Publications Mail Agreement Number 40062980

THE KEYSTONE PROFESSIONAL

In This Issue:

APEGM The Association of Professional Engineers and Geoscientists of the Province of Manitoba

APRIL 2006
www.apegm.mb.ca

Early Achievement Award Presented to AMEEN SUBRAMANIAM DERAJ, B.Sc. (Civ), M.Sc., P. Eng.

Ameen DeRaj received his Bachelor of Science and Master of Science in Civil Engineering from the University of Manitoba in 1995 and 1998 respectively. He is currently enrolled in the PhD program at the University of Manitoba where he completed his course work in 2005 and is currently working on his thesis. Ameen is pursuing his goal of advancing his experience / education in the area of advanced composite material under the guidance of Dr. Aftab Mufti.

Ameen has shown his faith and commitment to the engineering profession through advancing his education working full-time for Dillon Consulting Limited and looking after a young and growing family. He has been a member of APEGM since March 2002.

Ameen started his engineeering career with Dillon Consulting Limited in 1997. He has progressed within Dillon from a junior engineer to a project manager involved mainly in structural engineering of transportation projects. His experience includes site inspections, condition assessment, preliminary and detailed design, contract document preparation and contract administration work in concrete, steel and timber highway bridges. Dillon recognized Ameen's contributions to the company and technical ability by appointing him an Associate of the firm in 2004.

Ameen has contributed technically while at the same time displaying leadership, integrity, and initiative to various projects during his tenure at Dillon. Some of his

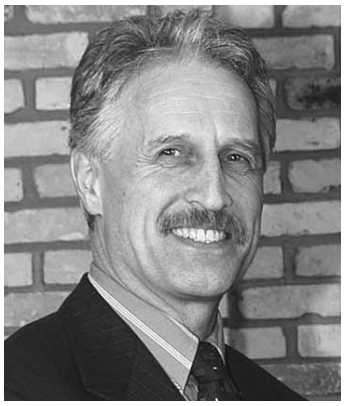
Ameen Subramaniam Deraj

Continued on page 15

Merit Award Presented to ALAN K. VOWLES, Dipl. (Geol.), P.Geo.

Alan K. Vowles is a Project Geophysicist with the Hudson Bay Mining and Smelting Co. in Flin Flon, Manitoba, and a past President of Wavemill Energy Corp. He was directly responsible for the technological advancement which enables the surveying (borehole geophysics) of horizontal holes and 'up' holes from underground drill stations to depths in excess of 1000 metres. This new surveying technique has been adopted by Hudson Bay Mining and Smelting as well as Falconbridge and other mining companies. Under Alan's leadership, the Hudson Bay Mining and Smelting Flin Flon Geophysical Department, past and present, has been directly responsible for several discoveries including the Chisel North Mine at HBM&S in northern Manitoba.

In addition to his geophysics work, Alan and his brother managed to find time to develop the wavemill – The Wavemill® is a new technology that harnesses the energy contained in ocean waves. The Wavemill® converts this alternate energy to a usable form to power a variety of processes. One of these is the production of freshwater through desalination of seawater. The generation of electricity and production of hydrogen fuel are other planned applications. Initially validated



Alan K. Vowles

Continued on page 15

Professional-in-Training Award Presented to MPHOENTLE OTUKILE, B.Sc.(Comp)., M.Sc., EIT

Mpho Otukile was born in Bostwana in southern Africa. Through hard work, intelligence, and curiosity, she obtained an academic achievement scholarship to pursue an engineering degree at the University of Manitoba, where she completed her B.Sc. in Computer Engineering in 2001.

Mpho demonstrated particular interest and skill in research and applications of engineering in business. As an example, she designed a wireless identification system that will efficiently and effectively assist a university to manage final exams. Mpho utilized beta wi-fi technology and collaborated with her thesis advisor, a local company named CDS Technologies, and TRLabs to develop the application. In those days, wi-fi was not a household technology. It was still considered a technology in research labs looking for applications. Mpho's system was demonstrated to CDS Technologies and they were especially impressed with her work.

Mpho then obtained a scholarship to pursue her M.Sc. in Computer Engineering and once again demonstrated aptitude for research and engineering applications and her capacity to collaborate with industry. This time Mpho

Mphoentle Otukile

Continued on page 15

THE KEYSTONE PROFESSIONAL

APRIL 2006

Published by the Association of Professional Engineers and Geoscientists of the Province of Manitoba

850A Pembina Highway, Winnipeg, Manitoba R3M 2M7

Ph. (204) 474-2736 Fax (204) 474-5960
E-Mail: apegm@apegm.mb.ca

The Communications 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 topics that would be of interest to the membership.

Publications Mail Agreement Number 40062980

New Members Registered January & February 2006

M. Akhavanbazaz	D.C.N. Essery (ON)	T.G. Longlais (IL)	D.A. Siepman
R.J. Belanger (QC)	B.E. Evans (ON)	J.W. MacKeracher (ON)	G.C. Simpson (SK)
E. Bergen	G.T. Fortune	A. Malbasa (ON)	S. Strzemieczny (ON)
S.M. Breese (ON)	T.T. Fujikawa (UT)	M.S. Mudhar (ON)	M.P. Szmon
W.K. Byczek	D.G. Gavala (BC)	W.M. Netsere	A.A.B. Tims (ON)
V.K. Campbell (ON)	S.H. Gebler (IL)	T.J. Patience	E.D.J. Toupin
H.A. Cea Canas	G.A. Harron	A.E. Pauch	B. Trachenko
C.D. Cousin	N.J. Higgins (AB)	S.M. Peckover	B.G. Weir
R.A. Csupak	W.R. Hoyle (ON)	A. Perez	C.R. Wiebe
S.G. Daum (SK)	M. E. Hudek	A. Pochanart	Y. Xiao
V.L.T. Doan	M.K. Kwiatkowski	A.T. Rideout (NS)	
H. Dong	R.R.J. Laurin		

Reinstatements January & February 2006

K.C. Kapush (ON)	D.A. Lee (SK)	L.I. Popescu (ON)

Members-in-Training Enrolled November & December 2005

D. C. Bonin	A.B. Fanai	P.L. Keysers	Y.R. Sanchak
A.R. Chevrefils	N.P. Figueroa	Z. Liu	J.L. Scott
V. Cicovski	M.A. Froese	J.P. MacInnes	A.E. Sedik
E.C. Codispodi	C. Gheorghiu	M. Mantaci	R.B.V.N. Thadani
S.M. Crouch	L.C. Hunter	T.F.R. Nadeau	C.Z. Warrack
B.C. Di Marco	N.A. Kaminski	A.K. Punj	
J.S. DiGaetano	P.A. Kammerloch	N. Sabet	

Licenses Issued January & February 2006

J.M. Druck (PA)	P.D. Galloway (NJ)	D.A. Keef (CA)

Certificates of Authorization January & February 2006

Atlantic Industries Ltd.	J and B Engineering Inc.
Construction Control Inc.	Lampadaires Feralux Inc.
Demaiter Engineering Inc.	Sargent & Lundy Canada Company

2006 APEGM AGM TO BE HELD IN THOMPSON, MANITOBA
OCTOBER 26-28, 2006

2006 Student Networking Dinner

T.B. Bowden, P.Eng.

It proved to be another successful night of networking at this year's student dinner held at the Fort Garry Hotel on January 26th. Our keynote speaker, Helen Dyrkacz, did a fantastic job of getting the crowd talking and out of their seats. Her discussion of leadership skills in the workplace provided great advice for all in attendance.

This year marks the first time that the Geology Club has joined in the planning of the event historically hosted by APEGM and UMES. The event is now truly a joint venture allowing both Engineering and Geological Science students a chance to meet professionals in their own discipline.

The Geological Sciences department was represented by Dr. Nancy Chow, P.Geo. (Head of Geological Sciences). The Engineering department representative was Dr. Ahmad Shalaby, P.Eng. (Associate Dean of Undergraduate Studies). The host on behalf of APEGM was Robyn Taylor, P.Eng. (APEGM President-Elect).

Unfortunately, the attendance for this event has been declining over the past five years. It would be very disappointing to lose this great networking experience so please forward any suggestions on how to improve this event to the APEGM website.

I would like to acknowledge the generous support of the companies that sponsored tables at the event: EH Price, Manitoba Hydro, KGS Group, FWS Construction, Acres Manitoba, Manitoba Geological Survey and UMA Engineering.

I would like to thank the planning committee for all their help in organizing this event: Natalie Wilson, Jonna Deutscher, Lindsey Robinson and Selana Appravoo.

Also thanks to William Boyce and Angela Moore from APEGM for their support. ■

Professional-in-Training Award Presented to TIMOTHY J. KRAHN, B.Sc. (Civil), M.Sc., EIT

Timothy Krahn received his Bachelor of Science in Civil Engineering at the University of Manitoba in 2003 and his Master of Science in Geotechnical Engineering in 2005. He holds a Certificate in Carpentry and Woodworking from Red River Community College and a Diploma in Bible Studies from Winkler Bible Institute. During his undergraduate and postgraduate studies, he held a variety of part-time positions including teaching assistant, laboratory technician, researcher on building codes, draftsman, child care worker and carpenter. He is currently a designer and researcher with Building Alternatives Inc. in Altona, Manitoba, where he is developing new technologies for private housing.

Timothy Krahn was the sort of graduate student every academic advisor wants. He is bright, hard-working, independent, receptive of guidance, good-natured, and a pleasure to have around. His research was about understanding how sandbag dikes perform during flood conditions and how they can be made stronger to provide better margins of safety against failure. The research is a shining example of how to benefit the local community, while at the same time providing new breakthroughs in fundamental scientific knowledge. The project involved laboratory studies at the University of Manitoba and Queen's University, Kingston. More importantly, he built an innovative large engineered wood structure in Winnipeg to load full-scale sandbag dikes up to ten feet tall with ponded water. The dikes included sensors to monitor movements and water flow during testing. The results are a world-first and have captured considerable attention from local politicians and media. The project was featured in the Winnipeg Free Press, Winnipeg Sun, newscasts on CBC and CJOB, and a documentary for Prairie Public Television. Tim Krahn values opportunities. He had to listen to citizens' flood stories, learn from their experience and incorporate their suggestions into his work. This has now been incorporated into instructional films in both English and French that will provide better levels of guidance for homeowners in future flooding events. They will be used not only in Manitoba but elsewhere in Canada and abroad.

There is a whole other side to Tim Krahn's life through his volunteer service to his community, the university and his profession. He has served as a volunteer carpenter and bricklayer in Mexico, a volunteer at the Winnipeg Folk Festival, a design-code consultant for Lazarus Housing, Winnipeg, and on the local executive of the Canadian Geotechnical Society. He was an excellent Teaching Assistant at several courses in Civil Engineering at the University of Manitoba, where he was awarded an Outstanding Teaching Assistant Award in 2004.

Timothy J. Kraun

At the University, he served on the Civil Engineering Department Council, the Graduate Student Association, and the Civil Engineering Graduate Student Association, where he raised support for 'Engineers without Borders'.

Timothy Krahn is a stellar example of outstanding professional accomplishment and community service early in his career. ■

Certificate of Engineering Achievement Presented to STANDARD AERO LIMITED for the Aircraft Engine Repair and Overhaul Process Improvements

Over fifteen years ago, Standard Aero recognized the need to change its business approach and decided to adapt to change through a cellular re-design methodology. This new cellular approach required them to develop a data-driven industrial engineering team to analyze the current production environment and re-design the facility for optimal operating conditions. The engineering analysis focused on reviewing existing business practices and developing new models focused on sustained continuous improvement. Based on the success of the first cell redesign, Standard Aero has re-engineered over 195 production cells worldwide in an effort to meet both customer and internal needs. As a result of the re-design activities, revenue has increased from $100 million to $1 billion CDN over the last fifteen years across all of Standard Aero business units. The re-design methodology applied in Standard Aero facilities has been so successful that Standard Aero has established a new company directly focused at improving customer facilities and is using this to improve repair and overhaul facilities at a number of United States Airforce bases.

Kim Olson, P.Eng. accepts the Achievement Award on behalf of Standard Aero from APEGM President, Dr. Digvir S. Jayas.

One of Standard Aero's market differentiators is its ability to repair aircraft engine parts through in-house repair technology. This capability, not only provides its customers with lower priced repairs, but also allows Standard Aero the ability to build a superior engine by better controlling the fits and clearances of engine internal components. In order to apply alternate technological solutions, Standard Aero has established a Design Approval Organization (DAO) that is authorized to create, review and approve data on behalf of the Canadian Minister of Transport. The scope of the DAO authorization includes approval of major and minor repair procedures and deviations from the manufacturer's specifications. This authorization is dependent on having qualified engineering personnel who are able to review and make findings of compliance with respect to the applicable aviation regulations.

One of the most critical requirements for repairing engines is having the ability to properly test the engine prior to installation in the aircraft or industrial application. Standard Aero operates over 10 gas turbine test cells, which were designed and constructed by Manitoba engineers. Standard Aero employs over 15 engineers who are dedicated to maintaining and upgrading these critical assets.

In addition, Standard Aero relies on several performance engineers to support the wide number of gas turbine engine models maintained by Standard Aero. These performance engineers were developed in-house to provide specialized technical and analytical engineering support related to engine performance, troubleshooting information and build techniques for in-house support and its customers. The performance engineering role is critical to supporting production and allows Standard Aero to participate in advanced engineering projects with the engine manufacturers such as GE, Pratt & Whitney, and Rolls Royce. Standard Aero has applied these tools to some of the largest engine fleets in the world in an effort to support the customer's goal of reducing its operating costs. Standard Aero has come a long way in the last fifteen years, through the engineered solutions originating from the skills and dedication of its many Professional Engineers.

The Association is pleased to recognize Standard Aero Ltd. for its achievements of improving its aircraft engine repair and overhaul processes and feels it is a worthy recipient of the Certificate of Achievement. ■

President's Message

Dr. Digvir S. Jayas, P.Eng.

Mobility Demystified

Mobility is a major issue for most professionals in today's mobile society. A lot of professionals move to different parts of the country for permanent, short-term (a few weeks to a year or so), or very short-term (one day to a few weeks) work. In Canada, we do not have a national licence and the regulation of the professions, for the protection of the public, is in the provincial domain. In other words, a professional engineer must be registered where he or she is practising. In this context, mobility means a professional engineer should be able to register in another province with ease while registered in one province. It does not mean that a professional engineer should be able to practise engineering in another province with registration in one province.

The obvious question for a professional engineer is: how do I manage my legal requirement to register in the jurisdiction of the practice while managing these job assignments?

The constituent associations have worked together through the Canadian Council of Professional Engineers (CCPE) and through the Canadian Council of Professional Geoscientists (CCPG) to develop Inter Association Mobility Agreements (commonly known as IAMAs) for professional engineers and professional geoscientists, respectively. For complete details on the IAMAs please refer to the CCPE website (www.ccpe.ca) or CCPG website (www.ccpg.ca) under "mobility". The IAMAs basically state that a member in good standing in the home association, who has not been disciplined in the past, has no disciplinary action currently pending, and has authorized the home and host associations to share information about him/her, will be accepted by the host association. There is a notwithstanding clause in the IAMA which is only infrequently invoked by the associations. So for all practical purposes, professional engineers and professional geoscientists can move from one jurisdiction (province, territory) to another jurisdiction without a re-examination of their credentials and experience requirements.

This being said, there are some implementation issues which are imbedded in the processes or Acts of some associations (processes are easier to amend than Acts). The time taken for approval of an IAMA application may range from a few days in some associations to a few months in others. Some of these delays are caused by rigidity of Acts. For example, an Act may specify that all licences must be approved by a Committee of the Council which may only meet once a month. Thus, depending on the date of application, the approval process may take up to a month. Changes to Acts take time but several associations are looking into processes to expedite the approval process.

Let us assume that most associations can reach the stage where IAMA applications can be processed in three business days or less. Under this scenario, is there a mobility issue? In my humble opinion, there is no mobility issue. Certainly, the current practices of all associations allow registration in reasonable time to deal with the "permanent" and "short-term" moves. An engineer should be able to apply and get licenced in the jurisdiction of practice.

Another way of managing this is to project forward and get licenced in multiple jurisdictions, as many professional engineers do. Some people argue that the processing of IAMA applications in even three business days is too long. Some "very-short term" assignments are only one or two days long. For these instances, associations should continue to explore processes which facilitate quick licensing and thus promote legal practice of professional engineering in Canada. For example, associations may develop a process of pre-evaluation where the applicants are approved for license and pre-approved applicants can be registered quickly on payment of applicable fees. ■

Loreen Dunklee

Mrs. Loreen Dunklee, the executive secretary and bulletin editor at the Association for almost 25 years, passed away peacefully in Victoria, B.C., on Friday February 17. She always took an interest in the Association and it became her career as well as her vocation for those many years. She and her late husband Don (who predeceased her in 1964 and was himself a professor at the U of M in the faculty of architecture) set up a number of entrance bursaries and scholarships for students at the U of M and at the U of Victoria.

Most recently, (about 5 years ago), Loreen donated with great pride, the Presidents' Plaque which presently is mounted in the Board Room of the APEGM, and on which are listed the names of all the Presidents of the Association since inception. She had met and known more than 20 of them personally. They had all worked with her on the bulletin as they became more and more involved in the association. ■

In Memoriam

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

Paul Robert Thompson • Keith Gerard Miller

Roy Brent Amero • Mohamed Sideek Khan • Asad Asghar Ali

Kenneth Lawrence MacCharles • Harry Balodis

LETTER TO THE EDITOR

It was with quite a shock that I read "... choosing components that adhere to the 802.11a standard will give you an inherent security advantage." in the latest Keystone (PD Event: Networks at Home: How to Keep your PC(s) Happy)

After browsing the slides of the presentation, I see that the presenter offered 8 pieces of advice for securing WiFi networks, yet the author chose to highlight the most useless and ineffective one of using an incompatible, effectively obsolete standard.

Using steps 1-7 (changing passwords, filtering, encryption) will protect your network from all but a determined and focused attacker. Using 802.11a only means you're going to pay more for equipment (when you can find it) that you can't use outside your house.

—S. Walberg, P.Eng.

Dear Mr. Walberg,

I'm really glad to see that you read my article, followed up by reading the slide presentation so kindly provided by Joe Dobrovolny and took the time to comment on it. It's always nice to know that someone is paying attention.

In writing an article I face several challenges. I have little space, I need to convey a sense of the event I am reporting on and I hope to generate some interest and even controversy on the subject. What I can't do is give people all of the information that they would have received had they attended the event.

You are certainly correct that there are numerous steps people using any network can take to improve their security. It was not my intent to "preach" a solution or an approach to anyone. We all have different network requirements and are all free to choose the approach we want, including taking no security measures at all.

Certainly Joe discussed the other security measures you mentioned. He also, correctly, pointed out that one very effective way to improve wireless security is to simply operate at a different frequency. The 802.11a standard does that and as a result does give you an inherent security advantage. You may feel that advantage is not worth the price. That's your choice. I'm simply passing on a perhaps lesser known option that Joe brought forward.

Thanks again, and keep reading,

—N.J. Kelly, P.Eng.

Executive Director's Message

Grant Koropatnick, P.Eng.

P.Eng. On Your Business Card

When you're the Executive Director you are asked all kinds of questions. The topics range from The Engineering and Geoscientific Professions Act, to building codes, legal matters and even questions on where to catch big Walleye and other personal interest items. One question that haunts me is the value of the "P. Eng." or "P. Geo." behind a member's name. Strangely, this question is asked mostly by non-member engineers and geoscientists. They mistakenly criticize the designation as having "no value" and that the dues paid is wasted money. I disagree!

I recently discussed this topic with Larry Staples, President of APEGGA (Alberta). At the risk of "borrowing" a few lines from him (…thanks Larry), let's take a look at some of the many reasons for the value of "P. Eng." behind your name:

1. On your business card the "P. Eng." is noticed. Many times, in many settings (before it said "APEGM" at the top), when I've handed my business card to a non-engineer, they look at my card and reply "…oh, you're an engineer." The "P. Eng." on your business card is noticed.
2. When I am introduced as a professional engineer people assume that I am smart, practical and have an interesting career. Not a bad starting place in a conversation, huh? What you say after that is up to you, but generally people accept you as a knowledgeable, ethical person at the start of each introduction because of the "P. Eng."
3. APEGM does a good job of weeding-out unqualified or unethical practitioners, who could by association drag down my reputation and my ability to earn a good living. We can give a hearty thanks to our many dedicated volunteers on the Admissions committees (Academic Review, Experience Review, Registration) and Investigation Committee for upholding our reputations in this way.
4. Ask yourself "…do I want to invest in a mining company where the geoscientist in charge is NOT a registered professional geoscientist?" Remember Bre-X? Say no more.
5. For some employers, it means more pay. I realize this is not a general rule, but I can think of times when it did pay off for me and many fellow professional engineers.
6. It shows that you are part of a profession. You are not part of a trade, guild, club or union. You are part of a body of qualified persons with a moral and ethical responsibility to the public by virtue of specialized knowledge, training and skill. You can opt out of this responsibility if you want, but I choose to opt in!
7. The "P. Eng." on your business card says to society that you are serious about your career. Living under self-governing legislation is not always easy and takes a commitment of self-will and self-determination to fulfill the requirements without being a hypocrite.
8. Attaining the "P. Eng." designation is a sign of self-respect. Ultimately, upon registration with APEGM you show that you believe in yourself and your fellow professional engineers.

Please join with me in promoting the profession by talking to any of your work colleagues who are not registered professional engineers or geoscientists. I realize they may have strong reasons for not registering, but we'd like them to reconsider the value of the "P. Eng." and "P. Geo." and join us as APEGM professionals. Also let me say, if you can add some good reasons to the above list, please send them in to apegm@apegm.mb.ca. I'd appreciate your comments. ■

CCPE CEO's Message

Marie Lemay, P.Eng., Ing.
Chief Executive Officer
Canadian Council of Professional Engineers

Bridging Government and Engineers Project: Linking policy and progress

With the recent federal election, government and policy have been at the forefront of Canadians' minds. Consequently, as the chief executive officer of the Canadian Council of Professional Engineers (CCPE), I believe it is timely and of extreme importance to bring engineering issues to the forefront of policy-makers' minds.

With more than 160,000 professional engineers across the country, Canadian engineers are in a unique position to link policy with progress. Engineers have the skills and expertise required to work with the government and devise innovative solutions to challenges like climate change and infrastructure deterioration.

In an effort to have the voice of our profession heard, CCPE has taken on a significant number of government relations initiatives, including the launch of the *Bridging Government and Engineers* project.

Bridging Government and Engineers is a grassroots initiative that will link Canadian engineers with their local members of Parliament. While a pilot version of *Bridging Government and Engineers* begun in 2004, CCPE's Board of Directors gave approval, in October 2005, to proceed with the full implementation of the project. This is a significant step towards increasing the engineering profession's influence in the public policy process.

Bridging engineers with key political decision-makers will not only build the federal government's awareness of the engineering profession, but will also enable engineers to make a valuable contribution to issues that affect Canadians at large.

Under the guidance of CCPE, *Bridging Government and Engineers* volunteer delegates, or "engineering champions" will be selected to represent the engineering community.

After undergoing a brief training session, champions will set up meetings with their local MPs to discuss important engineering issues that affect the health, safety and well-being of all Canadians.

These meetings, which will occur in the champions' constituency, should help foster a sustained dialogue between the engineering community and policymakers.

Currently, CCPE is working with the provincial and territorial licensing bodies to identify suitable candidates to take part in the program. We are looking for volunteers who are good communicators and passionate about the engineering profession.

If you are interested in representing the engineering profession and participating in this exciting project, please contact CCPE's Manager of Government Relations, Clarke Cross at clarke.cross@ccpe.ca

Please send your contact information, including your home postal code, as this information will be needed to identify your local MP.

As we move forward, I am very excited about *Bridging Government and Engineers* project and I am confident that in the near future, the voice of Canada's engineers will be resonating loud and clear on Parliament Hill. ■

Meet Your New Councillor, Bob R. Malenko, P.Eng.

A.N. Kempan, P.Eng.

New Councillor Bob Malenko learned the value of hard work and persistence early in life while growing up on a farm near Sundance, Manitoba. His first foray into higher education ended in 1976 when he earned a degree in Mathematics and Astronomy from the University of Manitoba. Then, as Bob puts it, he "saw the light" and returned to the U of M to upgrade his credentials, graduating a second time in 1983 with an electrical engineering degree (B.Sc. E.E.). Not long after graduation, Bob became a professional engineer in 1984.

Bristol Aerospace provided Bob with his first engineering job. In the first phase of his career with Bristol he moved from junior engineer to senior engineer in the Space Science Division, working on Weather Data Collection systems. He advanced to project engineer when he worked on his next environmentally-related project, an Avalanche Prediction System for Parks Canada at Rogers Pass, B.C. and Banff National Park.

Bob took time off from Bristol to upgrade his skills by attending a six-month technology exchange program with the Industrial Application Microelectronics Centre at the University of Manitoba. There he studied VLSI design and real-time multi-tasking software, with hardware implementations.

Upon his return to Bristol, Bob became senior engineer for the CF-5 Fighter Aircraft Avionics Update Project. This work included a complete new avionics platform including computers, navigation systems, and Head Up displays.

His next career move was to Unisys Defence Systems in Winnipeg, which in 1988, was gearing up for the ill-fated EH-101 helicopter project. Bob became an entrepreneur in 1989 and formed his own software and systems development business. He continued in private practice until 2000.

In 2001 Bob joined InfoMagnetics Technologies Corporation (IMT) as Director of Information Services. He is responsible for business development and program management for the Information Services division, with particular emphasis on business with the Department of National Defence.

After many years of city living, Bob and wife Wilma returned to rural life by settling near Lockport, Manitoba. Their children, Dana and Garrett, are maintaining their ethnic heritage by attending the Ukrainian program at Happy Thought School.

New Councillor, Bob R. Malenko

Bob was inspired to become more involved with APEGM after he participated, as an IMT representative, in the IEEQ (Internationally-Educated Engineers Qualification) Pilot Program.

Welcome to APEGM, Mr. Malenko. With your varied experience and dedication you make a fine addition to Council. ■

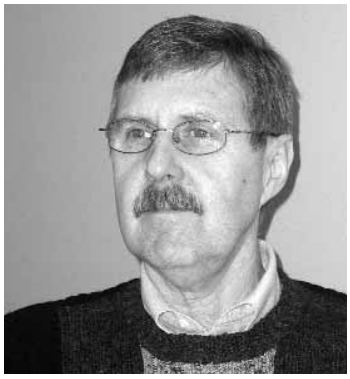
Meet Your New Councillor – Tim Corkery. P.Eng.

J. Etcheverry, GIT

APEGM council is pleased to welcome Tim Corkery.

Born in Niagara Falls, and raised in Burlington, Ontario, Tim lived in Southern Ontario until he completed his B.Sc. at McMaster University and moved to Manitoba in 1972. Tim got married during his undergraduate studies, and now, along with his wife, enjoys a family of four academically accomplished children and one grandchild.

Tim has been working as a geologist with the Government of Manitoba's Department of Industry Economic Development and Mines for the past 32 years. Currently he is the Manager of the Compilation and Partnership Section and Acting Chief Geologist of the Mineral Deposits Section of the Manitoba Geological Survey. He holds a M.Sc. from the University of Manitoba where he studied volcanogenic massive sulfide mineralization. In his career as a Precambrian Geologist he has authored and co-authored numerous publications including maps, papers and sections of textbooks. More recently Tim has managed a number of multi-year regional mapping programs involving industry-university-Federal and Provincial Government surveys.



New Councillor, Tim Corkery

Tim is affiliated with APEGM, the Geological Association of Canada and the Canadian Institute of Mining. Since 1972 he has been a fellow of the GAC where he has been a member of the National Council, has served as the head of the Education Committee, and continues to be active in the Precambrian Division.

The mobility of professionally registered Geologists between provinces is Tim's chief concern. He is working with other Professional Geoscientists on the APEGM council to reduce the turn-around time for Geoscientists registered in other provinces to become registered in Manitoba. It is their belief that a turn-around time of three working days is feasible, however, for that to be sustainable, some changes to the review process need to be made.

Tim has been impressed with the efficiency to which Council responds to issues at meetings and has enjoyed his experience so far.

Tim will be a strong advocate for Geoscientists on APEGM council.

Please join in welcoming to APEGM, councillor Timothy Corkery. ■

Meet Your New Councillor – Avery Ascher

M. E. Baril, P.Eng. (bio provided by A. Ascher)

APEGM members who have worked in northern Manitoba know that there are both unique challenges and rewards to be found "north of 53". Avery Ascher, appointed as a lay councillor to serve on APEGM Council from 2005-2007, has also experienced those kinds of challenges and rewards firsthand.

As a professional writer/journalist, Avery regularly writes about northern issues and people for a wide range of publications. Her work has been published in the Canadian environmental magazine *Alternatives Journal*, the national aboriginal newspaper *Windspeaker* and the *Winnipeg Free Press*. With a strong interest in and commitment to environmental issues, she also writes a weekly column exploring the interlinking of the environment, technology and society for the community newspaper in The Pas. Avery also plans and delivers environmental education programming to schools in The Pas through the Atikameg Forest Centre. The AFC operates under the authority of the Manitoba Forestry Association.

Born and raised in Edmonton, Alberta, Avery attended the University of Alberta where she obtained a Bachelor of Arts in English. She then took further training and received a Radio & Television Arts Diploma from the Northern Alberta Institute of Technology. After working as a radio reporter and following a position as communications officer with the Canadian Forest Service in Edmonton, Avery moved to Winnipeg in 1991. The strong comfort level with industrial issues and terminology she gained while writing for a range of trade publications in Winnipeg provided a smooth transition to freelance work when she moved to The Pas in 1996.

In writing for trade publications serving various industries including engineering, trucking, water and wastewater, construction and oil and gas, Avery has visited many a work site and factory floor, earning what she likes to call her "hard hat diploma." She has completed a wide range of communication support contracts for clients such as Tolko Industries Ltd., Manitoba Hydro, Manitoba Clean Environment Commission and Nunavut Planning Commission.

Avery has regularly attended APEGM Kelsey Chapter meetings over the last three years, and has completed two courses via distance learning through the University of New Brunswick's Faculty of Engineering: Business Planning and Strategy in an Entrepreneurial Environment (2003), and Managing Engineering and IT Projects (2004).

Avery sees her role on the APEGM Council as one of bringing perspectives from outside the engineering profession to the Council's decision making, as well as providing strong communication skills in linking the Council with people in diverse fields where goals and interests are complementary. Both her career and volunteer work over the years have brought her into contact with many different industries, as well as with government, non-profit, aboriginal, environmental and social justice sectors. She has a strong interest in how people create, relate to, and are impacted by, their built environment. In particular, as it relates to APEGM, she is interested in the engineering practitioner's role in creating built environments that contribute to an economically, environmentally and socially sustainable society. She presently serves on APEGM's Environment and Sustainable Development Committee.

New Councillor, Avery Ascher

Avery is married to Paul Chapman, Silvicultural Forester with Tolko Industries Ltd, and has two daughters aged 20 and 16. Her interests outside of work include cycling the network of bush trails near her home, and creating artwork and dance.

Avery looks forward to getting to know her APEGM colleagues. Based on the experience she brings to her role as one of Council's Appointed Councillors, APEGM members will surely benefit from Avery's presence over the next two years. ■

Meet Your New Councillor – Bill Girling, P.Eng.

A.A. Poulin, P.Eng.

Bill Girling is a Professional Engineer and has been with Manitoba Hydro for the past 21 years. Bill started his career working for local consulting firms in the storm water management field, before he went on to work for Manitoba Hydro as Hydrologic Studies Engineer and more recently as System Capability Engineer.

Bill graduated from the University of Manitoba in 1977 with a Bachelor's degree in Civil Engineering. Most of his career has been spent with Manitoba Hydro working on a broad range of projects related to planning of future hydroelectric generating facilities including river ice engineering, hydrologic modeling, increasing the output of existing hydro plants and evaluation of long-term water supply.

Some of Bill's main areas of expertise are in climate change impacts, specifically major drought impacts, and hydropower system planning. More recently Bill has been working on modeling of the integration of wind power into Manitoba Hydro's system.

Bill is active in a number of professional associations and committees: Association of Professional Engineers of Manitoba (member since June 1979); Canadian Water Resources Association – Past-President of Manitoba Branch; Advisory Committee for C-CIARN (Climate Change Impacts Research Network); Steering Committee for Theme 3 of ArcticNet Climate Research Project; Review Panel for Manitoba Climate Change Action Fund; MHPEA Professional Development Committee Chair; Manitoba Hydro Generation Supply Efficiency Group (GENSEG) since 1999.

Bill has also published a few articles: He published and presented a technical paper on "Limestone GS Tailrace Ice Constriction Studies", June 1999 and co-authored a submission to the CWRA Water News – Technical Supplement on the Flood of the Century, September, 1997.

While on Council, Bill is interested in improving access to professional development for members and would like to help with efforts to raise the profile of Professional Engineers. He is also interested in working with university students and their transition into the work force. Bill developed a strong link to the University of Manitoba, Department of Civil and Geological Engineering by doing guest lectures, supporting Masters students, Co-op Students, and serving on a selection committee to hire a new professor in Water Resources. He has supervised junior hydrologic engineers and engineers-in-training, providing guidance and direction towards developing their professional skills.

New Councillor, Bill Girling

Bill was born and raised in Winnipeg. He and his wife met in university, have been married for 25 years and have two daughters. His wife is a curriculum consultant working in the Louis Riel School Division. Bill enjoys sports such as basketball, golf and water-skiing, and his hobbies include photography and cooking. ■

Meet your New Councillor – Arthur Chapman

M.E. Baril, P.Eng.

Arthur graduated from Carleton University in 1982 with a Bachelor in Journalism. He proceeded to work as a small-town reporter/photographer in The Pas, Manitoba for two years, as a TV critic for the Winnipeg Free Press for two years, as well as a reporter/researcher for CBC Radio in Winnipeg and Calgary. He decided this was not what he wanted to do and went to law school, obtaining his law degree from the University of Manitoba in 1989. He has not abandoned his initial passion for journalism as he has recently begun writing occasional freelance commentaries for CBC radio in Winnipeg.

Arthur practiced law for ten years, mostly in the areas of domestic, criminal and immigration law. Arthur decided he wanted to do something that, in his opinion, didn't involve helping someone by hurting someone else. He once again changed directions with his career and began working as an employment counselor at the International Centre, helping immigrants find work, many of whom are foreign-trained engineers. He has been working there now for three years and is enjoying it immensely.

Arthur started dealing with APEGM through his work at the International Centre, and was asked to join Council by Arnold Permut, P.Eng. He sees his role as being able to provide an outsider's perspective to the other members on the APEGM Council. Having worked as a lawyer and a member of the Law Society of Manitoba, Arthur is familiar with professional organizations. Another connection to APEGM is Arthur's fascination with buildings. He regularly watches "Frontiers of Construction", something he started doing long before he had anything to do with APEGM.

In his spare time, Arthur enjoys running (has completed the half and full Manitoba Marathons), skiing (all types), traveling with his family on extended car trips throughout North America, doing crosswords, sudoku (number placement puzzles), (I went on-line to find out what they were and am now likely to try some), and also reads a lot about history and current events (member of the West Kildonan Library book club).

Arthur was born and raised in Winnipeg and grew up in Garden City. He currently still lives in the area with his wife of almost 19 years, Jo-Ann, who is a research nurse at Health Sciences Centre, and their daughter Shari who is completing Grade 12 at the University of Winnipeg Collegiate.

New Councillor, Arthur Chapman

Arthur's experience can only complement Council's members and mandate. With his background in the media and the law, he will no doubt be a welcome and valuable addition to Council. ■

FINALLY!

"To say that we in engineering and computer science have been looking forward to today would be the understatement of the millennium."

Dean Doug Ruth's opening remarks at the opening of the Engineering & Information Technology Complex appropriately encapsulate the excitement and anticipation surrounding the opening of this facility.

More than ten years since first envisioned, the opening of this building was particularly important in that it was the major capital project for the University of Manitoba's $237 million Building on Strengths Campaign. It was also the largest capital project in the university's 128 year history.

Plans for the ribbon cutting ceremony began early in the building's construction which began in the spring of 2004. Several hard hat tours during construction followed in order to photograph and choose possible locations for the event to take place. As we were allowed to move into the building a mere three weeks prior to the opening ceremony, most of the decisions had to be made "sight unseen". A planning challenge indeed!

Why did we choose to hold the event on September 23rd, which would allow us so little time after moving in? September 22-24 was Homecoming Week at the University of Manitoba, and since so many of our alumni contributed to this building project, we wanted to honour them with the timing of the event. We also wanted to encourage other alumni attending Homecoming to participate in the opening.

Our V.I.P guests participating in the opening were "piped in" by the Engineering "Band" of 1980, which had conscripted new members from our current students. Hundreds of other guests and close to 100 student and staff volunteers were also in the atrium. They were easily identifiable through the bright red and blue golf shirts they were wearing, which were ordered specifically for the event. The volunteers wearing red were from Engineering, while the volunteers in blue were from Computer Science.

Once speeches were completed, it was time for the "ribbon" cutting. Our ribbon was actually a length of chain, and our scissors were actually 18 inch bolt cutters. The chain represents strength, and the important links being fostered by the Faculty of Engineering and the Department of Computer Science.

In addition to our speakers, several other contributors to the building were invited to join the cutting crew. Four student volunteers wearing the special golf shirts were also on hand to help hold the chain tight for the cutters. Special commemorative hard-hats were ordered for all the cutters to wear for the event, and take home as a keepsake.

Once the chain had been cut, and the building announced officially open, a wine and cheese reception followed in the atrium. Student groups set up information booths in Room 229, and volunteers assisted guests in self-guided tours throughout the new building.

If you missed it, it was quite a party. Don't worry, though, this September we will be celebrating the opening of the "new and improved" 1912 which is currently being gutted and renovated inside. ■

(Right) The new Engineering and Information Technology Complex at the University of Manitoba (Left) "Ribbon" cutting ceremony

Professional Development

Climate Change and Its Potential Impact in Manitoba

PD Presentation by Dr. Danny Blair • Report by B. Williamson, P.Eng.

Approximately 60 people attended the early morning PD Event to hear first hand what researchers of global warming are finding and how it impacts Manitoba. The presentation was given by Dr. Danny Blair, Director of the Climate Studies Institute of the University of Winnipeg's Global College.

Dr. Blair started the presentation by highlighting that NASA has reported 2005 was the warmest year on record since climate data has been recorded (since 1880). Also, 2005 temperatures had beaten the El Nino year of 1998, which had previously been the warmest year on record. This was considered significant since 2005 was not an El Nino year, therefore, the warm temperatures experienced last year didn't have the aid of the El Nino effect. Just recently, the warm temperatures were noticed by most of us particularly during the week leading up to Christmas of 2005. From December 22 – 24, the daily temperatures beat all previous years. Dr. Blair noted that this is a concern as experts have indicated that the past year should have been a cold year or had a La Nina effect based on climate indicators. He had also pointed out that warming trends are being seen in both the North and Southern Hemispheres.

The audience was then provided with some informative graphs illustrating local and global warming trends. World renowned climatologists have compiled years of data from historical records and CO^2 ice core data from Antarctica to prove their warnings of global warming. One graph, known as the "Hockey Stick" graph, clearly illustrated a gradual trend of increasing temperatures over hundreds of years until the yearly 1900's. From this point on, the graph changes from a gradual slope to a steep incline due to sudden increases in global temperatures over the past 100 years.

Dr. Blair also presented some results of Global Climate Models (GCM's), which are used to aid in predicting future climate trends. One of the models presented illustrated the effects of global warming on the world's oceans. This model was developed by Dr. Tim Barnett from the University of California, San Diego. Dr. Barnett had modeled the effects of global warming on the world's oceans and when plotted against measured data, he had found the model's predictions had matched the actual data. Dr. Barnett's model had shown that the evolution of global warming could be simulated and that these simulations should be taken seriously.

To illustrate that there are "naysayers" of global warming, Dr. Blair also reviewed the findings against some of the counter arguments published by "The Friends of Science". Blair indicated that arguments presented by this group are used to discredit the world's expert's warning that global warming is happening.

Following the detailed background on the findings suggesting global warming is happening, Dr. Blair described what it means to Manitoba's climate. Specifically, Dr. Blair modeled global warming effects at Churchill and suggested that in the spring of 2080, Churchill will be 5-6 degrees Celsius warmer while his model predicts that it will be greater than 10 degrees Celsius warmer in the winter.

Due to global warming, Dr. Blair presented what is to be expected in terms of our future climate. This may include:

- Shorter, warmer winters,
- Wetter winters,
- Hotter summers,
- Drier summers, and
- Possibly more intense precipitation

Although the thought of warmer weather in the winter, especially in Winnipeg, sounds good to most of us who live here, the threat of hotter, drier summers is cause for concern to Manitoba's power generation. Because of this, Manitoba Hydro has hired Dr. Blair to research what effects global warming may have on power generation. Specifically, Manitoba Hydro is researching if there is a need to change how hydro dams are operated to handle climate changes.

To wrap up his presentation, Dr. Blair summarized potential climate change impacts on water, agriculture, and transportation resulting from global warming. Some of the impacts included:

- Availability, reliability and quality of water,
- Crop yields, and increased irrigation demands,
- More heat stress on roads, enhanced erosion, and availability of winter roads
- Extremes such as drought, floods, and forest fires

Dr. Blair ended his presentation by noting that there is a need for adaptation and not mitigation!

To download a copy of the complete presentation, please log on to www.apegm.mb.ca/pdnet/papers.html. ■

Made-in-Manitoba Solutions to Productivity Problems

C.C. Mackie, EIT

A new Made-in-Manitoba solution to enhance productivity and meet the needs of several rapidly changing industries within the province has been unveiled.

The Post Baccalaureate Certificate in Manufacturing Engineering will be offered in partnership with several University of Manitoba faculties and with Red River College. The program is for those who are involved in a variety of manufacturing and processing industries – including transportation, agriculture, pharmaceuticals, aviation, aerospace, prosthetics, and biotechnology.

The program is designed for graduate engineers to provide them with theoretical technical hands-on engineering and management development knowledge. Although only graduate engineers will be eligible to receive the certificate, technologists and other technical personnel in the manufacturing industry will also benefit from individual courses.

The certificate consists of 226 credit hours broken down as:

- one 8 hour introduction to Lean and World Class Performance course; and
- a minimum of 60 hours of elective management courses; and
- a minimum of 158 hours from elective engineering courses.

The program focuses on the development and application of specific engineering and management knowledge and skills not acquired in engineering and technical programs.

Under the direction of experts with the curriculum chosen by industry, the program consists of face-to-face delivery including lectures, tutorials, hands-on lab work and project work offered in the evenings and/or weekends to address the educational needs of Manitoba's workforce.

The certificate will normally take three years to complete but must be completed within five years from initial application and registration into the program. Courses include:

- Project Management
- Supply Chain Management
- Organizational Behavior
- Leading Organizations, Individuals & Teams
- Robotics
- Computer Numerical Control
- CAD/CAM
- Industrial Automation & PLCs
- Enterprise Resource Planning
- Tool Design
- Geometric Dimensioning and Tolerancing

Registration into the certificate program or for individual course offerings will be based on a first come first served basis. Employees are encouraged to contact their employers for potential reimbursement as both stand to benefit greatly from the program.

Students who complete program courses may apply to transfer those courses into future fields of study. Also, APEGM professional development credit will apply to most courses for MITs.

Those interested may visit the program at www.umanitoba.ca/extended/coned/pbcme or contact Ms. Diana Hooper, ph. 474-7850 Toll-free: 1-888-216-7011 ext. 7850 or email: hooperdm@ms.umanitoba.ca ■

February 28 – March 5, 2006

2006 Provincial Engineering and Geoscience Week

D.A. Siepman, P.Eng.

Provincial Engineering and Geoscience Week (PEGW) is when we highlight our profession to the community. We raise awareness for the vital role we play in people's daily lives, and motivate youth to consider a future in engineering and geoscience.

Most of the events took place at St. Vital Centre which again turned out to be a great location. The formal opening on Friday, March 3, at St. Vital Centre commenced with speeches by: Allan D. Silk, P.Eng. Past-President, APEGM; Carmine Militano, P.Eng. President, Consulting Engineers of Manitoba (CEM); Grant Koropatnick, P.Eng. Exective Director & Registrar, APEGM; and Dr. Doug Ruth, P.Eng. Dean, Faculty of Engineering, University of Manitoba. The Government Proclamation of Engineering and Geoscience Week in Manitoba was then read by Mr. Bidhu Jha.

Also on Friday was the always entertaining Celebrity Competition where teams from City-TV, CBC Television, and the University of Manitoba's Engineering Faculty were challenged to delve deep and get in touch with their inner engineer (shouldn't have been too hard for the Department of Engineering's team…Right?) and to build a crane, from a set kit, that would out lift the competition. This year City-TV took home first prize while CBC came in a solid second place. And third place, otherwise known as dead last, was the U of MB Faculty of Engineering. Fun was had by all (even the losers).

Possibly the most popular event of the week, the Spaghetti Bridge Competition, took place on Saturday, March 4th. Students from grades 1 to 12 participated. The number of participants was down a bit from last year. To increase the numbers next year, added emphasis will be placed on getting information out to schools and teachers earlier and more often. APEGM provided cash prizes to the winners of each age group and the winner of the two overall categories got an additional $200. The winner of the grades 7 – 12 category was again Gabriel Nadeau suspending a total weight of 478lbs! Not bad.

On Sunday the children were thoroughly entertained by the activities planned and prepared by Mark Kwiatkowski including, toothpick/gumdrop structures, building bridges using straws and pins, the 10-Minute Motor and Floating Concrete. Also, on Sunday was the APEGM sponsored IMAX 3-D presentation, "Magnificent Desolation – Walking on the Moon". The event was very well attended.

The constant presence of the government and commercial booths throughout the weekend provided patrons of the mall with a good idea of what engineering and geoscience is all about. The organizations present were: Manitoba Hydro, Smartpark, Engineers without Borders, Consulting Engineers of Manitoba, Manitoba Robot Games, Manitoba Floodway Authority, Standard Aero, Manitoba Geological Survey, and the U of MB Department of Geology.

And with another successful event we have many thanks to be made. To all the members of the PEGW committee, volunteers at the event, corporate participants, the University of Manitoba, and APEGM staff who devoted their time and energy to the planning and carrying out of the event, I would like to extend my gratitude. Planning for next year's PEGW will start in September If you are interested in participating or would like to develop some activities in your area of the Province (if you live outside Winnipeg) please call the APEGM office at (204) 474-2736. ■

APEGM Celebrity Challenge

R.R. Foster, P.Eng.(Ret.)

A part of Provincial Engineering & Geoscience Week, the APEGM Celebrity Challenge was held at St. Vital Shopping Centre on Friday, March 3rd. Three teams accepted the challenge: CBC, City-TV and the U of MB Faculty of Engineering.

The teams were provided with all the makings of a heavy duty construction crane: cardboard, glue, a wooden crank, string and duct tape. Each team brought its completed crane to the contest and entries were judged on the basis of how much weight the crane could lift and move. All entries were stressed to failure.

An initial inspection of the three cranes revealed constructions which were light on engineering design and heavy on artistic interpretation. A new technical term was coined to describe the design process: "holistic engineering".

First up was Team CBC, whose crane looked sort of like a camera boom with attitude. Designers/operators Crystal Goomansingh and Alex Freedman managed to lift 27.6 pounds before the crane broke in two.

(Left) The U of M team in action (Right) The CBC crane takes second place

City TV with their winning crane

City-TV was up next. Designers/operators Angela Roer, Glen Cassie and Wild Bill Fortier had shrouded their creation in a paper covering to prevent prying eyes from looking too closely at their secret design. The crane began to show signs of early failure but with all three operators providing massive hands-on (literally) support to prop up the sagging structure; they managed a lift of 47 pounds.

Finally came the U of M Engineers, represented by John Frye, James Blatz and Christopher Laing. This crane design looked very promising. However after much fanfare and a couple of lifts the string broke at 27 pounds.

Chief judge Bidhu Jah, MLA for Radisson, awarded first place to City TV, second to CBC and third to the U of M Engineers. Prizes of $600, $300 and $100 were donated to a charity of each team's choice.

In spite of much heckling, taunts and derisive comments by the spectators and contestants, CBC and City-TV vowed to work on their designs over the next twelve months and return to the challenge next year. ■

Spaghetti Bridge Competition

H. A. Buhler, EIT

(Left) A spaghetti bridge contestant test his bridge's strength (Right) PEGW committee volunteers test spaghetti bridge

Students of all ages arrived, bridges in hand, to participate in the 12th Annual Spaghetti Bridge Competition held on Saturday March 4th, 2006, at St Vital Center as part of the Provincial Engineering and Geosciences Week (PEGW).

The challenge went out to schools for students to design and build a bridge constructed of only spaghetti and white glue. To compete, the bridge had to have a minimum 300 mm span and could weigh no more than 350 grams. The bridge able to withstand the highest load in each grade won a $50.00 cash prize. There were also two grand prize awards given to the overall winners in the grades 1-6 and grades 7-12 categories. The two grand prize winners were each awarded a cash prize of $200.00. All prizes were provided by APEGM.

Sixty-nine students participated in the event this year, down slightly from last year's attendance of 79 students. The winners from grades 1-6 reached peak loads ranging from 25.37 kg to 138.32 kg. The grand prize for the grades 1 to 6 category went to Matthew Lehmann, a grade 2 student from Niakwa Place School, whose bridge broke at 139.51 kg (or 307.62 lbs)!

The winners from grades 7-12 reached peak loads ranging from 41.74 kg to 148.24 kg. It was another record-breaking year at the spaghetti bridge competition with the grand prize going to the reigning champion in the grade 7-12 category who returned once again to defend his title. Gabriel Nadeau, a grade 11 student from College Regional Gabrielle Roy School, beat his previous record for the third straight year in a row. This year's bridge broke at 217 kg (or 478.49 lbs), surpassing last years record breaker of 187.99 kg (or 414.5 lbs)!

Organizers Don Spangelo, P.Eng., Shane Mailey, P.Eng., and Adèle Poulin, P.Eng. would like to thank APEGM and the PEGW committee for their continued support of this event. APEGM would also like to give a special thanks to all the volunteers; Alison Weiss, Cristian Orellana, Heather Buhler, Awra Hozaima, Don Himbeault and Pam Dhillon, without whose help this event would not have been a success. ■

Spaghetti Bridge Winners

Science Council Manitoba Presents the 11th Annual Manitoba Robot Games

S.M. Jurkowski, EIT

Each year for the past ten years, Science Council Manitoba has presented the Manitoba Robot Games, a competition in which high school students design, assemble, and operate their own robots to perform various tasks. The growth of this event has necessitated a move to the Tec Voc High School Audrey Jones Field House for the 11th Games held on 18-19 March.

The events in which the robots partake vary from the game of Atomic Hockey to the good old-fashioned Tractor Pull and Sumo Wrestling matches. New events introduced this year are the Line Follower, Super Scramble, and Judge's Choice – which leaves the door open to the student's imagination. (For explanation of these events, please see the web site http://www.scmb.mb.ca/mrg.html)

Science Council Manitoba also promotes the field of engineering to youth through its Robo-critters workshops, in which children put together a robot from a kit and drive it through a maze to light up a series of targets. The kids can race to see who can complete the maze in the shortest time, or simply have fun driving their robot through the maze.

Science Council Manitoba's participation in Professional Engineering and Geoscience Week at St. Vital Centre is a timely opportunity to promote the Manitoba Robot Games, and raise awareness of the opportunities for students to get involved in a design project involving technology. For more information regarding the Manitoba Robot Games or Science Council Manitoba, or to get involved with any of the facets of the organization, please contact Herb Reynolds, president of SCM, at hareynolds@mts.net. ■

APEGM VISION

APEGM is the leader and a facilitator of the process that ensures excellence in engineering, geoscience, and applied technology for the public of Manitoba.

Council Report

January 19, 2006 • Council Considers Exemptions for Experienced Geoscientists

A.D. Erhardt, EIT

Promptly at 11am after a round of introductions, Council adopted the agenda and the meeting began. After the usual formalities, representatives from the Investigation Committee, led by Ian McKay, joined the meeting to discuss some legal concerns regarding the presence of the Executive Director at the Investigation Committee meetings. The concerns centered on the issue of the committee's neutrality when examining issues. The ideal scenario would be a person dedicated to APEGM enforcement, but the Investigation Committee understands the restraints, especially fiscally that go along with the scenario. Council decided that Executive Director Grant Koropatnick along with Dr. James Blatz would further explore the possible options, while examining how other associations handle the situation.

The next issue tackled by Council was the Home Inspectors Association initiative. Dr. Blatz reviewed the concerns and presented the concept of a two tier system between the associations. Both Dr. Blatz and the Executive Director have reviewed a memorandum of understanding which will be brought forward and decided upon by Council in March.

The concept of an electronic seal was the next topic for discussion. A thorough presentation was made by Bob Hamlin, Don Spangelo and Allan Pollard regarding the issue. The main theme of the discussion was that it was time to move forward and make some decisions on how to go about developing and implementing an electronic seal system for APEGM members. Currently, Manitoba Hydro is developing their own electronic seal system, and their preference would be to develop this system with APEGM so that it will be available for all members. Currently, Quebec is the only province with an electronic seal in place. In an effort to expedite the development, Council decided to have the Executive Director take the reins of the project and have a system in place for January 2007. Once the initial analysis was completed, the specifics would be presented to Council for final approval.

After a brief lunch, CCPG Director Dr. Hamid Mumin joined the meeting via telephone to discuss a "Looking to Exempt" policy for geoscientists. The concern is that geoscientists who had completed their academic training prior to the registration of the profession may be lacking current academic requirements and thus ineligible for registration despite a wealth of practical experience. Both Dr. Mumin and Director of Admissions, Sharon Sankar, have explored how other associations provide possible exemptions in an effort to develop an APEGM equivalent. After much debate, it was clear that this issue was not going to be resolved quickly. In the end, it was decided that the proposal be re-examined and a new proposal brought forth, taking into consideration the current Manual of Admissions.

After some brief discussions regarding monitoring reports on Council performance, it came time to elect a Vice-President for Council. After the nominations and a secret ballot, Robyn Taylor was selected. As well, Council was informed that the new Chair of the EGAIAR Joint Board was Bill Gardner. Former Executive Director Dave Ennis was selected as the new CCPE Director, replacing outgoing Director Ron Britton, and Dr. Mumin's term as CCPG Director was extended.

As things neared an end, some concerns regarding the communications industry and more specifically, the lack of a regulatory presence within the industry were discussed. Then, after reviewing and updating some outstanding actions from previous meetings and tying up a few loose ends, the meeting adjourned at 4pm. ■

Professional Development

The Waffle Concept

PD Presentation by B.A. Bolles

Report by A.N. Kempan, P.Eng. (Ret.)

The well-known breakfast food wasn't on the menu, but we did learn about an innovative project to mitigate spring flooding in North Dakota. The presentation was held on Tuesday, January 10, 2006 at the Holiday Inn South. The presenter was Bethany A. Bolles, Senior Research Manager at the Energy and Environmental Research Center (EERC), a non-profit branch of the University of North Dakota in Grand Forks. The "waffle" allusion comes from viewing the prairies from the air during a spring flood. One would see squares of surveyed land bounded by roads, some squares completely filled with water, some partially filled, some empty, just like the fine Canadian maple syrup on your breakfast treat. Hydrologists think the worst effects of a flood could be controlled if water was released gradually from these storage cells. Why not use this man-made mosaic of fields and roads to hold water temporarily?

The Potential

Before waffle storage could be utilized, researchers needed to know how much flood water could be retained, and what the collateral effects of storage would be. To determine the volume of water retained, traditional and modern data was used. Researchers had elevation data for the flood area from the U.S. Geological Survey National Elevation Dataset (NED) that had been collected over the years from land surveys. The accuracy of this data was verified by using elevation data collected from expensive airborne LIDAR (Light Detection and Ranging) surveys. LIDAR data indicated a higher storage potential than did NED data, the values ranging from 0.3 to 2.6 inches of water per square mile. Researchers decided this amount of water storage was significant enough to warrant further investigation. Depending on the location, they predicted local flow reductions from 0 to 59%.

Storing water means storing it on private land, most of which is used for farming. For the concept to succeed, the flood waters would need to be released early enough in the spring to permit landowners to proceed with planting crops on time. Furthermore, farmers would expect payment for providing a public service, and to compensate for any losses. Hosting a flood isn't necessarily a losing proposition since crop yields are improved and land thaws more quickly. Preliminary results also show no adverse effects on soils from this type of flooding.

Next Steps

In 2004 and 2005 researchers conducted small-scale field trials of the waffle concept on non-agricultural lands. To control water flows relatively modest infrastructure elements were introduced: culverts were fitted with shutoff valves and standpipes were constructed to regulate overflow. The average extended water retention period was 14 days, which is generally considered an acceptable planting delay. Test crops of corn were successfully grown on waffle land. No adverse effects were detected in the stability of roads used to hold back water. The general public was supportive of the waffle concept because they were kept well-informed and involved in the planning and execution of field trials.

On the scientific side, the results of the volume studies will be incorporated into computer flow evaluations covering larger geographical areas.

Conclusions

The waffle concept shows great potential, and is probably transferable to our side of the border. In my opinion, the greatest challenge is how to control what would be a vast distributed storage system. How to coordinate the numerous flow releases so they act together for the desired effect? This would need to be achieved within the limitations of time, manpower, and existing regulatory structures; a challenge, to be sure, but not an insurmountable one. We will watch the results with great interest. ■

Engineering Philosophy 101 ...what is a professional?

M.G.(Ron) Britton, P.Eng.

At the recent CCPE Board Meeting we spent some time "blue skying" the value of being a Professional Engineer. It was interesting to hear the range of opinions offered. It also provided me with some fodder for my classes when I got back home.

Some saw the value very simply. Under our legislation, registration is required to call yourself an Engineer and/or to practice Engineering. Certainly all Associations spend significant effort assuring that people comply with this requirement. So for these who advanced this position, the value is the right to title and the right to practice.

But the reality is that many of our old classmates work as engineers, and may even hold the title engineer, without bothering to register. They defend their position in many ways, including, but not limited to, noting that their employer does not require it, their industry responds to a separate authority, their employer covers any liabilities or that old faithful, what's in it for me? And this last position is, I believe, the essence of the question. If membership in the Association is about "getting something tangible", we are probably a dying breed.

Here in Manitoba the Association of Professional Engineers and Geoscientists exists because the provincial government, on behalf of the people of the province, passed a law giving us control of our professions and placing responsibility for the administration of that law on those of us who belong to the two professions. We, in turn, have stated that we aspire to be *"the leader and a facilitator of the process that ensures excellence in engineering, geoscience and applied technology for the public of Manitoba"*.

One of the fundamental tenets of our Act is that, within Manitoba, only members of our Association can call themselves Engineers or Geoscientists (and a significant number of variations on those titles). Only members of our Association can practice Engineering and/or Geoscience. In exchange, we take on responsibilities that are outlined, in some detail, and by inference in the legislation. The assumption is that the limitations and responsibilities will assure that the public interest will be protected in regards to our areas of practice. We are, in essence, placed in double jeopardy, needing to comply with both the laws of the land and the constraints of our professions. By inference, the legislation suggests that we can be trusted.

For me, the implications of this situation were first driven home in the summer of 1966, two years after I had received my P.Eng.. I had been working for Beaver Lumber for a couple of months at the time. Out of the blue, the President decided to send me to our Ontario division to "fix a problem". When I asked why I was selected, he told me it was because I was an Engineer and that meant I had responsibilities beyond keeping the company happy. He knew that whoever went to "fix" the situation needed to answer to responsibilities beyond those of a "normal" employee. As I dealt with the "problem", I came to understand that my P.Eng. was a statement of how I was expected to conduct myself, not how technically competent I may or may not have been. Frankly it was a scary lesson to learn.

Obviously there has been a lot of water under the bridge since 1966. I have passed from an engineer responsible for the design and delivery of buildings and building systems to an academic responsible for the education of those who will follow me in my profession. The details of what I do are very different today. But the lessons learned some 40 years ago remain, and have led me to the belief that being a professional is a state of mind. If I am a professional, it is because I believe I am, and I am willing to accept the responsibilities that implies. Legislation can provide the structure within which I function, but the act of being a professional is mine, and mine alone.

And that causes me to wonder; notwithstanding the constraints that legislation can impose, if it is not most important to belong to the Association as a statement of who and what you are. ■

THOUGHTS ON

Design

. . . and doing "great" things

M.G.(Ron) Britton, P.Eng.

In the Preface of Pushing the Limits Henry Petroski states that "Making something greater than any existing thing necessarily involves going beyond experience". For most of us, the words "Making something greater than . . ." imply an activity that goes well beyond our day-to-day lives as design engineers. It might be more descriptive of the design activities that routinely occur in hundreds of different offices to say that *changing existing things usually involves going beyond experience*.

Most engineers spend their careers finding solutions to everyday problems that will never see the front page of the local paper. Our work, like our profession, is truly hidden in plain view. This isn't meant to lessen the value of the work, only to acknowledge that it is seldom featured in headlines. In fact, when we do make headlines it is usually in response to a failure of some sort. Maybe, under current conditions, a lack of headlines is preferable.

One possible reason we are not seen as *"Making something greater than . . ."* is our success at solving problems. Premier Roblin had the vision to proceed with the construction of the Winnipeg Floodway. This vision created a mountain of design problems that engineers solved. Now, when we are "blessed" with flood conditions, and Winnipeg stays dry, Duff's Ditch is seen as a "great thing". But the engineering design that brought the ditch into being and keeps it in workable condition, notwithstanding deferred maintenance, seldom gets discussed in the beer parlours of the province. Today, expansion of that same Floodway is seen, in the public view, as a political decision. Again, the design activity that will assure that water quality in aquifers east of Winnipeg will be unaffected and that upstream flood conditions will be minimized is nowhere to be seen or heard beyond the numerous presentations that will be made to technical organizations.

And if it isn't the politicians, it is the scientists stealing our thunder. Accomplishments at NASA truly fall into the *". . . something greater . . ."* classification. However, since the beginning of their existence, virtually all of the positive NASA headlines speak of scientific breakthroughs. Engineers get mentioned when something goes wrong, and the headlines note that "Engineers are looking into the cause of ...". It is of some small comfort to consider Jacques Ellul's 1964 comment that *"When the technical means do not exist, science does not advance."* The fact is that NASA, and other engineers used and modified scientific theory in order to put real people into space.

OK, is this just an excuse to complain, or do I have a point?

In my opinion, Engineering design does result in "Making something greater than any existing thing . . ." and it does require ". . . going beyond experience". Consider the existence of clean water, waste disposal, electric power, mineral extraction, traffic systems, food availability, manufacturing systems, communications systems, material development as everyday parts of what we do. These systems, today, are much "greater" than their predecessors. Each and every improvement went beyond the "known" in some way. If it hadn't, there would not have been a change.

In Winnipeg, we live in a river valley that was once a lake. Our climate provides us with extremes in all seasons. We are huge distances from any large population centres. In spite of these geographic and climatic facts, we enjoy the comforts of controlled climate living, instant world wide communication, same day access to most population centres, the lowest electricity rates in the country, year round availability of almost any type of food, easy transportation (potholes notwithstanding), internationally competitive manufacturing plants, among other amenities. These things didn't happen because of literary advances or scientific breakthroughs. They are the result of the work of many engineers who have designed systems that have changed the way we can, and do, live in our part of the world. We know that because we are the people who have done the work. We are also the people who have not bothered to get our story "out there".

In 1959 C.P. Snow observed that *"Intellectuals, in particular literary intellectuals, are natural Luddites"*. Maybe we, as a profession that is founded on creating change, have allowed these Luddites to intimidate us with their multi syllable commentary on our "mundane" activities. Socially acceptable discussions are not centred on extending the useful life of a sewer system.

Maybe the "sons of Martha" analogy in the Iron Ring Ceremony is true. But maybe it is time to stand up and let the rest of the world know that we do cause change, and we take proud responsibility for the lifestyle people can take for granted because of what we do. We can make this claim because we design solutions to society's problems, from transmitting clean electric power over hundreds of kilometres to solving the echo problem on a MTC main stage set.

Design is what engineers do, and the world is better for it. Now, if we could just get this message into the mainstream of public understanding. ■

NOTICE

Nominations for Election to the APEGM Council

The Nominating Committee of APEGM requests recommendations from members and members-in-training, of the names of members who they consider to be qualified to participate in the governance of the Association and who are willing to so serve the engineering and geoscience professions in Manitoba. **There will be four professional engineer positions and one professional geoscientist position to be filled as of October 2006.**

The Committee will consider recommendations received by the secretary up to the close of business on **Friday, September 15, 2006.** In the event insufficient recommendations are received, the Committee may exercise its prerogative to put forward a slate of candidates for election that is equal to the number of positions to be filled. Persons submitting a recommendation are required to obtain the consent of the professional member being recommended and to provide a curriculum vitae or biographical sketch.

Members can also be nominated directly and be on the ballot for the 2006 election by the completion of the prescribed nomination form. The form can be obtained from the Association office or on the website at www.apegm.mb.ca/practice/infomem/nominations.html. The consent of the nominee must be obtained. To be included on the ballot, candidate nominations must be received in the Association office on or before the close of business on **Friday, September 15, 2006.** Each completed nomination form must be accompanied by the nominee's resume and platform. Resume forms are also available from the Association office.

Grant Koropatnick, P.Eng.
Secretary of Council

Mphoentle Otukile...continued from page 1

focused on medical informatics. She commuted between the St. Boniface General Hospital Research Centre, TRLabs, and the University of Manitoba campus during her M.Sc. As part of her thesis project, she worked closely with Nortel and attended strategic research meetings in Boston. As a scientist, Mpho's contributions have been published in journals.

Mpho is now a designer of video electronic products at Linear Systems Ltd, and an up-and-coming entrepreneur. In addition to working full-time, she recently founded Emsoft Systems, where she develops and delivers content through portable devices.

In her spare time, Mpho is an energetic volunteer at the IEEE Winnipeg Women in Engineering group. In the past year, she spearheaded the organization of two noteworthy events. The first event was a meeting with Nicole Williams, best selling author who flew from New York to spend one evening talking to the group and other members of the community. The second event was a Manitoba Creativity Day discussion panel to celebrate World Creativity Day. It was Mpho's efforts that helped lead to the group's world wide prestige when the IEEE awarded the group with the WIE Affinity Groups of the Year Award (2004) for outstanding leadership and initiative in organizing activities. Mpho has also been recruited by Womenspace, a national organization which promotes women's participation in information and communication technology, to serve on their national committee for an upcoming project.

Mpho exemplifies the qualities of a visionary leader with her organizational skills, her ability to evoke commitment and enthusiasm in others, and by inspiring and guiding others towards a shared vision. ■

Ameen Subramaniam Deraj...continued from page 1

notable projects have included design of the underpinning system for the Saskatchewan Legislative Building in Regina, structural and fatigue analysis and design of rehabilitative works for the Golden Boy, atop of the Manitoba Legislative Building, design of rehabilitative works for several structures under the City of Winnipeg bridge maintenance program including the Maryland Bridge, and design of bridges for the Red River Floodway Expansion project.

Ameen has been rewarded for his hard work in his studies and sport activities with several awards including: Manitoba Hydro Research Fellowship; Dean's Honours List – Civil Engineer IV, 1995; Second Place – Canadian Construction Research Board & NRC (Student Competition for Innovation in Construction); Stanley B. Bailie Award; and Province of Manitoba Order of Sport Excellence.

Ameen has also been actively involved with the Canadian Society of Civil Engineering for several years. Following his graduation he served as the Manitoba Section Chair and currently sits on the Board of Directors as the Vice President, Prairie Region.

Ameen DeRaj is a hard working enthusiastic proponent of the engineering profession. The Association is pleased to recognize his achievement and service by awarding him the Early Achievement Award for 2006. ■

Alan K. Vowles...continued from page 1

through trials at the National Research Council, the Wavemill® holds Canadian, U.S. and several international patents. In 1996, it was recognized as the best environmental invention of the year at the Canadian GreenVention awards. Alan is currently President of Wave Energy Technologies Inc. and is developing and patenting the WET EnGenTM which is an advancement on the previous technologies.

There is another side to Alan outside of his daily responsibilities to Hudson Bay Mining and Smelting Co. In Alan's 'spare time', he and his wife Heather started a business in Flin Flon called Earth Creations Limited. The company manufactures and sells copper sculptures, particularly as mining industry souvenirs. Alan also shows his artistic abilities in oil painting, with his most famous being a portrait of Tom Creighton, presently hanging in the Manitoba Legislature.

The Association is pleased to recognize Alan K. Vowles for his accomplishments and for his many contributions to advancing borehole geophysics and mine surveying technology; and, his contributions to research in renewable energy technology. ■

If you want to look after the individual needs of 49,000 engineering professionals, you need a lot of options.

Do we have options!

More than 49,000 of your peers enjoy the peace of mind that comes with knowing their future is financially secure — because every one of them has chosen the protection of one or more insurance plans sponsored by the Canadian Council of Professional Engineers (CCPE).

The wide variety of protection options sponsored by CCPE lets you put together your own custom protection portfolio, quickly and conveniently.

Term Life Insurance offers up to $1.5 million in benefits for you and your spouse, with unique features such as Living Benefit, rate reductions for volume purchases, and an Insurance Continuation Option you can use to enjoy premium-free coverage for life.

Health Care & Dental Care Insurance helps pay the medical and dental bills your family can accumulate and your government plan won't cover.

Disability Income Replacement can replace lost income, up to $10,000 a month, if a disability prevents you from working. It's insurance for your biggest asset – your ability to earn a living!

Business Expense Overhead Protection can help keep your business going with up to $8,000 in monthly benefits to cover ongoing business expenses, while you're laid up from a disabling illness or accident.

Major Accident Protection offers you a lump sum payment of up to $500,000 to help you adapt. You can choose the same protection for your spouse too.

Critical Illness Insurance can pay you up to $1 million if diagnosed with any of 18 life-threatening conditions, including cancer, heart attack and stroke. You can spend this money expanding your treatment options, or any way you please.

Child Life & Accident Insurance lets you look after the most vulnerable members of your family too. It offers a Major Impairment benefit of up to $250,000 combined with a Term Life benefit of up to $25,000.

Sponsored by:

Canadian Council of Professional Engineers
Conseil canadien des ingénieurs

Visit us on the Web at:

www.manulife.com/KP

Find the tools to determine your insurance needs, get free quotes and apply online, quickly and securely.

Call toll free

1 877 598-2273

Monday through Friday from 8 a.m. to 8 p.m. ET.

Underwritten by:

Manulife Financial

The Manufacturers Life Insurance Company