

# Professional Engineer

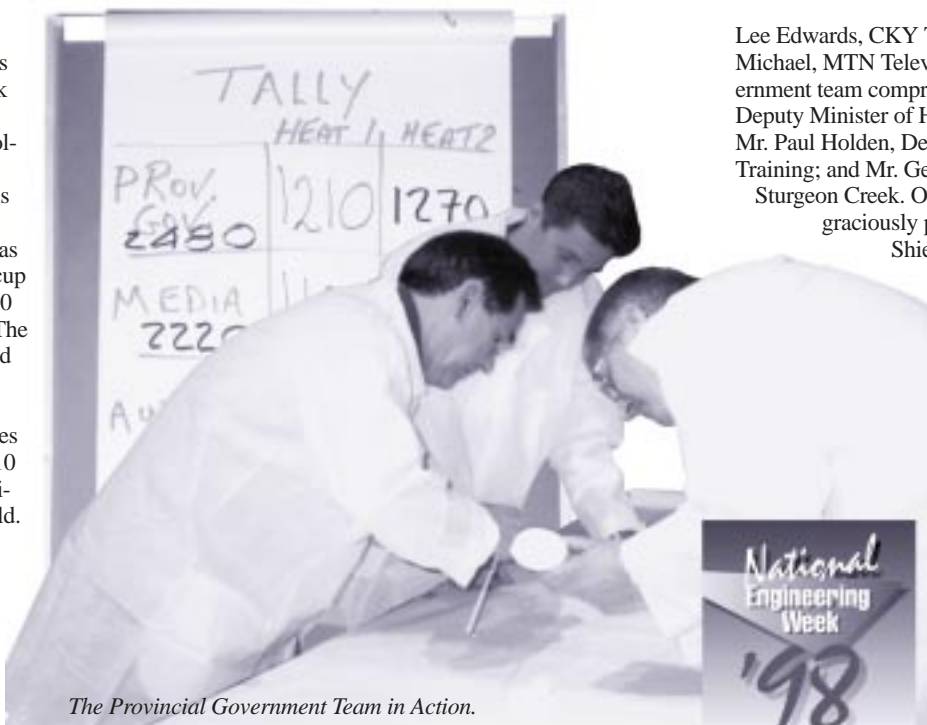


## National Engineering Week Kick-Off

By: B. Thomson

**O**n March 5, National Engineering Week was kicked off at Polo Park with our second annual Celebrity Science & Technology Competition. The challenge we gave our teams this year was to build a Shaving Cream Tower. Each team was supplied with one 8-ounce cup filled with shaving cream, 50 toothpicks, and six straws. The rules were very simple: build the tallest structure with the material supplied, in two 5 minute rounds. The structures had to stand unassisted for 10 seconds. A very simple engineering problem, so I am told.

We had three teams this year. Our returning champs, the media team, comprised Ms. Vera-Lynn Kubinec, CBC Television; Ms. Lindor Reynolds, Winnipeg Free Press; Ms. Barbara-



*The Provincial Government Team in Action.*

Lee Edwards, CKY Television; and Ms. Alix Michael, MTN Television. Our Provincial Government team comprised Mr. Andrew Horosko, Deputy Minister of Highways & Transportation; Mr. Paul Holden, Department of Education & Training; and Mr. Gerry McAlpine, M.L.A. for Sturgeon Creek. Our new team this year was graciously put together by Ms. Carol Shields. Local writers Mr. Shel-

don Oberman, Mr. Ian Ross, Mr. Laurie Block, and Mr. Wayne Teffs put on their lab coats and went to work on engineering problems. Carol Shields acted as their manager and cheering section.

Our two judges, Dr. Don Shields and Dr. Ron Britton, assured that proper engineering practices were being followed, and that no one was shaving corners.

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## David Graves Inspires Students

By: J.W. Bogan, P.Eng.

**T**he phone company is dead" was the emphatic message given by David Graves, P.Eng., at the February 12, 1998, Engineering Student Dinner.

Seventy-eight engineer sponsors and 81 students listened attentively as Mr. Graves made his after-dinner speech. Mr. Graves is the President and Chief Executive Officer of Broadband Networks Inc. (BNI), which was founded in 1994 and recently acquired by Northern Telecom. He advised that the 'phone company has experienced a paradigm shift in the demand for services. In the telecommunication business, with de-regulation, "everyone is attacking everyone". Currently, there are five different long-distance providers, and soon there will be another four or five that will be able to connect to your house.

"It's all about speed. The consumer wants speed. As an engineer, it's about providing fat-capacity pipes. The industry needs fibre optics. We have copper. Fibre optics are expensive and it is difficult for users to access fibre optics. High capacity and high connectivity are required. Users need to get high-speed traffic from everywhere to everywhere". This was the basis for the formation of BNI, whose founders were convinced that wireless technology was the way to go.

Mr. Graves continued to offer advice to those present. "Nobody gives a damn about technology. An economic solution is needed. The customer does not care about science. The proponent cares about earning a profit. Technology is required to satisfy a market need. New engineers need to realize this economic need has to be there."

At present, there are over 200 engineers employed at BNI. The design patent used by BNI bears the name of a Manitoba graduate engineer. All but one of the original 20 engineers are University of Manitoba graduates. One hundred percent of the senior managers are engineers (excluding the bean counter). In Mr. Graves's opinion, "Don't believe everything you read in *Maclean's*". BNI expects to hire a number of University of Manitoba graduates. Within two years of graduating, they are ready and expected to contribute to the firm. For young engineers, higher-level degrees are valuable. Specific and marketable knowledge are in great demand. Specific knowledge is a must.

According to Mr. Graves, "risk is not about faith, it's about assessment. It's about being able to measure the upside and the downside. Faith is about what you use when you hit your first obstacle. Fear is what you have all the time and also the biggest motivator. Paranoia is what you

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The Publication Committee would like to hear from you. Comments on your newsletter can be forwarded to us through the Association office. Members are also encouraged to submit articles and photos on engineering or business topics that would be of interest to the membership.

Although the information contained in this publication is believed to be correct, no representation or warranty, expressed or implied, is made as to its accuracy and completeness. Opinions expressed are not necessarily those held by the APEM or the APEM Council.

## National Engineering Week Kickoff

(Cont'd from page 1)

The team from the province set the standard after the first round. The media fought back gallantly with diagrams and careful planning, but could not resist adding one more *story*. The writers' team made an excellent comeback, but had problems making their tower *stanza* for ten seconds.

The Provincial Government came in first, the writers second, and the media relinquished their title and won the bronze.

The important winners this evening were The St. James Assiniboia Focus on Youth, who received the \$500.00 first place prize. Winnipeg Harvest received \$250.00, and the \$100.00 third-place prize was donated to The Children's Wish Foundation.

The Public Awareness Committee is always on the look-out for suitable competitions for this event so, if you come across any interesting challenges, please pass them along to any committee member. □

For more on National Engineering Week, please see page 7.

## LICENCES ISSUED JANUARY & FEBRUARY 1998

G.A. Alexiu (ON)	T.W. Hedberg (MN)
D.D. Benoy (MN)	P.M. Nahirney (SK)
G.A. Cuthbertson (ON)	G.E. Peeler (TX)
A.T. Erickson (ON)	D.P. Schlereth (AB)
A. Gazzola (ON)	R.F. Williamson (IA)
K. Gwo (WA)	

## NEW MEMBERS REGISTERED JANUARY & FEBRUARY 1998

R.S. Allaby	C.N. Jorheim
T.R. Atkins (SK)	R.T. Kostelnyk
T.B. Bowden	D.A. Marsh
J.P. Burnside	G.K. Mustapha
G. Czyzewski	W.A. Pitura
A.L. Driver	J.D. Price (ON)
R.A. Ellis (AB)	D. Pristach (ON)
Q.K. Fisher	S.W. Schmidt (SK)
M.E. Hudson (AB)	D.C. Schuster

## David Graves Inspires Students

(Cont'd from page 1)

develop to stay alive. Aggression is the by-product of all the above."

Mr. Graves offered some further words of advice:

- Wear sunscreen – don't underestimate its value.
- Call your mother often.
- Beware of free advice.
- The more people who tell you that you're wrong, the better the concept.
- Videos, voice, and data transmission will become ones and zeros. Move to digital signal processing as soon as possible.
- Users will drive the network.
- Choices will abound for consumers.
- Errors will happen and they can be corrected.
- For engineers, technology will continue to drive the ability to make change. Find a market that has a need – serve a market.
- Get very excited; you have every right to be. The University of Manitoba graduate has a world-class capability.

After this entertaining and informative discussion, the organizing committee presented Mr. Graves with a 1930 vintage radio, which allows information to flow in one direction only. □

## EITs ENROLLED JANUARY & FEBRUARY 1998

S.A. Bailey	R.B. Izzard
C.W. Baseraba	D. Joseph
P.T. Bernatsky	C.E. Joyal
D.A. Burns	H.D. McKibbin
C.M. Danforth	M.D.G. Michie
B.D. Dempsey	K.L.P. Mruss
C.J. Domytrak	J. Nowak
D.R. Donald	C.Y. Robinson
S.R. Goodman	M.M. Simmons
D.T. Gretzinger	J.C. Sloane
J.K. Gulenchyn	S.K. Smart
P.M. Halipchuk	P.E. Szelazek
T.A. Henwood	K.M. Tiede
K.L. Horsman	S.L. Wray

## RESCINDED RESIGNATIONS OF DECEMBER 31, 1997

K.M. Corbett	E.G. Plett
R. Girulski	T.R. Mackinnon, EIT
T. Jensen	

## WE HAVE LOST CONTACT. MAY WE HAVE AN ADDRESS?



S.D. Gasser  
A.J. Kondel  
H. Rahim

G.S. Ram  
G.K. Turnbull

## In Memoriam

The Association has received with deep regret notification of the death of the following members:

Christian D. Anderson  
John J. Arnason  
James L. Bremner  
Roger Clarke  
Andrzej J. Konarski



## President's Message

P. Washchyshyn,  
P.Eng.



**O**n January 16, 1998, I had the pleasure of meeting with the Thompson Chapter Executive. I wish to express my appreciation to Gail Swaine and the members for organizing and attending the meeting on fairly short notice.

By the time the MPE is in print, Dave Ennis and I will have attended the inaugural meeting of the Kelsey Chapter in Flin Flon on February 26, 1998.

Northern Manitoba has a significant number of APEM members. The current Council has no representative from the north for the first time in approximately 20 years. The two chapters, staff, and executive will consider possible alternative methods of representation for the future.

A number of points were discussed in Thompson that are concerns of the membership at large. These deal with the mandatory professional development program, the status of the new Act, public awareness, and membership participation.

With respect to the professional-development program and the definition of the practice of engineering, Council has considered the definition to be in the broadest sense so that the membership is inclusive as opposed to exclusive, and is based on trust and our Code of Ethics.

To improve the opportunities for participation of northern and other members, we will give consideration to the production of a calendar of meetings and activities using a three-month horizon, for example, so that, if members wish to attend,

they have ample advance notice. We will also consider the suggestion of teleconferencing various PD sessions and the upcoming annual meeting. In view of our vision as *"the leader and facilitator of the process that ensures excellence in engineering and applied technology for the public of Manitoba"*, it is incumbent on us to explore these new technological means of communication.

On February 2, 1998, we conducted the first meeting of the MAA/APEM Joint Board on Inter-professional Issues. At the meeting, MAA President Steve Cohlmeier and I signed the Terms of Reference for the Joint Board. The meeting dealt with the generalities of the Board. The next meeting, to start dealing with specific issues, was scheduled for February 17, 1998. Hopefully, the operation of the Joint Board, following our Memorandum of Agreement, will lead to improved relationships between MAA and APEM for the betterment of both professions and the public that we serve.

Advocacy issues are hot topics across the country. The president of APEGBC writes with respect to Ice Storm 98, *"clearly the incredible forces of nature do win out over our efforts from time to time, but, as always, engineers will be there to learn from this experience and to advance the body of engineering knowledge that shapes our everyday lives. But I can't help but wonder if, in the midst of mending, repairing and rebuilding, we might have made the media more aware of what our profession does every day when we had the opportunity to capture the attention of the nation."* This is a similar situation to the Flood of '97, and, hopefully, our advertisement added to the public knowledge of what the Engineer does for the public good.

PEO has just sent out two ballots: one dealing with the licensing of geoscientists; and the second dealing with an advocacy body for professional engineers. PEO states that an advocacy body could provide a voice to engineers on advocacy

issues, lobby on behalf of all professional engineers, and challenge the erosion of the engineers' professional image or territory etc., but the advocacy body could not act as a bargaining unit for engineers, negotiate a parity in remuneration or working conditions, or engage in what are normally classified as union activities not compatible with professionals. The results of the balloting should be interesting.

It appears that professional engineers across the country are looking for more advocacy activity from their associations. It is incumbent on the associations to respond in a very professional manner, by balancing the fine points of professional integrity and service to the public with the sensitive advocacy role that some members desire. □

## Attention Golfers!



### APEM Annual Spring Golf Tournament

**Date: Tuesday, June 16, 1998**

**Place: Quarry Oaks Golf Course**

**Mark Your Calendar!**

*(See Enclosure)*

## "Capitalizing on Today's Challenges" Conference

By: M. Friesen-Fischer, EIT

**O**n Wednesday, October 22, 1997, 185 high-school students, university students, and professionals attended the annual Capitalizing on Today's Challenges conference, sponsored by the University of Manitoba's Faculty of Engineering, APEM's Women in Engineering Advisory Committee (WEAC), and the Petro Canada Women in Engineering Endowment Fund. The annual conference is an opportunity to present female role models in engineering to high-school and university students and engineering professionals; the conference welcomes both male and female participants.

This year's keynote address was delivered by Dr. Elizabeth Cannon, P.Eng., a professor in the Department of Geomatics Engineering at the University of Calgary and recently appointed

NSERC/Petro-Canada Chair for Women in Science and Engineering for the Prairie Region. Dr. Cannon spoke to 132 high-school students and 53 teachers, university students, and engineering professionals about her research in the area of satellite navigation and the applications of global positioning system (GPS) technology, as well as emerging trends in the engineering profession and the skill set that engineers and future engineers need to develop and possess in order to compete and succeed. Dr. Cannon also pointed to many emerging areas of opportunity for engineers, and encouraged conference participants to see engineering as an exciting and fulfilling career choice.

The morning also included a workshop introducing the Flexible Workplace Document, a work-in-progress initiated by the Flexible Work-

place Subcommittee of WEAC. At completion, tentatively scheduled for the spring of 1998, the document will be distributed to registered professional engineers and employers of ten or more professional engineers, and will provide introduction to and explanation of seven types of flexible workplace arrangements that may be desirable to male and female employees, including flexible hours, job-sharing, permanent part-time work, telecommuting, personal-leave days, on-site day-care, and phased retirement. The document is also intended to provide guidance on preparing a formal proposal, to an employer, by an employee wishing to enter a flexible workplace arrangement. At present, the committee is still very interested in hearing of professional engineers' own experience with flexible workplace arrangements, and the advantages and disadvantages of certain arrangements as they relate specifically to our profession.

Afternoon workshops for university students and professionals offered a range of interesting topics. Robin Hutchinson, P.Eng., presented her

*Continued on page 16*

## Meet Your New Councillor – Alan Pollard, P.Eng.

Alan is the Winnipeg-born product of Welsh and Canadian parents. He graduated from Kelvin High School and entered engineering at the U of M on the advice of his brother, who is now a partner with Ernst and Young in Toronto. Whether or not this advice was based on the number of electronic projects that took over the house remains a secret to this day! His other high-school hobby, photography, landed him work on a slide presentation for the Naval Reserve that took him across Canada and provided the first commercial use of one of his electronic devices. During university third-year summer break, he worked for a local company that later hired him upon graduation. He spent a year working on electro-optical equipment before the company ceased Winnipeg operations.

From there Alan moved on to the then-Manitoba Telephone System where he worked on the first dial mobile telephone system in the province. He is still there 22 years later, now as the Manager of Network Planning R&D for Manitoba Telecom Services, working on emerging technologies and their application to new services. Along the way, his work has spanned a wide range of fields including broadband and data services and alarms and remote meter-reading. He

has participated in field trials of fibre-optic technology and designed test and monitoring equipment for telecommunications networks. He is the holder of several patents for data-security equipment and is the Chair of the Data Networking and Software thrust committee for TRILabs, a Western Canadian consortium of universities, corporations and governments conducting research on advanced communications technologies.

While at MTS, Alan has been active with the Society of Engineers of MTS and with the Electronics and Information Association of Manitoba, of which he is Past-President. He has been a science-fair judge and has visited schools with the Innovators in the Schools program. He has also been working with the Manitoba Fencing Association since his son took up a foil, and will be a volunteer for the 1999 Pan-American Games.

Alan's first involvement with APEM was with the Public Awareness Committee, where he helped organize National Engineering Week activities including student competitions and mall displays. He then added the R&D Committee and the ad-hoc committee on the electronic seal to the list. He also implemented APEM's Info-Line and "fax-back" system.

When asked about why he ran for Council, Alan cites his desire to improve the relationship between the APEM and engineers in the electronics and software fields. "The APEM was formed in the bricks-and-mortar era of engineering, and engineers who work in electronics and software often view APEM as being unresponsive to their needs", he says. "If APEM is to be relevant to these engineers, the "P.Eng." designation must become as valuable to a software creator as it is to a bridge builder." □



Councillor Alan Pollard, P.Eng.

## University News

By: B. Stimpson, P.Eng.

### Retirements

**Professor A. Soliman, P.Eng.**, Transportation, Department of Civil and Geological Engineering

**Professor E. Wilms, P.Eng.**, Applied Mechanics, Department of Civil and Geological Engineering

### Awards and Recognition

#### University Outreach Awards

**Professor S. Simonovic, P. Eng.**, Director, Natural Resources Institute, and Department of Civil and Geological Engineering, for outstanding contributions in the area of water resources and the systems approach, especially during the Flood of 1997; transferring his research in water resources to the public domain through his work on the integration of risk, reliability, uncertainty and optimization in hydrology and water-resources decision support, used extensively by the Manitoba Department of Natural Resources and Manitoba Hydro.

**Mr. L. Longclaws**, Director, Engineering Access Program, Faculty of Engineering, for outstanding contributions to the Aboriginal community. ENGAP is specifically designed to ensure students of Aboriginal ancestry are provided with culturally appropriate support to enable them to obtain engineering degrees. Lyle has been active at local, provincial and national levels of the Aboriginal community and currently serves on the

Boards of the Aboriginal Health and Wellness Centre, the Aboriginal Head-Start Program, and the Aboriginal Legal Services of Winnipeg.

### University Research Grants (for new staff)

**Professor Y. Chen**, Department of Biosystems Engineering, for "Modelling soil-tool interactions for manure incorporation."

**Professor A. Cotel**, Department of Mechanical and Industrial Engineering, for "Flow visualization of a thermal interacting with a stratified interface."

**Professor R. Jayaraman**, Department of Mechanical and Industrial Engineering, for "An investigation into bonding at the polymer-concrete interface."

**Professor C. Wu**, Department of Mechanical and Industrial Engineering, for "Design of asymmetric seats for children with physical disabilities."

### Rh Award

**Professor N. Sepehri, P.Eng.**, Department of Mechanical and Industrial Engineering, for outstanding contributions by a young individual to

scholarship and research in the applied sciences category. A specialist in robotics and teleoperation, he is the principal investigator for the University of Manitoba node of the Institute of Robotics and Intelligent Systems (IRIS) National Centre of Excellence. His current research interests include using fuzzy logic controllers to improve accuracy, repeatability and safety, and to reduce operating fatigue in large construction equipment.

### H.H. Saunderson Teaching Award

**Professor A. Alfa, P.Eng.**, Head, Department of Mechanical and Industrial Engineering, for excellence in teaching. The H.H. Saunderson Teaching Award is the premier teaching award at the University of Manitoba.

### Engineering Students' Contribution to Engineering Endowment Fund, 1997-98

Engineering students have again made significant contributions to the Engineering Endowment Fund:

Parting Pledge: .....	\$ 13,272
Referenda contribution from	
1997-98 student fees: .....	\$ 56,212
Total: .....	\$ 69,484

### 1997 Engineering Endowment Fund Awards

The Dean of Engineering, under recommendation of the Engineering Endowment Fund Committee (comprised of alumni, academic and support staff, and students), announced awards totalling \$102,075 for support of initiatives that promote excellence and innovation in the Faculty. □



# Council Meets Faculty to Foster Relationships, Solve Problems

By: S.M. Matile, P.Eng.

In January, your Council met with nine representatives of the Faculty of Engineering at the University of Manitoba to discuss issues of interest and concern to both groups and to generally demonstrate the profession's support for the Faculty.

The meeting commenced with a brief update on the "building campaign" by Associate Dean Doug Ruth. For those of you who haven't heard, the engineering building out on campus will be getting a serious facelift – to the tune, ultimately, of \$50 million. (It's about time! The existing building is actually three separate buildings: one built in 1913, the second in the '50s and the third in the '60s. While all three buildings are structurally sound, the first two do not function well mechanically or electrically, and both have been rated as 35% effective!) The fundraising campaign for the first \$18 million, which will create an atrium of the existing interior parking lot to unite the three buildings and improve the condition of the first two buildings, has been approved; and the engineers of Manitoba (63% of whom graduate from the U of M) will be approached to assist with the fundraising campaign. Dr. Ruth made a presentation on this topic at an APEM Professional Development Breakfast meeting in February.

The group discussed the fact that aboriginals, who currently represent 15-18% of the Manitoba population (a percentage that is growing, incidentally), are under-represented in both the engineering profession and the engineering student population. They identified a number of issues – not the least of which is that science and mathematics on a level needed to enter engineering are not provided in First Nations schools! – and a number of areas in which the profession might assist, including job-shadowing, providing computers for Reserve schools, and providing jobs in northern communities (e.g. Manitoba Hydro) to pique their interest in engineering. The concept of conducting aboriginal science symposia received mixed reaction: it might be a good idea; but, then again, perhaps we should be integrating, rather than segregating. It was noted that ENGAP graduates (graduates of the U of M's Engineering

Access Program for aboriginals) are few, but in great demand – especially out west.

Another discussion topic was the "Red Lion" – the student newspaper published by the University of Manitoba Engineering Students' Society – and its content. Should the Dean's office be telling the students what to write about? To "clean-up their act"? Should APEM sponsor such a "rag"? Make editorial suggestions? A lot of wonderful initiatives are taking place on campus, including concrete toboggan and high-mileage vehicle designs. Why couldn't the "Red Lion" highlight these achievements, rather than publish offensive articles and jokes? Student representative Helsa Chow deserved a "badge of courage", said Dean Shields, for her tenacious defence of the newspaper, of the concept of freedom of expression, and of the value of an open forum for students. It was agreed that the publication should be neither hurtful nor discriminatory, but it was unclear whether the Red Lion contributed in any way to the public's impressions of engineers and engineering students.

In the February issues of *The Manitoba Professional Engineer*, you were asked what you would like to see offered at the U of M in the way of continuing education courses. The Faculty of Engineering has renewed its interest in offering evening classes for engineers wishing to continue their education. But they need to know what types of courses to offer. Do we want formal post-graduate courses, or informal seminars in computer skills, or management skills? It was agreed that a well-designed market survey is required, that the Faculty should take the lead in facilitating courses offered by organizations such as the learned societies (and not necessarily on campus), and that the Faculty should develop a database of its expertise to promote to industry.

In 1999, before the accreditation of the six engineering programs offered by the U of M expires, the Canadian Engineering Accreditation Board will be invited to inspect those programs. Will they all be re-accredited? Dean Don Shields is concerned that they may not be. Years of major cutbacks (25% cumulative) have left the engi-



Dean Shields apprises Council of university issues.

neering faculty professor-, technician-, and equipment-poor, and there is a concern that the student/professor and professional technician ratios will be deemed unacceptable. (The academic staff has shrunk from 83 to 61, while enrollment has remained static.) What must the faculty do to ensure accreditation renewal? Cut student enrollment by one-third? Associate Dean Ruth advised that the Faculty has a strong curriculum, but the concern is with the resources to implement the curriculum. The provincial government and the university are going to have to recognize the importance of engineering to the economy, and increase funding appropriately.

The university is then going to have to select areas of specialization – for which it requires information on industry needs. There is no question there has been a shift in demand for engineering education – away from civil engineering, for example, toward electrical, computer and mechanical engineering. But where should the departments develop strengths? Aerospace? Mechatronics?

It was a most enlightening evening – especially for our Council members; the dialogue – and, hopefully, resolution of some of the issues – will continue. □

## The "Engineer" Trademark

By: S.C. Alford, P.Eng.

In the cause of protecting the term "engineer" from improper use, the Canadian Council of Professional Engineers (CCPE) and the Association of Professional Engineers of Newfoundland have filed a joint lawsuit against Memorial University. The suit claims the school has violated trademark regulations by approving the Science Department's plan to offer a Bachelor of Science in Software Engineering. The CCPE owns the trademark to the word "engineer" in

Canada and, as you know, provincial engineering acts restrict the use of the term engineer to those who are registered members.

The situation with Memorial University is just the latest battle in an ongoing effort by provincial engineering associations and the CCPE. The Association of Professional Engineers of Ontario has been quite active in the area of enforcement and has had some success recently in dealing with computer-software training companies. Both

Novell Corporation and Banyan Systems Inc. have agreed to stop offering certifications that include the word engineer.

On a broader front, all engineering associations across Canada investigate complaints about non-registered persons calling themselves engineers or offering engineering services. Many associations now also take a more proactive approach, monitoring Yellow Page listings and job advertisements to ensure that engineering functions are performed by registered engineers.

If you are aware of any non-registered persons using the title engineer in violation of the Engineering Act, please contact the Association office. □

## Letter to the Editor

I enjoyed the article by B. Stimpson, P.Eng. in the December MPE relative to famous sayings by pessimistic people. I came across the following in a back copy (November 1968) of the journal "Mining in Canada". It was an editorial, although I do not have the editor's name. It reads as follows:

### The C.P.R.

(from an English newspaper of 1871)

"The Canadian Pacific Railway has begun to launch its Bonds. A group of Montreal and New York Bankers have undertaken to float ten million dollars worth of Company's Land Grant Bonds. The New Yorkers are keen gamblers, and yet it is impossible to believe that they are such fools as to put their money into this mad project. I would as soon credit them with a willingness to subscribe hard cash in support of a scheme for the utilization of icebergs."

"The Canadian Pacific will run, if it is ever finished, through a country frostbound for eight months of the year, and will connect with the Western part of the Dominion, a province which embraces about as forbidding a country as any on the face of the earth."

E.A. Speers, Ph.D., P.Eng.

(Editor's note: Written almost a hundred years back, the above beautifully illustrates the fears and the misconceptions people generally have of the unknown. Who would have thought then of Canada as a world leader in the production of minerals.

Our thought in reading the article was that we, apart from a few men with vision, are equally guilty of evaluating the development of Canada's northern frontier along the same negative lines.)

British Columbia is a barren, cold mountain country not worth keeping. Fifty railroads could not galvanize it into prosperity."

"The Canadians must know that the railroad is never likely to pay a single red cent of interest on the money sunk in it. A friend of mine told me, and he knew what he was talking about, that he believed the much touted Manitoba Settlement would not hold out many years. The people who have gone there cannot stand the coldness of the winters. Man and cattle are frozen to death. Those that are not killed outright are often maimed for life by frostbite."

"A word or two on Canadian finances in general would be in season. Canada is one of the most over-rated Colonies we have. The country is poor and is crushed with debt. The Province and City of Quebec are notoriously bankrupt."

"In the end, the Dominion will have to go into liquidation. One day, when the load gets too heavy, Ontario is pretty certain to go over to the States, into which it dovetails, and where its best trade outlet is."

"The Dominion is, in short, a 'fraud'."

## E-Mail to the Editor

Please pass on my comments to the Publication Committee and especially Dr. Stimpson, P.Eng.

I am impressed with your article on Maclean's, Engineering and the University of Manitoba (February, 1998). I agree wholeheartedly with the views you present.

The fact that Maclean's keeps publishing the article is clearly because of its selling appeal, regardless of its correctness and appropriateness. I would speculate that there are two groups interested in reading the Maclean's survey. First, those who would like to make an informed choice of where to attend university. Second, those of us who have attended a university and like to read about how our alma mater is rated.

The publicity (and someone said there is no bad publicity!) of the quality at our universities can ultimately be a good thing if the public, government, and administration pay more attention to making our universities even better.

Not that I would want to start a fight with someone who buys ink by the barrel (or maybe by truck-load), but, I hope you sent a copy of the article to Maclean's too. Job well done.

J. Hildebrandt, P.Eng.

**Letters to the Editor are encouraged but should be kept brief (300 words). The publication and editing of letters is at the discretion of the Publication Committee. The opinions expressed do not necessarily reflect those of the Association.**

## Some Light Into Grey Areas (Second in a Three-Part Series)

By: H. Lobo, EIT

Part one of this series gave a brief history of the progress of The Engineering and Geoscientific Professions Act and the reasoning behind the endeavor. To examine the external stakeholders, an interview was held with Don Spangelo, P.Eng., who, incidentally, also spoke on the subject at the last Annual General Meeting.

### Q: What is the status of the Act?

A: Recently, the Act was reviewed by the Legislative Counsel (essentially the Government lawyer) and it is now in the hands of the Minister of Labour, The Honourable Harold Gillingham. Before presenting it to the Legislative Assembly, it was found that a few stakeholders, such as the Manitoba Association of Architects (MAA), Association of Manitoba Land Surveyors (AMLS), and the Natural Scientists, had concerns.

### Q: What agreements have been established between the Certified Technicians and Technologists Association of Manitoba (CTTAM) and APEM?

A: A Memorandum of Understanding (MOU) exists between the two parties. As part of the MOU, CTTAM had sent a "right-to-title" Act to the Minister of Labour at the same time that APEM sent our proposed Act. The structures of both Acts require coexistence and each has a provision for a joint board (which will exist by law). This board will handle specific jurisdictional issues and is now starting its operation even though the Acts are not passed yet.

### Q: Is an MOU being developed with the Association of Manitoba Land Surveyors (AMLS)?

A: Yes. A new proposed Land Surveyors Act is being reviewed along with APEM's Act to address any overlap in both professions. Where the legal boundary of land comes into play, the Land Surveyors are entitled to locate land boundaries with respect to ownership of land and Land Title registration. Moreover, the issue of "tie-in" of engineering work to the boundary of land is being addressed.

### Q: The Manitoba Association of Landscape Architects (MALA), what is being addressed here?

A: The Landscape Architects presently have no "right-to-practice" or "right-to-title" Act, but have authority to use the title "Landscape Architect". The work of Landscape Architecture may include elements similar to civil engineering, such as riverbank stability and retaining walls. So an MOU is being drafted to ensure both MALA and APEM have a mutual understanding of one another's areas of responsibilities.

### Q: Are there ongoing discussions between the Manitoba Architects Association and APEM?

A: At present, an MOU has been signed by both parties and a joint board is in place to deal with jurisdiction issues. Furthermore, negotiations are ongoing to address other outstanding issues MAA has with the new proposed APEM Act. They generally accept our proposed Act, but have a concern with the proposed definition of engineering. As stated, the proposed definition of engineering is "practice of professional engineering means any act of

Continued on page 13

# National Engineering Week '98

## New Member and Awards Reception

By: J.W. Bogan, P.Eng.

About 100 members attended a reception on March 3, 1998, at the Niakwa Country Club to welcome new members and recognize award recipients.

From September 1997 to January 1998, 46 new members have joined the Association. It's always interesting to learn of the varied backgrounds and experiences of the new members. Again, this was the case this year.

At such an event, one cannot help but realize that the impact of Manitoba engineers is truly global. During the evening, all new members were presented with certificates recognizing their professional status in Manitoba. The Honourable Glen Findlay, Minister of Highways, also spoke to the gathering. Mr. Findlay felt it was somewhat ironic that an "aggie" would address a group of engineers. Three awards were also presented:

### Merit Award

The Merit Award recognizes outstanding achievement, including the direct advancement of the profession of engineering in Manitoba, by an individual member. Merit is judged by one or more of the following:

- contribution to engineering literature showing scholarly achievement
- magnitude of engineering works successfully completed
- pioneering achievement in the field of engineering application
- outstanding public service

This year's Merit Award was presented to Dr. Mohamed Barakat, P.Eng. In 1982, Dr. Barakat became the President of his own consulting company, InfoMagnetics Technologies Corporation.



Merit Award Recipient Mo Barakat.



New Members.

The firm has grown from four to 40 staff members, with offices in Vancouver and Winnipeg.

The company specializes in the design, development, and integration of computer-information systems using the latest software technologies, distributed computing, networking, objective-oriented programming, graphical user-interfaces and expert systems, as well as wireless and satellite communication systems to improve the effectiveness and efficiency of the delivery of information services.

Dr. Barakat's achievements include generalizing the design of the "Luneberg Lens" for telecommunications and radar applications, initiating the application of CAD techniques for microwave and antenna applications, co-founding the internationally known ANTEM conference, chairing the Canadian Advisory Committee on the International Symposium of Manufacturing Application Languages, developing a compact portable unit for two-way data video transmission for advanced satellite communications, and assisting in the development of numerous components and systems for wireless and satellite communication applications.

Dr. Barakat has authored and co-authored more than 30 published papers presented across Canada and around the world. He is also actively involved in the Kinsmen Club of Winnipeg. With his wife Samia, they have two sons and a daughter.

### Early Achievement Award

The APEM Early Achievement Award was created to bestow distinction on outstanding young engineers and to recognize exceptional achievements in their chosen fields, irrespective of any affiliation with a given society, institute, or association. Hopefully, the award also assists in furthering public understanding of the role of the engineer in society.

This year's Early Achievement Award was presented to Dr. Daryl McCartney, P.Eng.. Dr. McCartney graduated from the University of Manitoba in 1984, and has worked for the Province of Manitoba, Department of Natural Resources, the University of Manitoba, and Poetker MacLaren Ltd., and has created his own firm. Since 1993, Dr. McCartney has been an Assistant Professor at the University of Manitoba with the Department of Civil and Geological Engineering.



Early Achievement Award Recipient Daryl McCartney.

Dr. McCartney was the project manager for the City of Winnipeg's Yard-Waste Collection and Composting Program, "Leaf It With Us", which won the Province's Sustainable Development Achievement Award in 1994. Other achievements include the development of a Hydraulic Jet Leaf De-bagger, establishing an Environmental Engineering option for Civil Engineering, and establishing the Centre for Environmental Studies at the University of Manitoba.

Continued on page 11

# National Engineering Week '98

## Activities Galore!

By: D.C.H. Prowse, P.Eng.

Over the last five years, National Engineering Week has grown to include many exciting activities. The Spaghetti Bridge Contest, which attracts hundreds of students, has spread to many schools and become a mainstay event. Displays at Polo Park have become much more extensive. Engineers are out in schools talking to students.

Many sponsors have provided support. Mind Computers has again sponsored a contest prize. Manitoba Hydro has been a reliable contributor. The support of the Canadian Space Agency has been most appreciated, especially considering that they were dealing with us while their office was still being used as a shelter during the Great Ice Storm.

Dean Weiten (Vansco Electronics), Caroline Nieuwenburg (Manitoba Hydro), Alan Pollard (MTS Network), and Richard Bernhardt (Bristol Aerospace) have all put a lot of effort into chairing the APEM committee for National Engineering Week in the last few years. Many individuals have been active this year. The additional support of engineering students and EITs has been critical this year on Dr. Gole's work on the Internet site, Dr. Kinsner's work on a shuttle-MIR docking simulator, and on all the details for the IMAX showing of "Mission to MIR". The APEM staff helped out with the distribution of IMAX tickets.

The IMAX theatre was rented for a special showing of the film "Mission to MIR" on February 28. For four dollars each, spectators packed the theatre and were treated to a presentation on the activities during National Engineering Week as well as the main feature, which described the

historic Russian space station and international co-operation in space.

University of Manitoba students held a pie-throw and raised \$600 (three-quarters of it from Manitoba Hydro) for Habitat for Humanity and Winnipeg Harvest. It was an opportunity to recognize engineers (who deserve to be treated like Bill Gates) by calling the University of Manitoba Engineering Society and ordering a pie in the face. This event was environmentally friendly since it allowed pie recycling. Rather than accepting the pie, the chosen recipient could make a matching donation to redirect the pie to another engineer. At Manitoba Hydro, one pie had earned about \$80 by the time it reached the vice-presidential level and the event ran out of time.



The annual Awards Wine-and-Cheese event was held on Tuesday, March 3.

Another new idea this year was the MIR Motion Contest – a software contest for high-school students. In addition to the Pentium 200 upgrade prize from Mind Computers, the winner received a framed Canadian flag which flew on a shuttle mission to the MIR space station. Canadian astronaut and mechanical engineer Chris Hadfield, who flew as Mission Specialist on that shuttle, has agreed to send a personalized letter to all contest participants.

The teacher who assisted the teams at Vincent Massey Collegiate in Brandon, which won first prize (Christy Clement, Lindsay Eckersley, Loan Nguyen) and second prize (Kimon Issigonis, Kevin Horobin), said that when the school was shut down due to the crippling snow storm, four students arrived at school on cross-country skis to work on the contest. He also reported that "the students first perceived themselves as quite limited in their problem-solving capacity, but they learned to overcome the obstacles that first intimidated them. From the workings of computers to certain aspects of the MIR problem, ...the students grew as problem solvers and will definitely not be as "limited" in (the) future... (It was) a very valuable exercise..."

It's not too early to think about next year. We may not be able to pull off the fun run in the park or the cardboard boat races of more temperate provinces, but we certainly could manage poster contests, a paper-plane contest, a catapult competition, a Pinnocchio nose-building contest, special Museum displays, newspaper inserts, more web-site activities, an on-radio engineering trivia contest, or a sequel to the MIR Motion contest. Ideas, sponsor support, and volunteers will be gladly accepted for 1999. □

## Kudos to the Volunteers

By: R.H. Bernhardt, P.Eng.

National Engineering Week events within Manitoba concluded on March 8. This year saw a repeat of last year's successful events, along with the addition of several new activities. The events which were repeated included:

- a hands-on display in which more than a dozen different companies, engineering societies, and organizations featured engineering-related information and items;
- demonstrations by the Biomedical Engineers Association of various biomedical devices (held in conjunction with the display area);
- a celebrity competition featuring provincial politicians, members of the media, and local

authors, including Pulitzer Prize winner Carol Shields;

- the ever popular Spaghetti Bridge contest;
- the challenging Whisser competition; and
- the Wine and Cheese reception for new members.

All but the Wine and Cheese reception were again held in Polo Park Shopping Centre.

The new activities this year had a common theme, namely, docking with the MIR Space Station. A computer-software-based competition was devised wherein students from Manitoba schools were challenged to determine coefficients that would interact with a docking simulation program. The competition was called the "MIR in Motion" contest. The object of the competition was to move an astronaut from a location in space to dock with the MIR Space Station. The students were judged on how quickly their astronaut moved, and how much fuel was used. The turnout, although small, was quite enthusiastic, with

the eventual winner being from Brandon. The winner received a computer-upgrade package from Mind Computer Products, and a framed Canadian flag which flew in space aboard the Space Shuttle.

The other new event turned out to be the kick-off to National Engineering Week within Winnipeg. On Saturday, February 28, the APEM rented the IMAX theatre for a special showing of the IMAX film "Mission to MIR". Tickets were \$4 each and were available only to APEM members and their families. Regular admission would be \$7 for the same film. Feedback from some of those members who attended was favorable, with suggestions that the Association pursue other social events which would be suitable for an entire family at a reasonable cost.

The success of National Engineering Week hinges entirely on the participation of volunteers who, unfortunately, remain anonymous to most of the APEM. Some individuals who deserve men-

Continued on page 11

# National Engineering Week '98

## New Member Awards Reception

(Cont'd from page 7)

Dr. McCartney has contributed to the Resource Recovery Institute, the APEM Sustainable Development Task Force, the APEM Research and Development Committee, the Compost Advisory Committee of the Department of Manitoba Environment, and the Manitoba Environment Industries Association, and served as Regional Director for the Composting Council of Canada.

Daryl is also a board member and the President of the Manitoba Lung Association, and a member of the Parent Advisory Group of R.H. Smith Elementary School. In 1996, he received the Distinguished Service Award from the Manitoba Lung Association.

## Certificate of Engineering Achievement

The Certificate of Engineering Achievement is intended to recognize engineering excellence in, and major contributions to, the concept, design and implementation of an engineering work by a member or group of the Association.

This year, APEM was proud to recognize the Network of Centres of Excellence on Intelligent Sensing for Innovative Structures (ISIS) Canada, Wardrop Engineering, and Manitoba Highways and Transportation for the concept, design, and construction of the Taylor Bridge in Headingley, Manitoba. The structure opened in October, 1997, and is the world's longest-span bridge using advanced composite materials and remote-sensing technology. The significant combination of conventional and innovative technology allows engineers to collect performance data on a direct-comparison basis.

The design for the Taylor Bridge utilizes carbon-glass fibre-reinforced polymers (FRP). The material is stronger, lighter, more durable, and more resistant to corrosion than traditional materials. FRP is on its way to becoming the new global standard in engineering and construction.



*Representatives of the Department of Highways, ISIS Canada and Wardrop Engineering with President Peter Washchshyn.*

Carbon FRP was used for the prestressing and shear reinforcement of four girders, and for reinforcing part of the deck slab. Glass FRP reinforcing was also used in a portion of the barrier wall. ISIS Canada's research is helping to produce bridges with longer life-cycles and reduced maintenance costs.

The Taylor Bridge has been engineered to monitor and communicate bridge performance data on a daily basis. It is instrumented with fibre-optic sensors coupled with strain gauges embedded in the bridge girders, deck slab, and barrier wall. Data is transmitted for continuous monitoring under traffic loads and extreme environmental conditions. This leading-edge technology allows engineers to monitor the bridge's performance from a computer anywhere in the world.

The award was presented to the bridge partners for their visionary approach to innovative technologies and partnerships. The bridge represents success in academic milestones, govern-

ment leadership, and commercial enterprise, as well as bringing tangible benefits to the citizens of Headingley, Manitoba. □

## Kudos to the Volunteers

(Cont'd from page 10)

tion for their untiring efforts this year include: APEM Councillor Bonnie Thomson and Susan Grief, EIT, for their organization of the celebrity competition; Shane Mailey, P.Eng., Glenn Penner, P.Eng., and Don Spangelo, P.Eng., for their efforts with the Spaghetti Bridge competition; APEM Councillor Alan Pollard, P.Eng., for his work with the Whisser contest; Dan Prowse, P.Eng., and University of Manitoba professors Ani Gole, P.Eng., and Witold Kinsner, P.Eng., for their work on the "MIR in Motion" contest (Dan also deserves special recognition for his efforts in organizing the IMAX showing); and John Rooney, P.Eng., for his efforts in organizing the display area. □

## Structural Capacity of Spaghetti Bridges Put to the Test

By: G.B. Penner, P.Eng.

On Saturday, March 7, 1998, the fourth annual Spaghetti Bridge-Building Competition was held at Polo Park Shopping Centre. The contest was open to students from Grades 1 to 12 with \$40 cash prizes in each grade level and a \$100 grand prize for the overall winner. The object was simple: build a bridge from spaghetti and white glue spanning 300mm and weighing no more than 350 grams.

The event kicked off at 10:00 a.m. with hundreds of anxious onlookers. Within minutes (and

lots of cheers from the crowd), the load to beat went from 8.0 lbs to 198.5 lbs. By the end of the morning, the load to beat (212 lbs) was held by a team of grade 3 girls from Queen Elizabeth school. After lunch, the grade 7 to 12 students had their work cut out for them. At first, it looked like the elementary students would outshine their elders, whose highest load so far was 120 lbs, but the teams from Crocus Plains Regional Secondary School in Brandon had not yet arrived. In the last few minutes of the competition, the

grades 9 & 10 Crocus Plains teams increased the load to beat to 239 lbs and then to 249 lbs. The very last bridge to compete in the contest, the grade 12 team of Ryan Sylvius and Ryan Bessant from Crocus Plains School, captured the grand prize with a record-breaking compressive strength of 320.3 lbs.

The event was an overwhelming success, with many students and teachers already planning for next year's competition.

The event was organized by Shane Mailey, P.Eng., Don Spangelo, P.Eng., and Glenn Penner, P.Eng.. The day couldn't have been pulled off without help from our volunteers Paul Kochan, Allan Fauschou, Greg Perron, Andrey Gornik, Neal Boyd, Dan Desveaux, and Shawn Spicer. □

## Council Reports

### Tuesday, January 13, 1998

By: B. Stimpson, P.Eng.

#### AT WHICH COUNCIL COVERS SOME FAMILIAR TERRITORY

##### Negotiations with the MAA

Council was informed that negotiations continue with the MAA to resolve concerns with respect to the definition of the practice of engineering, which MAA believes can be read to include the practice of architecture.

##### Memorandum of Understanding (MOU) with the Association of Manitoba Land Surveyors (AMLS)

Council approved an MOU with the AMLS which includes the establishment of a Joint Committee to develop and maintain guidelines and standards for areas of common practice, to coordinate practice by-laws and resolutions for the direction of their respective members, and to make every effort to cooperate in the facilitation of educational forums. The MOU also supports the principle of AMLS pursuing amendments to The Land Surveyors Act and the passage of The Engineering and Geoscientific Professions Act. A copy of the MOU may be obtained by calling the APEM Office (474-2736).

##### Mandatory Professional Development Program – Professional Practice Requirement

Bob Bruce and Trevor Cornell appeared before Council to request clarification of the scope of practice that would make a member eligible for up to 40 PDHs (professional development hours) per year in the proposed Profes-

sional Development Program which is currently being evaluated in a pilot project. A generic example was given of a person who pays her/his annual dues but whose full-time occupation is selling real estate. It was generally agreed that, unless the activities undertaken in a job are related directly to the practice of engineering, they should not be counted towards PDH's. Council approved a motion that the scope of practice for PDH's should be limited to practice as defined in the proposed Engineering and Geoscientific Professions Act, namely, "any act of planning, designing, composing, evaluating, advising, reporting, directing or supervising, or managing any of the foregoing that requires the application of engineering principles and that concerns the safeguarding of life, health, property, economic interests, the public interest or the environment."

##### Steps and Sequence for the Introduction of ORAP

Council discussed a plan with time-lines for phasing in the new APEM organizational structure, starting January 31, 1998.

##### Practice Guidelines

Frank Roberts and John Frye of the Safety in Engineering Committee presented a proposal to develop and publish practice guidelines that apply to various aspects of engineering. The Committee has been working on this issue over the last two years and believes that existing guidelines from other Provinces could be used and any necessary adaptations made. PEO has already indicated informally its willingness to provide electronic copies. The one-time cost of development is \$5,000. The proposal was approved by Council. □

### Tuesday, February 10, 1998

By: V.L. Dutton, P.Eng.

#### AT WHICH COUNCIL PREPARES TO PRESENT ORAP AND DISCUSSES GEOSCIENCE TITLES AGAIN

The last time I covered a Council Meeting was when we were still down on St. Mary Avenue so it was a happy discovery to learn that Council meetings now start with a review of unfinished business. Running to seven pages, it would appear that our Councillors are not about to run out of work soon.

Then there was a new acronym to master – ORAP. Many of you will have learned more about it at the Norwood Hotel in March. For those who missed that meeting, it stands for Organizational Restructuring Action Plan. Council approved the plans that had been made for that meeting.

Jurisdictional disputes are not a new phenomenon. The Manitoba Association of Architects, APEM, and the Deputy Minister of Labour continue to meet in an attempt to resolve the conflicts between our two Associations. The objective, of course, is to attempt to avoid future litigation – and to ensure that the Architects do not prevent the passage of the proposed Engineering and Geoscientific Professions Act.

How to keep our members from outside Winnipeg feeling that they are not forgotten has always been a problem for the Association. Teleconferencing is now being investigated by Council.

Council is working on the development of Memoranda of Understanding with the Land Surveyors and with the Landscape Architects.

This led into the problem of what words (titles) to use in our new Act to describe those who work in the geosciences. How detailed should one become? Mr. Rick Lemoine, who represents the geoscientists in Manitoba, addressed Council on this subject. His recommendation is that three titles be used:

1. Geoscientist
2. Professional Geoscientist
3. Consulting Geoscientist

These three titles are consistent with the titles we use – Engineer, Professional Engineer, and Consulting Engineer. Also, they are the titles used by


the Canadian Council of Professional Geoscientists. A concern about these titles is that the public tends to be familiar with "geologist" while not appreciating "geoscientist". Perhaps our Public Awareness Committee could do a bit of work on this problem.


Councillor Britton then introduced a proposal that hearkened back to our Kipling Ritual. It was the hope of those engineers who invited Rudyard Kipling to write his Ritual for us that the new members of the profession would feel "wanted" by those engineers who were already established. The iron ring that we wear so proudly was close to being a stroke of genius.

Today's proposal – to create a special membership for undergraduate students – has the same objective. The purpose is to provide a means of informing these young people about their professional Association and, ultimately, helping them to become involved with the Association.


Finally, I would like to publicly thank my friend and now-retired member of the Publication Committee, Bill McKay, for his years of service to the Manitoba Professional Engineer and for the many reports of Council Meetings that he wrote for us.

Also, I wish to record my feeling of elation when I learned that one of my students, Mr. Ken Buhr, P.Eng. is now our Association's Manager of Administration. □





**APEM is the leader and a facilitator of the process that ensures excellence in engineering and applied technology for the public of Manitoba.**



## Meet Your New Councillor – John R. Hosang, P.Eng.

By: M. Baril, EIT

I had never met John prior to our interview over lunch, but I quickly found myself talking with him about his life as if we had known each other for years. John had never really thought of running for Council prior to being approached by an old friend, APEM President Peter Washchyshyn, P.Eng. Having left his name on the ballot, and finding himself elected, he has found the first couple of months on Council to be a learning experience, as this is his first involvement with APEM, other than as a member. John



Councillor John Hosang, P.Eng.

sees the APEM Council as fulfilling a vital role in promoting the engineering profession to the public.

John was born and raised in Toronto, Ontario. In 1966, John graduated from the Royal Military College in Kingston, Ontario, pursuing an engineering career in the Air Force. He received both his B. Eng. and M. Eng. in Civil Engineering, completing the latter in 1971. John and his wife Pat, a Registered Nurse, met while he was still in school.

After the completion of his M. Eng., John was assigned to active duty on various military bases, where his responsibilities were to manage and maintain the base's infrastructure. He was also given a number of special assignments during his career which provided some unique challenges. He was in charge of constructing runways at several Arctic communities including Pangnirtung, Whale Cove, Cape Dorset, and Eskimo Point. He was seconded to the Canadian International Development Agency (CIDA) for nine months in Indonesia as an aerodrome engineer; and he served as Chief Engineer to the United Nations Emergency Force in Israel and Syria, supervising the construction of base camps for the peace-keeping forces.

Throughout his 26 years in the military, during which time he attained the rank of Colonel, John and his family spent three different periods of time in Manitoba (1966-67 in Portage la Prairie, and 1971-76 and 1982-87 in Winnipeg).

When John retired from the military in 1987, it was to establish some permanent family roots

for himself, his wife and their two girls, Elizabeth and Barbara. He began work with the provincial Department of Highways and Transportation, where he is currently the Assistant Deputy Minister responsible for two programs: Engineering and Technical Services as well as Transportation Safety and Regulatory Services. His responsibilities include materials and traffic engineering, geometric design, planning, mechanical equipment maintenance, provincial airport operation, and commercial truck safety.

As the saying goes, young girls want to grow up and emulate their fathers, Elizabeth became an engineer (computer), and both she and Barbara married engineers, Elizabeth meeting her husband while attending the University of Manitoba. Barbara just recently finished her Bachelor of Nursing. John and Pat are also grandparents to 15-month-old Michelle, daughter of Elizabeth.

Away from the hectic work of engineering, John enjoys jogging and walking outdoors. He and Pat are quite involved with various church activities. They also volunteer as a team-couple with World-Wide Marriage Encounter, participating in one to three weekend retreats a year.

I have no doubt that John will prove a valuable asset to the APEM Council with his varied engineering experience, mix of military and public sector training, and genuine interest in people. □

### Some Light Into Grey Areas

(Cont'd from page 6)

planning, designing, composing, evaluating, advising, reporting, directing or supervising, or managing any of the foregoing that requires the application of engineering principles, and that concerns the safeguarding of life, health, property, economic interests, the public welfare or the environment".

**Q: What about the National Body of Physicists, Chemists, Biologists (the natural scientists)?**

**A:** The Natural Science Societies of Canada (NSSC) have accepted the proposed definition of engineering (if an exemption clause is incorporated into the Act). However, negotiations are ongoing to address issues they have with the proposed definition of professional geoscience.

**Q: Are there other stakeholder concerns APEM is trying to address?**

**A:** There are many, however, addressing MAA's concerns is the main priority. Other stakehold-

ers concerns are being addressed to ensure the Minister of Labour is satisfied that future lobbying is not going to be an issue. The Minister of Labour is not willing to bring the Act into Legislation for passage until all potential lobbying has been adequately addressed.

With a few issues yet unresolved, but being steadily negotiated, we are moving closer still to a new Act being passed. □

## The Smallest Abacus in the World

Source: *La Recherche*, Jan. 97,  
translated by V.L. Dutton, P.Eng. (Ret.)

BM's Zurich laboratory continues to develop the nanoworld. Using a tunnelling electron microscope, ten columns of ten molecules of Carbon 60 were arranged in vertical rows on a sheet of copper. The molecules were then moved exactly as one would move the beads of an abacus. □



### Positions Wanted

Member of the APEM with over 20 years experience in Information Systems, Retail Sales, Hydrology, and End-User Computing seeks new opportunity. Small-business experience, business planning and marketing. BaSc, MSc and MBA. Excellent communication skills. Please contact Mel at:

Phone: 338-8877 or  
E-mail: mel@CDCanada.com.

Willing to relocate including overseas.

Martin Sudfeld, P.Eng., over 20 years experience in electrical design for buildings and motor coaches and industrial controls. Seeks consulting, contract, part- or full-time employment. Please contact Martin at:  
Phone: 339-8276 or 227-8214 (cellular).

## The Engineering and Geoscientific Professions Act – Update of Activities of SPRGM

By: R. Lemoine, P. Geol., Chair, SPRGM

**T**he Subcommittee on Professional Registration of Geoscientists in Manitoba (SPRGM) has continued to serve in its appointed role as representative of the Manitoba geoscience community at-large. Recently, SPRGM commissioned three Task Groups composed of volunteers to develop criteria and guidelines for “grandparenting” of practicing geoscientists as members, and establishing academic qualifications and relevant work experience criteria for admission requirements for “new” members following the assent of the new Act.

The volunteers forming these three groups are:

### Grandparenting

David Parberry	Carol Martiniuk
Raymond Reichelt	Jim Ross (Advisor)

### Academic Qualifications

Robert Matthews	Jason Regula
Steve Wiecek, P.Eng.	Brian Stimpson,
Gary Pozain	P.Eng. (Advisor)

### Work Experience

Sebastian Lau	Rick Lemoine
Patrick Lengyel	Don T. Anderson, P.Eng. (Advisor)

Should you wish to contact any of these Task Group members, you may obtain their telephone numbers from the writer at (204) 989-4468.

SPRGM has also continued to conduct information seminars on joint professional registration, having recently spoken to a number of groups including the University of Manitoba, CIM, and the Provincial Government Geological Services Branch.

SPRGM has appointed a volunteer member on the Canadian Geoscience Standards Board (CGSB), with Robert Mathews assuming the duties from Brian Stimpson, P.Eng. The Canadian Council of Professional Geoscientists (CCPG) has recently received federal charter, and serves to:

1. help co-ordinate standards and other activities affecting professional geoscientists in Canada;

2. act as a forum through which common issues could be addressed; and
3. represent Canadian geoscientists nationally and internationally.

As Manitoba does not yet register geoscientists, there is no Manitoba member on CCPG. However, a member of CCPG will be nominated following assent of the proposed Act for joint registration with engineers in Manitoba.

As the proposed Act may be brought before the Legislature in the Spring 1998 Session, it is important that any and all additional questions, issues, and concerns that we, as geoscientists in Manitoba, may have, be forwarded to SPRGM as soon as possible. This is necessary in order to incorporate any additions to the draft Act which may reflect the needs of Manitoba geoscientists, prior to the Act going to first reading.

Once again, it is of the utmost importance that Manitoba geoscientists forward their opinions and questions with regard to the impending Act. You may do this by calling Rick Lemoine, Chair of SPRGM, at 989-4468. □

## Call For Nominations

## APEM Leadership Award

**T**he APEM has established a new award to recognize individuals whose leadership has resulted in engineering works or advances that have had a long-term benefit to society. Recipients of the Leadership Award will have demonstrated outstanding vision, courage and conviction.

Both engineers and non-engineers are eligible for the award. Nominations will be considered annually, but it is not expected that there will be a recipient every year.

The Awards Committee will be accepting nominations for the award until May 31, 1998. Further details on the award criteria and guidelines may be obtained from the Association Office. □

## Attention, Professional Practice Seminar Registrants

By: S.M. Matile, P.Eng.

**I**ncluded in the mailing with this issue of the Manitoba Professional Engineer is an application for registration for the next session of the professional practice seminar and examination.

Please note the following error in the application forms: the fax number for the Continuing Education Department to which applications or queries should be sent is 474-7661 – not 474-6661.

We apologize for the inconvenience. □

## APEM/APEGS Kelsey Chapter formed in Northern Manitoba & Saskatchewan

By: M. Nagle, EIT

**O**n February 26, 1998, the Kelsey Chapter was formalized with the signing of a constitution. The Kelsey Chapter represents the communities of Flin Flon, The Pas, Creighton, Denare Beach, and Snow Lake. The name “Kelsey” originates from the Kelsey Trail which forms a common tie to these communities and is named after Tom Kelsey, a historical northern explorer. The Kelsey Chapter is unique, being the first chapter to represent association members from two provinces (Manitoba and Saskatchewan). This duality was largely due to Flin Flon (Manitoba) and Creighton (Saskatchewan) being border communities.

The intent of the Chapter is to establish a membership of engineers in these northern communities and to encourage the study, discussion, and exchange of ideas among the members. The Chapter will also assist the Association in matters of business as well as provide a forum for the

Chapter to formally recognize the contributions of the members and act as a voice in APEM affairs.

The signing was performed by APEM and APEGS Council members Peter Washchyshyn (APEM President), Dave Ennis (APEM Executive Director & Registrar), and Clarence Reed (APEGS Northern District Representative). They will provide support and encouragement to the Chapter in its future endeavors. The constitution was also signed by the elected Council chapter members John MacLeod (Chair), Don Harfield (Vice-Chair), Mike Nagle (Secretary), and Jennifer Reagan (Treasurer).

The chapter would like to thank all APEM/APEGS Council members who attended the meeting as well as Gail Swaine (Chair of Thompson Chapter) and Cathy Stewart (Past APEM President) for their assistance and guidance in the early stages of the Chapter's development. □



Kelsey Chapter Members and Guests.

## Research & Development

### RTDS Technology Explained

By: D.J. Fedirchuk, P.Eng.

**O**n January 20, 1998, the Research and Development Committee of the APEM held another luncheon meeting. The activities of a world-class Winnipeg company known as RTDS Technologies Inc. were described by marketing manager Paul Forsyth, EIT. This company exports over 95% of its product offshore.

RTDS (Real Time Digital Simulator) Technologies Inc. was formed in 1994, by four employee/owners as a spin-off group from the Manitoba HVDC Research Centre. This company has now grown to 17 employees and has sold more than 100 simulator racks throughout the world. This technology has been sold to universities, manufacturers, and power utilities, with sales in Japan, Asia, Europe, and Canada. The goal of RTDS Technologies is to market a new leading-edge digital technology that has the capability of modeling power systems and subjecting the models to events such as faults and disturbances, all in real time. The output of this digital simulation can be applied to power-system closed-loop testing of control or protective relay schemes to see how these devices respond, again, all in real time. The outputs of the tested devices can be used to influence the nature of the power-system model. For example, in testing a protective relay, the output of this relay can actually be used to trip a line in the modeled power system and change the system conditions – again, all in real time.

Prior to the activities of RTDS, this analytical

work could only be accomplished through the use of analog simulators, which are inherently about ten times the cost of digital technology and require more effort to set up and operate.

The RTDS technology is structured on a modular basis. Capability of the simulator is based on the computing power of a base structure called a "rack". This rack is made up from a grouping of 18 digital processing cards. The function of each card is defined in software and therefore allows each of these processing cards to be similar in hardware construction. This, in itself, simplifies the hardware aspects of the simulator and leads to a high degree of flexibility in its application. Also the technology is innovative in that it is the first in the world to incorporate high-speed parallel processors in the hardware.

RTDS Technologies Inc. also provides an overall method for the user to interface to the simulator. A methodology has been developed for the user to be able to set up the appropriate software models and exercise these models with simulated conditions. The commonly referred-to term, "graphical user interface", allows the user to set up the power-system model, run the simulation, then analyze the results in a logical manner.

RTDS Technologies Inc.'s future plans include the ability to provide customer power-system study services using this digital technology as well as the sale of RTDS systems. □

## CCPE Appoints New President and Chief Executive Officer

**P**ierre Desjardins, ing., Chairman of the Canadian Council of Professional Engineers, announced the appointment of Daniel H.J. Levert, P.Eng., LL.B. as President and Chief Operating Officer of CCPE.

Dan Levert brings to CCPE an impressive and diverse background in engineering and law. He has extensive experience in heavy construction, municipal engineering and professional liability. He is a registered member of professional engineering associations in Alberta, the Northwest Territories, and Ontario, and a member of the law societies of Alberta and the Northwest Territories.



"The CCPE is pleased to have selected an individual with strong, national credentials in engineering and law," Mr. Desjardins says. "Mr. Levert's known leadership abilities and his contributions to professional engineering in Canada have made him an outstanding and unanimous choice of the CCPE Board of Directors."

Mr. Levert holds a Bachelor of Science in Civil Engineering (1979) as well as a Bachelor of Arts from the University of New Brunswick, and a Bachelor of Laws (1987) from the University of Alberta.

Mr. Levert replaces Wendy Ryan-Bacon, P.Eng., who has served as Interim President since March 1997. "The Board of Directors expresses deep appreciation to Ms. Ryan-Bacon for the guidance and support she has provided CCPE," Mr. Desjardins says. "We feel most fortunate that someone of her capabilities was available to direct the national office during this period."

Mr. Desjardins adds that Mr. Levert will be taking up his new duties effective February 25, 1998. Mr. Levert and his family will move to Ottawa from Edmonton. He and his wife, Kate Westman, have two sons: Brett (14) and Phillip (13).

The Canadian Council of Professional Engineers is the national council of provincial and territorial associations of professional engineering, which represent the more than 160,000 professional engineers in Canada. □

## Westman Chapter News

By: S. Trivett, P.Eng.

**T**he Royal Oak Inn was the setting for the second dinner-meeting of the year on February 4, 1998, for the Westman Chapter of the APEM. Eighteen members were in attendance and treated to an interesting presentation by Randy Hanson of USF Watergroup Inc. on new and emerging trends in municipal and industrial water treatment. His talk focused on pressure-driven membrane processes and their typical applications and engineering considerations. A video followed, presenting several case studies.

Brian Townes, P.Eng., Chapter Chair, presided over the meeting and covered chapter business prior to dinner.

In upcoming activities, the Westman Chapter will be participating in the annual Brandon Career Symposium. Its goal is to assist students in career planning by providing them the opportunity to interact directly with representatives of business, industry, government, and post-secondary institutions. The Westman Chapter will

have a booth with displays describing the many avenues and opportunities available in the engineering profession. □



Steve Trivett (l) thanks speaker Randy Hanson.

## Capitalizing on Today's Challenges Conference

(Cont'd from page 3)

research in the use of advanced composite materials as part of an innovative solution to the Global Infrastructure Crisis. Carol Roberts, P.Eng., and Sarah Bergmann presented a workshop on Internet sites of interest to any business, such as

Strategis, Online Bidding System, and Trade Business sites. D'Arcy Haid presented two workshops on identifying and dealing with an 'addiction to perfection', and identifying and breaking down the barriers to one's success and achieving one's dreams.

Students in grades 10 to 12 were introduced to engineering through a variety of ice-breakers and workshops, including a panel discussion with representatives of the Faculty of Engineering and the

University of Manitoba. Another workshop prepared by Jennifer Schick and Maria Salazar introduced the students to engineering principles through hands-on activities, which included a competition to construct a tower, entirely out of straws and tape, which would support a tennis ball. Professors Kinsner and Balakrishnan from the Faculty of Engineering took the students through an introduction to the principles of robotics in afternoon workshops. Participants in the robotics workshop were invited to attend a hands-on workshop later in the fall.

The Royal Crown Conference Centre provided a comfortable and convenient venue for the conference, along with a tasty lunch and refreshments. Thanks are extended to all the organizers, workshop leaders, and participants, as well as companies and organizations providing financial sponsorship and a variety of door prizes. Feedback from participants is welcome at any time and can be directed to Irene Mikawoz, P.Eng., at the Dean's Office, Faculty of Engineering, University of Manitoba. Feedback will serve to make next year's conference another relevant and worthwhile experience for participants. □

## To Advocate or Not to Advocate?

By: S.C. Alford, P.Eng.

Should provincial engineering associations provide advocacy and other member services? That is the question that is being examined by your counterparts in Ontario. And make no mistake, as the largest engineering association in Canada, what they decide can have implications for all of us.

The Association of Professional Engineers of Ontario (PEO) has formed a task group to examine whether the association should have a role in promoting engineers' interests and in providing services to members. Member services include many things, some of which are currently provided (salary surveys, group insurance, training, employment listings, etc.) and some of which are not.

Once this task group has completed its study of the issue, it will be making recommendations to the PEO Council. This may result in the PEO broadening its mandate to more effectively serve members. It may result in a decision to reduce member services. It could also result in a decision to create a separate provincial or national body to provide advocacy and member services, or it could result in a decision to throw more support behind existing organizations such as the Canadian Society of Professional Engineers. The eventual outcome in Ontario may serve as a model for the other provincial engineering associations.

There are compelling arguments on both sides of the issue. The following table summarizes some of the points being made by those actively involved in this interesting debate:

<i>Should a provincial engineering association provide advocacy and member services?</i>	
Arguments against:	Arguments for:
<ul style="list-style-type: none"> <li>■ Provincial engineering acts (and therefore engineering associations) were created for the purpose of protecting public interest, not for providing member services.</li> <li>■ Providing advocacy and member services puts the association in a conflict of interest with its primary role of protecting the public.</li> <li>■ If engineering associations are seen as promoting self-interest at the expense of public interest, then provincial governments may abolish engineering acts and strip the profession of self-regulation.</li> <li>■ An independent body may provide advocacy and member services more effectively than a joint regulatory and member-service association.</li> <li>■ The medical and legal professions have separate regulatory and advocacy bodies and have been effective in protecting their members' interests.</li> <li>■ Some engineers feel there is no need for advocacy services.</li> <li>■ Mandatory practising fees for services outside the scope of a provincial engineering act may give rise to a legal challenge.</li> </ul>	<ul style="list-style-type: none"> <li>■ Some engineers feel the profession's status and remuneration have fallen behind other professions and as such, there is a need for advocacy.</li> <li>■ Engineers pay fees to run the association and should therefore receive services for their money.</li> <li>■ Engineering associations already provide some member services (salary surveys, sports events, group insurance, professional development, etc.)</li> <li>■ Most advocacy and member service work is not in conflict with the public interest. (e.g. training benefits members but also benefits the public by ensuring members' knowledge is up-to-date. Advocating strict member entrance requirements benefits members by reducing competition but also benefits the public by ensuring engineers are highly competent.)</li> <li>■ Collectively, engineers have enough integrity to prevent Association action that will harm the public.</li> <li>■ As long as engineering associations are doing a reasonable job in protecting public safety, it would not be in governments' interests to repeal engineering acts just because associations are providing advocacy and member services.</li> </ul>

## Coming Events

### The City of Winnipeg CentrePlan initiative "Building Blocks" Centreplan Housing Forum

Tuesday, May 5, 1998,  
Pantages Playhouse Theatre.

For more information contact Angela Mathieson at 453-8647.

### Women in the Workplace

#### A Conference for Engineers, Scientists, Technologists and Mathematicians.

May 21 to 23, 1998,  
Vancouver, B.C.

For more information call the DAWEG voice-mail (606-878-7755) or check the CCWEST web page ([www.cwest.org](http://www.cwest.org))

### The Deep River Science Academy

Whiteshell Campus, Pinawa, Manitoba.  
June 21 to July 31, 1998

Students aged 15 to 18 participate in real scientific research at Whiteshell Laboratories. For more information call Carol Findlay at 204-753-8848 or 1-800-760-DRSA.

### 1998 Canadian Dam Association Annual Conference

#### System Stewardship for Dams and Reservoirs

September 27 - October 1, 1998  
Halifax, Nova Scotia.

For more information call Anne Rockwell at (902) 428-6178, Fax (902) 428-6101 or enter WWW conference site via CDA "1998 conference" link at <http://www.cda.ca>

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