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engenuity

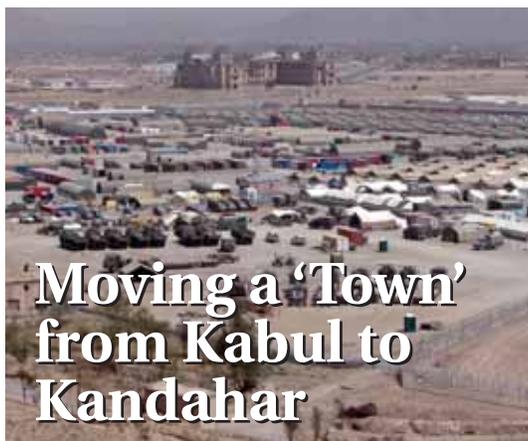
The Source of Engineering and Geoscience News in New Brunswick
La source d'information en ingénierie et géoscience du Nouveau-Brunswick

APEGNB member, Anna Robak, MIT, is working in the land of the kiwi and kakapo. Read about her experiences on **page 36**.



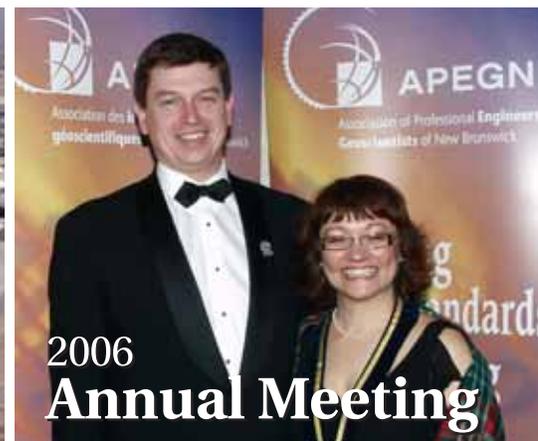
Postcard From New Zealand

The 2 Specialist Engineering Team from Moncton, NB, was deployed to Kabul, Afghanistan, to assist with the closure of Camp Julien. It was a herculean task that attracted attention and praise from celebrities, defence staff and governments. See how they did it on **page 20**.



Moving a 'Town' from Kabul to Kandahar

Iris Auclair-Bernard, P.Eng., was elected 2006 president during the 86th APEGNB Annual Meeting in Moncton. See what else happened on **page 6**.



2006 Annual Meeting

Association of Professional Engineers and Geoscientists of New Brunswick
Association des ingénieurs et géoscientifiques du Nouveau-Brunswick

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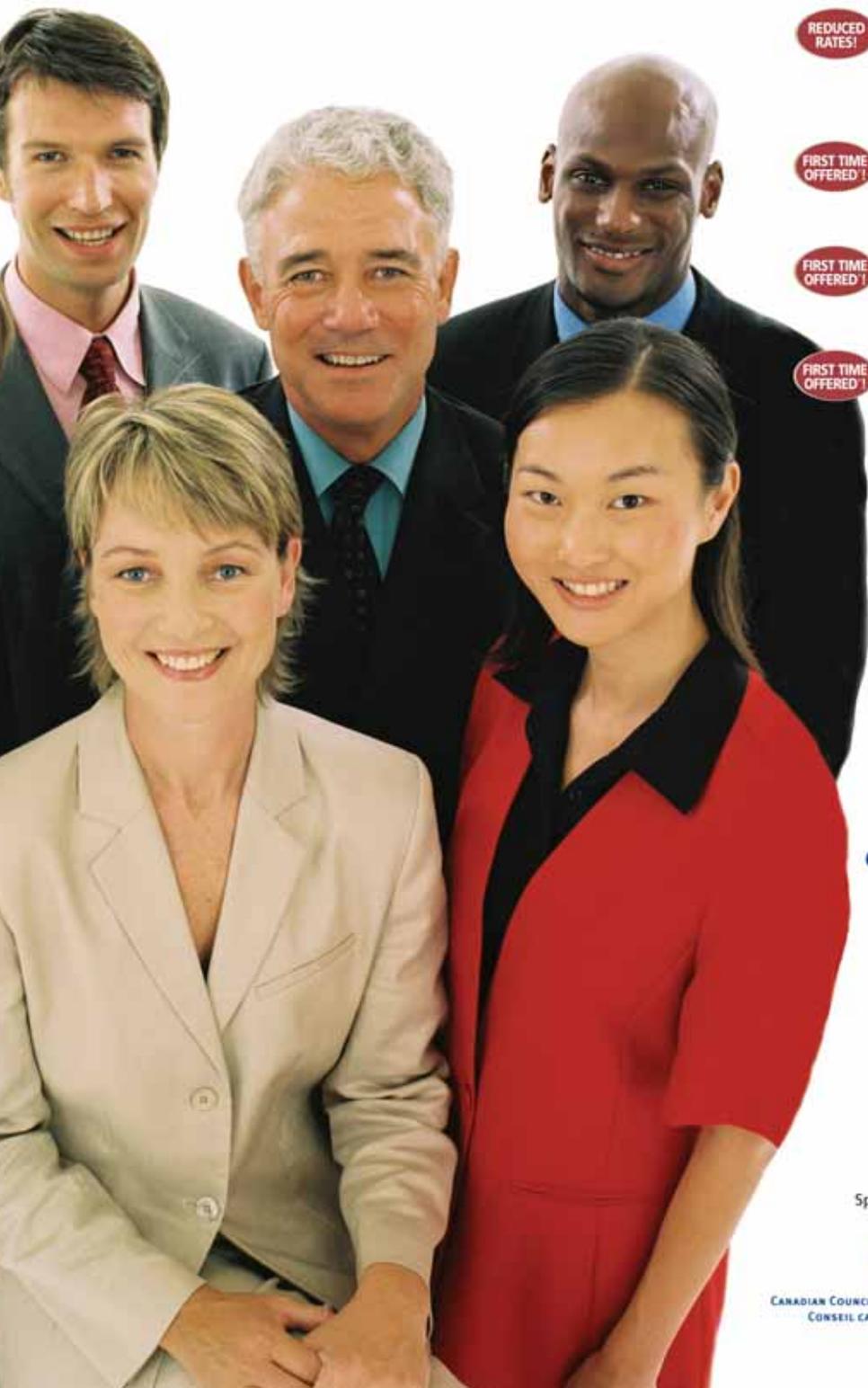


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PRESIDENT'S MESSAGE



Iris Auclair-Bernard, P. Eng.

Thank you for the honour you have given me to serve as your 86th president for APEGNB.

This past year, my role as vice-president afforded me the opportunity to become familiar with the many issues of concern for our members and the Association. I was also able to meet and learn about the many people who work diligently behind the scenes to ensure APEGNB fulfills its mandate. These people are the Association's valued employees and the many volunteer members without whom we could not succeed. I thank them for their wonderful work.

I would also like to thank past president, **Brent Smith**, P.Eng., for all the work he has done during his tenure as president. He has been a great source of inspiration to all those who aspire to follow in his footsteps. And finally, I must also acknowledge the many contributions of our outgoing Council members: **Brian Barnes**, P.Eng.; **Eldo Hildebrand**, P.Eng.; **David Lentz**, P. Geo., and **Hélène Beaulieu**, LL.M.



Eldo Hildebrand, P.Eng.; Brent Smith, P.Eng.; Hélène Beaulieu.

The work of our provincial APEGNB Council is complemented by each of our five district branches. They spend countless hours organizing and hosting numerous technical sessions, social events, and outreach activities on behalf of our members.

Each of these individuals have generously volunteered their time and brought a unique touch to the issues at hand, enabling Council to progress and prevail in its many tasks and functions.

Welcome also to our new Council members: **David Crandall**, P.Eng., **Serge Levesque**, P.Eng., **Paul Rennick**, P. Geo. and **Christa Bourque**, LL.B. I am certain we will succeed in working together to advance the mandate of APEGNB as we act in the public's and professions' best interests. I look forward to working with all of you.

Our mandate will see us continue with the implementation of our Association's strategic plan.

We must ensure that everyone—our members and the public—are aware of the vital role this Association plays in the regulation and enforcement of the professions as well as in our duty to protect the public.

Further improving our communications with our members, the public, the government, other professional associations and universities, helps us ensure that engineering and geoscience are recognized as proactive, autonomous and vital professions in New Brunswick.

The progress we have made in the last 10 years is tangible. However, there is still much more to accomplish.

Our diversified image must continue to blossom so that all members feel they are an integral and lively part of APEGNB. Communications is also important in reinforcing our position as a respected and dynamic Association within Canada.

APEGNB's **new and improved website**, which was unveiled at the Annual Meeting in Moncton, is a perfect example of our ongoing efforts to improve communications both within and outside our organization.

I am extremely proud to serve with my fellow Council members in this exciting time of

change. I am also very proud that I will be able, in the fall, to officially open our **new office building**—the first ever owned by APEGNB. I hope that the membership will see our new headquarters as not just a building, but as a testament of our how far this Association has progressed in its 86-year history.

Having signed a **mobility agreement** for engineers with our sister associations in Nova Scotia and Saskatchewan last fall makes us pioneers. We will work hard at convincing other associations across our country and the border (P.Eng. =P.E.) to work towards the same goals while still retaining each group's individuality.

Following CCPE's footsteps, who, in recent years, have formed a close relationship with the federal government, APEGNB will improve our contacts within our own provincial government by hosting, for the first time, an informal reception for New Brunswick MLA's. This reception will enable members of our professions to address different problems and interests affecting our members and the public in a welcoming and casual atmosphere.

The issues of limitation of liability and limited licensure require our government's immediate attention and participation. Only we, as engineers and geoscientists, can make them understand the importance of APEGNB's role to protect the public, enforce the laws governing our professions and determine how these laws should impact everyone.

Working together, as a big family, makes us realize not only our uniqueness but also what we have in common. Even though sometimes, opinions, positions on issues and methods differ, it is very clear that we all share one thing: our pride for our professions.

I am grateful to serve APEGNB and my fellow members and I look forward to a wonderful year. ☺



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Iris Auclair-Bernard, ing.

Le fait que vous m'ayiez choisie pour servir à titre de 86^e présidente de l'AIGNB est un honneur pour moi, et je vous en suis reconnaissante.

Au cours de la dernière année, en ma qualité de vice-présidente, j'ai pu me renseigner sur les nombreux dossiers chers à nos membres et à l'Association. De même, j'ai découvert et rencontré toutes ces personnes qui travaillent sans relâche, en arrière-plan, et qui veillent à ce que l'AIGNB remplisse son mandat. Je veux parler des valeureux employés de l'Association et des nombreux membres bénévoles, sans qui nous ne saurions savourer de tels succès. Je les remercie de leur magnifique travail.

Je tiens également à remercier le président sortant, **Brent Smith, ing.**, pour tant de boulot abattu durant son mandat à la présidence. Il a été une grande source d'inspiration pour tous ceux et celles qui espèrent suivre sa trace. Enfin, je dois souligner les innombrables contributions des membres sortants du conseil : **Brian Barnes, ing.**; **Eldo Hildebrand, ing.**; **David Lentz, géosc.**, et **Hélène Beaulieu.**



Eldo Hildebrand, ing.; **Brent Smith, ing.**; **Hélène Beaulieu.**

Nos cinq sections de district complètent avec brio les travaux du conseil provincial de l'AIGNB. Leurs représentants ne comptent jamais les heures passées à organiser et à présenter une variété de séances techniques, d'événements sociaux et d'activités de sensibilisation, au nom des membres.

Chacune de ces personnes a offert généreusement de son temps et apporté une touche exclusive aux dossiers de l'heure, permettant ainsi au conseil d'aller de l'avant et réaliser ses nombreuses tâches et fonctions.

Bienvenue aussi aux nouveaux membres du conseil : **Serge Levesque, ing.**, **Paul Rennick, géosc.**, et **Christa Bourque.** Je suis persuadée qu'en équipe, ils travailleront à l'avancement du mandat de l'AIGNB, de veiller aux intérêts du public et de nos

professions. J'ai hâte de m'atteler à la tâche avec chacun et chacune d'entre vous.

Au cours de notre mandat, nous poursuivrons la mise en œuvre du plan stratégique de l'Association.

Nous devons nous assurer que tous – membres et grand public – soient conscients du rôle fondamental que joue l'Association en matière de réglementation des professions et d'application des règlements, et de notre devoir de protéger le public.

Le perfectionnement de nos communications avec nos membres, le public, le gouvernement, les autres organismes professionnels et les universités nous permettront de présenter le génie et les sciences de la terre comme des professions proactives, autonomes et essentielles au Nouveau-Brunswick.

Les progrès que nous avons accomplis depuis dix ans sont palpables. Pourtant, il reste tant à faire.

L'image plurielle que nous projetons doit continuer d'évoluer de telle sorte que tous les membres sentent qu'ils sont partie intégrante et vivante de l'AIGNB. Les communications revêtent aussi de l'importance en ce qu'elles renforcent notre statut d'Association énergique et respectée au Canada.

Le site Web **nouveau et amélioré** de l'AIGNB, dont le dévoilement a eu lieu à l'assemblée annuelle à Moncton, constitue l'exemple parfait des efforts soutenus que nous déployons pour améliorer les communications, tant à l'intérieur qu'à l'extérieur de l'organisme.

Je suis extrêmement fière de servir avec mes collègues membres du conseil en cette passionnante ère de changements. Je suis d'autant plus fière d'être celle qui, cet automne, inaugurerait officiellement notre **nouvel immeuble à bureaux**, le tout premier immeuble à appartenir à l'AIGNB. J'espère qu'à la vue de notre nouveau quartier général, les membres y verront, outre l'immeuble, le témoignage du long cheminement parcouru

par notre Association au cours de ses 86 années d'histoire.

La conclusion, l'automne dernier, d'un **accord de mobilité** pour les ingénieurs avec nos associations sœurs de la Nouvelle-Écosse et de la Saskatchewan font de nous des pionniers. Nous travaillerons d'arrache-pied pour convaincre d'autres associations à l'échelle du pays et de l'autre côté de la frontière (ing. =P.E.) de viser les mêmes objectifs, tout en veillant à ce que chaque groupe conserve ses caractéristiques propres.

Dans la foulée des démarches du CCI, qui, au cours des dernières années, ont permis de tisser des liens étroits avec le gouvernement fédéral, l'AIGNB raffermira ses relations au sein de notre gouvernement provincial en organisant, pour la première fois, une réception informelle pour les députés du Nouveau-Brunswick. La réception sera une occasion pour nos membres de traiter, dans un cadre accueillant et détendu, de questions et de problèmes divers qui ont une incidence sur nos professions et sur le grand public.

Entre autres dossiers, ceux de la responsabilité civile limitée et du permis d'exercice restreint commandent l'attention et l'intervention immédiates du gouvernement. Nous seuls, ingénieurs et géoscientifiques, pouvons faire prendre conscience au gouvernement du rôle clé que joue l'AIGNB en matière de protection du public, d'application des lois régissant nos professions, et de décisions quant aux incidences de la législation sur l'ensemble.

Travailler en équipe, comme une grande famille, fait ressortir non seulement notre unicité, mais à tout ce que nous avons en commun. Même si parfois nos points de vue, nos prises de position à certains égards et nos méthodes diffèrent, nous partageons clairement un même sentiment : la fierté que nous tirons de nos professions.

Je suis reconnaissante de pouvoir servir l'AIGNB et mes collègues membres, et j'envisage avec enthousiasme une année sensationnelle. ☺



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CANADIAN COUNCIL OF PROFESSIONAL ENGINEERS
 CONSEIL CANADIEN DES INGÉNIEURS

86th ANNUAL MEETING

February 16-17, 2006
Delta Beauséjour Hotel
Moncton, NB

Introducing your new president...



Lris Auclair-Bernard, P.Eng., (wearing a New Brunswick tartan scarf) was congratulated by past president, **Brent Smith**, P.Eng., on her election as APEGNB's 86th president.

Oh what a night!

The Empress Room of Moncton's Capitol Theatre was packed to capacity as guests tapped their toes and clapped their hands to the sounds of Les Muses and La Famille Arsenault at the Maritime Kitchen Party.



*Award-winning, Moncton-based singing group, **Les Muses**.*

La Famille Arsenault



*From L to R:
Len White, P.Eng. (APENS); **Debbie White**; **Grant Koropatnick**, P.Eng. (APEGM)*

APEGNB members take the stage to become the rhythm section for La Famille Arsenault.



Memorable moments...



Members get down to official APEGNB business during the 2006 Annual Meeting.



From L to R: **Paul Belyea, P.Eng.;**
Elizabeth Belyea, P.Eng.;
Boyd Touchie, P.Eng.; **Jeannette Touchie;**
Ann Smith;
Ed Smith, P.Eng.; **Lois Paterson;**
Bill Paterson, P.Eng.

From L to R:
Susan Johnson, P.Geo.; **Bruce Broster, P.Geo.;**
Steve McCutcheon, P.Geo.;
Arie Ruitenberg, P.Geo.;
Malcolm McLeod, P.Geo.



APEGNB Executive Director, **Andrew McLeod, (left)** and **Brent Smith, P.Eng., (right)** welcome New Brunswick's Energy Minister, **Bruce Fitch,** to the Annual Banquet.



Serge Dupuis, P.Eng., (centre) catches up with some of APEGNB's younger members.



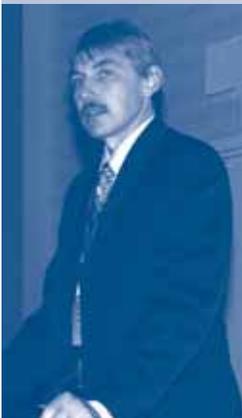
Newly elected vice-president, **David Crandall, P.Eng.,** shares a laugh with the chair of the Annual Meeting Committee, **Roland LeBlanc, P.Eng.**



Nancy Black, P.Eng., (left) and APEGNB Fredericton Councillor **Jane McGinn, P.Eng.**

From L to R: **Dwight Ball, P.Geo.;**
Arthur Gunn, P.Eng.; **Stephenson Wheatley, P.Eng.**

Technically speaking...



On Friday afternoon (Feb. 17), representatives from Environment Canada and the Province of New Brunswick shared their perspectives on "Climate Change: What the Forecast Holds For New Brunswick's Engineers and Geoscientists". Delegates learned about the occurrence and risks of extreme weather related to climate change and the formidable challenges our professions face in dealing with this issue.



Honouring APEGNB's outstanding achievers...



Past president **Brent Smith, P.Eng.**, presents **Dr. Steve McCutcheon, P.Geo.** with the L.W. Bailey Award—the highest honour the Association can bestow upon a geoscientist.



Rod Nolan, P.Eng., (right) accepts an APEGNB Citizenship Award from past president **Brent Smith, P.Eng.**



Sherry Sparks, P.Eng. accepts an APEGNB Citizenship award from **Brent Smith, P.Eng.**



Brent Smith, P.Eng., congratulates **Boyd Touchie, P.Eng.**, on receiving the C.C. Kirby Award—the most prestigious award an engineer can receive from the Association.

We'd like to thank...

The 2006 Annual Meeting Committee



Front Row (L to R): **Lisa Grasse, P.Eng.**; **Roland LeBlanc, P.Eng.**, Chair; **Mia Vautour, P.Eng.**

Back Row (L to R): **Mark Bellefleur, MIT**; **Larry Dionne, P.Eng.**; **Sherry Sparks, P.Eng.**; **Philippe Losier, P.Eng.**; **Eliane Doucet, ing.**; **Serge Dupuis, P.Eng.**

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NOTICE

To:
Engineers Considering Work
in the US

Re:
NCEES Fundamentals Exam –
Saturday, October 28, 2006

If you're contemplating working in the United States, please be advised that APEGNB will be offering the NCEES (National Council of Examiners for Engineering & Surveying) **Fundamentals Exam**.

The eight-hour exam is open to APEGNB members and UNB/UdeM engineering students. The NCEES Fundamentals Exam is the first step to becoming a licensed engineer in the U.S.

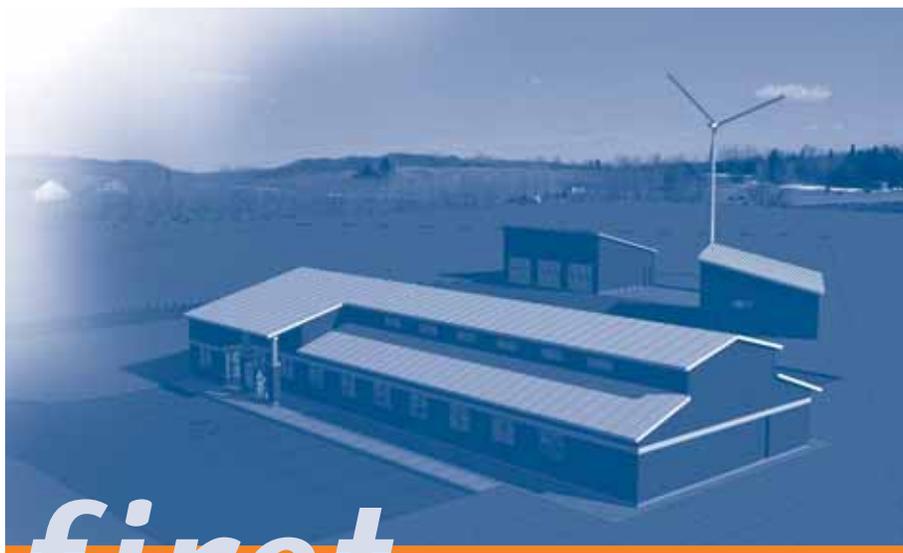
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Windmill to be installed at new district ranger office in Florenceville

The Province of New Brunswick is installing a 24-metre high windmill at the new district ranger office in Florenceville, NB, which is expected to produce approximately 15 per cent of the electricity needed for the building.

Site perspective of the new \$1.3 million Florenceville Ranger Station which will use 'green' energy such as wind power and a ground source heat pump.



first
..the windmill will be the government's first venture into
wind energy for a public building.
venture

Minister of Supply and Services, **Bev Harrison**, announced that the windmill is part of new energy-wise technology that will be installed at the new office facility. Wind Dynamics of Saint John won the \$45,338 contract to supply the equipment for the windmill.

"As part of our move toward 'green' buildings, the windmill will be the government's first venture into wind energy for a public building," Minister Harrison said. "I am very pleased to see it being undertaken at the new district ranger office in Florenceville. The open setting and the wind potential of the area make it a good location to try it."

Harrison noted the project respects one of the goals of Premier Bernard Lord's "5 in 5 Plan" which is to do more for the Province's environment over the next five years.

The windmill is designed for low to moderate wind speeds with a rotor diameter of eight metres and a rated power output of 10 kilowatts. It will be integrated with the energy connection from NB Power. During periods when the building is not using the full amount of energy produced by the windmill, the excess energy will be transferred to NB Power's distribution system to reduce the building's energy bill.

Energy Minister, **Brenda Fowlie**, said the project will not only mean greater energy efficiency but will also result in a cleaner environment. In addition, she is

pleased with the net metering aspects, allowing excess energy to be transferred to NB Power's distribution system and credited to the building's account.

"This is a win-win situation on many levels and I want to congratulate everyone who has realized the potential of this project and worked to make it happen," Fowlie said. "This is an important addition to steps already taken within government, and in the continuation of projects that help improve on the greening of government."

Along with the windmill, the one-storey, 5,800 square foot building will utilize a ground source heat pump to heat and cool the facility. The system transfers coolness or warmth from the earth to the building for cooling in the summer and for heating in the winter. It will be the first ground source heat system to be installed in a public building in over a decade and is expected to reduce energy requirements for heating and cooling the building by approximately 50 per cent.

The new district ranger office in Florenceville is expected to be completed in April 2006 at a cost of \$1.3 million. Other construction at the site includes two, three-bay garages and a fenced-in compound for vehicles and equipment.

"We are excited that our staff will soon be moving into this new building and happy to have the opportunity to be the first provincial building to utilize wind energy," said Natural Resources Minister **Keith Ashfield**.

Harrison said the new district ranger office also fits in with the government's goal to invest in green infrastructure as outlined in *Greater Opportunity: New Brunswick's Prosperity Plan*. It has been designed to meet the principles of Leadership in Energy and Environmental Design (LEED), which is an industry standard used to measure "green" building performance.

"A lot of the new work coming forward in government will involve the construction of more environmentally friendly, energy efficient 'green' buildings," Harrison stated. "We believe it's an important step forward for our province in terms of energy conservation and savings for the taxpayer."

Supply and Services received two bids for the windmill contract with Wind Dynamics submitting the low bid. ☺





Trevor Hanson, MIT
Chair

Greetings on behalf of the Fredericton Branch! 2006 is shaping up to be an exciting year, with several activities, including technical, social, and other

outreach events, currently being planned. Upcoming events include the *UNB Engineering Student Paper Competition* in April and the Annual Spring Golf Tournament, in May. Stay tuned to the new APEGNB website, where Fredericton Branch events will be updated regularly.

Let me now update you on the most recent happenings in the Fredericton Branch.

December 2005

Some of the best undergraduate engineering students at the University of New Brunswick (UNB) presented the results of their research in December 2005 at the **APEGNB Fredericton Branch/UNB Engineering Fall Student Paper Competition**.

There were five entrants in this competition, each selected for having the top papers in their respective fields. The students came together to present their papers to a panel of APEGNB Fredericton judges.

Because each project was so different, it was very difficult for judges to compare their work technically. Therefore, the competition focused on communication and effective presentation. With presenters limited to 10 minutes, their biggest priority was to take their highly technical topic and condense it into the main points, challenges, and key results so that the audience would understand.

The high calibre of each presentation also made judging difficult but finally, **Becky Freymond** from Forest Engineering was chosen as the winner, with **Jennifer Tobin** from Chemical Engineering coming in second.

Blair Allen demonstrates his voice-controlled, tape-tracking powered wheelchair.



(L to R): **Becky Freymond** (Forest Engineering) - 1st Place; **Jennifer Tobin** (Chemical Engineering) - 2nd place; **Blair Allen** (Electrical and Computer); **James McNerney** (Civil Engineering); **Liam O'Brien** (Mechanical Engineering)

Fredericton Branch

Honourable mentions went to **Blair Allen** (Electrical and Computer Engineering); **James McNerney** (Civil Engineering); and **Liam O'Brien** (Mechanical Engineering). Thanks to the judges: **Ben Coles**, MIT, **Kevin Gould**, P.Eng. and **Tammy Paradis**, P.Eng. The Fredericton Branch is also grateful for the support of **Dr. David Coleman**, P.Eng., Dean of Engineering at UNB and **Heather Jones** from the Dean of Engineering's office in making this event a success.

Near the end of 2005, the Fredericton Branch Council engaged in three evening-long **strategic planning sessions** to help chart the course for the Branch over the next few years. We looked at what we were doing well, and what needed to be improved. The result was a revamped approach to our program offerings, as well as an internal reorganization to help us better present our program events. We presented this approach to the membership at our annual meeting in January with very positive feedback.

January 2006

Our annual dinner was a huge success. It was held in conjunction with the Branch's annual meeting on January 26 at the Delta Fredericton. **Murray Jamer**, P.Eng., from the City of Fredericton delivered the keynote presentation on his involvement with the tsunami response in South Asia to a packed house of nearly 70 people. The Fredericton Branch also recognized two scholarship winners **Joel Alexander** and **Darren Clark** and made an official presentation to Scouts

Canada in support of their reconstruction efforts at their Yoho Lake facility.

February 2006

On February 25, the Fredericton Branch, in cooperation with UNB, organized an outreach event at the Regent Mall to celebrate **National Engineering Week**. An estimated 40 to 50 people participated in the interactive demonstrations. Students from UNB's Institute of Biomedical Engineering demonstrated the workings of prosthetic limbs. **Don Good**, P.Eng., presented a computer traffic simulation

of an intersection in Fredericton. There was also a demonstration on how concrete beams work.

Several youngsters tried their hand at constructing cantilever beams from household items.

Many thanks to the volunteers for their promotion of the engineering profession, and to **Serge Levesque**, P.Eng., who helped **Joe MacDonald**, P.Eng., with the setup of the display. Special thanks to Joe MacDonald and UNB's **Josie Seely**, P.Eng., for organizing this event on behalf of the Fredericton Branch.

On February 28, more than 30 participants filled the Fredericton Golf and Curling Club for the Fredericton Branch's **Annual Curling Night**. The teams played three two-end games and found it to be an excellent networking opportunity and social time.

Introducing the New Branch Council

Chair	Trevor Hanson , MIT
Vice Chair:	Tom MacNeil , P.Eng
Secretary:	Ben Coles , MIT.
Treasurer:	Tammy Paradis , P.Eng.
Past Chair:	Ken Peck , P.Eng
Communications Chair:	Andrew Munro , MIT

Subcommittee Chairs

Promotion of Profession:	Joe MacDonald , P.Eng
Professional Development:	Tammy Paradis , P.Eng
Social:	Ben Coles , MIT
APEGNB Council Liaison:	Serge Levesque , P.Eng
Base Gagetown MEAC Rep.:	Capt. Randy Dunn
Councillors:	Joe MacDonald , P.Eng, Greg Snyder , P.Eng, Andy Small , P.Eng, Jeff Earle , P.Eng, Michelle DeGaris , MIT Kristin Knorr , MIT

Many thanks to the 2005 Branch Council members, including outgoing chair **Ken Peck**, P.Eng, for all of their efforts over the past year.

We look forward to serving the membership of Fredericton and the surrounding areas throughout the year!



Saint John Branch



Holly Young, P.Eng.—Chair

In November, **Bernie Blakely, P. Eng.**, took Branch members on a tour of Ocean Steel—the largest steel fabrication plant in New Brunswick.



Weld Woman—Tanya Horgan, P. Eng.

(L to R): Tour leader **Bernie Blakely, P. Eng.** with **Pierre Michaud, MIT** and **David Riecken, MIT**

High school students experienced the fundamental nature of engineering through lectures and a design project. Thanks to **Dr. Dale Roach, P. Eng.**, for his contributions!

Throughout the fall and winter months, **Millidgeville North Middle School** hosted a Young Engineer's Program.

(L to R): **Bernie Blakely, P. Eng.; David Riecken, MIT; Pierre Michaud, MIT; Holly Young, P. Eng.**

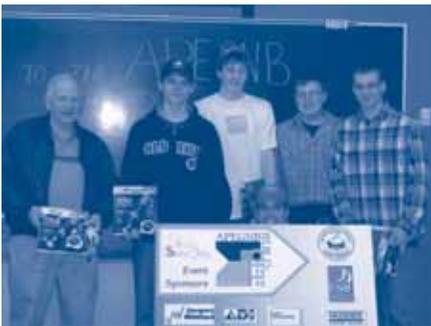
The Branch's annual **Christmas Social** was once again a great event. Although our one winter weather storm was in full force, fearless engineers and geoscientists braved the roads to spread a little festive cheer!

In January, the Saint John Branch hosted yet another terrific **Curling Funspiel** with another sell-out crowd.

February, and the city of Moncton, hosted a great APEGNB Annual Meeting. On February 15-16, 2007, Saint John will be hosting the **87th APEGNB Annual Meeting**. The Saint John organizing committee has already begun making arrangements.

Also in February, the Saint John Branch offered its members a **technical session** entitled: *Nondestructive Testing of Building Envelope Systems Using Infrared Thermography*. Speakers were **Greg Bork, FLIR Systems Ltd.** and **Dave Ross** from Guillevin International Co.

In conjunction with National Engineering Week, March gave way to the **2nd Annual APEGNB Build-Off!**



The Rug Rats Win It All! (Their egg traveled 70 feet and didn't break!)

(L to R): **Bob Ridgway, P.Eng.**, **Jonathan MacVey, Alex Calvin, Andrew Calvin, Ian Gauch** and **Pierre Michaud, MIT** (behind the sponsor board).

In the spirit of 'Junkyard Wars', the Saint John Branch once again challenged local engineers, students and enthusiasts to design and build a device that would allow an egg to travel the farthest horizontal distance without



breaking. The egg-propelling device had to be on a raised platform, approximately 750mm high. The platform also had a rise of approximately 75mm over 900mm (equivalent to approximately a five-degree incline). Thank you to our judges for the event: **Tanya Horgan, P.Eng.**, **Shayne Galbraith, P.Eng.**, and **Tom Sisk, P.Eng.** We also are grateful for the generous support of our sponsors:

- UNBSJ
- APEGNB,
- Ocean Steel & Construction Ltd.
- Fundy Engineering
- Jacques Whitford
- ADI Limited
- CBCL Limited

The program provided local engineers the opportunity to mentor students about engineering in the community. Thank you to the following volunteers: **Jean Albert, P.Eng.**; **Steven Driscoll, P.Eng.**; **Nicole Maillet, MIT**; **Robert Cyr, P.Eng.**; **Gary Masson, P.Eng.**; **Eric Gauthier, MIT**; **Kevin Scott, P. Eng.**; **Paul Phillips, P.Eng.**; **Andy MacVey, MIT**; **Martha Ross, MIT**; **Michelle Paul-Elias, P.Eng.**; **Trevor Langlais, P.Eng.**; **Susan Ryan, P.Eng.**; **Pierre Michaud, MIT**; **Euan Strachan, P.Eng.**; and **Dr. Dale Roach, P.Eng.**

More technical and social events are being planned for the year. View www.apegnb.com/branch/saintjohn

to keep updated with events and photos or contact any member of your executive by e-mail (saintjohn@apegnb.com) or via the free Branch hotline: **1-877-425-5500**.



Simonds Builder Bees
(L to R): **Chad Connors, P. Eng., Reggie Manzer, Jeff Loughery** and **Lori Connors.**

- Hughes Surveys & Consultants Inc.
- Galbraith Construction Ltd.



Last Minute Michaud
(L to R): **Mitch Smith, Deb Merritt, Medha Padiyath, Jenna Lyons** and **Pierre Michaud, MIT**

Check the Saint John Branch web page for 'egg'citing photos!

Also in March, the Saint John Branch once again sponsored an **engineering camp** at UNBSJ. The camp was designed to introduce high school students to engineering.





*Eliane Doucet, P.Eng.
Chair*

As this report goes to press, dates were finalized for the **Atlantic Engineers Hockey Tournament**.

The sporting event was held at the 4-Plex in Moncton from April 7 to 9.

On April 1, **Philippe Losier**, P.Eng., helped organize a successful curling tournament for the Branch. He is also working on the final details for our **annual June lobster diner**. The **golf tournament** will be at the Magnetic Hill Country Club on September 22. Complete details will follow for these events.

Plans are underway to host two more **technical sessions** before the arrival of summer. **Dwight Scott**, P.Eng., (dgscott@nb.sympatico.ca) is talking with the Department of National Defence's public affairs office. DND has engineers who will come and talk to us about the design, construction and closing of army camps overseas. Some of the

Moncton Branch

topics will be: working environment, obstacles, material and techniques used. Complete details will follow when the date is finalized.

We will have our **Annual General Meeting** on May 15 at Boomerang Steak House. There will be a cash bar for the "Meet and Greet" from 5 pm to 6 pm followed by the meeting from 6 pm to 7 pm. Branch members are invited to dine with us after the meeting. (Each member is responsible for the cost of their dinner.) Please note that there are openings for branch councillors. Nominations can be sent to **Mark Bellefleur**, MIT, vice-chair (mbellefleur@rvanderson.com).

There are approximately 250 members who are not on our **Branch e-mail list**. We use e-mail to send invitations, updates and inform members because it's fast, efficient and most importantly—free! If you moved, or have a new e-mail address, please update your membership information on-line at www.apegnb.com.

Registration forms for all our events will be posted on the Moncton Branch link of www.apegnb.com. We realize that not every member has access to the Internet so we will also be doing a mailing for members on our list who don't have e-mail.

I would like to thank the members of the Branch Council for their hard work and for donating their time to their Branch. It's always a pleasure to meet with people who are dedicated to their professions.



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La section de Moncton



Éllane Doucet, ing.
présidente

*Au moment d'aller sous presse, on avait fixé les dates du **Tournoi de hockey des ingénieurs de l'Atlantique**. Cette activité sportive aura lieu du 7 au 9 avril au centre Moncton 4-Plex.*

*Philippe Losier, ing., a pris part à l'organisation du **tournoi de curling** du 1^{er} avril qui a été grandement apprécié par les membres de la section. Il met également au point les derniers détails de notre **repas annuel au homard en juin**. Le **tournoi de golf** aura lieu le 22 septembre au Magnetic Hill Golf & Country Club. De plus amples détails vous seront communiqués au sujet de ces activités.*

*On se prépare à organiser deux autres **séances de travail techniques** avant l'été. **Dwight Scott, ing.,***

(dgscott@nb.sympatico.ca) discute avec le bureau des relations publiques du ministère de la Défense nationale. Les ingénieurs du MDN nous présenteront un exposé sur la conception, la construction et la fermeture des camps militaires à l'étranger. Parmi les sujets traités, notons : le milieu de travail, les obstacles, les matériaux et les techniques. De plus amples renseignements vous seront communiqués dès qu'une date sera fixée.

*Notre **Assemblée générale annuelle** aura lieu le 15 mai au restaurant Boomerang Steak House. La « séance d'accueil » comprendra un service de bar payant, de 18 h à 19 h. Les membres sont invités à dîner avec nous après la réunion (à leurs frais). À noter qu'il y a des postes de conseillers de section à pourvoir. Prière d'acheminer toute mise en candidature à l'attention de **Mark Bellefleur, MS, vice-président** (mbellefleur@rvanderson.com).*

*Il manque environ 250 noms de membres à notre **liste de courriels de la section**. Nous avons recours au courrier électronique pour acheminer nos invitations et nos mises à jour, et*

pour informer nos membres; et cela, parce que c'est rapide, efficace et, surtout, gratuit! Si vous avez déménagé ou changé d'adresse électronique, veuillez actualiser vos renseignements de membre en ligne au site Web www.apegnb.com.

Les formulaires d'inscription pour toutes nos activités seront affichés à l'hyperlien de la section de Moncton du site Web www.apegnb.com. Sachant très bien que nos membres n'ont pas tous accès à Internet, nous en posterons également aux membres de notre liste sans adresse électronique.



ENVIRONMENTAL MANAGERS

Fredericton/Saint John Office

We are currently seeking environmental project managers who will be based in Saint John and/or Fredericton, New Brunswick for our Site Contaminant Management Practice. Responsibilities will include project execution and management, technical leadership, client relationship management and business development.

Successful candidates must demonstrate a minimum of 8 years' environmental consulting experience with no less than five years' at the project management level. Relevant educational credentials include civil or environmental engineering, geology, hydrogeology or environmental science, preferably at the Master's level. Successful candidates will demonstrate technical competency and proficiency in a number of the following areas of environmental practice:

- Phased environmental site assessments.
- Remedial action plan development/design and testing.
- Human health and ecological risk assessment.
- Environmental site management including design and implementation of monitoring plans and remediation system monitoring, maintenance and upgrades.
- Geophysical surveys for environmental applications.
- Hydrogeological investigations.

We seek energetic, creative, self-motivated individuals with excellent communication skills. Experience with project scheduling and associated software (e.g., MS Project) would be beneficial. Applicants must possess a valid driver's license and be willing to travel.

Dillon offers competitive salaries, health benefits and a generous retirement savings plan. Please reply providing a cover letter, resume of education and experience to:

SCM Recruitment Coordinator (Quoting E1)
Site Contaminant Management Practice
Dillon Consulting Limited
137 Chain Lake Drive, Suite 100, Halifax, Nova Scotia B3S 1B3



STRUCTURAL ENGINEER

Fredericton Office

Dillon Consulting Limited is a well established, employee-owned, professional consulting firm which operates across Canada and internationally. We provide a wide range of consulting and design services related to the infrastructure, real estate, resource, industrial and government sectors in Canada and abroad.

We are currently seeking candidates for the position of Structural Engineer in our Fredericton Office.

Responsibilities

You will provide structural design and analysis of industrial and commercial facilities, bridges, wharves and liquid-retaining structures. Duties will include preparation of specifications and details for drawing production in addition to building code and regulatory review, project management, shop drawing review and field services in design and construction.

Qualifications

We seek self-directed, client and team oriented individuals with a minimum of seven to fifteen years of relevant structural design experience in the areas of structural steel, concrete and masonry coupled with registration, or eligibility to be registered as a P. Eng. You bring well developed general computer literacy in addition to specific understanding of computer modeling techniques (e.g. STAAD or similar) and preparation of design drawings and specifications. You enjoy the occasional opportunity to work on a variety of assignments and preferably have some direct construction experience.

Dillon offers competitive salaries, health benefits and a generous retirement savings plan. Please reply, providing a detailed resume of education and experience to:

Dillon Consulting Limited (Quoting E2)
1149 Smythe, Street Suite 200
Fredericton, NB E3B 3H4
Fax: (506) 444-8821

Email: careers@dillon.ca

For further information, visit our website at www.dillon.ca

DILLON IS AN EQUAL OPPORTUNITY EMPLOYER

Some of the most rewarding professional work the Association gets involved with is the Experience Review (ER) process used to evaluate work experience of some of our international engineering graduates. In cases where an applicant has several years of engineering work experience, the Board of Examiners will often recommend an Experience Review in lieu of writing a Confirmatory Examination Program.

APEGNB's Experience Review process uses a peer review format usually comprised of two reviewers who are members with experience in the same or similar discipline as the candidate. The chair of the ER Committee is charged with organizing and moderating the interview and I've had the pleasure of doing that the last few years. The candidates typically use a previous project as a point of discussion and the peer reviewers freely ask questions to gauge the candidate's understanding of the practice of engineering in the Canadian and New Brunswick context.

With the increasing globalization of the professions, APEGNB is seeing increased numbers of applicants from all corners of the globe. The volunteers who give their time and expertise to make this process work as well as it does deserve to be publicly thanked for their involvement in their Association.

Chair of Experience Review Committee Thanks Volunteers

On behalf of the Association, I thank these members who have been involved with one or more peer reviews for the Experience Review process.

- | | |
|--------------------------------------|---|
| Peter McKelvey , P. Eng. | Euan Strachan , P. Eng. |
| A. Bruce Kinney , P. Eng. | Peter Savage , P. Eng. |
| Elmer Bourque , P. Eng. | Arthur Gunn , P. Eng. |
| Dr. Kevin Englehart , P. Eng. | Harold Clarke , P. Eng. |
| Donath Mrawira , P. Eng. | Don Good , P. Eng. |
| Tony Short , P. Eng. | Ed McCleave , P. Eng. |
| Byron Walton , P. Eng. | John Flewelling , P. Eng. |
| Dr. Muhammad Afzal , P. Eng. | Dr. Karl Butler , P. Eng., P. Geo. |
| Tracey Germon , P. Geo. | Dr. Ken Sollows , P. Eng. |
| Melissa deWinter , P. Eng. | David Mercer , P. Eng. |
| Edward Kinley , P. Eng. | Dr. Ian Smith , P. Eng. |
| Michael Phillips , P. Eng. | David Mossman , P. Eng. |
| Dominique Berube , P. Geo. | Mike MacDonald , P. Eng. |
| Duc Luong , P. Eng. | Dr. Eugene Hill , P. Eng. |
| Brian Dorcas , P. Eng. | Ken Reeder , P. Eng. |

If I have omitted anyone who has volunteered their time, please accept my thanks at this time.

Tom Sisk, P. Eng.
*Chair-Experience Review Committee and
 Director of Professional Affairs*

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Tom Sisk, P.Eng.
Director of Professional Affairs



Q.

My firm often responds to calls for engineering work from our local municipality. In many of these jobs, we do the work for an engineer employed by the municipality. Recently, I learned that this engineer has also been stamping drawings for various projects in the municipality. I know this engineer graduated as a mechanical engineer but some of the stamped work is structural. Should I file a complaint because he was not trained as a structural engineer?

There are two issues here, so perhaps they should be discussed separately. The first is the issue of accepting responsibility by stamping drawings and the technical implications of that. The second is the process of filing a complaint against a member of the Association.

In Canada, the engineering regulatory bodies generally do not register by specific discipline. This position was developed over many years and reflects the notion that engineers will have to carry on the learning process over the life of their careers. It also speaks to the basic training that engineers receive that makes them adaptable to learning new things or solving previously unknown problems. We do not register engineers solely upon graduation from an engineering program. To gain professional status, experience must be added to the education. As well, with additional training and experience, the typical engineer can undertake work, that, on first glance, seems outside his/her capability.

Having said that, a few jurisdictions have had to put additional restriction on the performance of certain engineering jobs. Two come readily to mind. In British Columbia, structural engineering is a special case that requires separate registration. In part, a rash of structural building problems came to light and to maintain confidence of the public, it was decided to deal with the issue by increasing the vigilance over the membership involved in what was perceived as "riskier" work.

Recently in Ontario, additional restrictions were placed on engineers (and others) performing work under the Ontario Building Code. There, engineers, regardless of discipline, who do such work, will have to prove competence with respect to the Building Code by writing a separate exam.

Coming back to the original question, consider the case where a mechanical engineer is complained against for allegedly practicing electrical engineering. The charge is incompetence (i.e., not demonstrating sufficient skill or judgment). For the engineer to be found guilty, the Association must show that the engineer was not performing to the level commonly expected of a competently practicing electrical engineer. If it can be shown that he/she used the appropriate codes, carried out the work with regard to safety issues and generally did the work successfully, the complaint will probably be dismissed.

In summary, a duly registered engineer may carry out "the practice of engineering" without reference to a particular specialty. However, the engineer who signs or seals documents must take responsibility for any work and will be held to the same standard as other competent practitioners. Stamping of the drawings indicates the accepting of responsibility for the work described in the documents, regardless of training or experience.

Should a complaint be filed in the case described in the outset of this column? The simple evidence of having a degree which appears not to be related to the present work does not warrant a complaint. But, if the complainant feels that the public is put at risk by the quality of work done by the engineer, then a complaint should be filed with the Association. Note, however, that the complaint process is not meant

to address issues of financial loss, business disagreement or breach of contract. The public court system is used to follow suits of that nature.

Now, to the second part of the topic. Considering all the foregoing, a member decides that a complaint should be laid against another member. What is the process of making a complaint?

Section 17 of our Act describes the process of dealing with a complaint through the discipline process.

Briefly, the complaint is received by the Association, usually addressed to the Director of Professional Affairs. The DPA will then begin the process of gathering information from both parties and preparing a briefing document for consideration by the Professional Conduct Committee.

It must be noted that the process is meant to be carried out confidentially, in a dignified and business-like manner, without the appearance of a 'witch-hunt'. Except in rare circumstances, this begins with a written, signed complaint. The complaint must usually describe the allegations in some detail, provide some supporting documentation and preferably describe whether the allegation is one of incompetence, negligence or misconduct. It is possible that the letter of complaint may actually be drafted by Association staff for signature by the complainant. This is more common when the complainant is a member of the general public and less familiar with the Act and by-laws that govern our professions.

Immediately, the engineer who is being complained against is provided with copies of all material contained in the complaint and officially asked to respond within a specified time period. During this time, the DPA may make his own investigation of the circumstances to provide a clear picture of the situation. Or, the DPA may ask an independent third party to review certain parts of the complaint; a drawing or design notes, for example.

When the engineer who is the subject of the initial complaint has responded, a copy of his/her material may be provided to the original complainant for secondary comment. This has proven useful in situations where the complainant has misunderstood some aspect of the case or where he/she has not had complete information.

At this point, the case is given to the Professional Conduct Committee (PCC) which considers the evidence and the results of the DPA's investigation. The PCC essentially can do one of three things. First, the case may be referred to the Discipline Committee. Or, the case may be dismissed. Thirdly, the Committee may take other action to resolve the complaint.

The PCC's decision, and its reasons for arriving at that decision, is provided to the Registrar who provides it to both the complainant and the engineer-complained-against.

While most complaints are complete at this point, a complainant who is unsatisfied with the PCC outcome may ask Council to review the process (not the decision) used in handling the complaint.

Next time, we'll have a look at the functioning of the Discipline Committee.

A.

**If you have a regulatory, enforcement or ethical question you'd like answered,
e-mail APEGNB's Director of Professional Affairs.
sisk@apegnb.com**



Dr. Jeanne d'Arc Gaudet and Dr. Anne-Marie Laroche, P.Eng.

U de M Play Promotes Women in Engineering

Believe it or not, in the year 2006, research has shown that young women still view careers in the sciences and engineering as professions more suited to men. One of the reasons this stereotype still exists is attributed to the lack of role models and knowledge that young women have regarding these disciplines.

To initiate a change in the attitudes of high school students, two professors at the Université de Moncton, **Dr. Jeanne d'Arc Gaudet**, a researcher and professor of education, and **Dr. Anne-Marie Laroche**, P.Eng., a researcher and professor of civil engineering, have developed a comedic play to raise awareness in high school students. Gaudet says the purpose of the play was "to counter the sexist stereotypes that have been ingrained in the minds of young women by family, media, and educators regarding women pursuing careers in these disciplines."

Both researchers felt that a play would be an effective tool to measure the changes in knowledge and perception of students.

"We wanted the play to be fun and humorous so that young students would pay attention to our message," said Gaudet.

Colleagues in the dramatic arts department at the Université de Moncton directed Gaudet and Laroche to a young, talented comedic playwright, **Mélanie K. Léger**, who was more than eager to lend her flair for writing comedy to the project.

A partnership with dramatic arts students, and professors in arts, engineering and education was formed, and *Vive les Sciences et le génie!* was created. The play was presented as a pilot at the Université de Moncton.

The play depicts a male and female high school student who are completing a science project for school. The boy is preoccupied with trying to get his science partner to go to the prom with him. When both students are brainstorming for project ideas, the boy suggests that they do a history of famous men in science. The girl's mother interrupts, ignoring her daughter's embarrassment, and suggests that the pair focus their project on the progression of famous women in science

throughout history. *Vive les Sciences et le génie!* continues with a review of famous women in science and engineering.

The pilot was so well received, that the professors decided to take it a step further and present it at a national conference in Quebec hosted by l'Association francophone pour le savoir (ACFAS).



After the success of the play at the ACFAS conference, Gaudet and Laroche received a request to do a second showing of *Vive les sciences et le génie!* at École Polytechnique de Montreal.

Following the conference, Gaudet and Laroche pitched their research project in conjunction with *Vive les sciences et le génie!* to **Cecilia Moloney**, the NSERC / Petro-Canada Chair for Women in Science and Engineering (Atlantic Region), in the hope of obtaining some funding for their project.

"I thought the play was a great way to engage young people. It presents a hard-to-convey message in the form of entertainment," says Moloney.

She sponsored an \$8000 grant for the research project. "I saw this research

The pilot was so well received, that the professors decided to take it a step further and present it at a national conference in Quebec hosted by l'Association francophone pour le savoir (ACFAS).

project as a win-win situation," says Moloney.

"It fits well with the mandate of the chair to promote women in science in engineering, and it is a great opportunity to promote the mandate to the Francophone community."

When the professors returned to Moncton, they took the play to two Francophone public high schools in the area, Ecole L'Odysse and Ecole Mathieu-Martin, where students commented that they could relate to the characters.

Students were given questionnaires to test their knowledge of the sciences and engineering before they viewed the play, and were given questionnaires after viewing.

The results of the questionnaires are currently being analyzed. Gaudet and Laroche have been invited to submit an abstract of their research at the 2006 Frontiers in Education Conference, to be held next October in San Diego.

"We are very excited about this project," says Gaudet. "We think it will encourage more young women to explore the sciences and engineering." ☺

Une pièce de l'U de M met en valeur les femmes en ingénierie

Qu'on veuille ou non le croire, rendu en 2006, il se trouve encore des jeunes femmes pensant qu'une carrière en sciences ou en génie est surtout le lot des hommes, selon ce que révèlent les recherches. Un des facteurs qui alimentent encore ce stéréotype est le peu de modèles féminins et le fait que les jeunes femmes connaissent peu ces disciplines.

Dans l'espoir d'amorcer un changement d'attitude chez les étudiantes du secondaire, deux professeures de l'Université de Moncton, **Jeanne d'Arc Gaudet**, chercheuse et professeure d'éducation, et **Anne-Marie Laroche**, ing., chercheuse et professeure de génie civil, ont eu l'idée d'une pièce de théâtre humoristique pour conscientiser davantage cette clientèle scolaire.

M^{me} Gaudet affirme que la pièce a pour but de « contrer les stéréotypes sexistes à l'endroit des femmes qui font carrière dans ces domaines et qui, à cause de la famille, des médias ou des éducateurs, se sont incrustés dans l'esprit des jeunes femmes. »

Les deux chercheuses étaient d'avis qu'une pièce de théâtre était un bon instrument pour mesurer l'évolution des connaissances chez les étudiants ainsi que leurs perceptions.

« Nous voulions une pièce amusante axée sur l'humour pour que les jeunes étudiants captent notre message », a expliqué M^{me} Gaudet.

Leurs collègues du département d'art dramatique de l'Université de Moncton ont suggéré à M^{mes} Gaudet et Laroche de faire appel à une jeune dramaturge talentueuse et comique, **Mélanie K. Léger**, qui s'est empressée de prêter à ce projet son flair pour l'écriture humoristique.

Un partenariat réunissant les étudiants en art dramatique ainsi que les professeurs d'art, de génie et d'éducation a donc vu le jour, et la pièce *Vive les sciences et le génie!* est née. On l'a présentée à l'Université de Moncton sous forme de projet pilote.



Jeanne d'Arc Gaudet et Anne-Marie Laroche, ing.

Le texte dépeint un étudiant et une étudiante du secondaire qui préparent un projet de sciences. Le garçon est préoccupé : il cherche à inciter sa collègue de sciences à l'accompagner au bal des finissants. Dans leur échange d'idées pour le projet, le garçon propose un historique des grands hommes de sciences. La mère de la fille s'en mêle – ignorant l'embarras manifeste de cette dernière – et propose plutôt aux deux d'axer leur projet sur les progrès accomplis par les grandes femmes de science au cours de l'histoire. Vive les sciences et le génie! enchaîne avec une chronique des femmes qui dans l'histoire ont marqué les sciences et le génie.

Le projet a connu un succès tel que les professeures ont décidé de passer à une prochaine étape et de le présenter à une conférence nationale, à Québec, organisée par l'Association francophone pour le savoir (ACFAS).

Le projet a connu un succès tel que les professeures ont décidé de passer une prochaine étape et de le présenter une conférence nationale, Québec, organisée par l'Association francophone pour le savoir (ACFAS).

Compte tenu du succès de la pièce à la conférence de l'ACFAS, on a invité Mmes Gaudet et Laroche à orchestrer une deuxième représentation de *Vive les sciences et le génie!* à l'École Polytechnique de Montréal.

Aux lendemains de la conférence, M^{mes} Gaudet et Laroche ont discuté de leur projet de recherche, mené parallèlement à la pièce *Vive les sciences et le génie!*, avec **Cecilia Moloney**, titulaire de la Chaire CRSNG-Petro-Canada pour les

femmes en sciences et en génie (région de l'Atlantique), dans l'espoir de décrocher du financement pour leur projet.

« J'ai vu dans cette pièce un excellent moyen d'engager la réflexion chez les jeunes. On se sert du divertissement pour communiquer un message difficile à transmettre », soutient M^{me} Moloney.

Elle a consenti une bourse de 8000 \$ au projet de recherche. « J'estime que tout le monde gagne avec cette recherche, poursuit M^{me} Moloney. Elle cadre bien avec le mandat de la chaire, qui est de faire valoir les femmes dans les disciplines de sciences et de génie, et présente aussi une excellente occasion de promouvoir les visées de la collectivité francophone. »

De retour à Moncton, les professeures ont organisé des représentations dans deux écoles secondaires francophones de la région, soit à L'Odysée et à l'École Mathieu-Martin, où des étudiants ont admis pouvoir s'identifier aux personnages.

On a distribué aux étudiants un questionnaire pour vérifier leurs connaissances des sciences et du génie avant de voir la pièce, puis on leur en a remis un autre après la représentation.

On compile et analyse actuellement les réponses aux questionnaires. On a invité M^{mes} Gaudet et Laroche à présenter

un abrégé de leur recherche au congrès intitulé 2006 *Frontiers in Education Conference*, qui aura lieu à San Diego, en octobre.

« C'est un projet qui nous stimule énormément, affirme M^{me} Gaudet. Nous croyons qu'il encouragera un plus grand nombre de jeunes femmes à envisager une carrière dans le domaine des sciences et du génie. »

Fun Clicks!

D *crease your stress level! Increase your brainpower! Check out these websites!*

www.cookingforengineers.com

Have an analytical mind? Like to cook? This is the site to read! With a patent-pending recipe format and discussion board for cooking and science, Silicon Valley engineer Michael Chu has compiled a delicious list of recipes to try. Chu says he selected the name "Cooking For Engineers" on a whim. He says he has no idea if it means "to cook for the purposes of providing engineers with food" or "to instruct engineers in the science and art of cooking". You decide.

www.setwomenresource.org.uk

The UK Resource Centre for Women in Science, Technology and Engineering (SET) is designed to help increase the participation and position of women in SET professions by providing accessible, high-quality information and advisory services to industry, academia, professional institutes, education and research councils within the SET and built environment professions.

www.lithoprobe.ca

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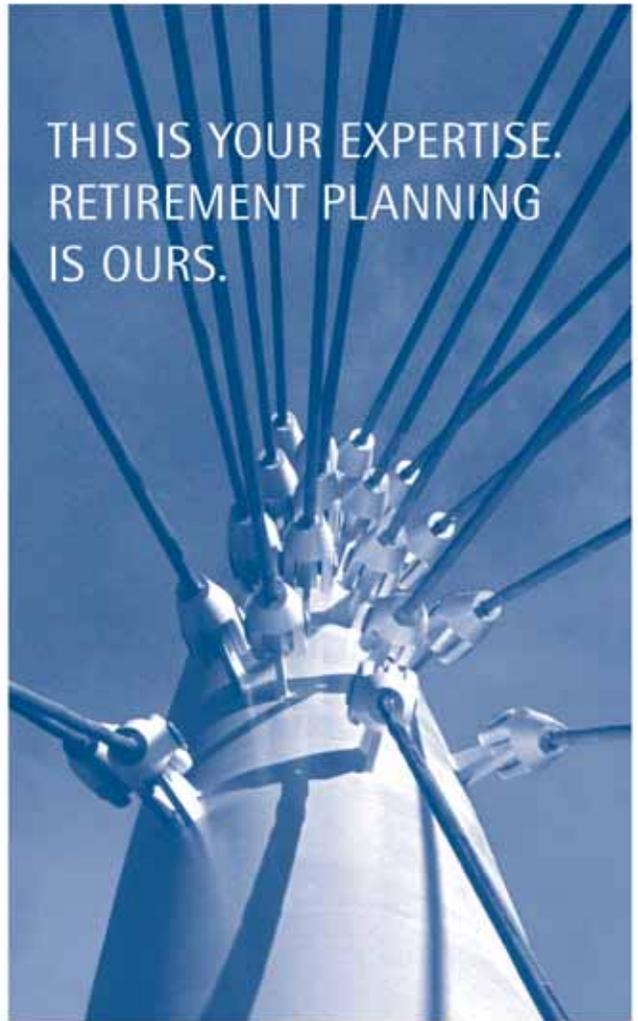


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Making Learning an Adventure

Computer software makes engineering fun for students

Educational software developer, *Software Kids*, has engineered a way for students to learn the science of engineering, and it doesn't involve leaving their joy-sticks behind.

The Indiana-based software company has developed "Time Engineers," a computer game it believes will make math, science and engineering fun for students.

example, in Egypt they must consider friction and slope while constructing pyramids. In the Middle Ages, they use principles of simple machines to build drawbridges and catapults. And during World War II, students use radar to locate objects via triangulation.

Weaving together mathematic and scientific concepts, Time Engineers encourages

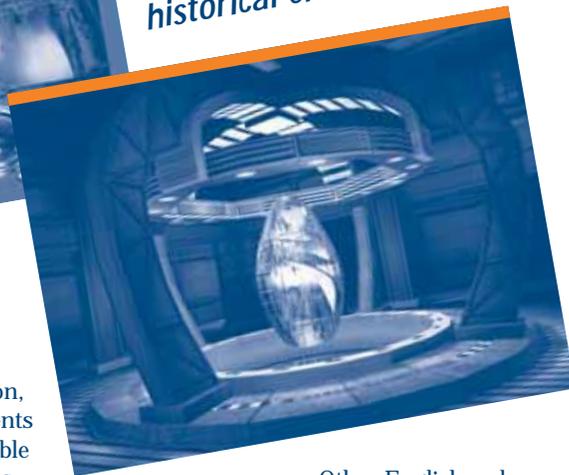
Two play modes—an interactive role-playing mode for individuals and an activity mode for classroom demonstration and practice—encourage reasoning and problem-solving skills. While some students, especially at the lower grades, may find the individual interactive mode too difficult, teachers of all levels will appreciate the activity mode for illustrating engineering principles in class.

Approximately 23,000 games have already been sold in the US, United Kingdom, Canada and New Zealand.

Time Engineers--Home Edition for Single Users (classroom guide not included) is available for Windows platforms at a cost of \$23 (CAD) and can be ordered online at www.software-kids.com.



learn
In the "Time Engineers" computer game, middle and high school students learn the engineering design process as they solve electrical, civil, and mechanical engineering problems from three historical eras.



In Time Engineers, middle and high school students learn the engineering design process as they solve electrical, civil, and mechanical engineering problems from three historical eras. The game places users in an engineering lab in a remote location, where they find a time machine. Students must decipher a binary code and power switches in order to travel to three epochs that are significant in technological history: ancient Egypt, the Middle Ages, and World War II.

In each time period, students must learn and apply engineering principles to contemporary problems. For

trial-and-error experimentation, allowing students to adjust variable factors, such as the amount of energy or the angle of the slope, in their attempts to solve problems successfully. Embedded research materials give students additional background to develop their problem-solving approach and learn from their mistakes. Through the text, narration, and interactive exercises, the program covers binary numbers, Boolean logic, weirs and water flow, force, balance, and trajectory.

Other English-only versions are also available including:

- **Teachers Edition** (\$68 CAD)
Single user
Includes Classroom Guide and CD-Roms
- **Middle School Site License** (\$570 CAD)
Includes Classroom Guide and CD-Roms
- **High School Site License** (\$1500 CAD)
Includes Classroom Guide and CD-Roms



From October through November of 2005, 2 Specialist Engineering Team (2 SET) of 1 Engineer Support Unit (1 ESU) from Moncton were deployed to Afghanistan to assist with the closure of Camp Julien. A changing role for Canada in Afghanistan meant the closure of Camp Julien and a move to southern Afghanistan in order to lead the Kandahar based multinational brigade.

Located on the outskirts of Kabul, this \$50 million dollar camp was built during a three-month period in 2003. It was designed and built under the management of members of 2 SET. At its peak, Camp Julien housed up to 4000 persons, including 2000 Canadian soldiers serving with the NATO-led International Security Assistance Force. The camp was sited on a green field between two former Afghan palaces. This site provided the occupants with a breathtaking view of the surrounding mountains while masking the clear and present dangers that lay immediately outside its perimeter walls. Daily intelligence reports of Al Qaeda and Taliban terrorist activities in the Kabul area were a clear reminder to us all of these dangers.

Built like a fortress, and equipped with state-of-the-art utilities, Camp Julien became the awe of expeditionary camps built during our era. Notably, the camp included three power generation farms (for dispersion and redundancy), an advanced water treatment facility, a water bottling plant, a sewage treatment facility, a field hospital, a munitions depot, a fuel farm and a myriad of defensive structures to protect personnel against various threats. The camp's generator farms were capable of producing a combined output of 7,500 kW. As for water supply, three deep-water wells provided adequate water both for potable and non-potable requirements. A nanofiltration system produced up to 350 m3 of potable water per day. Some of this water would then be bottled at the water bottling facility, which was capable of producing up to 10,000 one-litre bottles per day.

During closure, the team from Moncton was integrated into an ad-hoc organization called the Camp Closure Team (CCT). The task of managing engineer closeout activities was given to 2 SET. Under the command of **Major Michael**

Moving a 'Town' from Kabul to Kandahar

By Lieutenant Eric Quirion, CD, MIT



2 Specialist Engineering Team from Moncton

Watson (Royal Engineers), the team was made up of 13 members, two officers and 11 non-commissioned officers—each with their own specialty. This diversity in experience and qualifications made it possible to tackle numerous construction engineering tasks including infrastructure teardown.

Imposed with strict time constraints, the task of closing Camp Julien seemed at first glance near impossible. The team had to plan and manage the detailed teardown of infrastructure while providing engineering quality assurance all in the midst of ongoing operational commitments and the transition of troops to Kandahar.

The job of actually tearing down the majority of infrastructure fell in the hands of the Construction Engineering Manager, **Lawrence Fogwill**, P.Eng., and his team of specialists from SNC-Lavalin PAE. They were the prime



Team Canada Visit (left to right) - Major Michael Watson (RE), General Rick Hillier, Lieutenant Eric Quirion, MIT.

impossible
near
Imposed with strict time constraints, the task of closing Camp Julien seemed at first glance near impossible.



Filterboxx NF-350 nanofiltration system used to produce potable water.

contractor responsible for providing engineering and sustainment services for Camp Julien. In addition, discrete tasks were assigned to an Area Construction Troop of about 30 tradespeople from Canadian Forces Base Petawawa. Of significance was their work conducting structural repairs following the earthquake that hit Pakistan on October 8, 2005.



Shear damage in timber support column of an ammunition bunker caused by Pakistani earthquake of October 8.



Accommodation sector sits empty following the dismantling of accommodation shelters.



Military Engineers dismantling a sprung shelter.

Tremors from Pakistan's earthquake of magnitude 7.6 were, indeed, felt in Camp Julien. Although not as intense as in Pakistan, the seismic event that registered 5.0 in Kabul, was enough that all on camp had to exit buildings and await the return to normal. Following the quake, a visual structural inspection was carried out on permanent structures. The inspection revealed shear damage to the timber support columns of the munitions depot. Although not immediately life threatening, the damage was enough that additional structural supports were incorporated into the munitions depot.

Aside from all the work, there was some time to decompress and enjoy a short but memorable visit from Team Canada. The team was made up of dignitaries and celebrities such as then Minister of National Defence, **Bill Graham**, the Chief of Defence Staff, **General Rick**

Hillier, Rick Mercer from CBC, hockey great **Guy Lafleur**, **Major-General (retired) Lewis Mackenzie**, and Olympians **Catriona LeMay Doane** and **Daniel Igali**.



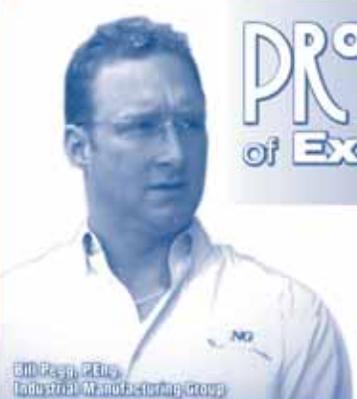
Team Canada Visit (left to right) – Warrant Officer Gary Leblanc, Tony Samson, Honorary Colonel Guy Lafleur, Warrant Officer Louis Myre and Sergeant Paris Keeping.

Following the visit, the CCT continued on with dismantling and decommissioning of infrastructure according to schedule. In this short two-month timeframe, more than 300 relocatable temporary structures were dismantled, packed and shipped to either Kandahar for re-use or to Canada for repair and overhaul. As a token of Canada's appreciation, we left behind the water treatment plant, the water bottling plant, the sewage treatment plant and a generator capable of powering it all.

On the morning of November 29, 2005, an official ceremony was held to hand over the site back to the Government of Afghanistan. All in all, both the military and civilians alike, were proud to have played a part in the closure of Camp Julien and in contributing to the overall effort of fighting the war on global terrorism. ☺

Panoramic of surrounding mountains taken from Camp Julien.





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Dispatches from

Africa

Editor's Note: *The following updates are provided by two engineering graduates from the University of New Brunswick who are volunteering with Engineers Without Borders on African projects. APEGNB's outreach program has supported EWB with funding to help volunteers offset travel costs, attend national conferences and participate in overseas operations.*

UPDATE: Mali

By **Michael Gallant**,
UNB Civil Engineering Graduate

Ani sogoma! Djamwali!
Bonjour! Good morning!

How is everyone? I thought I'd write a little letter to let you know how things are going in Mali.

Mali is such a culturally and historically rich country. There are so many different ethnicities: Bambara, Peul, Dogon, Songhai, Bobo, Bozo, Tuareg, Khassonkes, Malinkes, etc.. Each ethnicity has a distinct language, sometimes morphology (shape and colour), and specializes in a certain field or in a certain type of food production. For instance, the Bozo are fishers and are responsible for all of the fish I've consumed here thus far. They live predominantly along, and on, the Niger River. The Peul are nomads who raise huge herds of cattle and are responsible for much of the milk in this region. I see Peul women on an hourly basis carrying milk in plastic containers on their heads to sell.

Sometimes, you can even tell what kind of village you're entering by the architecture. For example, Tuareg huts are dome-shaped and made of straw with a removable skirting around the bottom for really hot days.

Sévaré, the village of 10,000 (or city of 100,000 depending on whom you ask), is my home base. It is located just southeast

of Mopti, where the Niger and Bani rivers meet. Apparently Sévaré was once a Bobo village but back in the 19th century, a group of Peuls conquered it and took most of the Bobo as slaves. Even now, while slavery is officially abolished, there is still an area referred to as the 'slave quarter' in the village.

I've been at work for the National Coordination of the Multifunctional Platform (MFP) program for the last two weeks. A Multifunctional Platform is a vehicle to promote women's development and poverty alleviation in rural Mali. The project consists of the development of "energy micro-enterprises" owned and operated by women's associations in Malian villages. The platform consists of a small diesel engine mounted on a chassis, to which a variety of end use equipment can be attached, including grinding mills, battery

water distribution network or irrigation system.

The project increases women's productivity, alleviates the drudgery of women's labour and increases income-generating opportunities by providing villages with energy services that replace traditionally time- and labour-intensive activities. Another key objective of the project is to provide new business opportunities and a source of income for the women who own, operate, and manage the platforms. By allowing women's associations to purchase the platform, choose which modules to install, and collect fees for its use, the project is intended to empower women while also providing services demanded by the community. (United Nations Development Program--UNDP 2005. *Achieving the Millennium Development Goals: The Role of Energy Services.*)

The project I'm working on involves a very holistic approach. While the main goal is to alleviate rural women's poverty, the project includes literacy, management, business, and technical training for the women's groups who manage the platform, technical training and access to equipment for rural entrepreneurs, and many other spin-off programs including a flour vitamin-enrichment program. The project is also demand driven, so only villages that make a request and raise half of the cost to buy one will get a platform – a great way to ensure ownership of the equipment.

The trial phase and first phase of the MFP Mali program began in 1993 and ended in 2004. During that time, more than 500 platforms were installed. It was found that a platform installed in a village reduced rural women's workload by 2.5 hours and increased their incomes by roughly one-third. (UNDP 2005). The success of the project resulted in funding for second phase.

The second phase is ambitious: more than \$30 million USD will be provided to install 1500 new platforms over three years. Practically speaking, this means that two platforms will be installed every working day for three years.

The scale-up is so huge that the National Coordination is facing several challenges in implementing these ambitious outputs, including logistics, organization, monitoring



Michael's first Multifunctional Platform – on the way from Bamako to Sevaré. The green machine in the middle is an 8hp Lister diesel engine that is running a rice or millet mill on the right and a dehusker on the left in the back.



Buying fresh papaya on the way from Bamako to Sevaré. A whole basket costs 750 F CFA (under \$2 CAN).

chargers, vegetable or nut oil presses, welding machines and carpentry tools. It can also support a mini grid for lighting 150-200 bulbs and electric pumps for a small

and evaluation. Like my boss **Yaya N'Daiye** said: "It's hard to leave the old, smaller program-thinking to get into the headspace for a much larger project."

He thinks that having an outsider, who is not stuck in the old mindset and who can share ideas and ask questions, will help them reorganize to successfully achieve the goals of the project. I hope to be able to provide some outside of the box thinking but also work on the monitoring and evaluation program where I'll help to evaluate existing tools and create new ones. I think that good monitoring and evaluation tools can provide means to improve the program as a whole. Since the MFP program is intended to reach over 10% of Mali's population (over 1,000,000 people), even a small improvement will lead to a huge impact.

With that being said, I've been mostly reading and thinking of ways to improve the program to benefit Mali's poor. I have had the opportunity to travel to two villages to see their platforms and meet the chiefs, mayors, and Women's Management Committees (WMC). Unfortunately, both platforms weren't in operation. In Fatoma, the submersible pump for the water distribution system (the system includes an enclosed well, submersible pump, 15m water tower, and six taps distributed around the village) that is powered by the platform was broken. In Orignon, the WMC was responsible for two broken motors in the last three years and was waiting for a solution from the National Coordination.

Both field trips (called missions here) were great learning experiences – especially Orignon where we held a community meeting in Bambara and reinforced the fact I need to learn some languages, fast! My mornings at the office start with all the employees gathered for the 'greeting ritual' where everyone shakes hands and says good morning. This is a very important social meeting and as Koné, an MFP program employee said, "If you don't shake hands with everyone at the office when you arrive, you don't exist at work that day." It's also a great time to learn about Malian culture and customs. So far we've chatted about gender roles, male and female circumcision, cultural norms and practices,

and, of course, football. Malian greetings can be long and very involved too. For example, a typical exchange in Bambara might go something like this:

"I ni sogoma!"	(Good morning)
"Nba, I ni sogoma"	(Thank you, good morning)
"Hèrè bè?"	(How are you?)
"Hèrè doron"	(I'm ok)
"Somogo bèli?"	(Is your family well?)
"Toto té"	(All's well)
"I ka kènè wa?"	(How is your health?)
"Toro té"	(All's well)
"I mouso ka kènè wa?"	(And the health of your wife?)
"Toro té a la, a ka kènè"	(She's well, and is holding up well)
"I dènw ka kènè wa?"	(And the health of your children?)
"Toro sí té u la"	(All's well with them)
"Ka nogoya kè!"	(I wish you good health!)
"Amiina"	(Amen)



(L to R): Bema Coulibaly, the operator at the Fatoma platform, and Michael Gallant. An 8hp Lister diesel engine powers an alternator which in turn powers a submersible pump to distribute clean water to the village.



Levi Goertz and Michael go for a ride with Eddie, Levi's landlord's donkey. Levi's room is in the back left corner. The building is made of banco – a mixture of clay, straw, and sand.

Otherwise, my French is improving bit by bit, but I'm still a little shy sometimes. I'm also looking for a place to live. I had a line on a two-room apartment in a concrete-style building (posh compared to the banco building my fellow EWB volunteer Levi Goertz is living in) with a shared shower and pit latrine. I would have had electricity and everything...well everything besides a kitchen. But I waited too long. So, I'm still searching.

Congratulations for reading this far! I'll leave you with a few pictures. I've tried to keep my blog up-to-date, so if you want to check it out, it's at www.spaces.msn.com/members/malimike/

NOTE: For more information on the Multifunction Platform, visit www.undp.org/energy and download the document **"Reducing Rural Poverty through Increased Access to Energy Services"** in the Publications section.

UPDATE: Zambia

*By Jennifer Dysart,
UNB engineering graduate*

M walibiya buti! (Good afternoon in Tonga)

Sitting down to write this article, I realized how much has changed and how much I've learned since the last time you heard from me. After living in six different locations between August and January, I've finally settled in Monze town with a Zambian teacher and my puppy Mwayi (this means 'lucky' in Nyanja). I've met friends, made the unofficial progression

(continued on page 24)

shake hands
"If you don't shake hands with everyone at the office when you arrive, you don't exist at work that day."

(continued from page 23)

from 'volunteer' to 'employee' at work, and observed some of the many different faces of poverty. A woman and her children selling oranges – their only source of income; young boys wandering aimlessly through the streets during the school day; a man in a wheelchair traveling 6km one way to obtain food aid, only to discover



He still has to go up this hill

that his name wasn't on the list. Something needs to change, but what is it exactly? This is a question that I've thought a lot about over the past few months, but haven't been able to answer.

The first project I worked on with WaterAid involved mobilizing people to finish constructing their latrines in rural communities. Many had received cement, the one subsidy we provide, and had built the foundation for their toilet. But then they stopped. The reasons varied, ranging from lack of interest to lack of payment for the latrine builders.

I lived in a village for most of the time I was performing this task and was able to observe how people reacted to WaterAid's programs. We would conduct community meetings, visit different households and address any concerns raised by the people. Now that I'm in town, my focus has been divided between the rural and peri-urban areas. Each of these environments has its own specific issues and different approaches are required.

In a rural setting, land is plenty. When a family's latrine becomes full, they'll simply dig another pit and build a new one. This isn't possible in the peri-urban settings. Land is scarce and people need a more permanent, sustainable structure. Therefore, the installation of a 'Fossa



Aerial view of the Fossa alterna

slow process

I've learned that 'development' is a slow process and that one year doesn't seem nearly long enough to feel as though you've had impact.

alterna' is encouraged. It's a relatively new technology in the sanitation world, but it's catching on quickly.

The difference between an ordinary latrine and a Fossa is that the latter uses two pits instead of one. The pits are only 60cm deep as opposed to 2m for an ordinary latrine, and once one is filled, it is covered while the waste material dries. After about 6 months, it can then be removed and used as fertilizer. There are less flies and no odour.

I met a family who was the first to adopt this type of technology in their neighbourhood, the Ndandu's. They had used the fertilizer on the maize in their yard and Mr. Ndandu said that it was growing taller than before. To have someone in a



Standing with Mrs. Ndandu, her Fossa latrine and the maize it helped grow

community actually try a new technology and then speak highly of it will bring more success to a project than sensitization meetings ever could.



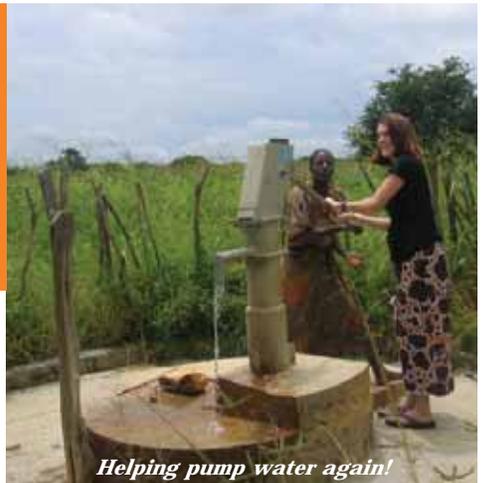
Beatrice, a beneficiary of this water pump

One important concept that I've learned from my work so far is that all aspects of development are very much interconnected. If crops fail, it's difficult to conduct a



water project that requires monthly fees or labour from people who have no money or food. WaterAid is a focused organization, dealing with one portion of the complete picture. We do partner with local NGOs to implement our projects, and these NGOs may have experience in the agriculture or health sector. They are then able to incorporate water, sanitation, and hygiene into their current program. I believe that the most effective development process considers all components of a person's livelihood.

During the past seven months, I've met some amazing people who have taught me to face adversity head on. I've learned that 'development' is a slow process and that one year doesn't seem nearly long enough to feel as though you've had impact. It's only now that I've started to feel comfortable with my position at work and my place in the community. I still have some time to go before I truly feel competent, and every day brings with it new challenges. I want to thank everyone who has supported me, especially the members of APEGNB. ☺



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- Investigation de défaillances
- Usinage sur mesure
- Prédéveloppement (prototype)

Tetra: Making a difference for many families

By LORI GALLAGHER

Reprinted with permission from the Daily Gleaner (published October 26, 2005)

The Tetra Society is breaking down barriers, one innovative design at a time.

"The society is a non-profit group that recruits volunteer engineers, technologists, health professionals and anybody who has a technical mind to be able to create assistive devices for people with disabilities, things that aren't already available on the marketplace," says **Christine Plourde**, P.Eng., co-ordinator for the Fredericton chapter of the Tetra Society.

Often, the items they adapt are simple things, something a person needs to do an everyday task.

"In our chapter, we've done a lot of things dealing with recreation because that's not funded under the Medicare system," explains Plourde.

One of the items volunteers have adapted is a motorized car and one of the first to try it out was six-year-old **Dylan Boyd**.



Boyd says her family is lucky to have Bleau. "She's such an inspiration because she doesn't set any limits for these special needs kids."

Bleau really feels the kids can learn things, says Boyd, even when parents have their doubts.

"Mom and dad get used to limitations and they (the staff at Stan Cassidy) say 'they can do that,'" says Jim Boyd, Dylan's father.

His wife adds, "As parents, we're thankful to have Lise. And we're thankful to Tetra, because you can't buy something like this on the market."

Since then, Dylan has driven the adapted car at school and around his neighbourhood.

NEWFOUND FREEDOM Six-year-old Dylan Boyd enjoys riding in his customized jeep. The toy allows the little boy to control its movements using a chin-activated switch.

His mother, **Kim Boyd**, vividly remembers the day Dylan, who has cerebral palsy, learned to drive it. "We were going to meet with **Lise Bleau**, an occupational therapist at Stan Cassidy (Rehabilitation Centre)," she says.

When she and Dylan arrived, Bleau had a little grey and red jeep there that had been adapted by Tetra.

When Kim Boyd learned what Bleau had planned, she admits she was surprised, as Dylan can't sit on his own and needs to be in supported seating.

"He's a quadriplegic. He has movement in his arms and legs yet he has no control over his arms and legs," explains Kim Boyd.

She couldn't imagine how he'd be able to drive, when he'd never done anything like it before, but she trusted Bleau.

"We had him all buckled and fastened in so he was nice and safe, and we had a little piece in the back for head support," she says.

Then Bleau fastened a bib made of mouldable plastic around Dylan's neck

"I was in tears, it was amazing."

Dylan went all over the place, driving through the halls of the Stan Cassidy Rehabilitation Centre to the encouragement of staff and patients, before taking it outside.

and placed the control button, a happy-face switch, on that so he would have access to it.

"In order for him to make the car go, he had to press down with his chin on his happy-face button," says Boyd. "And within an hour-and-a-half he was doing it."

She adds, "I was in tears, it was amazing."

Dylan went all over the place, driving through the halls of the Stan Cassidy Rehabilitation Centre to the encouragement of staff and patients, before taking it outside.

"He even got to go over the lawn and into the mucky part," she says.

"He was laughing - it was just amazing to see him go in that little car."

"It's priceless," says Jim Boyd. "There was such excitement and joy on that boy's face."

He adds, "You don't think how important that would be to a little boy, but it is."

Kim Boyd says Tetra is a great organization. Thanks in part to the work the volunteers there are doing, she can see that there are no limits on what her son can do.

"As a parent of a child with special needs, we're learning every day, too," she says. "You don't mean to limit them, but you're very overprotective of them."

Having the opportunity to drive the adapted car gave Dylan such a sense of accomplishment, she says. "Just the expression on Dylan's face. It was like, 'Wow - everybody is so proud of me,'" says Boyd.

Contest Corner

"For him it was the joy of being able to do something and not having someone do it for him," she notes.

The experience was an amazing one for all of them.

"Dylan has so many challenges, but yet he's a joyful little child, always smiles and laughs," she says. "We're so very blessed to have him."

Seeing Dylan's enjoyment of the car, his grandfather went out and purchased a Corvette for him, which is in the process of being adapted now.



The man who is doing the adapting is **Tom Sisk, P.Eng.** This engineer (who is also the Director of Professional Affairs for APEGNB) has been volunteering with the Tetra Society for about two years.

He discovered the organization after moving to Fredericton three years ago.

"I like building things and solving problems," he says, "a lot of the work we do with Tetra is actually building something."

Some things are simple, others pose a bit more of a creative challenge. "To me, the solving of the problem is intellectual stimulation," he says. "Being able to start at one end and actually finish something is sort of a neat little rush."

The fact that the items he and the other volunteers create help make someone's life better is a wonderful bonus. Sisk admits it's a nice feeling. "That's part of a personal philosophy," he says. "If you can be doing something, you should be doing something."

The local chapter of the Tetra Society began in 2000. It was founded by Plourde and another engineer.

The appeal of the society was being able to be able to use their engineering skills in a way that would directly help someone, she says, "and you could actually see a smile on somebody's face because of something you've done."

She adds, "In a technical profession, you don't often get to experience that with your work."

Plourde and the other Tetra volunteers have slowly been spreading the word



Fall/Winter Contest Corner Winners

Brad Mills, MIT
Ipex Inc.
Saint John, NB

Corey Griffin, P.Eng.
ADI Limited
Fredericton, NB

Tony Whalen, P.Eng.
NB Department of Environment
and Local Government
Fredericton, NB

Kumar Sen, P.Eng.
Irving Oil Refinery Ltd.
Saint John, N.B.

Terry Gallant, P.Eng.
Boissonnault McGraw
Campbellton, NB

New Brunswick's hurricane trackers know their storms. When asked what the most turbulent part of a hurricane's anatomy was, readers of the Fall/Winter 2005 *Engenuity* couldn't be fooled. All identified "**B: its eyewall**" as the correct answer.



Satellite image of Hurricane Isabel (2003) just east of the Bahamas.

CREDIT: Jacques Desdoitres, MODIS Rapid Response Team, NASA/GSFC

The eye of a hurricane is actually the calmest—the place where you'd find the sun shining, light winds and rain-free skies. The eyewall is a ring of tall, tightly spiralled thunderstorms that spin violently around the circular eye.

Congratulations to the winners at left who were the first five names drawn with the correct answer.

This month, we want to know:

Who was Christopher Polhem?

- A. A Swiss textile engineer who invented cellophane in 1908.
- B. A German entrepreneur who won the 2004 Oscar for the invention of the Technocrane telescoping camera crane first used in "Raiders of the Lost Ark".
- C. An inventor and industrialist considered to be the father of Swedish engineering.
- D. A "Hollywood" geologist who consults on earth disaster movies.

Win this Season's Prize Package!

To win this season's Engenuity prize package, e-mail your answer to melissa@apegnb.com by May 31, 2006. The first five correct submissions drawn will win a selection of APEGNB "goodies" including a backpack, pen/pencil set, t-shirt and more!

about their organization ever since. "It's an ongoing process to just keep getting the word out," she says. "The biggest thing is to just talk about it, to tell people about it, to just remember it exists."

New volunteers are always welcome, as are donations of materials.

"We work on very little funding locally. The way the program works is the volunteer time is free, so all the design and build services are free. It is only the cost of the materials that would be the responsibility of the client," says Plourde, noting that they do their best to keep these costs to a minimum.

The local chapter is small and is the only one in New Brunswick, says Plourde. When people join, they are asked to donate a one-time \$10 fee to help with the day-to-day operations of the volunteer-run group.

To learn more about the local chapter of the Tetra Society, contact Plourde at 506-462-7662 or by e-mail at cplourde@CRAworld.com. Or visit the Tetra website at www.tetrasociety.org. The local chapter holds a regular volunteer meeting the first Monday of the month at 6:45 p.m. ☺

Replica of Historic Shaughnessy House Nearing Completion at Fort Tipperary

Shaughnessy House at Fort Tipperary in St. Andrews, NB, has risen from the ashes.

Algonquin Properties Limited has rebuilt the historic residence after it was destroyed by fire in 2004. The new house is a replica of the original shingle style 19th century home once owned by **Lord Thomas**



original structure
 During the re-creation, we made every effort to bring the original structure back to life...(and)...into modern times to meet (present-day) building codes.

Shaughnessy, president of the Canadian Pacific Railway (CPR) Company. Modern building codes have been adhered to in the reconstruction to meet today's standards.

"We were supportive of the community's desire to see Shaughnessy House rebuilt," said Supply and Services Minister **Bev Harrison**. "The property holds historic significance and is also linked to the history of the Algonquin Hotel. Together, they are important reminders of the town's glory days in railroads and shipbuilding. Our goal was to reconstruct the Shaughnessy House as close to its original form as possible. We are very pleased with the results."

Lord Shaughnessy was a company man for the CPR who ushered the railway corporation through serious financial difficulties. During his presidency, the business expanded and miles of new track were laid. Shaughnessy also ventured into the steamship service and led the way for the establishment of Canadian Pacific's first Atlantic fleet.

After the Algonquin Hotel was built and opened by CPR in 1889, Lord Shaughnessy and his family travelled to St. Andrews from Montreal in their own railway car to experience the fresh sea air and the social life of beautiful and

romantic St. Andrews. It wasn't long before they wanted their own home in the famous port town.

Built in 1902-03, Shaughnessy House is located at 69 Prince of Wales Street at the site of Fort Tipperary, an original British garrison that was built for the War of 1812. The original architects were Hutchinson and Wood of Montreal, while the contractor was John P. O'Leary of Montreal. They were commissioned to design and build the family's handsome, two-storey summer retreat on 6.9 acres near the Algonquin Hotel.

"During the latter years of the 19th century, St. Andrews was discovered by a wealthy few who sought a summer place by the sea," said author **Willa Walker** in her 1989 book about the town, *No Hay Fever & a Railway*. "Escaping from Boston, Montreal, St. Louis, Toronto and elsewhere, they bought, rented or built

houses, returning year after year as their children did in turn. Luxurious hotels such as the Algonquin, advertising 'no hay fever' and good rail connections, were built to serve them and a summer society was established: riding, sailing, playing golf, tennis and croquet, dining, dancing and gossiping. Fathers of Confederation, the great railway builders, and politicians were joined in St. Andrews by socialites and possessors of 'old money' from both Canada and the United States. These summer people were rich, sometimes famous, and quite often eccentric."

Known for their hospitality, the Shaughnessys were generous about entertaining at "The Fort," hosting fancy garden and tea parties for visitors to their home. Tourists and sightseers also dropped by often to check out the spacious gardens or check into what they thought was a small but grand hotel.

With approximately 6,400 square feet of living space, Shaughnessy House was considered a masterpiece in 19th century architecture. Cedar shingles on the exterior and a 12-foot wide wrap-around verandah with deep overhanging eaves protected the building from rain and harsh seaside conditions. The house had seven bedrooms with scenic views, an entrance hall, reception room, library, a dining room, kitchen and pantry, four comfortable rooms for servants, three bathrooms, five fireplaces and two winding wooden staircases with carved newel posts and decorative balusters. The architectural style of the house and its attention to detail were characteristic of the high end vacation home built near the seaside during the economic boom of the industrial revolution.

"The charm and detail found at Shaughnessy House are not often seen

architectural style
 The architectural style of the house and its attention to detail were characteristic of the high end vacation home built near the seaside during the economic boom of the industrial revolution.

in today's modern home," Harrison explained. "During the re-creation, we made every effort to bring the original structure back to life, right down to the moldings and matching the period paint colours for the exterior of the home. At the same time, we saw the need to bring the house into modern times to meet modern building codes."

Harrison said the reconstruction allows Shaughnessy House to continue to exist and to be put to good use in the com-

munity. Because it is no longer part of the Algonquin Hotel, the province intends to sell it.

Reconstruction of Shaughnessy House cost approximately \$1.1 million. The building was insured. Following demolition of the burned out structure, reconstruction began in July 2005 and will be completed by the end of Spring 2006. Exterior painting of the home in the colours of green, gold, dark green and white will begin in the late spring.

Fort Tipperary was acquired by Algonquin Properties Ltd., a crown-owned corporation of the province, in 1985 from the late **Margot Mais**, granddaughter of Lord Shaughnessy. Shaughnessy House itself is not an official historic site. However, the land on which it rests is protected under the province's Historic Sites Protection Act because it contains the original earthworks for the War of 1812.

UNB Civil Engineering Student Wins Steel Construction Scholarship



James McInerney (centre) accepts a \$2,500 scholarship from **Alan Lock**, CISC Atlantic Region marketing director. Also shown are (front row left) **Don DiPaolo**, Tek Steel Ltd.; (middle row L to R) **Egbert Basque**, Iron Workers Local Union No. 84; **Dr. Peter Bischoff**, P.Eng., professor of structural engineering at UNB; (top row L to R) **Dr. Allison Schriver**, P.Eng., Chair, UNB Department of Civil Engineering and **Bernie Blakely**, P.Eng., Ocean Steel & Construction Ltd.

James McInerney, a civil engineering student at the University of New Brunswick, was awarded the Maritime University Scholarship for Steel Structures Studies provided by the Canadian Institute of Steel Construction's (CISC) Atlantic Region Scholarship on January 24, 2006.

The \$2,500 award was made possible through the contributions of the Atlantic Region CISC members and the International Association of Bridge, Structural, Ornamental and Reinforcing Ironworkers Locals 752 and 842.

The award is for the advancement of structural steel studies at UNB and recognizes McInerney's achievements to date. The scholarship is intended to help towards his continued research on composite deck-slab details which is being carried out under his supervisor, **Dr. John Dawe**, P.Eng.

They Said It Best

"A scientist can discover a new star, but he cannot make one. He would have to ask an engineer to do that."

- **Gordon Glegg**—American engineer

"Simply making consistent investments in our self-education and knowledge banks pays major dividends throughout our lives."

- **Jim Rohn**—Best-selling author

"Obviously everyone wants to be successful, but I want to be looked back on as being very innovative, very trusted and ethical and ultimately making a big difference in the world."

- **Sergey Brin**—Google Co-Founder

"With engineering, I view this year's failure as next year's opportunity to try it again. Failures are not something to be avoided. You want to have them happen as quickly as you can so you can make progress rapidly."

- **Gordon Moore**—Intel Founder and Chairman

"Even in such technical lines as engineering, about 15% of one's financial success is due to one's technical knowledge and about 85% is due to skill in human engineering, to personality and the ability to lead people."

- **Dale Carnegie**—Self-development author and trainer

R eaders R espond

Fault Factors: Money, Egos, Careers and Politics

Tom Sisk's article *"Why is the Advice of Engineers Sometimes Ignored?"* (Fall/Winter 2005 Engenuity) was interesting and thought provoking. I question the theory that failures are downplayed. If anything, they make headlines and do lead to changes. Why mistakes are repeated and learned advice ignored is probably a question for psychologists because it surely deals with complacency, greed, and ignorance found in human nature and all the complex and subtle nuances that make up decision making.

I have faith that most authorities (including NASA officials in the example given) would not willfully cause harm but nevertheless, may be tempted to ignore news they don't want to hear when egos, careers, financial, and political factors come in to play especially, and I would emphasize, if the probability of failure intuitively seems low.

Disaster may result from the juxtaposition of unlikely and independent events as one report concluded on the cause of a jet crash in the Everglades. An author commenting on this suggested that complex systems increase the likelihood of complex, unpredictable failures. And if they are unpredictable, than how can they be prevented? RMS *Titanic* did not have enough lifeboats, but what were the odds that in the middle of a huge ocean, a ship and an iceberg would meet. Would the reader put money on it? Not very good odds and I guess the designers and the captain didn't think so either.

Why was New Orleans built below sea level? One could just as well ask why cities are built near active volcanoes. We can shake our heads in condemnation when the news of Hurricane Katrina breaks on CNN but how many of us care or know about the potential catastrophe? What about Nashville, Tennessee, a city built in the middle of the New Madrid Fault?

Officials are wrestling with the problem but it is not just a simple matter of heeding the engineer's (or the geologist's) warning. What do you want to bet as Sisk quotes "funds for...are not available"? Until Ralph Nader is crowned and engineers rule the world (and some might argue whether that is a good thing), the best we can hope for is to chip away at those things we know through codes, regulations and yes, be a voice crying in the wilderness if need be. To put things in a more positive perspective, I'm sure that engineers' warnings are followed thousands of times every day. The fact that nothing bad happens as a result, is something we probably don't hear about.

Now if we can ever correct the foibles of humanity in the article's title, it will be, in the words of NASA, a giant leap for mankind.

Mark H. Hymers, P. Eng.
Fredericton, NB

'Micro' Mistake

I read your article about Point Lepreau ("Things to Know About Point Lepreau", p. 30, Fall/Winter 2005-06 Engenuity) and noticed that the numbers you stated of the average radiation dose that people receive in a year need correction. It should probably be 2,500 to 5,000 "micro" sieverts, not "milli".

Thank you for the good article,

Marc Desrosiers, P.Eng. (NB)
Defence Scientist
Defence Research and Development Canada
Ottawa, ON

Another Perspective on Nuclear

I have noticed articles in the two most recent issues of APEGNB's *Engenuity* newsletter that indicate a strong bias in support of nuclear energy which, frankly, I find simplistic and misleading.

We, as engineers, must consider the full picture.

For example, this technology does create greenhouse gasses particularly during the mining, as opposed to Bob Allore's

J'ai pris connaissance dans les deux derniers numéros du bulletin de l'AIGNB, Engenuity, d'articles soutenant fortement l'énergie nucléaire qui, franchement, me semblent simplistes et trompeurs.

En tant qu'ingénieurs, nous devons examiner le tableau dans son ensemble.

À titre d'exemple, cette technologie produit des gaz à effet de serre, surtout durant l'exploitation minière, contrairement à ce qu'affirme Bob Allore (Engenuity, été 2005, p. 30). Au début du cycle du

statement (*Engenuity*, Summer 2005, p. 30). At the front end of the nuclear fuel cycle, greenhouse gas emissions from the mining, milling and transportation of uranium cannot be ignored. Additional and significant greenhouse gas emissions must be anticipated at the back end of the nuclear fuel cycle for the fabrication of containment, construction of storage and the transportation for low-level waste through to used nuclear fuel and materials from decommissioning.

While decommissioning is admittedly a hugely costly proposal, continuing to produce nuclear wastes ignores the costs of eventual safe disposal or destruction of these. Indeed, there is not now and may never be a solution for nuclear waste products whereby the inherent hazards of nuclear waste would be rapidly minimized without generating more environmental problems and wastes, or adding to the proliferation risk. Such a solution remains a scientific and engineering challenge, the eventual cost of which cannot be known now. Even the long-term storage and management of nuclear fuel waste remains in question. A proposal before the Canadian government for a staged approach to decision-making and implementation of nuclear waste management with continuous learning gives an idea of the billions of dollars that aspects of long-term management will cost ("Choosing a Way Forward," Nuclear Waste Management Organization, www.nwmo.ca).

I am frustrated by the refusal to acknowledge the full costs of using nuclear energy. For example, during NB Energy Minister Bruce Fitch's presentation at APEGNB's Moncton branch (September 13, 2005 "The Future of Power Generation in New Brunswick"), he pointed out that nuclear is the least expensive option... but that no, he was not considering nuclear waste because that is a federal question! What about the subsidies given to the nuclear industry and to Atomic Energy of Canada Ltd. and why does the industry have protection through limited liability with the rest of the financial burden falling to the citizens?

I am very glad to hear that Lepreau takes safety concerns very seriously, and contributes to the larger community and research as reported by Melissa Mertz (*Engenuity*, Fall/Winter 2005-6, p. 30-31). However, again, the cost aspect ignores subsidies and again the cost of waste issues from uranium mining tailings to nuclear fuel waste is not considered. When considering environmental friendliness, the only comparison made is with oil and coal; no mention is made of truly green alternatives such as solar, wind or small-scale hydro-electric generating alternatives. Considering the positive economic spin-offs of some 700 jobs and "70 million dollars into the local economy" ignores the positive economic spin-offs associated with changing over to and maintaining production facilities of truly environmentally responsible alternatives. Notably, smaller scale electrical generating systems like windmills create jobs and economic opportunities around where they are situated, without being restricted to one central location. Think of the potential for windy and remote areas along the Acadian peninsula! Undoubtedly, in the absence of Lepreau there would be other funding sources for long-term, environmentally-friendly solutions.

Neither of these articles in *Engenuity* consider the environmental problems of the wastes that nuclear power produces, the inherent hazards of the wastes (radio toxicity and chemical toxicity) and the very long time frames of required waste management (NWMO has concluded it will require man-

combustible nucléaire, on ne peut faire fi des émissions de gaz à effet de serre provenant de l'extraction, du traitement et du transport de l'uranium. Il faut aussi prévoir d'autres émissions importantes de gaz à effet de serre à la fin du cycle du combustible nucléaire pour la fabrication de confinements, la construction d'entrepôts et le transport allant de déchets de faible activité jusqu'au combustible et aux matériaux nucléaires usés du déclassé.

Alors que le déclassé est sans conteste une proposition très coûteuse, en maintenant la production de déchets nucléaires, on fait abstraction des coûts du stockage sécuritaire éventuel de ceux-ci. À vrai dire, il n'existe pas à l'heure actuelle – pour les déchets radioactifs, et peut-être n'y en aura-t-il jamais – de solution par laquelle les dangers inhérents à de tels déchets seraient rapidement réduits sans créer d'autres problèmes environnementaux ou déchets, ou sans ajouter au risque de prolifération. Une telle solution demeure un défi scientifique et d'ingénierie, dont on ne peut pour l'instant connaître le coût éventuel. Même l'entreposage et la gestion à long terme des déchets de combustible nucléaire demeurent une source d'interrogation. Une proposition auprès du gouvernement canadien pour une approche par étapes en matière de prise de décision et de mise en œuvre de la gestion des déchets radioactifs, accompagnée d'apprentissage continu, donne une idée des milliards de dollars que coûtera cet aspect de la gestion à long terme (Choosing a Way Forward, Société de gestion des déchets nucléaires, www.nwmo.ca).

Je suis contrariée par le refus de reconnaître l'ensemble des coûts relatifs à l'utilisation de l'énergie nucléaire. À titre d'exemple, pendant son exposé intitulé « L'avenir de la production d'électricité au Nouveau-Brunswick » devant la section de Moncton de l'AIGNB (13 septembre 2005), le ministre de l'Énergie du Nouveau-Brunswick, Bruce Fitch, a déclaré que le nucléaire est l'option la moins coûteuse, mais qu'il ne tenait pas compte des déchets radioactifs, car il s'agissait d'une question de compétence fédérale! Qu'en est-il des subventions accordées à l'industrie nucléaire et à l'Énergie atomique du Canada limitée? Et pourquoi l'industrie est-elle protégée par le biais de la responsabilité limitée, alors que le fardeau financier restant incombe aux citoyens?

*Je me réjouis d'entendre dire que Lepreau prend très au sérieux les préoccupations en matière de sécurité et contribue à la collectivité plus étendue et à la recherche, comme vous le signalez (*Engenuity*, automne/hiver 2005-2006, p. 30-31). Par contre, encore une fois, l'aspect du coût ne tient pas compte des subventions et, encore une fois, on ne tient pas compte du coût relié aux déchets des mines d'uranium et aux déchets de combustible nucléaire. Quand qu'il est question du respect de l'environnement, on fait seulement la comparaison avec le pétrole et le charbon; il n'est nullement question des vraies solutions de remplacement écologiques, comme l'énergie solaire, l'énergie éolienne ou la production d'hydroélectricité à petite échelle. Lorsqu'il est question des retombées économiques encourageantes qu'entraîneraient la création de 700 emplois et l'« injection de 70 millions de dollars dans l'économie locale », on ne tient pas compte des retombées économiques avantageuses qu'amèneraient le passage à des installations de production axées sur le vrai respect de l'environnement et leur maintien. Notamment, les systèmes de production d'électricité à petite échelle comme les éoliennes créent des emplois et des possibilités économiques dans les régions où ils sont situés, sans se limiter à un lieu central. On n'a qu'à songer au potentiel des régions venteuses et isolées le long de la Péninsule acadienne! De toute évidence, en l'absence de Lepreau, il y aurait d'autres sources de financement pour des solutions à long terme qui respectent l'environnement.*

*Aucun de ces articles dans *Engenuity* ne tient compte des problèmes environnementaux relatifs aux produits de l'énergie nucléaire, des dangers inhérents aux déchets (toxicité radiologique et toxicité chimique) et des très longs calendriers de mise en œuvre relatifs au traitement nécessaire des déchets (la Société de gestion des déchets nucléaires, dans *Choosing a Way Forward*, a conclu que ceux-ci nécessiteront une gestion de durée indéfinie).*

agement indefinitely in "Choosing a Way Forward").

As engineers, it is our responsibility to look beyond the current state of knowledge and our obligation to consider all costs, monetary, environmental and health for our province and our world. I urge you to publish material which gives the full picture: to include more material that focuses on alternatives, to avoid the appearance of biased support for nuclear fuel usage, and to encourage articles which acknowledge and properly account for all costs when comparing energy production.

Nancy Black, P. Eng.
Moncton, NB

À titre d'ingénieurs, nous avons la responsabilité d'aller au-delà de l'état actuel des connaissances, et l'obligation de considérer ce qu'il en coûte globalement à notre province et à notre univers du point de vue monétaire, environnemental et sanitaire. Je vous demande avec insistance de publier des articles qui présentent le tableau dans son ensemble, notamment en incluant plus de matière axée sur les solutions de rechange, en évitant un endossement d'apparence tendancieuse de l'usage de combustible nucléaire, et en favorisant la publication d'articles qui reconnaissent les coûts dans la comparaison de production d'énergie et en tiennent compte correctement.

Veillez recevoir, Madame, mes meilleures salutations.

Nancy Black, ing.
Moncton (N.-B.)

For the Record

The statement in Ms. Black's opening paragraph that my article has a strong bias in support of nuclear energy is incorrect. Also incorrect is the statement that no mention is made of solar and wind alternatives. The title of my article was "Maintaining Diversification and Our Nuclear Advantage". Further review would indicate that eight out of 13 paragraphs in the article emphasize and support the importance of developing alternative sources of energy, such as solar and wind.

Everyone would agree that greenhouse gas emissions from mining, milling and transportation of uranium cannot be ignored, neither should emissions from natural uranium in the ground. Emissions from clock and watch dials that glow in the dark are also regarded by some as hazardous. The question is degree. Quantification is required to substantiate opinions on these types of emissions.

Also, not to be ignored, are the hazards inherent in all sources of electrical energy generation. I previously indicated the hazards and shortcomings of wind power. How about coal mining? Most people seem to agree that hydropower is the ideal form of electrical energy. However, hardly a year goes by that concerns are not expressed in the media about the possibility of the Mactaquac dam springing a leak and the havoc that would be unleashed on the city of Fredericton. These concerns are real, resulting in engineering studies and remedial work to ensure the integrity of the concrete structure.

Cost estimates regarding the variety of energy sources are always questionable, and should be carefully scrutinized. Someone once said, "Figures lie and liars figure." As I said in my article, it depends on who's pushing the pencil.

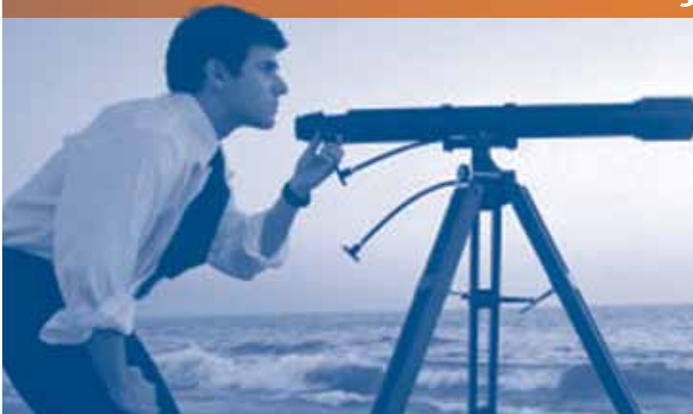
The misconception made by the majority of "green only" advocates is the degree of electrical energy required by modern day society, including themselves. We all, including the "greens", like to get up in the morning and plug in the coffee pot and the toaster.

I have always maintained that nuclear energy should be part of our electrical grid, not the only option. Conservation is also a very important element in the energy discussion. The world has electrical generation and consumption problems. All considered and imaginative opinions are beneficial and welcomed.

Robert Allore, P. Eng.
Saint John, NB



En français SVP!



La revue *Engenuity* est toujours en quête de suggestions de reportages et de textes originaux qui pourraient intéresser ses lectrices et lecteurs de langue française. Si vous êtes au courant d'un projet ou d'un sujet digne de nouvelle qui ferait un bon article, faites parvenir vos renseignements (en anglais et en français) à melissa@apegnb.com.

Saint John Middle School Students Learn About Engineering First-Hand

by Daniel Marmen, New Brunswick School District 8 Enrichment Coordinator

Future engineers have been busy working with Saint John APEGNB members at the Millidgeville North Middle School in School District 8 as part of the Young Engineers Program.

The Young Engineers Program (YEP) started in November 2005 when I was looking for an idea to provide more enrichment activities in math and science to students. As a former middle school science teacher, I came up with the idea to engage middle level students in learning about building bridges, domes and towers. A group of 15 to 20 students came to the school's Enrichment Centre for three sessions to do hands-on learning activities. A final

experiences of real engineers. The Association of Professional Engineers and Geoscientists of New Brunswick (APEGNB) has been extremely supportive of the program by providing guest speakers for each session. Every session, engineers from APEGNB's Saint John Branch have visited the group to give our students an "inside look" at the engineering career.

The Young Engineers Program is a great opportunity for students to learn about practical applications of math and science concepts, and possibly trigger the desire to pursue an exciting career in engineering.

Victoria Myers, a YEP participant says, "I like the Young Engineers Program because it's really giving me a lot of information about what engineers do,



Andy MacVey, P. Eng., (back row, far right) from Fundy Engineering spent some time with the students sharing his career experiences as an engineer.

Centre about the value and relevancy of the program for middle school students. I am pleasantly surprised about the popularity of the program in this district and I hope to be able to offer an even better opportunity for students next year.

Engineers wishing to learn more or participate in the Young Engineers Program are invited to e-mail:

Daniel Marmen

District Enrichment Coordinator
School District 8
daniel.marmen@nbed.nb.ca ☺



Kevin Scott, P.Eng., from Irving Oil talks with future engineers at the Enrichment Centre in Saint John.



Future engineers are busy trying to find the perfect balance between floating and sinking to make a "flinker".



Students are working hard at applying simple machines concepts.

session brought all participants together for a building challenge to determine the Young Engineer Award for 2005.

In 2006, the program expanded to six sessions with a bit more depth of understanding about engineering. Students are now learning about the design process, techniques for product improvement, properties of materials, principles of simple machines, and more.

One aspect of the program is to introduce the students to the world of engineering by learning about the various engineering disciplines, solving design challenges and hearing first-hand the career

and when the time comes for me to chose a career, I will be able to make an informed decision."

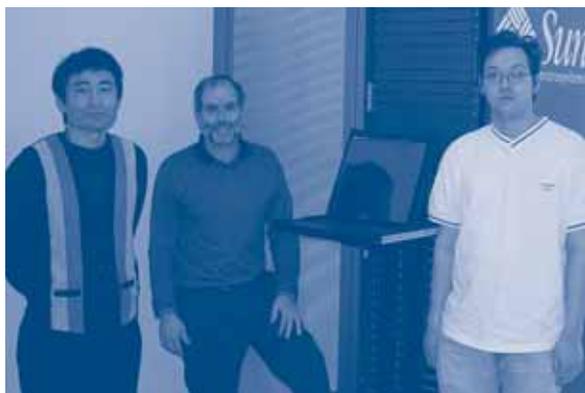
The success of this program is a good foundation to build upon for next year. I am seeking feedback from APEGNB and any visiting engineer to the Enrichment



Michelle Paul-Elias, P.Eng., (centre) handed out "Magic Cards" as part of National Engineering Week. The package of six Magic Cards was developed by the Canadian Council of Professional Engineers to encourage children to use their math skills in performing a card trick. Each card in the package has a series of numbers written on it. The child asks someone else to silently pick a number from 1 to 63 and to then identify each card containing that number. By adding up the first number on the selected cards, the person can "magically" guess the original number.

Researchers from around the world will gather at the Delta Beauséjour Hotel in Moncton, on May 24 and 25 to share the latest knowledge and expertise in information and communication technology (ICT). *Communication Networks and Services Research Conference 2006 (CNSR 2006)* will provide a forum for practitioners from all areas of ICT to come together and learn from one another. It will be the fourth international conference held in Atlantic Canada in as many years.

"This forum of highly qualified researchers and practitioners has become a major event in the field of ICT in Atlantic Canada," says the conference chair, Professor **Jalal Almhana** of the Université de Moncton. "The research being done here has gained respect internationally. To build on this success — to develop and diversify our research base — it's important that engineers and scientists from all over Atlantic Canada participate and share in the common interest of advancing all communication technologies."



ATLANTIC RESEARCH GAINING RESPECT: Conference chair **Dr. Jalal Almhana** and his research team, in partnership with Nortel Networks, are developing a software-planning tool that will help Internet service providers (ISPs) with bandwidth provisioning and ensuring quality of service. (L to R): **Dr. Zikuan Liu**; **Dr. Almhana** (leader), and research assistant **Benoit Lanteigne**.

The CNSR 2006 conference arises from partnerships between the University of New Brunswick, Dalhousie University, the Université de Moncton, ACOA's Atlantic Innovation Fund and leading industry partners Aliant, Nautel, Seimac, Nortel and Leadership International. The IEEE Communications Society and the Association of Computing Machinery (ACM) are the international technical co-sponsors.

In addition to regular technical presentations, the conference will feature

Communications Researchers From Around the World Gather in Moncton

keynote speeches and industrial panel discussions. Pre-conference tutorials will take place on May 23.

One keynote speaker will be Professor **Vijay Bhargava**, from the University of British Columbia, whose speech will provide an overview of leading technological advances and future trends in the physical layer that enable truly ubiquitous broadband wireless capabilities.

The second keynote speaker is Professor **Mohsen Guizani**, of the University of Western Michigan. He will review the current ad-hoc routing protocols and discuss details of the proposed new protocol, TARP — Trust-Aware Routing Protocol.

Update: Partnering for Innovation

Partnerships between Atlantic universities, governments and companies are creating new research and development opportunities in the area of communication networks and services throughout Atlantic Canada.

UNB Professor **Bernd Kurz**'s research into mobile hotspots shows that the



DISTINGUISHED SPEAKER: Vijay K. Bhargava, head of department of electrical and computer engineering at the University of British Columbia and honorary general chair and keynote speaker at CNSR'06. He is a senior IEEE leader.

A mobile hotspot redistributes cellular network data services to end users in a local area and allows them to access these services using their preferred devices, normally PDAs with WiFi capabilities. As the hotspot is mobile, it can be installed in moving vehicles such as buses or ferries, and offer seamless wireless access to data services as people commute from home to the office, anywhere and anytime.

Professor Kurz says his team is contributing to the new mobile infrastructure by enabling quality multimedia services through the research of colleague Professor **John DeDourek**, and working towards more efficient and affordable wireless communications through research by

MOBILE HOTSPOTS OPEN A WHOLE NEW MARKET: UNB's Next Generation Wireless Telecommunications Systems for Mobility Research team members **Dr Bernd Kurz** (leader); grad students **Troy Nelson** (computer science), and **Andy Harriman** (engineering), and **Dr. Bruce Colpitts**, P.Eng., (far right) with mobile hotspot equipment in hand and other new wireless research equipment.

UNB-led, multi-university, \$8-million CNSR project is paying off. Working with Aliant and their new high-speed (up to 2.4 Mbps) Evolution Data Optimized (EV-DO) digital wireless network technology, provided by Nortel, Professor Kurz and his team have developed a mobile hotspot.



Dr. Brent Petersen, P.Eng. and his team at UNB. Looking ahead even further is **Dr. L. Hughes**, at Dalhousie University, who investigates future mobile ad-hoc networks. "Mobile hotspots open a whole new market of people on-the-go for cellular network and service providers," says Professor Kurz.

Superb research work is being done at the Université de Moncton as well. Professor Almhana and his research team, in partnership with Nortel Networks, are developing a software-planning tool that will help Internet service providers (ISPs) with bandwidth provisioning and ensuring quality of service. "ISPs must provide satisfactory service levels, but cost pressures mean provisioning must be economical," Almhana says.

"Because of the lack of appropriate planning tools, ISPs sometimes simply double network bandwidth and, therefore, their investment costs. Our

research is helping solve these problems and streamline operations.

"This is why it is so important for all of us involved in communication technology research to support each other and develop partnerships."

Aliant's Wireless Innovation Fund Manager **David Brown** agrees. He believes that the research currently underway in the region will engender more commercialization.

"We're focussing on university partnerships and are supporting a number of them across the region. There's a real can-do attitude here in the East, a huge sense of independence. Researchers here are keen to do new things, and it's important that they be supported and encouraged. That's how we will build more of a critical mass, which is what we need to keep the ideas and the people here and generate revenue." ☺

CNSR 2006

- For more information go to www.CNSR.info or email cnsr2006@uMoncton.ca
- All pre-Conference tutorials will be held on Tuesday May 23, 2006 and are open to those not attending the full conference as well.
- To register for the conference and the tutorials, go to: www.cnsr.info/Events/cnsr2006/
- Pre-conference half day Tutorials include:
 - Tutorial T1: Advances in Wireless Local Area Networks.
 - Tutorial T2: Wireless Mesh Networks.
 - Tutorial T3: Broadband Wireless Access - The Next Revolution.
 - Tutorial T4: Radio Resource Management Techniques for QoS Provisioning in Wireless Cellular Networks.

Middle School Students Discover Engineering and Geoscience are Newsworthy Professions

On November 22, 2005, **Jared McGinn**, P.Eng./P.Geo., and **Dr. Katy Haralampides**, P.Eng., spent an afternoon with the students of Albert Street Middle School in Fredericton for an inspirational and interactive discussion about geoscience and engineering issues in the news.



The recent Pakistan earthquake gave McGinn the opportunity to explain plate tectonics. Then it was the students' turn to impress McGinn with their remarkable knowledge of the original lands of Pangaea and Gondwanaland.

Dr. Haralampides followed up with a presentation about the impact of Hurricane Katrina on New Orleans. Having lived in New Orleans, Dr. Haralampides provided the class with a brief history of why the city was originally built in a region known for flooding. Afterwards, students debated the value of rebuilding the city after the levee breaks. ☺

Wolfville Hosts 2006 AGS Conference

On February 3 and 4, geologists, geology students, members and friends of the Atlantic Geoscience Society (AGS) gathered in Wolfville for their annual conference. During those two days, the participants heard talks related to research activity in Atlantic Canada and across North America and Europe. The participants came from the universities of Atlantic Canada, exploration companies and the provincial Departments of Natural Resources in New Brunswick, Nova Scotia, Quebec and Ontario. During the breaks and evenings, delegates engaged in poster discussions and geological conversation. Organizers thank Falconbridge, the Potash Company of Saskatchewan, and the Nova Scotia Department of Natural Resources, Mines and Energy Branch, for sponsoring the event and the Old Orchard Inn in Greenwich, Nova Scotia for providing such a great location. ☺



AGS conference participants from Acadia University, the University of New Brunswick and the DNR offices from Bathurst and Fredericton, talked about topics related to Atlantic Canada, as well as their work and research. (From left: A student from St. Maries, Dr. Cliff Shaw, Reginald Wilson, P.Geo., Dr. John White and Dr. Less Fyffe)

Postcard From

New Zealand

A graduate of UNB's civil engineering program, **Anna Robak**, MIT left New Brunswick to pursue a master's degree in Thailand and landed a job with Opus International Consultants in Auckland, New Zealand in 2003. She shares her experience with *Ingenuity*.

In New Zealand, they're careful to ask if I'm Canadian before asking if I'm American. It seems they also have the "little brother" syndrome.

I didn't do much research on the country before I arrived. I was much more focused on the job, the company, and on starting my career. It may have been a good thing. If I had known that the Maori word for New Zealand, *Aotearoa*, meant *Land of the Long White Cloud*, I may have decided not to come. As it was, I was sitting in the plane beside a native New Zealander, looking down at the grey weather over Auckland and asking my neighbour if the weather was always like this. I was feeling a bit heavy hearted.

Towards the end of my studies for my Bachelor of Engineering (civil) degree at UNB in 2001, my senior report advisor strongly recommended I pursue a master's degree if I was serious about eventually working in developing countries; he said World Bank and other international organizations often require a master's degree as a minimum. That sold me on the idea, and I found my dream program through the "infrastructure engineering programme" at the Asian Institute of Technology in Thailand.

During my master's degree, and for some time afterwards, I did some water resources management research for an economics professor at another university. Although I loved the work, I found I was being perceived as the resident expert and had very little guidance, and no one to turn to when I got stuck. At first, this was exciting, but your development is quickly limited with only yourself to advise you!

I decided it was time to go some place where there were lots of experts who could share their experience

Land of the long white cloud
 If I had known that the Maori word for New Zealand, *Aotearoa*, meant *Land of the Long White Cloud*, I may have decided not to come.

with me. I found Opus International Consultants. Headquartered in Wellington, New Zealand, the company offered roading asset management and water resources engineering disciplines, both of which sparked my interest. The next thing on the website that grabbed me was their career development program. Opus assigned their graduates a mentor and rotated the newcomers

Te Mata Peak: "Te Mata" in Maori means 'The Sleeping Giant'. From the top of the peak, you can pretty much see most of Hawkes Bay (i.e., Napier, Hastings and Havelock North).

(Credit: Simon Bush)



Anna Robak (right) runs alongside a competitor during Ironman New Zealand.

throughout different sectors of the company for six to 18 months at a time. This was just what I wanted—a broad engineering base before returning full-time into the softer side of water resources management.

Since I joined Opus in October 2003, I've completed:

- an economic analysis of seismic retrofit options for bridges;
- pavement performance modelling for a number of local authorities and for Transit New Zealand;
- a research paper detailing improvements that could be made to the pavement performance model (which have since been implemented!);
- presentations to other modellers outside of the company on lessons learned;
- roading asset valuations;
- asset management plans;



The Opus Christmas Party (L to R): **Liz Chan** (traffic technician), **Jamie Kirby**, **Bob "Sponge" Flynn** (traffic engineer), **Anna Robak** (UNB civil engineering graduate) and **Irene Loh** (civil engineering graduate).

well-advanced practices

New Zealand's asset management practices are well-advanced compared to the rest of the world, largely due to privatisation of assets in the late 1980s, and also due to their willingness to try new technologies.



Nelson, New Zealand

- designs for rain tanks for storm water retention;
- operation and maintenance manuals for oxidation ponds;
- stormwater modelling;
- contract administration;
- and now I'm taking a small pipeline project from design stage through to tender and contract supervision.

In March, I went back to Canada to help recruit graduates to work for Opus in New Zealand. The opportunities just seem to keep coming!

I have noticed New Zealanders are less strict about health and safety here and plenty of engineers don't bother getting "chartered" or registered. The thing that really irks me is when technicians call themselves engineers. The plus side of the unregulated use of the term engineer though, is that it allows technicians, who are highly motivated but not licensed engineers, more opportunities than they may have in Canada.

There are also lots of British and South African engineers working here. They tend to have a more serious demeanour than the fun-loving New Zealanders,

but that's not to say New Zealanders aren't serious about their work too. Their asset management practices are well-advanced compared to the rest of the world, largely due to privatisation of assets in the late 1980s, and also due to their willingness to try new technologies. Much of the world's mobile and banking technologies are tested here first. New Zealanders seem to have the balance of work and life just right, and spend their spare time at the beach, going fishing, or playing sports.

I'll be here for a couple more years to finish off my graduate development program after which I will return to North America for my next adventure! ☺



APEGNB Graduate Scholarships Available Deadline for submissions: June 30, 2006

ADVANCED STUDIES SCHOLARSHIP - \$5,000 in total for post-graduate studies: \$2,000 for Masters and \$3,000 for Doctorate. Awarded annually to a member or member-in-training in good standing with APEGNB who is in full or part-time (for the equivalent of one academic year) studies in engineering or geoscience.	\$3,000
	\$2,000
OTTIS I. LOGUE GRADUATE SCHOLARSHIP - \$4,000 awarded annually to an engineering graduate from the University of New Brunswick or Université de Moncton who has been accepted into a post-graduate program at either university.	\$4,000

For more information, please contact us at rachael@apegnb.com

LES BOURSES D'ÉTUDES SUPÉRIEURES - 5 000 \$ au total pour des études de deuxième et troisième cycle : 2 000 \$ pour la maîtrise et 3 000 \$ pour le doctorat. Attribuées chaque année à un membre ou membre stagiaire en règle de l'AIGNB qui poursuit à temps plein ou à temps partiel (pendant l'équivalent d'une année universitaire) des études en génie ou en sciences de la terre.	3 000 \$
	2 000 \$
LA BOURSE COMMÉMORATIVE OTTIS I. LOGUE - 4 000 \$ est remis à une personne diplômée en génie de l'Université du Nouveau-Brunswick ou de l'Université de Moncton et qui a été admise à un programme d'études supérieures en génie à l'une ou l'autre de ces universités.	4 000 \$

Pour tous renseignements, veuillez communiquer avec nous à rachael@apegnb.com

Dream Job

What does a Defence Scientist do?

As a member of the civilian component of the Canadian Forces (CF), my official mandate is to help defend Canada, and Canadians' interests and values, while contributing to international peace and security using research and development as my tools.

My work entails researching and developing new technologies for anti-terrorism use by both the Canadian Forces and first responder community (police and firefighters). My DRDC colleagues and I also focus on the possible effects of radiological terrorism.



Marc Desrosiers, P.Eng., (right) and a DRDC colleague approach an area which could be contaminated with radiation. Marc checks for elevated radiation readings while the person in front checks the ground for radiological contamination. The information they gather would help determine what area would need to be cordoned off if the contamination levels are too high.

(Credit: Trevor Jones, DRDC Ottawa)

One of my current fields of study is in-site restoration after an incident.

In addition, defence scientists are tasked with helping to develop and train the military and first responder community in the method of responding to a radiological incident.

How did you land your dream job?

I first earned my Bachelor's degree in engineering (mechanical) from the University of New Brunswick in 1999.

I was introduced to the world of radiation during my final year of my undergraduate degree studies. I was working to complete my senior report—trying to determine how to improve the performance of neutron

Marc Desrosiers, P.Eng. Anti-Terrorism Defence Scientist

*Defence Research and Development Canada (DRDC)
Ottawa, ON*

*APEGNB
member Marc
Desrosiers, P.Eng.,
in his Ottawa lab.*

(Credit: Janice Lang,
DRDC Ottawa)



*serious and
fun*

*Although the work we do is serious, I would
definitely say my job is fun.*

scatterometers. I worked on the report at the university for the entire summer.

When summer ended, my supervisor asked me if I wanted to enter UNB's Master's program to continue my studies.

After graduating from UNB with my Master's degree in 2000, I worked for a couple of high-tech companies in Moncton. I left the study of radiation behind to work in manufacturing and design—doing what many people consider to be traditional mechanical engineering.

Once the high-tech bubble burst, it was time to explore new career options. My supervisor at UNB advised me that the Radiation Analysis and Defence Group (RAD) of Defence Research and Development Canada (DRDC) in Ottawa were looking for a few defence scientists to join the group.

I applied and was contacted for an interview after which I was given a formal letter of offer. I had just gotten married at the time and we had recently bought a house in Dieppe, NB. My wife and I weren't sure if we wanted to move out of the Maritimes since many of our friends and family were there...but the job was too good to pass up. After completing enhanced reliability

screening, I started working for DRDC in Ottawa in January 2004.

Is your job fun?

Although the work we do is serious, I would definitely say my job is fun. In fulfilling our mandate, our team of seven defence scientists get to work with a variety of different technologies to support the Canadian Forces in their missions at home and abroad—anything from new radiation detectors, to unmanned aerial vehicles and new software tools. Being able to work with so many different technologies means that my job is a continuous learning experience, and that our work is always new, interesting and exciting.

Although my mandate is to support the Canadian Forces, we also get to apply our knowledge in a civilian context of counterterrorism. This is where we mostly work under the support of the CBRN (Chemical Biological Radiological and Nuclear) Research Technology Initiative (CRTI).

We also get to do some traveling to different places around the world so that we can share our knowledge and demonstrate to our colleagues our new ideas and innovations.

One of the most interesting conferences I attended was in Obnisk, Russia—about 100 kms south of Moscow. The conference focused on the protection of, and accounting for, nuclear materials.

I also travel to NATO countries to participate, collaborate, and learn. One recent conference was a joint effort between Canada and Germany where I led an experiment to look into decontamination techniques for common materials after a radiological dispersal device (e.g., a dirty bomb).

What is a day in the life of a defence scientist really like?

A day in the life of a defence scientist can vary quite a bit. For example, some days it can be like many other jobs. I could be reading and writing reports, analyzing data and solving technical problems—all related to the world of radiation.

Other days, I spend time in the laboratories testing and evaluating new equipment to help increase DRDC's or our clients' capabilities. We get to participate in various laboratory and field exercises to test our (and our partners') capability to respond to a nuclear/radiological incident in Canada and to support the Canadian Forces abroad.

What projects are you currently working on?

I am currently involved with on-going studies to compare commercial or near-commercial (still in the development stage) instruments such as novel gamma-ray spectroscopy systems with existing technology. These systems help find and identify sources of radiation for possible military and laboratory advantages.

I am also working on the development of new equipment based on our group's ideas and identification of gaps. One example of this is the development of an *optical stimulated luminescence* which is led by one of my colleagues.

I also assisted in a recent study that looked at incorporating radiation detectors on an unmanned aerial vehicle (UAV).

My main focus right now is in the research and development of restoration and decontamination techniques of materials, such as would be found in an urban environment (e.g., bricks, concrete, pavement) after deployment of a radiological dispersal device (dirty bomb).

The other thing I get to do as a defence scientist is to participate, as a subject matter expert (part of the directing staff), or as a field or laboratory responder, in radiological training exercises with the Canadian Forces and with other government departments.

One of the largest training exercises I participated in, as the lead designer and the lead controller, was a multi-departmental CRTI radio-nuclear group called "Exercise Follow On". More than 65 participants were involved (responders and controllers) from over six federal departments. It was a one-week session that included a multitude of terrorist-type scenarios. The field exercise portion itself was 24 hours.

What's the most difficult and rewarding aspects of your job?

The most challenging aspect of my job is trying to solve problems that many people before me have attempted to figure out. The most rewarding part of my work is experiencing that "lightbulb" moment that leads to a resolution of the problem and then seeing my solution through to completion. ☺

And the

*2006 Award Goes To...
Et le prix est décerné à...*



You Decide! / Vous décidez!

If you know a professional engineer or geoscientist who has made an outstanding contribution to their profession and the people of New Brunswick, they may be eligible to receive an APEGNB Award at the 2007 Annual Meeting in Saint John.

Si vous connaissez une personne qui exerce la profession d'ingénieur ou de géoscientifique et qui a contribué de façon remarquable à sa profession ou à la vie des gens du Nouveau-Brunswick, celle-ci pourrait mériter un des prix ou des distinctions de l'AIGNB qui seront décernés à l'assemblée annuelle 2007 de Saint John.

In order to recognize their efforts and accomplishments, the APEGNB Awards Committee needs to hear from you—the nominator. So call the Association for the easy-to-complete nomination kit and let us know who your choice is for the:

Afin de souligner le travail et les succès de nos collègues professionnels, le comité des prix et distinctions de l'AIGNB veut connaître vos suggestions, auteur de mises en candidature. Donc, communiquez avec l'Association pour une trousse de mise en candidature et pour nous signifier votre choix de candidats et candidates dignes des prix et distinctions suivantes :

- C.C. Kirby Award / *Prix C.-C.-Kirby*
- L.W. Bailey Award / *Prix L.-W.-Bailey*
- Citizenship Award / *Prix du mérite civique*
- Corporate Award of Excellence / *Prix d'excellence à l'entreprise*
- Individual Award for Technical Excellence / *Prix d'excellence technique*
- Honorary Membership / *Membre honoraire*

Deadline to receive nominations
La date limite de mise en candidature

September 15, 2006
15 septembre 2006

Call / *Appelez au* **506-458-8083**
e-mail / *Courriel* **info@apegnb.com**
visit / *Consultez le site* **www.apegnb.com**

to receive your nomination kit including award descriptions, criteria and forms.
pour obtenir votre trousse de mise en candidature comprenant la description des prix et distinctions, les critères et les formulaires.

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- Young Professional Achievement Award / *Prix hommage à un jeune professionnel*

The ET 3000 is a portable trailer-based satellite communications system used by NATO forces during military operations. The communications technology was developed by Atlanta-based company, DataPath. The unit's chassis was built by Miller Industries of Chattanooga, Tennessee. And Neill and Gunter's Industrial Manufacturing Group (IMG) in Fredericton made the technology mobile so it could be easily deployed around the globe.

Dean Mullin, P.Eng., Neill and Gunter's director of corporate development and Bill Pegg, P.Eng., manager of the IMG, spoke with Engenuity to explain how this international partnership came about.

What exactly does the ET3000 allow the military to do?

The ET3000 is what's known as a "field-secure communication link". Military units take it on missions to use as a link with their command and control network. With the ET3000, they can send and receive near-instant updates to and from the



military's central communication system. It's a very secure and easily manoeuvrable piece of equipment.

How did Neill and Gunter land the project?

In 2004, our Neill and Gunter office in Tennessee was contacted by the chassis manufacturer, Miller Industries of Chattanooga. Miller was experiencing some difficulties with their own prototype so they talked to Neill and Gunter about coming up with a solution to reduce the weight of the equipment and design a system to stabilize it upon operation. U.S.

Case Study in Innovation: The ET3000



Within 60 days of receiving the contract, our IMG team here in Fredericton produced a structural design that was 150 pounds lighter than U.S. military specifications and designed a new outrigger system for the stabilization of the unit. The innovative outrigger design reduced deviation to 0.018 degrees and allowed deployment in less than 10 minutes. It was a very smooth, cooperative effort between us and our counterparts in Tennessee.

How many ET3000s have Neill and Gunter built?

We're still in production. We've already built more than 410 units during the past 18 months. We're now looking at ways to improve

150 pounds

Within 60 days of receiving the contract, our IMG team here in Fredericton produced a structural design that was 150 pounds lighter than U.S. military specifications and designed a new outrigger system for the stabilization of the unit.



military specification standards required a structural frame weight of less than 4500 pounds and 0.02 degree angular deviation in 60 mph wind gust when deployed. The unit was required to function in extreme temperatures and weather and had to be transportable by ship, airplane, helicopter, rail and road. The project specifications also required an extraordinary combination of low weight, structural stiffness and suspension technology.

The electronics are very sensitive to impact loading so the whole unit has to be shock-isolated and very stable—two factors which made mobility difficult.

the product. It has been deployed with very few problems and only minor revisions to the prototype design.

Has the success of this project led to others for the US military?

We are now developing a cargo-handling vehicle for loading and unloading aircraft to be used by any NATO or commercial carriers. We're working once again with Miller Industries and a Texas-based truck manufacturer, Stewart & Stevenson.

How many people work for Neill and Gunter's Industrial Manufacturing Group?

We believe we are successful because IMG can call upon the services and expertise of more than 500 professionals who are employed in Neill and Gunter offices throughout North America.

John Stevens, P.Eng., our manager of business development at Neill and Gunter says that the manufacturing industry is craving innovative and creative ideas that can propel a manufacturer to a leadership position and ultimate success.

IMG exists to provide innovative and creative solutions to engineering problems.

In addition to our US projects, our IMG team has helped many Atlantic-based manufacturers to develop new products and improve their existing ones. We are strongly interested in applying our innovative and creative solutions to other engineering problems in the Atlantic region. Neill and Gunter staff members have a breadth of experience

in the following sectors: pulp and paper; power and utilities; oriented strand board; oil and gas; food and beverages. We feel that our skills are appropriate to serve a wide range of industries.

For more informa-



tion on this, and other, Neill and Gunter IMG projects, contact:

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 Neill and Gunter
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 Fredericton, NB E3B 2T7
 Tel: 506-452-7000
 Fax: 506-452-0112
wpegg@ngl.ca
www.ngl.ca

Double Designations Help APEGNB Members Broaden Career Prospects

There are more than 4000 engineers and 80 geoscientists licensed to practice their professions in New Brunswick. Of those, seven have earned both their P.Eng. and P.Geo. designations.

Ken Bhola, P.Eng./P.Geo., is one such person.

Bhola received his P.Eng. designation in 1983 in Ontario after graduating from DalTech with a degree in mining engineering. Although he also held a Bachelor of Science degree in geology and an education degree from Dalhousie University, Bhola was only able to apply for his P.Eng. designation since the P.Geo. designation did not exist at the time.

"I received my geology degree in 1972 and there was no accreditation for the geoscience profession back then," he remembers.

Bhola worked for several years in Ontario as a mining engineer before being transferred to New Brunswick in 1987 to work as the senior mine planning engineer for the Denison Potacan Potash Company at Cassidy Lake. In 2000, Bhola shifted his career focus and became a financial security advisor for Freedom 55 Financial (a division of London Life). It was then that he considered pursuing his P.Geo. designation.

"APEGNB had recently become responsible for licensing the geoscience profession in the province," says Bhola. "I spoke with a few registered geoscientists who encouraged me to apply for my P.Geo. designation. I had the academic requirements and the work experience so it made sense. Having both designations increases your credibility—no matter



two designations

Having both designations increases your credibility—no matter what industry you're in.

what industry you're in. It broadens your career prospects and gives you a unique advantage if you're trying to get back into the industry."

Michele Coleman, P.Eng./P.Geo., agrees.



Coleman is an environmental coordinator for NB Coal in Minto. She received her chemical engineering degree from the University at Buffalo along with a bachelor's and master's degree in geology.

When she and her husband moved to New Brunswick in 1986, Coleman applied for her P.Eng. designation and received it in 1992. She received her P.Geo. designation in 2002.

"Having both designations certainly opens up more career paths," she says. "I know my employers appreciate having someone on staff who is licensed to practice two professions. My experience as a geoscientist as well as an engineer allows me to make better informed decisions."

Not everyone who has a background in geoscience is eligible for dual registration says **Sandra Stairs**, APEGNB's director of registration. There are two separate and stringent sets of academic and professional requirements that must be met." ☺

My experience as a geoscientist as well as an engineer allows me to make better informed decisions.

Registrations

ALBERT, Yves, ing.
BABINEAU, Robert J., Jr., P.Eng.
BARR, Jamie, P.Eng.
BASQUE, Marie-Josée, P.Eng.
BELL, Eric, P.Eng.
BERGIN, Travis, P.Eng.
BIGNEY, Glen R., P.Eng.
BILETSKIY, Yevgen, P.Eng.
BOLAND, Corey, P.Eng.
BOUDREAU, Yann, P.Eng.
CORMIER, Philippe, ing.
CORR, Aaron, P.Eng.
CUI, Zhenhua (John), P.Eng.
CUNNINGHAM, Christy A., P.Geo.
DAIGLE, Annie E., P.Eng., P.Geo.
DAVIS, Scott, P.Eng.
DESJARDINS, Frédéric R.J., P.Eng.
DOHERTY, Michelle, P.Eng.
DONELAN, Edward P., P.Eng.
DOUCET, Marc, P.Eng.
FLANAGAN, Geoffrey, P.Eng.
GABBEY, David J., P.Eng.,
HACHEY, Daniel, P.Eng.
HEMENWAY, Jay C., P.Eng.
HULSMAN, Bradley, P.Eng.
KEIZER, Jonathan, P.Eng.
KING, Janice, P.Eng.
KIRKBRIDE, Michael C., P.Eng.
LACENAIRE, Antoine, P.Eng.
LAFORGE VAUTOUR, Mia, ing.
LAWRENCE, Graham, P.Eng.
LAWRENCE, Gregory, P.Eng.
LEBOUTHILLIER, Shawn., P.Eng.
LEVESQUE, Alain J., P.Eng.
LIU, Zhuomin, P.Eng.
LOSIER, Romain, ing.
MARTIN, Jocelyn R., P.Eng.
McCREA, Laurie L., P.Eng.
MELANSON, Stéphane, P.Eng.
MOORE, J. Geoffrey, P.Eng.
MUISE, Robert, P.Eng.
NICKS, Craig B.D., P.Eng.
NOEL, Christian, P.Eng.
OXLEY, John, P.Eng.
PEACOCK, David, P.Eng.
PEACOCK, Jennifer, P.Eng.
RHEAULT, Daniel B., P.Eng.
RICHARD, David, ing.
RICHARD, Paul, P.Eng.
ROBICHAUD, Josée, P.Eng.
ROY, Pierre, ing.
RUSSELL, Jeff, P.Eng.
SAAD, Raji, P.Eng.
SCHORN, Andrew H., P.Eng.
SHAVER, R. Daniel, P.Eng.
TARGETT, Graham, P.Eng.
WEBSTER, James, P.Eng.
WHEELER, Steve, P.Eng.
WILCOX, Craig E., P.Eng.
YE, Lin, P.Eng.
YORKE, Lesley, P.Eng.

Transfers-in

BOWNESS, W. Mark, P.Eng.
BUTLER, Kathleen, P.Eng.
CARON, Pierre, ing.
CHEN, Zengtao, P.Eng.
COTTON, Michel, ing.
FARMER, Alan, P.Eng.
FISHER, Eric R., P.Eng.
FORTIN, Carole, P.Eng.

HINDS, Steven, P.Geo.
LANDERS, Shawn, P.Eng.
McCRACKEN, Paul, P.Eng.
PEGG, William, P.Eng.

Members-in-Training

AL-TAMEMI, Bilal, MIT
BRAGG, Christopher, MIT
CAIN, Jeremy, MIT
CAMPBELL, Evan, MIT
CHARTERS, Darren A., MIT
CLARKE, Jamie W., MIT
COLLINS, Corey, MIT
COMEAU, Marc A., MIT
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DERRICK, Joseph, MIT
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FREEMAN, Christina P., MIT
GIONET, Martin, MS
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BROWN, Marcia S., P.Eng.
BROWN, Randal, P.Eng.
BRYSKY, Tom C., P.Eng.
CHAKRABARTY, Kalyan, P.Eng.
CHARRON, Stéphane, ing.
DARBY, David, P.Eng.
DATOO, Nizarali, P.Eng.
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ELGABRY, Adel, P.Eng.
ESSERY, Derek, P.Eng.
GALLETLY, Christopher C., P.Eng.
GOULET, Francois, ing.
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LIU, Hongtao, P.Eng.
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LONGLAIS, Thomas, P.Eng.
MAODUS, Denny, P.Eng.
MARQUIS, Frédéric, ing.
McCHARLES, Grant, P.Eng.
MINDER, Joseph, P.Eng.
MORIKAWA, David, P.Eng.
OCEAN, Kenneth, P.Eng.
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OZCAN, Mehtap, P.Eng.
PELLETIER, Martin, P. Geo.
PINEAU, Sylvain, ing.
SHEEHAN, Robert, P.Eng.

SHEWCHUK, Frank, P.Eng.
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Reinstatement:

GREEN, Jill, P.Eng.
MacKAY, Paul D., P.Eng.
MARUCELJ, Irv, P.Eng.
THOMSON, Jeffrey, P.Eng.

Resignations

BALDWIN, Andrew
BOWIE, Melanie
DAS, Animesh
DENTON, Lloyd
FYFFE, Stephen
HATTIE, Donald W.
HEBERT, Guy
LEVESQUE, Ghislain
NICKERSON, Harvey
STEVEN-POWER, Susan A.
WOO, Dennis

Transfers-out

ALBERT, Bernard
BELANGER, Michel D.
BURBRIDGE, Stephen D.
CARROLL, Jeffrey I.
CORMIER, Roger
HARRIS, James
KIRKHOPE, Kenneth
LeBLANC, Karl
ORFORD, Ian W.
PATTERSON, Nathalie
QUESNEL, Dominique-André
RITCEY, Christopher
WHITE, Richard

Deceased

BALLANTYNE, William, P.Eng.
GUNTER, George, P.Eng.
KEAYS, Bryce F., P.Eng.
KINCAID, Frank, P.Eng.
MacDOUGALL, Douglas, P.Eng.

Deux futures femmes ingénieures au cœur d'un projet d'envergure en ingénierie médicale

Dans le cadre d'un projet de partenariat entre le laboratoire EMAT (Électromagnétisme appliqué et télécommunications), le service régional d'ingénierie médicale du Nouveau-Brunswick et la compagnie GAMBRO – Canada, cette dernière a accordé à l'Université de Moncton des équipements dont la valeur dépasse les \$150 000. Ces équipements, supportés par de logiciels performants, vont permettre à l'équipe dirigée par deux professeurs chercheurs, membres de l'AIGNB, de travailler sur l'implémentation d'un réseau sans fil pour les nombreuses machines d'hémodialyse que déploient la Régie régionale de la santé Beauséjour et la Régie régionale de la santé sud-est. Deux futures femmes ingénieures sont d'ores et déjà au cœur du premier projet qui vient de démarrer.



Charona Venkatasamy



Fridahus Oloude

La compagnie GAMBRO, un des leaders mondiaux d'ingénierie médicale, fut fondée en 1964 à Lund au Suède, par l'homme d'affaires **Holger Crafoord**. Celui-ci mena à bien le développement industriel et la commercialisation du rein artificiel à usage unique, inventé par le professeur **Nils Alwall**. Aujourd'hui, le groupe GAMBRO compte environ 21 200 salariés dans près de

40 pays à travers le monde. Le groupe GAMBRO a réalisé en 2003 un chiffre d'affaires de 3,231 milliards de dollars US.

Le présent partenariat permettra aux chercheurs de l'Université de Moncton de renforcer leurs activités de recherche et développement dans le domaine de l'ingénierie médicale et d'intensifier la collaboration entre l'Université de Moncton en général, et la Faculté d'ingénierie en particulier, avec le service régional d'ingénierie médicale du Nouveau-Brunswick et avec l'industrie. ☺

Two future women engineers at centre of a major medical engineering project

GAMBRO – Canada, through a partnership between the EMAT (Électromagnétisme appliqué et télécommunications, Applied Electromagnetics and Telecommunications) laboratory at the Université de Moncton, has presented to Université de Moncton more than \$150,000 worth of medical equipment. This equipment, supported by high-performance software, will allow a research team led by two faculty members to work on implementing a wireless network connecting numerous hemodialysis machines run by the Southeast and the Beausejour Regional Health Authorities. The first project has just begun, with two future women engineers already at the heart of the project .

GAMBRO, a world leader in medical engineering, was founded in 1964 in Lund, Sweden, by **Holger Crafoord** who succeeded in developing and marketing the dedicated artificial kidney invented by Professor **Nils Alwall**. Today, GAMBRO employs about 21,200 persons in almost 40 countries. Its 2003 turnover was US \$3.231 billion.

The current partnership will enable researchers at the Université de Moncton to deepen their research and development work in the medical engineering field and to strengthen the collaboration among industry, the New Brunswick regional medical



Charona Venkatasamy



Fridahus Oloude

engineering services, and Université de Moncton in general, and the Faculty of Engineering in particular. ☺

FINDING THE • TROUVER

Power to Prosper L'énergie pour prospérer

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- What energy options are on the horizon for Atlantic Canadians?
Quelles sont les options énergétiques disponibles à l'horizon pour les gens du Canada atlantique?
 - How will engineers facilitate the changing energy landscape?
Comment les ingénieurs faciliteront-ils le changement vers un nouveau paysage énergétique?
 - How can governments make the changes necessary to secure our energy future?
Comment le gouvernement peut-il faire les changements nécessaires pour sécuriser notre avenir énergétique?
 - What challenges and opportunities will communities, businesses and homeowners encounter as they work towards cleaner, greener energy?
Quels sont les défis et les opportunités qui se présenteront devant les communautés, les entreprises et les propriétaires de maisons à mesure qu'ils optent vers des modes d'énergie plus propres et viables?
- And... Et...
- How can Atlantic Canada prosper by using renewable, sustainable energy?
Comment le Canada atlantique peut-il prospérer en utilisant de l'énergie durable et renouvelable?

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Design a home that uses sustainable/renewable energy... and you could win a **cash prize!**

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