nova Scotian Hotel, Halifax, NS; March 26 – 30, 2003. For more information, visit the conference website at <http://www.geosociety.org/sectdiv/northe/03nemtg.htm>

Montreal 2003 – CIM Mining Industry Conference and Exhibition. Palais de Congrès de Montréal, Montréal, QU; May 4 – 7, 2003. For more information, visit the conference website at <http://www.cim.org/MCE/montreal2003/>

Vancouver 2003 – GAC-MAC-SEG Joint Meeting. Sheraton Wall Centre Hotel, Vancouver, BC; May 25 – 28, 2003. For more information, visit the conference website at <http://132.156.108.210/Vancouver2003/>

CANQUA2003 – Canadian Quaternary Association Meeting. Dalhousie University, Halifax, NS; June 8 – 12, 2003. For more information, visit the conference website at <http://www.gov.ns.ca/meb/canqua/canqua.htm>