THE KEYSTONE PROFESSIONAL

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

JUNE 1999
www.apegm.mb.ca

U of M Team Wins the 1999 Great Northern Concrete Toboggan Race

By: J. Blatz, EIT

On March 4, 1975, at approximately two in the afternoon, Professor Sid Simmons of the University of Alberta watched as a number of students and spectators gathered at the Canyon Ski Lodge in the Red Deer River Valley to watch the first running of the Great Northern Concrete Toboggan Race (GNCTR). The first running included seven teams from post-secondary institutions across Alberta. The day ended with the president of ACI awarding the GNCTR trophy for "The Fastest Concrete Toboggan in the World" to a team from the Southern Alberta Institute of Technology. During his speech he expressed his wishes that the GNCTR become an annual event inviting entries from schools across Canada. Since then, the team registration has risen steadily and the event has spanned borders, receiving entries from engineering schools in the United States and Europe.

The 1999 GNCTR Winning Team.

Although this is an interesting historic note related to civil engineering in Canada, what makes this story exciting is that, this year, the University of Manitoba won the Great Northern Concrete Toboggan Race! A team of 27 members from the University of Manitoba designed the winning sled, named "Traumaboggan". The sled was modeled after a hospital gurney. The team dressed in medical greens while wearing surgical hats, face masks, and, of course, stethoscopes. The theme is a very important aspect of the event that allows the team to show some creativity with its design and provides a basis for songs and cheers.

This year's competition was held in early February in Waterloo, Ontario. Twenty seven teams from across Canada and the United States competed in the festivities. The general scope of the project involves construction of a sled 300 pounds or lighter with a running surface composed of concrete. The sled must include a roll bar and a braking system for safety. With a running start the sled must carry six passengers 150m down a snow-and-ice runway. The four-day event included a jam-packed schedule of technical and social activities. The first day was spent with introductions and opening ceremonies familiarizing the teams with each other and the coming events. Day two was spent socializing with rival schools in the "Mini Olympics" at the University of Waterloo campus. Day three was more serious with the technical exposition where the designs of the concrete and structural components of the sled were examined and discussed with judges. On day four, the "Traumaboggan" was put to the test.

The University of Manitoba team, with its 27 members from four different departments, swept the competition, winning a number of prestigious awards. The biggest accomplishment was winning the event overall. The entire competition was scored using very well-defined criteria focusing on technical merits and sled performance, with a significant team-spirit component. The team also placed first in the fastest time down the run, best braking-system design, best team spirit, and best technical report. The team received second for the fastest top speed, and third for best concrete design and best toboggan aesthetics. This is the first time that the University of Manitoba has ever won the overall competition after participating for a number of years. Since the event this year was the 25th anniversary of the competition, the Manitoba team has been asked to allow its sled to be displayed in the Concrete Museum in London, England.

Upon returning to Winnipeg, team members have been interviewed on national radio broadcasts and by local papers. The Department of Civil and Geological Engineering held a small reception in recognition of their accomplishments. After meeting most of the team and hearing their tales of the event, it is very obvious they form a winning combination.

The Great Northern Concrete Toboggan Race is one of the most renowned engineering events held in Canada. Participants from schools across Canada have an opportunity to display their creativity and innovation in engineering design. It is also a valuable opportunity for students to meet and socialize with other engineering students from

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The *Manitoba Professional Engineer* is No More

By: B. Stimpson, P.Eng.

As you can see, the title of APEGM's bi-monthly publication, "The Manitoba Professional Engineer", has been changed to *The Keystone Professional*. The new name has geographical, engineering, geoscientific, and professional symbolism which reflects the new Act under which APEGM administers the professional registration of geoscientists as well as engineers.

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The Communications Committee would like to hear from you. Comments on your newsletter can be forwarded to us through the Association office or e-mailed directly to the Chair at **stimpsn@cc.umanitoba.ca.** Members are also encouraged to submit articles and photos on engineering or business topics that would be of interest to the membership.

APEGM

The Manitoba Professional Engineer is No More

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First, Manitoba is widely known as "The Keystone Province". Second, keystone is "the stone at the apex of an arch, the chief element or consummation, or that on which all else depends (Chamber's 20th. Century Dictionary). Third, the noun "key" connotes that which leads to the solution of a problem and, in association with other words, is a common part of engineering parlance, e.g. turnkey project, computer-key and keyboard, key-pin, key-plate, key-seat, key-way, shear key. Fourth and finally, "stone", symbolizes the geoscience profession.

The search for a new name was initiated through a request for suggestions in *The Manitoba Professional Engineer* in 1998. Two members responded, Harold Larsen, P.Eng. and Brian Stimpson, P.Eng., who, independently, submitted the name "Keystone". Ironically, both are geological engineers. Perhaps, having their feet in both worlds (engineering and geology), assisted the creative efforts! Subsequently, after considering input from Council, the Communications Committee settled on the final name, *"The Keystone Professional"*, as suggested by our Executive Director and Registrar, Dave Ennis, P.Eng. ■

EITs Enrolled March & April 1999

R. Agatep
K.K. Andrew
D.S. Brown
R.A. Carter
Y.T. Cates
R. Chan
Z. Feng
J.T. Giesbrecht
D.G. Grahame
S. Inthalansy
D.J. Kell
K.K. Kotyk
R.J. Krantz
W. Kruger
K.H. Lew
I.J. Maharaj
R.T. Morrison
B. Narasimhan
D.M. Orchard
T.M. Partap
A.E. Pauch
J.H. Peters
J.L. Schinkel
K. Shanker
C.W. Steele
J. Subbiah
T. Takach
C.D. Waldmo
D.E. Whynot
S.B. Williamson
G.H. Yogendran

New Members Registered March & April 1999

B. Alexander (AB)
M. Audet (ON)
J. Brittain
D.C. Bynski
C.E. Carriere
P.J. Cesario
E.A. Cheung (BC)
R. Cibola (ON)
S.M. Conod
D.C. Connolly (ON)
M. Constantinescu (AB)
W.E.G. Courtney
D.D. Dueck
D.R. Estey (BC)
M.E. Friesen
L.F. Gareau (SK)
S.A. Hader (ON)
W.E. Hammond
B.A. Haugh
B.A. Jonah (AB)
G.I. Kehler (AB)
L.J. Kmita
D.B.C. Lee (ON)
M.A. Lewandowski (BC)
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S.A. Sebastian
D.A. Stewart
J.D. Toews (SK)
J.A.R. Truax (ON)
C.J. Turner (ON)
B.W. Varney (AB)
C.J. Wilson (BC)
J.M. Wiseman (AB)
W. Zhang

In Memoriam

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

Gordon Carl Koch
John Powell Parry

Licences Issued March & April 1999

D.H. Berkowitz (MN)
J.R. Boekelman (NY)
J.E. Budke (MN)
R.R. Chartrand (ON)
R.I. Cunliffe (ON)
A. Gazzola (ON)
D.S. Green (OR)
G.V. Holness (MI)
W.K. Johnson (AB)
J. Kaminski (ON)
T.A. London (BC)
K.W. Lucci (CA)
D.V. Martin (TX)
D.L. Post (IA)
H.W. Ryder (NS)
L.M. Sargent (IA)
M.K. Sjoblom (MN)
I.D. Thom (PA)
J.W. Thompson (AB)
H.S. Vandermeer (AB)
R.F. Williamson (IA)

Members De-Registered March & April 1999

B.R. Baron
T.E. Bates
B.K. Berglof
B.J. Blackett
D.C. Blight
J.G.E. Boutin
C.C. Bristol
D. Bugas
W.R. Bullock
B.B. Chandren
M. Chehabeddine
G. Chen
R.E. Daignault
M.F. Dobran
D.V. Doyle
D.G. Drake
R.J. Dunlop
P.B. Farley
R.J.P. Fortier
D.A.J. Gaboury
W.J. Gobert
E.O. Golding
P.H. Goodwin
H.D. Graves
J.D. Jacques
S.A. Jawaid
M.L. Jeroff
L.G. Keeping
M.A. Kirby
K.J. Kramer
L.G. Krause
V. Kumar
T.F. Kurtz
J.G. Lai Hung
O.A. Laine
W.A. Lavoie
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T.C.A. Loat
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J.R. McCutchon
H.H. Morningstar
N. Pal
N. Papadopoulos
J.S.D. Parker
A.L. Parres
S.M. Popovits
J.C. Priest
R.T. Quenett
J.R. Ramsay
C.N. Rosner
D.K. Sarin
R.W. Savage
W.W. Siemieniak
E.J. Sinclair
R.J. Slade
K.H. Smith
R.L. Steele
G.J. Stewart
G.R. Thompson
T.T. To
T.V. Tran
V. Turek
G.S. Waschuk
H.G. Wiber
E.V. Wilms
A.J. Wilson
C.S. Wilson
R.G. Winkler
J.F. Young
P.A. Zubick

President's Message

Ron Britton, P.Eng.

Is There More Than the Millennium Coming to an End?

As you will read elsewhere in this issue, the Canadian Engineering profession has lost its case in the Newfoundland courts. As I read the information on the judgement, it seems to me that we are being told that our profession does not have any proprietary right to the use of the term Engineer. Maybe I'm being an alarmist, but I think we are now at the top of a very slippery slope that could make the enforcement of our Act much more than just difficult.

Consider the responsibility the province has placed on us, collectively. To quote Clause 3 of the Engineering and Geoscientific Professions Act "The purpose of the association is to govern and regulate the practice of professional engineering and professional geoscience in the Province of Manitoba." As you read further into the Act, you find that we are responsible for the standards of entry, both academic and experiential, and the discipline of those who do not live up to the standards of practice which the profession defines. This is a collective responsibility of all who are members of the association, not just a selected few. Put simply, we call the shots.

"If we are placed in a position where we cannot meet our responsibilities under our Act, those responsibilities will move elsewhere."

So, if we are going to deliver on these responsibilities assigned to us by the people of Manitoba through their elected representatives, where do we start?

Note that the Act refers specifically to "professional" engineering and geoscience. That is a clear legal distinction, but is it reasonable to expect the public to understand the difference? How does a lay person distinguish? What clearly identifiable means can be used? How do we deliver on our collective responsibility?

If we go back to the Newfoundland judgement, it was stated that the profession was interfering with the academic freedom of Memorial University by not allowing them to call a program whatever they wanted. Can that same argument be used to justify the existence of Microsoft Certified Network Engineers? And getting down to a truly authoritative source, in the public mind, can a Software Engineering graduate (or a Novell Certified Network Engineer) now advertise their services as Engineers in the yellow pages? Where does it stop? How do we assure the public that those who call themselves Engineers are, in fact, qualified to do so?

A further disturbing note is the statement of the court that there is "...an implicit obligation on APEGN, upon request by the University, to consider whether or not the engineering degree programs meet the profession's academic requirements, in whole or in part." Clearly this places authority in the hands of the university rather than the profession. Is a university qualified to make such judgements?

If we are placed in a position where we cannot meet our responsibilities under our Act, those responsibilities will move elsewhere. We could, like our American cousins, find ourselves with State (Provincial) Boards that regulate our profession. As you consider that alternative form of governance, recall that none of the States that require professional development activities as a part of their licencing process held a vote to determine what the licence holders thought about the idea.

Our rights and responsibilities, as a self-governing profession have been placed at serious risk. Now is a time when we need clear minds and logical thought. Neither of these requirements is housed exclusively in any part of our organization. Council was elected to react to these sorts of situations on your behalf. We will do our best to protect your interests, but we need input from everyone. Our Association may not be all that we might wish it to be, but it is ours. The task at hand is to retain ownership. ■

Are You Practising Engineering or Geoscience in Another Province or Territory?

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

Are **you** practising engineering or geoscience in another province or territory? Are you licensed or registered with the Association or Ordre in the other jurisdiction?

The regulation of the practices of engineering and geoscience in Canada is a provincial responsibility the provincial government has in every province and territory in Canada, given the engineers the privilege and responsibility of regulating the practice of engineering. In several jurisdictions – including Manitoba – the government has also mandated the regulation of the geoscientific professions (i.e. geology and geophysics) by the members of those professions. In all cases, to date, the regulatory body comprises the members of both professions in a combined organization such as ours.

If you wish to practise engineering in **any** province or territory in Canada, you **must** be registered or licensed with the Association or Ordre in that jurisdiction. If you wish to practise geology or geophysics in any province or territory in Canada where the profession is self-regulated (and it is, so far, in BC, Alberta, Saskatchewan, Manitoba, New Brunswick, Newfoundland, and the Northwest Territories – including Nunavut) you **must** be registered or licensed to practise in that jurisdiction. Yes, this means that if you wish to practise engineering or geoscience in four provinces, you have to be registered or licensed in each of those four provinces. It is the law! (Please note that the Association in the Northwest Territories – NAPEGG – is responsible for the regulation of the practices of both engineering and geoscience in both the Northwest Territories and Nunavut.)

At a recent meeting in Montreal, the Discipline and Act Enforcement officials from each of the provincial and territorial Associations agreed to develop a process whereby any professional engineer or geoscientist caught practising without a licence in another jurisdiction would be subject to a complaint of professional misconduct by that other jurisdiction. (For example, if you practised in the Northwest Territories without being registered there, and you were reported, the Association there would register a complaint against you with APEGM's Investigation Committee.)

Please be sure to avoid this Association's disciplinary process by ensuring that you are licensed or registered with every Association in whose jurisdiction you are engaging in the practice of your profession. ■

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.

APEGM

CCPE President's Message

Dan Levert, P.Eng., L.L.B.

What's in a Name?

For more than three years, the Canadian Council of Professional Engineers (CCPE) and the Association of Engineers and Geoscientists of Newfoundland (APEGN) have been engaged in a dispute with Memorial University of Newfoundland over its use of the words "software engineering" to describe an undergraduate computer science program.

Memorial has refused all requests by CCPE, APEGN and its own Faculty of Engineering to change the name of this program, even though the University has stated publicly that the program is not an engineering program and its graduates will not have the academic qualifications required to be registered as professional engineers in Canada and practise engineering.

In 1997, when our initial efforts to resolve the name issue failed, CCPE and APEGN took legal action against Memorial to defend the term "engineering," which has been an official trademark of CCPE since 1989. Memorial responded by acquiring official trademark status for the term "software engineering." As a result, anyone wishing to use the term "software engineering" in Canada must first obtain Memorial's permission. The litigation between CCPE and APEGN, the plaintiffs, and Memorial, the defendant, over Memorial's misuse of the term "software engineering" goes to trial in September 1999. Approximately 70 per cent of Memorial's legal costs are being paid by the Association of Universities and Colleges of Canada (AUCC), which says Memorial should have the academic freedom to name its programs as it sees fit. A decision in the case is expected in March or April of 2000.

In February, in an effort to resolve the dispute and demonstrate to the University the seriousness with which the engineering profession takes the name issue, APEGN removed its consent for accreditation evaluations to be conducted on MUN's bona fide engineering programs, which are offered in MUN's Faculty of Engineering. Memorial was informed of APEGN's decision before it was made public, and advised that consent would be reinstated immediately if the University agreed to change the name of its software program and abandon its trademark on the term "software engineering." If this did not occur, the accreditation of the programs would expire on June 30, 1999.

"The litigation between CCPE and APEGN, the plaintiffs, and Memorial, the defendant, over Memorial's misuse of the term "software engineering" goes to trial in September 1999."

Memorial not only refused to change the name of its program, it filed an application asking the Supreme Court of Newfoundland to quash APEGN's decision. This case was heard April 15, 1999, in St. John's. The judge ruled in Memorial's favour based on what he described as a "functional and practical analysis" of the Engineers and Geoscientists Act. Essentially, the judge ruled that the "intent and structure" of the Act "poses a duty on APEGN, owed to Memorial University, to consider for approval those programs offered by Memorial to support the granting of a degree in engineering..." and that there is "an implicit obligation on APEGN, upon request by the University, to consider whether or not the engineering degree programs meet the profession's academic requirements, in whole or in part."

APEGN is currently considering an appeal of the ruling, which clearly has serious implications for the profession of engineering in Newfoundland and Labrador, and may impact engineering's other 11 provincial and territorial regulatory associations.

The significance of the software engineering name issue with Memorial cannot be overstated. Unless the name is changed, graduates of Memorial's "honours in software engineering" program will inevitably call themselves "software engineers" and compete in the job market with fully qualified bona fide software engineers. This will create confusion in the minds of both employers and the public, and make it more difficult for APEGN

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Meet Your New Councillor – Alf Poetker, P.Eng.

By: J. Blatz, EIT

Alf Poetker graduated from the University of Manitoba in 1965 with a B.Sc. in Civil Engineering. Upon graduation he took a position with the Manitoba Water Resource Branch where he stayed for a period of four years before moving on to the Manitoba Water Services Board. Alf moved up through the ranks to become chief engineer at the Water Services Board during his nine year period with that department. He also started a Master's degree in Environmental Engineering, completing his course requirements at the University of Manitoba. In 1978 Alf left the government and started his own private engineering practice, Poetker Engineering. In 1990 Poetker Engineering merged with McLaren to form Poetker McLaren and then in 1995 was renamed Cochrane Engineering along with other divisions of the Cochrane Group where Alf continues in the consulting practice today as a Senior Environmental Engineer. He works mainly in the design and construction of water and wastewater treatment and distribution facilities for communities of all sizes from Ontario to British Columbia.

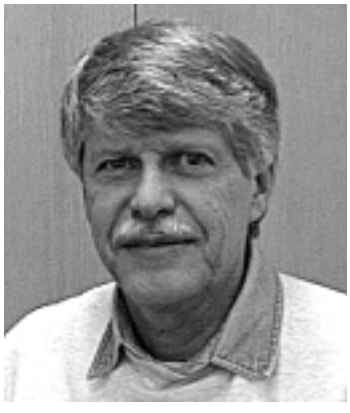
Alf has served the professional community as a member of the Consulting Engineers of Manitoba. He held most positions on the committee until becoming the President in 1989 and later serving as Manitoba representative to the Consulting Engineers of Canada. Alf also worked with APEM as a member of the Communications Committee. He had recently requested to become involved again at the committee level and was asked to be nominated to the Council.

He also helps his community through involvement in his church. He is a board member for the Family Life Network which is a broadcast organization that is devoted to helping families through television and radio broadcasts all over the world. One of the programs that is aired locally is titled "God Talk" on CJOB radio.

Alf and his wife Linda, who is a music teacher, have four children. Music is a big part of the household as Linda's lessons have generated musical interest with all their children who each play an instrument ranging from piano to drums. Alf and his wife enjoy travelling and they believe that Canada is still the best travel option available. Alf spends his spare time enjoying outdoor activities such as gardening and cross country skiing.

I asked Alf what he hopes to contribute to the Association by being a member of the Council. He is a firm supporter of professional development but recognizes that from the strong negative vote the program received it needs to be modified to make it easier to follow and complete. Alf is also interested in re-evaluating the academic requirements for foreign immigrants to become members of the Association. Alf believes that there could be a review of the model used to test and establish the academic level and experience of immigrant engineers who have engineering education from universities abroad.

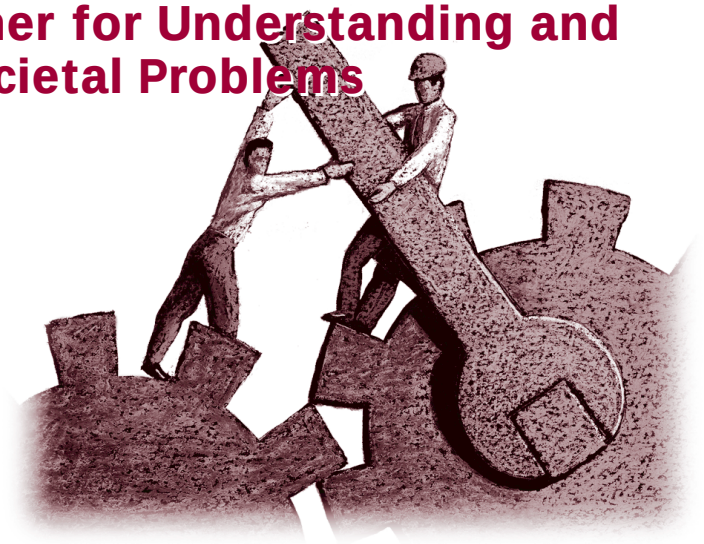
Best wishes for your term as councillor. ■



Engineers and Geoscientists:

Working Together for Understanding and Solutions to Societal Problems

By: B. Stimpson, Ph.D., P.Eng.



As a geological engineer I have spent 34 years (27 of them in Canada) in various working relationships with geoscientists, both when employed in full-time consulting and now as a university professor. Also, over the last three years I was involved in the establishment of the Canadian Council of Professional Geoscientists (CCPG), which plays a similar role for geoscientists as does the Canadian Council of Professional Engineers (CCPE) for engineers. Because of these various associations with geoscientists, it was a pleasing moment for me when the Engineering and Geoscientific Professions Act passed through the Manitoba Legislature and into law in June of last year.

The last thirty years have brought with them the recognition that the rapid growth of the world's population and standards of living brought about, in part, through the largely unfettered application of science and technology, has created new challenges and problems that require the knowledge and creativity of various specialists working in teams. Engineers may mourn the loss of the engineering heroes who, in the past, almost single-handedly, achieved some great engineering feat, and view their modern absence as a loss of prestige and public esteem. We still have our brilliant engineers, of course, but it is unlikely that any large engineering accomplishment of the last half century can be attributed to one individual, e.g. name the engineer single-handedly responsible for the Red River Floodway ?

Geoscientists have an important role to play in the solution of pressing and practical problems at all scales – local, regional, and global – because of their knowledge of the processes that have formed and continue to shape the earth and which must be understood in making many decisions affecting the public. In our own back-yard the path of contaminants in groundwater cannot be solved without the input of geoscientists. Geoscientists are currently looking for evidence of past Red-River floods with the goal of improving the database of scale and frequency of flooding, while their knowledge of uplift and sinking of the earth's crust in our region is of vital importance for the long-term prognosis for hydro-power generation and bank erosion in the southern basin of Lake Winnipeg.

There are many issues that directly impact the public, the economy and the environment that require the knowledge of geoscientists – atmospheric changes, nuclear power, acid rain, hazardous wastes, environmental degradation, health risks from geological materials, land use and urban planning, overpopulation, soil erosion, sub-surface pollution, water quality and supplies, geological site characterization, destruction of species, searching for and developing mineral and fuel resources, and geological hazards (landslides and debris flows, land subsidence, floods, coastal processes and fluctuations, earthquakes, tsunamis, volcanoes, extraterrestrial collisions).

The last quarter century has seen enormous advances in collecting and synthesizing data about the

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Concrete Toboggan Race

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across Canada. Winning this event is a great accomplishment for a team and certainly speaks for the quality of the engineering students at the University of Manitoba.

The team members were: Mike Morris, Craig Fast, Marc St. Laurent, Tom Hopkins, Craig Rowbotham, Bart Flisak, Nelson Ferreira, Jason Cousin, Steven Dewitt, Tanya Worms, Chee Tan, Carly Guilcher, Maggie Malapad, Lindsay Reagan, Jake Szot, Heather Crocker, Carolina Madrid, Nadia Barakat, Chris Wizniak, Tyler Dick, Guida Magalhaes, Val Yereniuk, Craig Blair, Daniel Gagne, Kevin Brown, Scott Cripps, and Mac Flisak. The team would like to thank the following sponsors for their support:

Maple Leaf Construction, JR Cousin Consultants, Manitoba Hydro, JC Paving, Dominion Construction, University of Manitoba Engineering Students Society, Hanuschak-Kowalchuk Consultants, The Association of Professional Engineers and Geoscientists of Manitoba, Reid Crowther Consulting, Info Magnetics Technologies, PCL Construction, Stantec Consulting, Canadian Society of Civil Engineers, Wardrop Engineering, Bird Construction, Agra Earth and Environmental, Empire Iron Works, and National Testing Labs. Sponsorship by these organizations allowed the University of Manitoba to send a successful team.

Congratulations to the team on a job well done. I am sure everyone is looking forward to hearing how the team does next year as the junior members take the helm as returning champions.

Some of the material in this article has been taken from the following web pages: **http://gnctr.carleton.ca/1999/gnctr.html** & **http://www.eng.uwaterloo.ca/groups/gnctr99/main.html**

Further information regarding results and details is available at these websites. ■

Continuing-Competence News from Other Associations

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

Structural Specialist Qualification Proposed for Engineers in B.C.

The City of Vancouver's building officials, appalled by the number of poor structural designs being submitted for their approval, have told APEGBC that if the Association does not implement measures to ensure the competence of practising structural engineers, the City of Vancouver **will.** (Other municipalities in the province have expressed similar concerns.)

The Association conducts practice reviews and has determined that more than 10% of structural engineers whose practices have been reviewed have been **seriously** deficient in their practices. The Association is now in the process of developing a re-qualification regime which will likely include formal examinations as well as additional specific work experience for structural engineers.

This raises a number of concerns regarding continuing competence. Does the problem exist only in the structural engineering area? Only in British Columbia? In light of this information, should APEGM continue to believe that, because it has received no complaints against a member, that member must be maintaining competence?

Conformance with Prince Edward Island's Professional Development Program Mandatory Pre-Requisite to Practice

After the year 2000, if you wish to practise engineering in Prince Edward Island, you must have complied with the requirements of APEPEI's professional development program (which is now in place). Anyone wishing to register with APEPEI (which you must do, if you wish to practise engineering on the island) after the year 2000 will be required to have engaged in the appropriate level of PD activity **prior to** registration with the Association. ■

Professional Development

Canadian Geotechnical Society Short Course 1999

By: J. Blatz, EIT & J.M. Tutkaluk, P.Eng.

The local Canadian Geotechnical Society, chaired by Michel Gregoire, P.Eng., of O'Connor Associates, held its annual short course on February 19, 1999. The course was titled "Slope Stability and Contaminant Transport – Engineering Applications of Computer Modelling" and focused on using computers for analysis and design in geotechnical engineering applications.

Over 80 attendants packed into the Senate Chambers at the University of Manitoba to listen to both local practitioners and academics discussing various components of the topic. Dr. Doug Ruth, P.Eng., Associate Dean of the Faculty of Engineering, opened the course with a welcome from the University. The keynote speaker, Dr. John Krahn, P.Eng., CEO and Manager of all operations of Geo-Slope International, was brought in from Calgary. Dr. Krahn shared his 20-plus years of knowledge and experience of computer modelling with those in attendance. Dr. Jim Graham, P.Eng. and Dr. Al Woodbury, P.Eng., both of the Department of Civil and Geological Engineering at the U of M, presented topics on current theory and state-of-the-art techniques for determining the necessary parameters required for computer-modelling-applications.

The morning and afternoon sessions were concluded with presentations by local practitioners on case studies where computer modelling had been used successfully for engineering analysis and design. The participants enjoyed lunch at the University Club and morning and afternoon coffees were sponsored by Paddock Drilling and Enviro-Test Labs, respectively. The course, which constituted eight hours of class time, was accredited by the Engineering Institute of Canada for 0.6 Continuing Education Units for each participant.

With the increasing reliance that engineers are placing on computers, the course focussed on key concepts needed for successful computer modelling. One of the most important points presented was the idea that computers are a tool that must be used with caution. Using the computer as a black box and expecting it to produce the right solution can be frustrating, and can lead to a lack of confidence in computer applications if common sense is not exercised, or the results are not adequately reviewed. Reliable computer modelling still requires judgement and understanding of the engineering principles that underlie the mathematical algorithms on which computer applications are based. The idea of conceptualizing real physical systems into a simplified numerical model is a challenging yet powerful engineering tool. With the power and speed of desktop PCs, engineers have an extremely efficient tool that can be used to quickly and reliably identify key parameters for real engineering problems.

The results of the questionnaires filled out by participants showed straight A's across the board. Special thanks to the speakers for sharing their insights into computer modelling for engineering analysis and design. Finally, congratulations to the organizers for putting on an excellent short course. We are sure everyone will be looking forward to what will be offered next year! ■

Jeff Tutkaluk, P.Eng. (Short Course Chair, left) presenting the keynote speaker Dr. John Krahn, P.Eng. (right) with a gift of appreciation.

Letter to the Editor

Dear Sir:

Re: **Why Doesn't NO Mean NO?**

I base this letter on the "Council Reports" for the meeting of Tuesday, January 12, 1999, specifically the report on Council's reaction to the vote on MPDP. It appears to this reader that the reaction to this vote is entirely analogous to the never-ending Quebec referendum issue. Some people have taken the attitude that they know what is best and that what the membership may think is irrelevant. They feel justified in dragging on this issue until they finally get the vote the way they want it.

I take particular exception to the attitude of Council, as evidenced from the report, that all that is necessary is to re-explain it to the membership in a way that they can understand so that they will vote properly next time! There is an attitude that the people who understood the program best voted for it and those whose understanding was lacking voted against it. This is preposterous to me as I feel the reverse is true. Moreover, such an attitude in a supposedly democratic association is extremely unpalatable. I feel as though the NAY voters are being paternalized which is insulting to the extreme.

The members have spoken – **NO Means NO.**

Sincerely,

R. Sprenger, P.Eng.

Beware the Inventor!

(Taken from a Boston Newspaper published in 1873 – Submitted by E.A. Speers, P.Eng.)

A man about forty-six years of age, giving the name of Joshua Coppersmith, has been arrested in New York for attempting to extort funds from ignorant and superstitious people by exhibiting a device which he says will convey the human voice any distance over metallic wires, so that it will be heard by the listener at the other end. He calls the instrument a "telephone", which is obviously intended to imitate the word "telegraph", and win the confidence of those who know of the success of the latter instrument without understanding the principles on which it is based. Well-informed people know that it is impossible to transmit the human voice over wires as may be done with dots and dashes and signals of the Morse Code, and that were it possible to do so, the thing would be of no practical value. The authorities who apprehended this criminal are to be congratulated, and it is to be hoped that his punishment will be prompt and fitting, that it may serve as an example to other conscienceless schemers who enrich themselves at the expense of their fellow creatures. ■

Demonstrating Value of Life-long Learning Essential, National Forum Suggests

By: T. Davis, CCPE's Manager, Communications

The success of continuing engineering competency programs in Canada may depend on the profession's ability to demonstrate the value of lifelong learning to undergraduate students, prasticing engineers, and industry leaders, suggests a national forum of stakeholders.

Held in Ottawa February 28 and March 1, the First National Forum On Engineering and Continuing Education was attended by more than 90 delegates representing the profession's Associations/Ordre, educational institutions, technical societies, the Canadian Council of Professional Engineers (CCPE), and continuing-education course providers.

"Our main goal was to promote increased dialogue between the users and providers of continuing engineering education," said Noel Cleland, P.Eng., the chair of the Forum's organizing committee. "We wanted the course-providers to gain a clearer understanding of the engineering profession's continuing-education needs, and for the Associations/Ordre to gain a better sense of the courses available to their members. Another key goal was to explore the options for distance-education and how to reach engineers practising in remote areas of Canada. The Forum succeeded on both fronts."

In his opening remarks, entitled "No Lifetime Tickets Available," Sir Graham Day, the chancellor of Dalhousie University and chairman-designate of Ontario Hydro Services Company, advised Forum delegates that internationalization and the speed at which new technologies are emerging will have a profound impact on the engineering profession unless engineers embrace continuing education. "State-of-the-art manufacturing technologies will pass graduates by after three years if they don't practise," said Sir Graham. "Beyond the basics, professional skills deteriorate rapidly if they are not used and, even if they are used, they will deteriorate rapidly if they are not kept up to date. The answer is for us to accept the need to upgrade our skills and get on with it."

Sir Graham believes mandatory continuing-education is necessary in engineering to preserve the validity of self-governance for the profession and to maintain public confidence, and that the only solution is for Canada's engineering schools, in co-operation with the profession, to offer the necessary courses.

"Is the profession's Code of Ethics, in and of itself, enough to ensure that engineers maintain their competency?" asked David Brezer, Chair of the Canadian Engineering Qualifications Board's Continuing Competence Committee. "Is continuing education, in and of itself, a key determinant or only one of many determinants, in determining continued competency?"

The Ordre des ingénieurs du Québec (OIQ) established a policy on continuing education in 1989 which states: "Continuing education consists of structured activities defined to reach specific learning objectives related to persons in practice so as to improve their knowledge, know-how and behaviour."

OIQ requires its members to complete an average of 45 PDHs annually. Approximately 2,000 – 2,200 of Quebec's 41,000 engineers are audited each year to ensure that they are meeting this requirement.

Continued engineering competence is strictly voluntary in Ontario, but Professional Engineers Ontario (PEO) recognizes that it needs to assist its members and employers to meet their professional development goals.

"...the Forum concluded that the philosophy of continuing-education should be established at the undergraduate level to instill Canada's future engineers with the value of lifelong learning."

At least five Associations now believe that the answer to the continued competency question is to make continued competence mandatory. In Alberta, members of the Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA) must submit a plan outlining their scope of practice, the skills required to do that work, and the areas in which they believe their skills could use improvement. They must also earn a minimum of 240 professional development hours (PDHs) over three years, and report PDHs in three of six categories annually. However, provided APEGGA's members are involved in "fresh, challenging projects," the most significant factor in learning is professional practice.

"Within the next few months, the process for the formal review of members who have not met the requirements of the program, and who will be chosen randomly, will be finalized," said Len Shrimpton, P.Eng., APEGGA's Director of Professional Development. "The consequences of not meeting the requirements of the program are referral to either the Discipline Committee or the Practice Review Board as unprofessional conduct (failing to submit) or unskilled practice (failing to meet the numerical requirements)."

"We intend to survey our membership," said Gordon Sterling, P.Eng., a member of PEO's Professional Development committee. "We want to know how they are maintaining competency now, and what we can do to help. If engineers meet a certain standard, or benchmark, they are competent."

The Association of Professional Engineers of New Brunswick (APENB) instituted a voluntary professional development program in 1993. Last year, it approved a mandatory continued-competency assurance program. "We are still in the process of putting the finishing touches on it," said Hollis Cole, P. Eng., an APENB volunteer. "We finalized the policy and procedures for the program in January, and plan to conduct 20 actual reviews this year. Thereafter, we plan to conduct at least 50 reviews annually, which would encompass 1.25 per cent of our membership."

However, the APENB competency program is advisory in nature and not a disciplinary process. APENB members are expected to undertake 240 PDHs over three years in six categories: professional practice (max. 40 PDH per year), formal activity (max. 30 PDH per year), informal activity (Max 30 PDH per year), participation (max. 20 PDH per year), presentations (max. 20 PDH per year) and contributions to knowledge (max 30 PDH per year).

The Association of Professional Engineers of Nova Scotia (APENS) is currently developing a voluntary continuing competence program based on the principle that it is "fundamentally the personal responsibility of individual members to remain professionally competent in the areas in which they work." A key recommendation is for each member of the Association to "define his or her individual scope of practice, and establish a personal program for planning and recording professional development activities."

Following several presentations and panel discussions, the Forum concluded that the philosophy of continuing-education should be established at the undergraduate level to instill Canada's future engineers with the value of lifelong learning.

Delegates to the Forum suggested that industry support for continuing-engineering-competency programs would promote increased participation in continuing-education courses by engineers, and lead to more courses being available. It would also add value to the continuing competency programs of the Associations/Ordre.

Another conclusion of the Forum was that the engineering profession should develop linkages and partnerships to offer continuing distance-education courses to engineers living in remote areas.

"Much of the discussion focused on measurements of competence." said Mr. Cleland. "There was broad consensus that the profession needs to determine the training needs of individual engineers, provide counselling and guidance on professional development and lifelong learning, and develop a method of measuring their competence. The diversity of the engineering profession has made this difficult in the past, yet it is unlikely that a "one size fits all" program will achieve the profession's continuing competency goals. The Forum suggested establishing benchmarks of engineering competency to allow measurement to occur, as well as examining international initiatives to measure competency. Both of these options will likely be considered at the next forum." ■

Council Reports

Tuesday, March 9, 1999

By: A. N. Kempan, P.Eng. (Ret.)

WHERE COUNCIL GETS MORE LETTERS

Present at this meeting were: President Britton, Executive Director Ennis, Councillors Ferchoff, Rizkalla, Matthews, Roberts, Thomson, MacLeod, Hosang, and Quinn (via teleconference), and a small supporting cast.

After the usual routine items, Council swung into its first major item, a hearing of an appeal of a decision by the Discipline Committee. Under APEGM bylaws a disciplined member may appeal directly to Council. Here the disciplined member objected because the Discipline Committee's lawyer took part in drafting the disciplinary document without having his own lawyer present. It was decided that Councillors who are available for the evening of April 7 would form the appeal panel. The action that instigated the appeal, using the Discipline Committee's lawyer to help draft the disciplinary notice, led to general debate about the use of legal help with these matters. Councillor Pollard wondered if Council could seek legal advice when drafting the appeal decision. President Britton said that for the present case Council would not worry about the larger issue, but concentrate on hearing the appeal quickly.

Doug Chapman, former APEGM President and current Canadian Council of Professional Engineers (CCPE) Director, spoke to Council about a CCPE meeting he attended on February 27/28. He spoke on a topic that has become very popular at recent meetings. Carver is a word that many who toil on volunteer boards will hear more of. Carver refers to Dr. John Carver, Ph. D., who has developed a governance model. It aims to separate board and management roles, thereby leaving boards to govern and management to manage. Furthermore, it claims that its precepts are applicable to boards of all kinds – nonprofit, governmental and business. It appears that CCPE is not ready to adopt Carver. Dr. Chapman also touched on The Canadian Council for Human Resources in the Environment Industry (CCHREI) (CCPE will not sign the Cooperation agreement), the Kyoto Accord, Emerging Technologies, Memorial University, and the Mobility Agreement. The next CCPE meeting will be in June.

The next item was about the fight that has emerged surrounding Memorial University of Newfoundland's Software Engineering Program. Memorial University of Newfoundland (MUN) offers an undergraduate program with this name, a name given over the objections of the Canadian Council of Professional Engineers and the Association of Professional Engineers and Geoscientists of Newfoundland (APEGN). The problem is that the term "Engineering" is an exclusive designation given to members of provincial engineering associations. When MUN wouldn't change the name of the course, APEGN withdrew its approval for CCPE to undertake an accreditation of MUN's legitimate engineering programs as a way of showing their disapproval. MUN does not contend that they are offering an engineering program, and it appears that they want to call it "engineering" because they have the right to use whatever name they see fit. The engineering world doesn't want to change the course content, only it's name. The unfortunate result is that, in the meantime, students graduating from MUN's real engineering programs will not graduate from an accredited institution. APEGM has thrown its support behind APEGN and CCPE.

No meeting would be complete without a few fan letters on everybody's favourite subject, professional development. Council had three submissions exhibiting varying degrees of disapproval. The first was from a member who expressed disappointment in the early paragraphs of his letter, but by the fourth paragraph was using capital letters and an abundance of agitated punctuation. His main message was "GIVE IT UP!" – referring to any thought of reinstituting a professional development program of any shape or form, mandatory or not.

The second letter suggested that education, training, experience, and track-record were good measures and ones already in use. The third letter was from a member whose main thrust was that people maintain their competence in various ways and that there was no single recipe for how this should be done, and that using our resources to promote one method would be wasteful.

These letters sparked a wide-ranging general discussion in Council. Councillor Rizkalla wondered if we were still doing things the "old way" in how the PD issue was progressing. President Britton said that the Committee investigating the future of PD had wide representation from dissenting groups and wasn't just a continuation of the old MPDP in a new guise. Councillor Rizkalla said that APEGM must admit the old method was wrong, and that most people disagreed mainly with the methodology. President Britton stated that if peoples' attitude to competence was "trust me," we had a problem. Councillor Hosang felt the Association should step back and just let the task force do its job for now. **Amen.** ■

Tuesday, April 13, 1999

By: A. N. Kempan, P.Eng. (Ret.)

WHERE COUNCIL GLIMPSES THE FUTURE OF PROFESSIONAL COMPETENCE

In the days preceding Council meetings Councillors receive a sheaf of briefing papers to prepare them for the meeting. The April meeting notes were agreeably thin, a portent for a short meeting. This has been the trend in recent months - perhaps due to the efficiency of our Councillors?

The meeting began with what is amusingly referred to as the "Limbo List." In formal language it is know as the Issues and Activities- Bring Forward / Status Report. Actually, it is a very good method of keeping track of items that might otherwise be forgotten. For instance, a warm item from this list was the MOU with the Manitoba Association of Architects. The APEGM representatives serving on the Joint Board with the MAA have advised that they are unable to reach agreement with their counterparts on a proposal to introduce the function of the Registered Coordinating Professional in the design and construction of buildings.

The US Department of Justice isn't the only one having differences with software giant Microsoft. Executive Director Ennis has asked one of our legal counsel for an opinion regarding the use of the title of "engineer" or "professional engineer" by Microsoft Canada. Microsoft uses this language on their Microsoft Certified Systems Engineer (MSCE) certificates. APEGM would like to know if we could successfully invoke an injunction on this terminology under section 64 of the Act.

Councillor Eschenwecker asked Executive Director Ennis if APEGM membership had dropped. Mr. Ennis replied that total numbers hadn't dropped, but there was a shift to retired membership. Councillor Eschenwecker also wondered if we could use e-mail for our newsletter publication to reduce costs. The problem with that, Mr. Ennis said, was that not all members had e-mail and it was difficult to keep track of who had it or not. President Britton thought that using a lower quality paper would be more cost-effective, as some Associations print their newsletters on newsprint.

Next, Council turned to scholarships, namely the APEGM Engineering Entrance scholarships. The criteria for these scholarships needed revisions because the path to enter engineering has changed. Now a student can enter directly from high school or from the University 1 program. This situation requires one scholarship for each path. President Britton noted that there are no more "years" in engineering. Council voted on, and passed, a revised scholarship policy.

Back to the situation at the Memorial University of Newfoundland and their Software "Engineering" course. President Britton prepared a draft letter to the Newfoundland Minister of Education outlining the reasons for APEGM's support for the Newfoundland Association and their stand against the term "Software Engineering." The letter spoke of the necessity of safeguarding the term "engineer" so that the public knew with whom they were dealing. Councillor Ball felt that the MUN Senate should just change the name of the course, while Councillor Eddy jokingly mused that it might be called "Software Architecture." On a practical level, President Britton said that the term "Software Engineer" carried a larger pay cheque, and that's what made it desirable. In addition to APEGM's support of the

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Practice Notes

Fiduciary Responsibility – A Matter of Trust

by: C.R. Bouskill, P.Eng.

The Code of Ethics for the Practice of Professional Engineering and Professional Geoscience stipulates in Canon 3.1 that each practitioner shall "act as a faithful agent and trustee in professional matters for each client or employer" and in Canon 5.1 that each practitioner shall "take care that credit for engineering and geoscientific work is given to those to whom credit is properly due".

In a previous practice note, reference was made to the continuing trend to develop projects on a design/build basis, and to concerns arising from this method of project development.

Over a period of months the Investigation Committee was involved in reviewing a matter with implications of copyright infringement. The matter concerned the development of a design/build project for a large structure for a commercial enterprise. The owner, the commercial enterprise, engaged a consulting engineer to assist it in the development of the parameters and the documents for a Request for Proposal, and to assist it in assessing the Proposals that were submitted. After reviewing the proposals the owner "short listed" the proposals of two of the design/build teams and invited each of these two teams to submit ideas to the owner as to how the project might be modified to reduce the cost of the project. A revised Request for Proposal was subsequently prepared and sent to the two "short listed" contractors inviting them to submit revised proposals.

The primary concern investigated by the Committee was whether the owner's consulting engineer had breached his fiduciary responsibility by incorporating the "intellectual property" of one design/build team into the revised Request for Proposal and thereby providing it to the competing team. Based on the evidence provided, the Committee reached the conclusion that there had been no breach. However, the exercise provided some clear insight into the potential for problems.

Each professional engineer, whether employee or employer, whether engaged in consulting or industry or government or university, is reminded of the responsibility to act as a faithful agent and trustee for each client or employer.

When engaged as a consultant, preparing and administering a design/build Request for Proposal, the professional engineer must take care to ensure that the "intellectual property" of one respondent is not intentionally or inadvertently "given" to a competing respondent. If such "intellectual property" is shared, it must be done only with the written permission of the originator of the "intellectual property" and with appropriate reimbursement and/or acknowledgment of the originator. If this regard for "intellectual property" cannot be respected, it is important that it be so stated in the Request for Proposal.

Respondents to requests for design/build proposals are encouraged to clearly identify their "intellectual property" when submitting a proposal and to maintain clear records of all agreements or understandings regarding such "intellectual property" as the bidding process progresses. ■

Communication With Peers

by: C.R. Bouskill, P.Eng.

Canon 5.6 of the Code of Ethics for the Practice of Professional Engineering and Professional Geoscience stipulates that each practitioner shall "notify a practitioner, as soon as practicable, when giving an opinion on that practitioner's work".

Recently, the Investigation Committee investigated a situation where two professional engineers were involved with the expansion of an existing building. Neither engineer was engaged directly by the owner of the property. Initially, one engineer had been engaged by a drafting service for the structural design of the expansion. Subsequently, the second engineer was engaged by the contractor to redesign the foundation because the owner had decided to incorporate an expanded feature which necessitated a change in the foundation design. The expansion was built by the contractor using the foundation design prepared by the second engineer and the superstructure design prepared by the first engineer, with the exception that one of the support connections in the superstructure was changed on the advice of the second engineer.

When the time came to certify the project for the purpose of obtaining an occupancy permit, a problem arose. The second engineer declined certifying the superstructure as it was not "his" design and he had some concerns about the adequacy of the design. The first engineer was reluctant to certify the superstructure because he had not been advised that the project had "gone ahead" and therefore had not supervised or inspected the project during construction and had not authorized the change to the "support connection". While the permit authority ultimately received the required certification and issued an Occupancy Permit, the owner and the contractor were greatly inconvenienced and put to additional trouble and expense. In the end it was the opinion of the Committee that communication between the two engineers, initiated by the second engineer, would have served the owner better.

Each Professional Engineer is required to notify the other engineer, not only when engaged to undertake an assignment to give an opinion on the other practitioner's work, but also when engaged to undertake work which impinges upon the work of the other practitioner, in order to ensure that the public's interest is served effectively. ■

Working Together for Understanding

Continued from page 5

"earth system" from the atomic scale of the scanning-tunneling microscope and ion microprobe to global networks of seismographs and satellites. From this abundance of data, geoscientists are assembling a comprehensive description of the earth's chemical, geological, and biological history and its current state. This holistic understanding and long-term view is of vital importance for the survival of our species.

The future will provide unparalleled opportunities for engineers and geoscientists to work together for the welfare of the public and the environment. While the Engineering and Geoscientific Professions Act may merely be seen as a dry legal document, I believe it is more than that. It also signifies the geoscientists' important role in the team approach that is needed to solve many of the issues facing society. We thank the engineering heroes of the past while recognizing the limitations of their knowledge, and look ahead to even better informed and sound solutions from "the team." ■

CCPE President's Report

Continued from page 8

to fulfill its statutory obligations to protect the public by ensuring that only fully qualified individuals use the title engineer and practise engineering. Memorial's purported adoption of an official trademark will also make it difficult for APEGN to regulate the use of the term "software engineer."

Equally important, the "software engineering" name issue may only be the tip of the iceberg. If Memorial retains its official trademark on the term "software engineering," the door will be open for others to acquire official trademarks on other engineering-related terms, which would erode the value of an engineering degree and the title engineer.

I encourage all engineers to stand firmly behind APEGN in this fight, and to support your engineering association in the actions it may take in the future to prevent similar situations from occurring in your province. ■

University News

By: B. Stimpson, P.Eng.

The University of Manitoba has achieved a 100 per cent success rate in the latest Canada Foundation for Innovation grant competition for a total of $3.4 million. One grant for $1,524,900 was awarded to a multidisciplinary team of researchers led by Dr. Digvir Jayas, P.Eng., Head, Department of Biosystems Engineering. Together with engineering colleagues Dr. Stefan Cenkowski, P.Eng., Dr. William Muir, P.Eng., and Dr. Qiang Zhang, P.Eng., and entomologists, chemists, and agricultural economists, he will be developing a stored-grain ecosystem facility for grain storage. The grant will help towards the cost of infrastructure to support this world-class facility at the University of Manitoba's agricultural engineering building. The goal is to develop cost-effective methods to control and prevent infestation of stored grain, thus enhancing Canada's reputation as a supplier of high-quality grain and strengthening the ability of Canadian companies to sell their post-harvest expertise and services world wide. It is estimated that rodents, insects, heat and other factors during storage can result in 20-30 per cent grain loss, which means the quality of grain can be downgraded and the selling price drops.

Department of Civil and Geological Engineering

ISIS Canada, under the leadership of Dr. Sami Rizkalla, P.Eng., has been awarded the 1998 Sustainable Development Award of Excellence in the category of Research and Development. The award, presented by Premier Gary Filmon, was in honour of research related to the Taylor Bridge Project.

Six students (M. Morris, M. St.Laurent, R. Wong, B. Flisak, T. Dick and J. Blatz) have been awarded NSERC Postgraduate Fellowships. Four other students (M. Thiessen, X. Zeng, T. Mohamed, and A. Man) were successful in the recent UM Fellowship competition.

The following professors received a total of $628,000 for the period 1999-2003 from the 1998 NSERC Operating Grants Competition: J. Doering, P.Eng., J. Graham, P.Eng., E. Lajtai, P.Eng., N. Rajapakse, P.Eng., S. Rizkalla, P.Eng., and C. Valeo, EIT.

Engineering Infrastructure for the 21st Century

On February 19, 1999, the University of Manitoba hosted the first annual conference entitled "Engineering Infrastructure for the 21st Century: Impact on the Construction Industry". The one day conference which attracted 145 participants from over 50 different organizations, was sponsored by NRC-IRAP, The Industry Liaison Office of The University of Manitoba, The Department of Civil and Geological Engineering, The Faculty of Engineering, ISIS-Canada, and Manitoba Hydro.

The Conference's objective was to provide an overview of the current and advancing technologies in the practice of repair, maintenance, and rehabilitation of civil infrastructure. There were seven speakers in this conference presenting various aspects of infrastructure renewal:

- Mr. Gordon Walt, P.Eng., Executive Director, Canada's Construction Technology Network, Ottawa

  Innovation and Technology Transfer in the Construction Industry
- Mr. Chris Lorenc, B.A., LL.B., President, Manitoba Heavy Construction Association, President, Infrastructure Council of Manitoba

  Winnipeg's Infrastructure: A Challenge for the Government and the Industry
- Mr. David Goss, Director, Build Up Greater Cleveland, Infrastructure and Transportation for the Greater Cleveland Growth Association, Cleveland, Ohio

  Public Works Infrastructure: Preservation, Challenges, and Innovation in the United States.
- Dr. Guy Felio, P.Eng., Project Manager, National Technical Guide for Municipal Infrastructure, NRC/IRC, Ottawa

  Infrastructure Renewal in Canada
- Dr. Don Whitmore, P.Eng., Chairman of the Board of Directors, ISIS-Canada

  From Research to Application: The University's Role in Infrastructure Renewal
- Dr. Dimos Polyzois, P.Eng., Professor, Department of Civil and Geological Engineering, University of Manitoba

  Infrastructure Renewal and Research at the University of Manitoba.
- Mr. James Downey, MLA, (Arthur-Virden)

  Keynote Address: The Role of Government in Infrastructure Renewal Research and Technology Transfer. ■

Professional Development Programs for Engineers at The University of Manitoba

By: M. Elias, Director of Continuing Education for the Professions, U of M

Professional Development Programs for Engineers, is a joint venture between the Faculty of Engineering and the Continuing Education Division (CED) at the University of Manitoba and the Association of Professional Engineers and Geoscientists of Manitoba. These programs are intended to develop ongoing professional-development programs related to the field of engineering. Programs will be designed to meet the needs of experienced engineers and other technical professionals in business, industry, and private consulting.

Programs will address the problems and responsibilities that arise in engineering practice and provide a means for professionals to keep current. Professional development opportunities will provide the latest information on technological advances, ideas and information that can be applied immediately.

The Continuing Education Division, in consultation with the Faculty of Engineering, has recently become a partner with the Engineering Institute of Canada (EIC) in their work to improve professional-development opportunities for engineers across the country. The EIC criteria, worked out with professional associations across Canada, allow a broad range of continuing education activities and delivery modes. For example, activities related to project management or other areas of engineering management are fully appropriate.

Because we work with a wide variety of adult learners, many of whom are working full-time already, CED is involved in delivering continuing-education programs in many different ways. Our programs are held on- and off-campus, face to face, and a variety of distance education forms – audio tapes, video tapes, and web-based applications. We are also moving increasingly into self-directed study models in which learners may shape both the content they wish to study and the way they wish to study it.

In all these formats, our first commitment is to designing programs of study that meet the diverse needs of learners.

We want to hear from you

What are your professional development needs?

Before programs are developed and delivered we want to hear from you regarding your professional-development needs. Let us know:

- topics you are interested in;
- format you would like: face-to-face; 1-3 days, evenings, weekends; distance education, tapes, web-based, etc.;
- preferred location;
- anything else you think would help us design programs to meet your needs;
- if your personal professional-development needs are different from the needs of your business, provide examples/explanation.

Mail, fax, phone, or e-mail your comments to: Mary Peterson Elias, Director, Continuing Education for the Professions, 166 CE Complex, The University of Manitoba, Winnipeg, MB R3T 2N2; phone 474-9923; fax 474-7660 **m_elias@umanitoba.ca** ■

On The Brink of Explosion?

The following Convocation Address was given to University of Manitoba graduates on October 22, 1998 by Ed Kuiper (Professor Emeritus), on the occasion of receiving an honorary Doctor of Science Degree. Professor Kuiper is well-known to graduates of the Civil Engineering Program, University of Manitoba, where he taught for many years, and for his involvement in water resources development and flood protection.

"All of what I am going to tell you, you know already, but I'll try to present it in a way that puts a different perspective on the world around us.

Let's suppose that I have in front of me ten volumes of 500 pages each describing the history of this world with equal space given to equal time. We have been told the world is five billion years old. Since there are five thousand pages in our encyclopedia, one page describes one million years.

Life on earth began somewhere in volume five. First it is in the form of phytoplankton in the sea; then zooplankton that eats the phytoplankton and so on. Slowly life begins to evolve. Mammals appear in the last volume and homo sapiens are described in the last lines of the last page.

Now the twentieth century is an element of time that we can comprehend. You were born in the twentieth century and so were your parents and probably your grandparents. Three generations in one century. That element of time is represented by the last period after the last word on the last page of the last volume of history. The twentieth century is only a tiny sliver in terms of the evolution of life on earth.

In this sliver of time tremendous changes have taken place. Even more remarkable is that the rate of change is accelerating. Scientific knowledge, measured in terms of the total volume of publications, used to double in hundreds of years. Now it doubles in six. Technological hardware is produced in ever growing quantities. Computer capability is growing so fast that anything over five or ten years is obsolete.

Let's combine these thoughts – the twentieth century is only a tiny sliver of time, but in this time tremendous changes have taken place and the rate of change is accelerating. Those are the elements of an explosion – an explosion in terms of world evolution time.

One of the characteristics of an explosion is that once it is underway, you do not have much control over it. That begs the question – do we have control over the changing panorama of the twentieth century? Let us see what signals we are getting from the world around us.

When I was born, the world population was about two billion. Now it is around six billion and increasing at the rate of nearly 100 million per year. There is general consensus that this is undesirable, but we seem to have no control over the situation.

As a result there is a tremendous pressure on our resources. The non-renewable resource like oil, coal and metals will be gone before another line is written in our world-history book. Even the so-called renewable resources, like forests, topsoil and water are being dangerously degraded. Every year about one per cent of the world's forest disappear with most of the life that it contains. This is partly responsible for the fact that every day more than 100 species of animals and plants become extinct. We do not want that but we seem to have no control over the situation.

We can read that the oceans are being over-fished. The combined fishing fleets of the world, with all their newest technology, have twice the capacity of the sustainable yield. To make matters worse, every day some five new chemicals enter the marketplace, of which four have unknown environmental consequences and all of them will eventually wind up in the ocean. We realize that we should not do all these things, but they seem to be beyond our control. In the fall, Maclean's magazine devoted an issue to the oceans. They wrote "evidence points to an alarming conclusion – the sea, the cradle of life, is dying."

Let's look at the climate. It appears to be changing – things are warming up. That would be fine in Winnipeg, but it may cause havoc elsewhere. There is strong suspicion that it has been triggered by man-made activities. Politicians meet in Rio and in Kyoto and make solemn pledges that their countries will do something about it. Then they return home, run into opposition and do nothing. Can we draw any other conclusion that the situation is beyond control?

What would an individual do when he discovers that he is going too fast, that he is losing control and that there are dangers ahead? He would slow down. So what should we do, collectively, in the present situation? Should we not also slow down? Slow down so that we can gain time to think where we want to go and to evaluate the consequences of going there. Slow down so that we gain time to let our moral and spiritual development catch up with our scientific and technological development. I firmly believe that mankind will only survive if we get these two in balance with one another. And slow down so that we gain time to enjoy life. We have by now enough scientific and technological development to combine a simple lifestyle with lots of free time.

So, my message to you, upon entering the twenty-first century is this – consider abandoning our feverish pace of the twentieth century. Abandon our lifestyle of racing around all day from meeting to meeting and then on Friday night racing in our suburban 4x4 to our cottage at the lake and racing around all weekend in our Sea-do's like mindless insects, burning up resources and spoiling the environment.

Instead, paddle your canoe, so to speak, and look at the water lilies and the animals and contemplate the meaning of life. You may not find the answer to that quest, but you may find peace of mind; and a thousand years from now, mankind will be grateful to you for having prevented this explosion of the twentieth century from doing too much harm.

I wish you good luck." ■

April Council Meeting

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Newfoundland Association's position, APEGM will meet with provincial politicians to explain our stand.

Director of Admissions, Shirley Matile, spoke to Council on the need to revise the Manual of Admissions. Through the years, policy and procedures have become unwieldy. Under the gospel according to Dr. Carver, policy, the jurisdiction of Council, should be separate from procedure – the jurisdiction of APEGM management. Council approved the rewrite and asked that there be an attempt to differentiate policy and procedure while performing this task.

On a subject near and dear to the hearts of many, professional development, Councillor Eschenwecker gave an animated and enthusiastic talk on the progress of his Committee. They had met three times and were making good progress. Councillor Eschenwecker also spoke of his discomfort when confronted by members who accused him of merely resurrecting the old, defeated, and discredited MPDP program. This was the furthest thing from the truth, said Mr. Eschenwecker. The Committee worked with the objective that they were to recommend a process that will demonstrate to the public due diligence on the part of the Association in assuring appropriate competence and ethical behaviour of its members – and one which will be accepted by the membership. They were working towards a model, and when that was achieved they would consult the membership for feedback. Mr. Eschenwecker said that the Committee worked by consensus, which meant that they did not vote on issues but discussed them until agreement was achieved. President Britton expressed his pleasure with the Committee's progress.

Under the bylaws of the APEGM, members have the right to appeal directly to Council when they are liable for de-registration for non-payment of fees – which can happen when a member misses the fees deadline. Council considered six requests under this provision. What's interesting here is the diverse responses from members in this situation. There are those that simply admit error and wish to be re-instated according to the rules. There are those who have a legitimate excuse, as in the case of a member whose cheque bounced because the APEGM office held the cheque for three weeks before cashing it. There are those who failed to receive a dues notice through a failure of the postal system. Lastly, there are those who missed the deadline but expect special treatment, and when they don't get it write "Stuff it" on their cheque, as did one very mature member from Alberta. ■